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BENJAMIN J. CAYETANO  
GOVERNOR

February 1, 1995

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To: \_\_\_\_\_  
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- Equip. Serv. Br. \_\_\_\_\_

TO: Eugene Imai, Comptroller  
Department of Accounting and General Services

SUBJECT: Final Environmental Impact Statement Acceptance for the Kona Civic Center, North Kona, Island of Hawaii

I am pleased to accept the Final Environmental Impact Statement for the Kona Civic Center, North Kona, Island of Hawaii as satisfactory fulfillment of the requirements of Chapter 343, Hawaii Revised Statutes. This environmental impact statement will be a useful tool in the process of deciding if the action described therein should be allowed to proceed. My acceptance of the statement is an affirmation of the adequacy of that statement under the applicable laws but does not constitute an endorsement of the proposed action.

When the decision is made regarding the proposed action itself, I expect the appropriate legislative bodies and governmental agencies to consider if the societal benefits justify the economic, social and environmental impacts which will likely occur. These impacts are adequately described in the statement which, together with the comments made by reviewers, provides useful analysis of the proposed action.

*Benjamin J. Cayetano*  
BENJAMIN J. CAYETANO

c: Lawrence Miike

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SELECTION STUDY

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# KONA CIVIC CENTER

SITE SELECTION STUDY/  
FINAL ENVIRONMENTAL IMPACT STATEMENT

Proposing Agency:  
State of Hawaii  
Department of Accounting and General Services

Prepared By:  
DPD Associates, Inc.

---

August 1994

# KONA CIVIC CENTER

## SITE SELECTION STUDY/ FINAL ENVIRONMENTAL IMPACT STATEMENT

This document has been prepared pursuant to Chapter 343,  
Hawaii Revised Statutes

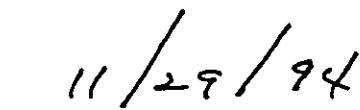
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Department of Accounting and General Services

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ROBERT P. TAKUSHI, State Comptroller

  
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Date

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## PREFACE

This document incorporates the methods and results of a Site Selection Study and a final Environmental Impact Statement (EIS) which were prepared for the proposed Kona Civic Center. The Site Selection Study was undertaken to identify, compare, and evaluate candidate sites for the proposed civic center. The Site Selection Study does not purport to recommend a preferred site; it identifies the relative advantages and disadvantage of the candidate sites to facilitate decision-making. The EIS portion of this document was prepared to determine the impacts to the human environment that would result from the proposed project. The EIS was prepared pursuant to the requirement of Chapter 343, Hawaii Statutes, and Chapter 200 of Title 11, Hawaii Administrative Rules, Department of Health, "Environmental Impact Statement Rules."

**CHAPTER 1.0 INTRODUCTION AND SUMMARY**

## 1.0 INTRODUCTION AND SUMMARY

### 1.1 Brief Project Summary

This document incorporates the methods and results of a Site Selection Study and a draft Environmental Impact Statement (EIS) which were prepared for the proposed Kona Civic Center. The Site Selection Study was undertaken to identify, compare, and evaluate candidate sites for the proposed civic center. The Site Selection Study does not purport to recommend a preferred site; it identifies the relative advantages and disadvantages of the candidate sites to facilitate decision-making. The EIS portion of this document was prepared to determine the impacts to the human environment that would result from the proposed project.

The State of Hawaii proposes to construct a new Kona Civic Center closer to Kailua-Kona. The complex is proposed to include the Judiciary, a correctional facility, a State office building and possibly a senior center and a library. This new civic center within the Keahole to Kailua area will essentially create a second economic center, thereby guiding the anticipated growth of the Kailua area. The proposed civic center is expected to serve the West Hawaii region.

The projected land area requirement for the proposed Kona Civic Center development is a minimum of thirty (30) acres. This requirement is expected to accommodate the building needs, open space, landscaping, parking and future expansion needs of the proposed civic center development, which incorporates the five basic functions/facilities mentioned above.

## 1.2 Significant Beneficial and Adverse Impacts

Impacts to the physical environment, natural environment, infrastructure, socioeconomic environment and public services will result from the development of the proposed project. Adverse impacts will be mitigated where possible.

### 1.2.1 Short-Term Impacts

- An increase in surface water runoff due to the increase of impervious surface conditions, such as paved roadways and roofs.
- Construction vehicle activity will increase automotive pollutant concentrations as well as particulate emissions from vehicular movement on un-paved roads.
- Increase in fugitive dust emission from on-site soils.
- Adverse impacts from construction noise are not expected to be in the "public health and welfare" category due to the temporary nature of work and administrative controls available for its regulation.

### 1.2.2 Long-Term Impacts

- Potential impacts on surface and groundwater may occur due to the possible leaching of chemicals, such as fertilizers, pesticides and petroleum, into the groundwater.
- Permanent changes to the topography of the area due to grading and site improvements.
- Decrease in air quality due to an increase in density and human activity.
- Potentially significant traffic noise effects are related to future volume along Queen Kaahumanu Highway, the proposed Mid-Level Road and other proposed collector roads.
- Permanent changes to scenic characteristics of the site.
- Potential loss of certain plant species.
- Limited habitat and resources will be removed or displaced from the development areas.

- Development of the site has the potential to disturb or destroy significant archaeological/historical sites, in particular at Site 1 and Site 3.
- Although minimal, development of this project will have an impact to the overall water supply system in this area.
- The traffic growth trends are likely to continue, given the anticipated population and tourism growth, as well as vehicular movement to and from the proposed civic center.
- The impact of the civic center development on the existing health care facilities is considered to be cumulatively adverse in combination with anticipated residential and commercial development that the civic center will attract.
- Development of the Kona Civic Center will place additional demands on existing police and fire services.



### 1.3 Summary of Proposed Mitigation Measures

Mitigation measures to reduce environmental, infrastructure and socioeconomic impacts as well as infrastructure impacts will be implemented as necessary. The following mitigation measures address both short-term and long-term impacts:

- Proper design and construction of a drainage system in compliance with applicable State and County regulations and codes would be necessary to decrease potential adverse impacts to the groundwater and drainage.
- The use of U.S. Environmental Protection Agency (EPA) and State Department of Health (DOH) approved insecticides which are to be applied by licensed applicators, the use of slow, time-release or rapid uptake fertilizers will also mitigate the potential adverse impacts.
- Adherence to building codes and standards, and the inclusion of a civil defense warning system and an evacuation plan to address natural hazard concerns.
- Impacts on air quality can be regulated by strict adherence to State air pollution control standards.
- Adequate setbacks or other noise attenuation measures (berms and walls) will be integrated into the project design.
- To minimize the degree of impact to the scenic characteristics of the site, the time that rock and bare soil are exposed should be limited; landscaping at an early stage of construction should be implemented; and design utilizing the existing site terrain as much as possible.
- Native plants will be used as landscaping materials whenever possible.
- ✓ ● A reconnaissance survey of the project site will identify rare and endangered plant and animal species to guide development away from the plant and animal habitats.
- ✓ ● The appropriate level of archaeological work will be performed to recover the significant data present which has the potential to preserve the valuable archaeological information. Archaeological/historical remains which have only limited significance in terms of potential research could be preserved and included in the landscaping of the civic center project area.

- The development of the water source, transmission lines and storage reservoirs will be necessary. If development of a new water supply system is necessary the probable impacts may be mitigated by compliance with all applicable regulations and codes.
- Impacts on the existing roadway system from any site location along Queen Kaahumanu Highway would be mitigated through planning and design of Queen Kaahumanu Highway and coordination with roadway implementation of the various related projects in the study area.
- Market demand for additional health care facilities will dictate future expansion in private and public sector medical services requirements.
- Demands on County police services at Kailua-Kona will be partially offset by on-site security personnel and nightwatch services.
- The civic center design will comply with all applicable County fire requirements and building code provisions.

#### 1.4 Summary of Alternatives Considered

In addition to the "no action" alternative, development of the project can be scaled down with only a portion of the proposed functions being developed. Although this alternative would incur a consolidation of certain, but not all, government functions, it again does not provide an efficient use of facilities for users. In addition, certain off-site infrastructure costs including roadway improvement, potable water development and wastewater development might be borne by the State regardless of the size of the project. Reducing the size of the project may result in an increase of the unit cost of the development.

## 1.5 Summary of Unresolved Issues

The proposing agency is aware of the many questions and public concerns at this time regarding the proposed project. As one of the objectives of this report is to identify and evaluate potential candidate sites, no final site has been determined to date. Until a final site is selected, the following list of issues will require further study at appropriate stages of project planning and review.

### 1.5.1 Flora

Since different site locations support different vegetation, possibility of the site containing rare species may vary from site to site. Any planning for development should be preceded by a moderately intense botanical survey for rare species.

### 1.5.2 Archaeological/Historical

Although cursory field inspection and available records in the State Historic Preservation Division files suggest that the presence of significant archaeological sites is unlikely for Sites 4 and 5, archaeological inventory surveys would be required to determine the presence of significant historic sites if either site is selected. If significant historic sites are present, then a mitigation plan covering data recovery and/or in place preservation will also have to be submitted to the State Historic Preservation Division for review and concurrence.

### 1.5.3 Roadway Improvements

Timing of improvements to Queen Kaahumanu Highway, including the intersection improvements and the upgrade to a fully-access controlled highway, in response to cumulative traffic volumes generated by this proposed project as well as other proposed development in the Keahole to Kailua areas will need to be assessed by the State Department of Transportation.

**1.6 Summary of Compatibility with Land Use Plans and Policies**

The proposed project is consistent with the Hawaii State Plan, State Functional Plans, State Land Use Designation, West Hawaii Regional Plan, Coastal Zone Management Act, County General Plan, Keahole to Kailua Development Plan, County Zoning and Underground Injection Control.

### 1.7 Necessary Permits and Approvals

The following is a list of major approvals and permits required for the implementation of the proposed project. Additional permits and approvals may be necessary. In addition to the State Land Use Commission approval for redesignating land use districts, the State will seek necessary State and County approvals for the development of the project.

| <u>Permit or Approval</u>        | <u>Authority</u>                    |
|----------------------------------|-------------------------------------|
| Conservation District Use Permit | Board of Land and Natural Resources |
| Land Use Boundary Amendment      | State Land Use Commission           |
| Change of Zoning                 | Hawaii County Planning Commission   |
| Special Management Area Permit   | Hawaii County Planning Commission   |
| Building and Grading Permits     | Hawaii County Planning Department   |

**CHAPTER 2.0 PROJECT DESCRIPTION**

## 2.0 PROJECT DESCRIPTION

### 2.1 Study Purpose

The State Legislature has appropriated funds for a site selection study and preparation of an Environmental Impact Statement. This study represents the State's initial efforts in the development of Kona Civic Center by:

- (1) Identifying and evaluating potential candidate sites.
- (2) Assessing environmental impacts that would result from the development of the general candidate site areas.



## 2.2 Present Conditions

The existing Judiciary, police headquarters, police substation, and State offices serving the North and South Kona districts are housed at different locations in Kailua, Kealahou and Captain Cook. The present situation does not facilitate coordination between the different State and County agencies as well as provide an efficient use of government facilities by users.

### JUDICIARY

The Kona Division District Court, which serves both the North and South Kona districts, is presently located in Kealahou at the old North Kona hospital facility. Located on inclined terrain, the building is a wood frame, two-story structure that was a public works project completed in 1939. The Judiciary has occupied the building since 1985 and shares the facility with the Department of Health. The present Judiciary facility is comprised of space for the following: District Court Office and Traffic Violations Bureau, District Court Room, District Probation Service, Circuit Court Room, Circuit Court Office, and a printing room.

The Department of Health occupies the remaining half of the building with the following offices and services: Day Hospital, Vector Control, Sanitation, Mental Health, Children's Group Area, Renal Analysis, Building Permits, Pollution Investigation/Enforcement, Day Hospital Kitchen, Work Shop, Library, Storage and Equipment, and a small dispensary.

A common bi-level parking area provides a total of seventy-nine (79) stalls and one handicap stall. The facility is handicap accessible.

### KONA CIVIC CENTER

The existing Kona Civic Center is located in Captain Cook and is comprised of the police headquarters and several structures housing various State departments. Consisting of mostly one-story buildings, the complex is situated on inclined terrain and is divided into an upper and lower level. Each level has its own parking area and is handicap accessible.

Housed within the lower level structures of the civic center complex are the following State agencies: the Department of Agriculture which includes the Farm Loan Offices, Pesticides Branch, Coffee Inspection Laboratory, and Division of Plant Industry, Measurement Standards Division; the Department of Taxation; and the Department of Land and Natural Resources. Police headquarters for the Kona districts is located in a separate facility adjacent to the State offices. The State offices and the police department share the lower parking area comprised of thirty (30) stalls.

Two separate structures located at the upper level are occupied by the Department of Human Services, which includes the Public Welfare Division, Vocational Rehabilitation, and Services for the Blind. The structure which presently houses the offices of Human Services was previously occupied by the Judiciary. The adjacent parking area has a total of fifty (50) stalls and two designated handicap stalls.

#### POLICE

As mentioned in the preceding paragraph, police headquarters are located in Captain Cook at the existing Kona Civic Center site. A smaller substation is located north of the town of Kailua next to the existing Kailua Landfill. Noxious emissions from the existing landfill are very noticeable from the police substation. These emissions have been reported to affect the officers working at the substation and can also be detected further mauka at the elementary school.

#### LIBRARY

A library which recently opened in February 1992, is located within Kailua town. Although not a regional library, it serves between 400 and 500 people per day. Both residents and tourists use the library facility. The parking lot has a total of twenty-three (23) stalls and two designated handicap stalls.

### 2.3 Project Need

North Kona is the fastest growing district in Hawaii County. Between 1970 and 1990 the North Kona district grew twice as fast as South Kona and 2.4 times as fast as the County of Hawaii. North Kona is expected to retain its significant lead in population growth over the other districts in West Hawaii. While North Kona is expected to increase its share of West Hawaii's total population by the year 2020, South Kona is expected to have a lesser percentage of the regional population by 2020. Based on population distribution projections for West Hawaii, the current location of the Kona Civic Center in South Kona is not an appropriate long-term location for a new regional facility.

#### JUDICIARY

Prior to 1985, the Kona Division District Court was located at the present Kona Civic Center in Captain Cook. The Judiciary outgrew those facilities and, therefore, was relocated some distance from the existing police headquarters and detention facilities. Present facilities for the Judiciary are inadequate since the old Kona Hospital building in which it is currently sharing space with the Department of Health was initially designed to accommodate hospital functions. Only half of the building is used specifically for judiciary functions including courtrooms, offices, and related activities. There is a common parking lot with seventy-nine (79) marked stalls and one designated handicap stall. Proximity to the Department of Public Safety and a secure holding area for persons awaiting trial are two expressed needs of the Judiciary.

#### POLICE HEADQUARTERS

Police services for the North and South Kona areas are provided by the Hawaii County Police Department from its new substation at Kealakehe. The new police substation is located just north of Kailua and next to the existing landfill. Noxious emissions from underground burning at the landfill site do affect the police substation. There is a need for an expanded police facility including detention facilities and proximity to the Judiciary.

#### STATE OFFICES

State departments such as the Departments of Agriculture, Taxation, Land and Natural Resources, and Human Services are currently housed at Captain Cook. The existing facilities are inadequate when considering the rapid growth of Kailua-Kona. The present Kona Civic Center site in Captain Cook consists of steep terrain with limited expansion possibilities. Because coordination between State agencies is necessary for an efficient government, a building complex that includes multiple State agencies is needed.

#### 2.4 Proposed Project

The State of Hawaii proposes to construct a new Kona Civic Center closer to Kailua-Kona. The complex is to include the Judiciary, a correctional facility, a State office building and possibly a senior center and a library. This new civic center within the Keahole to Kailua area will essentially create a second economic center, thereby guiding the anticipated growth of the Kailua area. The proposed civic center is expected to serve the West Hawaii region.

By consolidating the previously mentioned State functions at one specific site, the proposed civic center will facilitate visits that include more than one State agency. The addition of the senior center and the library will provide social and educational benefits to the Kailua community which will be increasingly important as the population of the area grows. The relocation will most likely provide accommodations for heavy vehicular traffic created by this multi-use facility. It is anticipated that private commercial and related industries will be attracted to areas neighboring the civic center.

## 2.5 Civic Center Development Requirements

### 2.5.1 PROGRAM REQUIREMENTS.

The Kona Civic Center is expected to accommodate a State office building, a correctional facility, a judiciary building, a library, and a senior center. The requirements for each function/facility are described in the following paragraphs.

#### STATE OFFICE BUILDING

The State office building should include most State agencies, and, at a minimum, contain offices similar to those existing at the civic center at Captain Cook.

#### CORRECTIONAL CENTER

The correctional center will accommodate a single-occupancy population of ninety-eight (98) inmates. There should be adequate facilities for both male and female inmates. It has been suggested that the correctional facility be connected to the judiciary building in such a manner that security is not compromised. The correctional facility must also be secure and have some aesthetic quality.

#### JUDICIARY BUILDING

The judiciary needs to accommodate a total maximum staff of eighty (80) persons. Facilities, especially parking, must accommodate between 300 and 500 visitors per day. A holding area for persons awaiting trial should be included in this facility.

#### LIBRARY

The library should incorporate similar functions to those of the new library facility at Kailua Village. The existing library has a staff of about fifteen (15) persons and a daily visitor count of between 400 and 500 persons.

#### SENIOR CENTER

A senior center can provide multi-purpose meeting facilities for various community, cultural and festive functions.

### 2.5.2 LAND REQUIREMENT.

The projected land area requirement for the proposed Kona Civic Center development is a minimum of thirty (30) acres. This requirement is expected to accommodate the building needs, open space, landscaping, parking, and future expansion needs of the proposed civic center development, which incorporates the five basic functions/facilities mentioned in the preceding section.

### 2.5.3 DEVELOPMENTAL SCHEDULE.

The project will consist of relocating existing State functions to the new facility. The project schedule will be affected by the amount of time required to acquire the land (if on private land), to obtain funding and completion of the master plan, design and construction of the project. Other considerations which will impact the development schedule are compliance with the Environmental Impact Statement requirements and the process of acquiring necessary government permits.

**CHAPTER 3.0 PROJECT SETTING**

### 3.0 PROJECT SETTING

#### 3.1 Regional Overview

The Island of Hawaii is the largest and southeasternmost island in the Hawaiian archipelago. Often referred to as "The Big Island", the Island of Hawaii has a land area of 2,582,582 acres, or nearly twice the combined area of the other major islands. The Big Island has two other nicknames - the "Orchid Isle" and "Volcano Isle" - for its thriving orchid industry and active volcanoes. (See Figure 1).

Hawaii is an island of diverse natural splendor: rain forests, white sand and black sand beaches, jungle, lava fields reaching the sea, snow-capped volcano summits, dusty ranchlands, tropical gardens, active volcanoes, and the only coffee grown in the United States. On the Big Island, one can find Mauna Loa volcano (measuring 13,797 ft. above sea level) and South Point, the southernmost point in the United States. The west coast of the island is characterized by rapid growth and a faster pace of life due to world-class resorts and international golf courses which attracted close to a million tourists in 1990. By comparison, the east coast is quieter and moves at a slower pace.

The city of Hilo, located on the east coast of the Big Island, is the seat of County Government and the only metropolitan area on the island. It functions as the island's industrial, commercial, distribution and population core. In 1990, Hilo had over thirty percent or 37,808 of the total 120,317 resident population of the island. Kailua-Kona is the next largest census designated place with 9,126 residents, followed by Waimea with 5,972 residents.

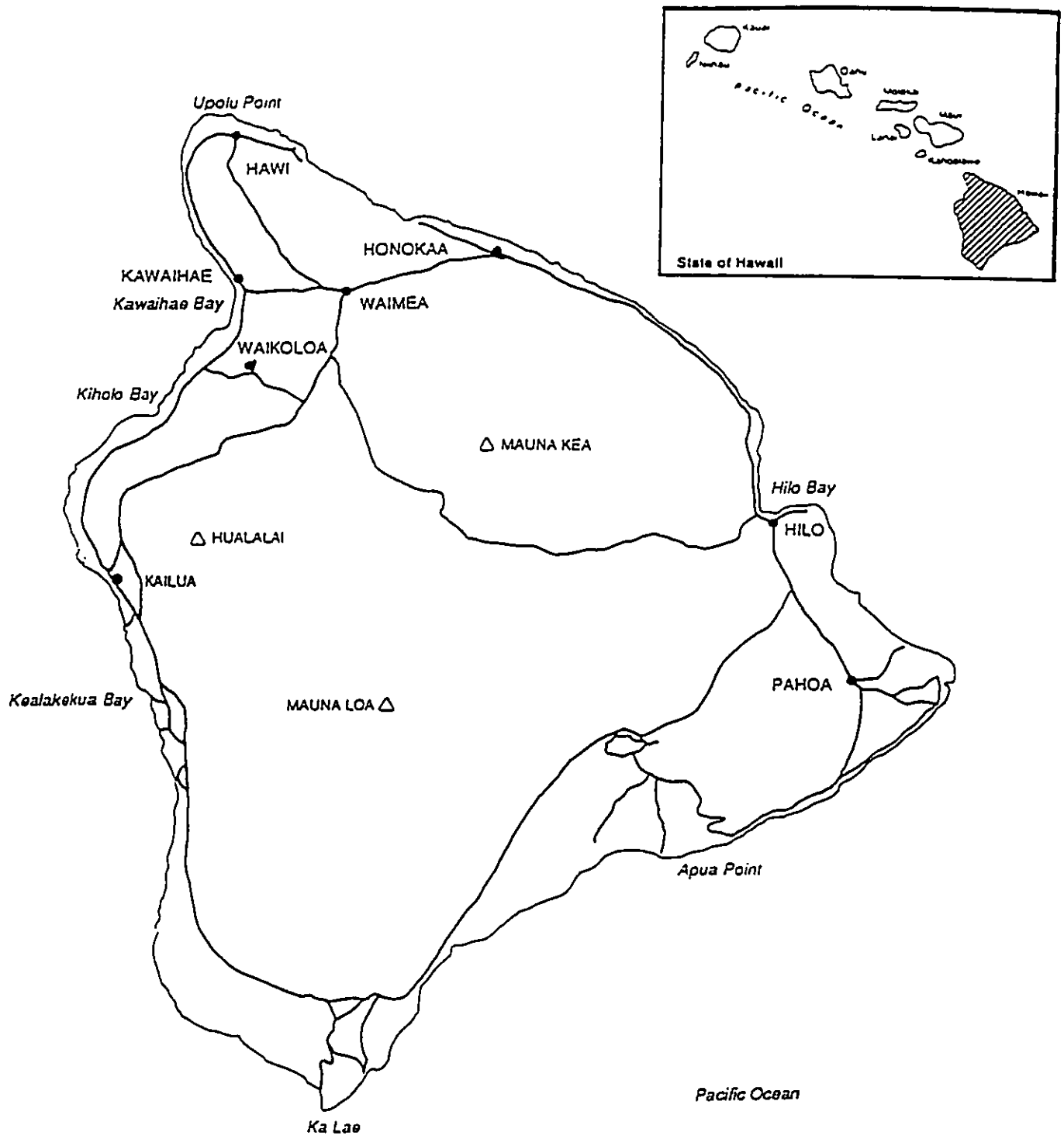
Tourism, sugar, and diversified crops are the principal industries of the Big Island. Commercial fishing and aquaculture are new industries which are limited to deep water coastal areas such as Keahole Point. Manufacturing, research and development, and various secondary industries such as construction, government, utilities, professional services, etc. also contribute to the island's economy.

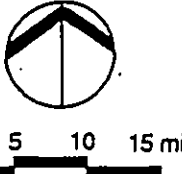
Hawaii Volcanoes National Park located near the southern portion of the island is the single most popular attraction of the Big Island. Visitor accommodations are significant only in the South Kohala to North Kona region in West Hawaii. Therefore, the visitor industry centers are located on the western part of the Big Island in the Kailua-Kona area and in Waikoloa Village and Waimea.

Diversified crops (non-sugar, non-pineapple) include coffee, macadamia nuts, oranges, papayas, vegetables, orchids, and anthuriums. Hawaii County accounts for approximately one-third of the sugar produced in the State of Hawaii, all of the coffee grown, most of the macadamia nuts, and varying percentages of other crops and livestock.

The project area is located in West Hawaii and extends north of Kailua-Kona to Keahole Airport.





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| <p>KONA CIVIC CENTER<br/>Site Selection Study/EIS</p> <p>DAGS Job No. 11-21-4080</p> | <p><b>Figure 1</b>    <b>Island of Hawaii</b></p> |  <p>0    5    10    15 mi</p> <p>prepared by:<br/>DPD Associates, Inc.</p> |
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## 3.2 Land Use Plans, Policies and Controls

### 3.2.1 HAWAII STATE PLAN.

The Hawaii State Plan serves as a guide for future long-range development of the State by identifying goals, policies, and priorities. The five basic functions of the civic center--the judiciary, correctional facility, library, senior center, and State offices--identified in the scope of work are consistent with the following objectives and policies:

#### POPULATION

"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. To achieve the population objective, it shall be the policy of this State to: Manage population growth statewide in a manner that provides increased opportunities for Hawaii's people to pursue aspirations while recognizing the unique needs of each County and; Encourage an increase in economic activities and employment opportunities on the neighbor islands consistent with community needs and desires."

#### SOCIO-CULTURAL ADVANCEMENT - CULTURE

"Planning for the State's socio-cultural advancement with regard to culture shall be directed towards achievement of the objective of enhancement of cultural identities, traditions, values, customs, and arts of Hawaii's people. To achieve the cultural objective, it shall be the policy of this State to: Foster increased knowledge and understanding of Hawaii's ethnic and cultural heritages and the history of Hawaii; Support activities and conditions that promote cultural values, customs, and arts that enrich the lifestyles of Hawaii's people and which are sensitive and responsive to family and community needs; Encourage increased awareness of the effects of proposed public and private actions on the integrity and quality of cultural and community lifestyles in Hawaii; Encourage the essence of the aloha spirit in people's daily activities to promote harmonious relationships among Hawaii's people and visitors."

#### SOCIO-CULTURAL ADVANCEMENT - EDUCATION

"Planning for the State's socio-cultural advancement with regard to education shall be directed towards achievement of the objective of the provision of a variety of educational opportunities to enable individuals to fulfill their needs, responsibilities, and aspirations. To achieve the education objective, it shall be the policy of this State to: Ensure the provisions of adequate and accessible educational services and facilities that are designed to meet individual and community needs and; Provide appropriate educational opportunities for groups with special needs."

#### SOCIO-CULTURAL ADVANCEMENT - GOVERNMENT

"Planning the State's socio-cultural advancement with regard to government shall be directed towards the achievement of the following objective: Efficient, effective and responsive government services at all levels in the State. To achieve the government objective, it shall be the policy of the State to: Provide for necessary public goods and services not assumed by the private sector; Pursue an openness and responsiveness in government that permits the flow of public information, interaction, and response; Minimize the size of government to that necessary to be effective and; Promote the consolidation of State and County governmental functions to increase the effective and efficient delivery of government programs and services and to eliminate duplicative services wherever feasible."

**SOCIO-CULTURAL ADVANCEMENT - LEISURE**

"Planning for the State's socio-cultural advancement with regard to leisure shall be directed towards the achievement of the objective of the adequate provision of resources to accommodate diverse cultural, artistic, and recreational needs for present and future generations. To achieve the leisure objective, it shall be the policy of this State to: Provide a wide range of activities and facilities to fulfill the cultural, artistic, and recreational needs of all diverse and special groups effectively and efficiently and; Assure the availability of sufficient resources to provide for future cultural, artistic, and recreational needs."

**SOCIO-CULTURAL ADVANCEMENT - PUBLIC SAFETY**

"Planning for the State's socio-cultural advancement with regard to public safety shall be directed towards the achievement of the following objectives: Assurances of public safety and adequate protection of life and property for all people; and Optimum organizational readiness and capability in all phases of emergency management to maintain the strength, resources, and social and economic well-being of the community in the event of civil disruptions, wars, natural disasters, and other major disturbances. To further achieve public safety objectives related to criminal justice, it shall be the policy of this State to: Support criminal justice programs aimed at preventing and curtailing criminal activities and; Provide a range of correctional resources which may include facilities and alternatives to traditional incarceration in order to address the varied security needs of the community and successfully reintegrate offenders into the community."

**SOCIO-CULTURAL ADVANCEMENT - SOCIAL SERVICES**

"Planning for the State's socio-cultural advancement with regard to social services shall be directed towards the achievement of the objective of improved public and private social services and activities that enable individual, families, and groups to become more self-reliant and confident to improve their well-being. To achieve the social service objective, it shall be the policy of the State to: Promote coordination and integrative approaches among public and private agencies and programs to jointly address social problems that will enable individuals, families, and groups to deal effectively with social problems and to enhance their participation in society."

**3.2.2 STATE FUNCTIONAL PLANS.**

State and County actions are guided by State Functional Plans which provide detailed guidelines for implementing the goals, objectives, policies, and priority guidelines of the Hawaii State Plan. The first twelve (12) Functional Plans were adopted by the Legislature in 1984 and 1985. Five Functional Plans relating to human needs-education, employment, health, housing, and human services-were revised in 1987 and 1988. The revisions to these Functional Plans were approved by the Governor in 1989. In 1989 and 1990, seven Functional Plans relating to resource needs and development-agriculture, conservation lands, energy, historic preservation, recreation, tourism, and transportation-were subsequently subjected to the revision process. The relationship between each of the existing State Functional Plans and the proposed Kona Civic Center project is discussed in the following paragraphs.

### 3.2.2.1 State Agriculture Functional Plan (1991):

**OBJECTIVE H:** "Achievement of productive agricultural use of lands most suitable and needed for agriculture."

**DISCUSSION:**

Of the five proposed sites, only Site 1 is located on land that is designated by the State Land Use Commission as Agricultural lands. Presently, no agricultural uses occur at Site 1. The County land use allocation for this 30-acre site is currently Urban Expansion. The Keahole to Kailua Development Plan further designates this site for "Kealakehe Planned Community," "Urban Expansion," and "Open Space" uses. In addition, a large portion of the available agricultural lands within the Keahole to Kailua area are not being utilized. Therefore, the selection and development of Site 1 for Civic Center uses is not expected to adversely impact the availability of agricultural lands.

### 3.2.2.2 State Conservation Functional Plan (1991):

**OBJECTIVE 2B:** "Protection of fragile or rare natural resources."

**DISCUSSION:**

Of the five proposed civic center sites, only Site 5 is located within a Conservation district as designated by the State Land Use Commission. However, the current County allocation for the Ooma Site is Urban Expansion. To assist in the implementation of the relevant objectives and policies of the State Conservation Functional Plan, the development of this 30-acre site is expected to ensure the preservation and protection of any rare or endangered species of plants or wildlife. In addition, impacts to the environment should be minimized, open space should be preserved and endemic species should be used in the landscaping of the civic center.

### 3.2.2.3 State Education Functional Plan (1989):

**OBJECTIVE A4:** "Services and facilities."

**POLICY:** "Ensure the provision of adequate and accessible educational services and facilities that are designed to meet individual and community needs."

**DISCUSSION:**

Although the specific goals of the State Education Functional Plan have more direct application to the Department of Education strategies, this functional plan is applicable to the potential inclusion of a library function in the proposed project. Provision of additional library service and facilities is expected to benefit the surrounding Keahole

to Kailua community. Therefore, this action would be consistent with the State Educational Functional Plan.

#### 3.2.2.4 State Higher Education Functional Plan (1984):

OBJECTIVE B - QUALITY: "The highest level of quality, commensurate with its mission and objectives, of each educational, research, and public service program offered in Hawaii by an institution of higher education."  
POLICY B4: "Improve and maintain support programs at a level of quality commensurate with the programs they support."  
IMPLEMENTING ACTION B4 (A): "Strengthen library support by expanding collections and improving operations through automation and increased inter-library cooperation."

#### DISCUSSION:

The objectives, policies and implementing actions of the State Higher Education Functional Plan are directed toward the following five areas: Diversity, Quality, Access, Financing, and Coordination. As previously mentioned, the Kona Civic Center functions may include a library. The additional library service and facility would be consistent with the State Higher Educational Functional Plan.

#### 3.2.2.5 State Employment Functional Plan (1990):

OBJECTIVE D: "Improve the quality of life for workers and families."

#### DISCUSSION:

The proposed project is expected to consolidate State functions at one location. This would improve inter-agency coordination and provide efficient use to those who require the services. In addition, the civic center is expected to attract private commercial and related industries to the area, thereby expanding the range of employment opportunities in the Keahole to Kailua region. The resulting improvements to the quality of life in the region are consistent with the objectives of the State Employment Functional Plan.

### 3.2.2.6 State Energy Functional Plan (1990):

OBJECTIVE A: "Moderate the growth in energy demand through conservation and energy efficiency."

DISCUSSION:

Implementation of the objectives and policies of the State Energy Functional Plan relates directly to the master planning of the Kona Civic Center. Facilities are expected to be sited to promote energy efficiency through the maximization of access and the minimization of energy consumption. In addition, energy conservation standards and applicable conservation methods such as the use of solar energy for water heating and air conditioning, should also be implemented to the extent practicable.

### 3.2.2.7 State Health Functional Plan (1989):

"OBJECTIVE 5: Environmental Programs to Protect and Enhance the Environment.  
"Continued development of new environmental protection and health services programs to protect, monitor, and enhance the quality of life in Hawaii."

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

DISCUSSION:

The proposed project is expected to comply with all Department of Health (DOH) rules and regulations protecting air, water and land. Impacts to affected natural resources as a result of the proposed project are addressed in this Draft EIS under the appropriate sections. As a result of full compliance with DOH, the proposed Kona Civic Center is expected to be consistent with the State Health Functional Plan.

### 3.2.2.8 State Historic Preservation Functional Plan (1991):

OBJECTIVE A: "Identification of historic properties."  
OBJECTIVE B: "Protection of historic properties."  
OBJECTIVE C: "Management and treatment of historic properties."

DISCUSSION:

The candidate sites include areas that have the potential to contain archaeological sites of historic or cultural significance. As a result, depending on the final selection of the civic center site, an extensive survey of the selected site, including a thorough description of any identified historical or cultural resources may be required.

Preservation of those resources with significant cultural, educational or scientific value should be achieved in accordance with established and accepted guidelines. The final site configuration for the civic center should also be flexible to accommodate any future identification of significant archaeological sites.

#### 3.2.2.9 State Housing Functional Plan (1989):

**DISCUSSION:**

The State Housing Functional Plan is organized according to the following issue areas: Home Ownership, Rental Housing, Rental Housing for the Elderly and Other Special Need Groups, Preservation of Housing Stock, Land Acquisition for Affordable Housing Development, and Housing Information System. No objectives, policies or implementing actions in the plan or the Addendum to the State Housing Functional Plan (1990) are directly applicable to the proposed project.

#### 3.2.2.10 State Human Services Functional Plan (1989):

**OBJECTIVE H:** "To facilitate client access to human services."  
**POLICY HS:** "To develop collocation of services as a solution to transportation barriers and other factors which may impact client access."  
**OBJECTIVE I:** "To eliminate organizational barriers which limit client access to human services."

**DISCUSSION:**

The State Human Services Functional Plan addresses the following four issue areas: Elderly, Children and Family Support, Self-Sufficiency, and Service Delivery Network. The objectives, policies and implementing actions of the functional plan are directly relevant to the proposed project because the State Human Services Department shall be relocated from its present location to the new Kona Civic Center. Locating Human Services at a new building complex housing multiple State agencies is expected to facilitate inter-agency coordination and improvement of access to the general public. Consequently, the proposed project is consistent with the State Human Services Functional Plan.

### 3.2.2.11 State Recreation Functional Plan (1991):

- OBJECTIVE 2A:** "Plan, develop, and promote recreational activities and facilities in mauka and other areas to provide a wide range of alternatives."
- POLICY A1:** "Plan and develop facilities and areas that feature the natural and historic/cultural resources of Hawaii. Develop interpretive programs for these areas."
- OBJECTIVE 2B:** "Meet special recreation needs of the elderly, the disabled, women, single-parent families, immigrants, and other groups."

**DISCUSSION:**

The design of the civic center is expected to be compatible with the physical resources of the area and the values of the surrounding community. The master plan for the proposed project would also incorporate open space areas and preserve or enhance natural resources, such as views, to the extent practicable. In addition, the preservation or development of interpretive programs will be accomplished if any archaeological sites which are determined to have significant historic or cultural value are discovered on the selected civic center site during the site inventory survey (See paragraph 2.4.3 and 5.2.3 for a description of the findings of such surveys and the proposed mitigation measures for the preservation or protection of archaeological/historical resources). Furthermore, to further support the objectives, policies and implementing actions of the State Recreation Functional Plan, a senior center with support facilities for community, cultural and festive functions may be provided as one of the Kona Civic Center functions.

### 3.2.2.12 State Tourism Functional Plan (1991)

- OBJECTIVE 1A:** "Development, implementation and maintenance of policies and actions which support steady and balanced growth of the visitor industry."
- OBJECTIVE 3A:** "Enhancement of respect and regard for the fragile resources which comprise Hawaii's natural and cultural environment. Increased preservation and maintenance efforts."
- POLICY A2:** "Assist in preserving, perpetuating, and interpreting cultural, historic and archaeological resources. Preserve cultural authenticity as much as possible in commercialized and tourist-oriented presentations."
- OBJECTIVE 4A:** "Support of Hawaii's diverse range of lifestyles and natural environment."

**DISCUSSION:**

The proposed project involves the consolidation of various State agencies in the Keahole to Kailua region at one location. Although the proposed project does not directly influence the growth of the visitor industry, the Kona Civic Center is expected to improve overall organizational quality and, thereby, contribute to the orderly and timely growth of the area. In addition, the preservation of any natural resources identified at the civic center site will contribute to the cultural atmosphere of the area.



### 3.2.2.13 State Transportation Functional Plan (1991)

- OBJECTIVE 1A: "Expansion of the transportation system."  
POLICY A1: "Increase transportation capacity and modernize transportation infrastructure in accordance with existing master plans and laws requiring accessibility for people with disabilities."  
POLICY A2: "Improve regional mobility in areas of the State experiencing rapid urban growth and road congestion."

DISCUSSION:

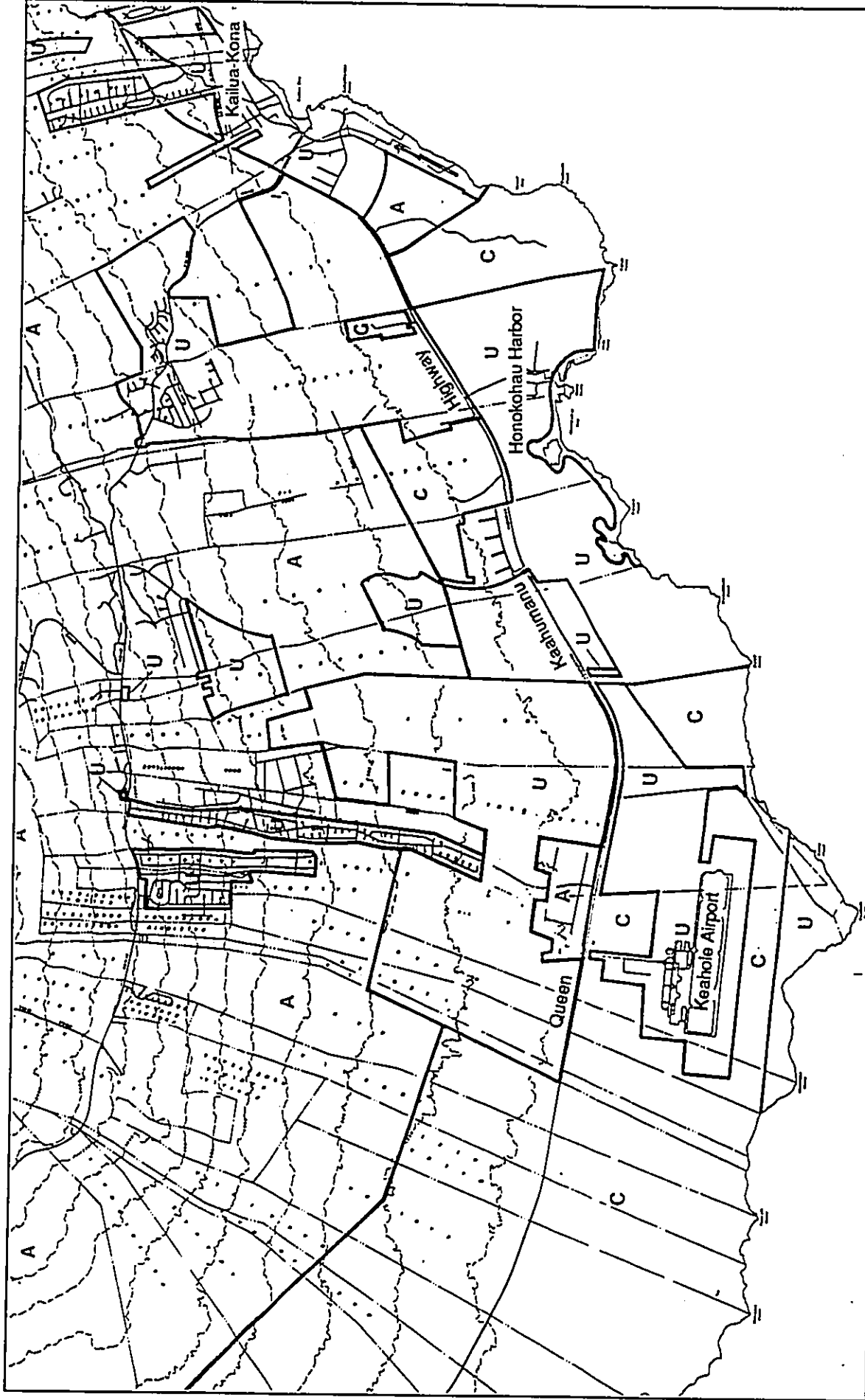
The proposed project incorporates improvements to existing transportation networks in the study area. In addition, the proposed project will be coordinated with surrounding developments and master plans which also include roadway improvements.

### 3.2.3 STATE LAND USE DESIGNATION.

The State Land Use Law regulates the classification and use of land to accommodate growth and development yet retain the natural resources of an area. All lands in the State are designated as either Agricultural, Urban, Rural, or Conservation by the State Land Use Commission (LUC), with consideration given to the County's General Plan. Although the County has sole jurisdiction over the permissible uses and densities within Urban districts, both the State LUC Rules and Regulations and the County requirements apply in Rural and Agricultural districts, and the State Board of Land and Natural Resources establishes permitted uses in Conservation districts.

Most of the areas within the Keahole to Kailua area are designated as either Urban or Conservation (refer to Figure 2). Nearly all of the State-owned Kealahou lands are within the Urban district. Other main Urban district areas are the Honokohau Harbor areas and the airport. Agricultural district areas are concentrated in the upslope region around the industrial park area and adjacent to the old Kona Airport.

A Draft Environmental Impact Statement has recently been published for an amendment to the State Land Use District Boundaries for approximately 2,640 acres of land in the Keahole area, from Agricultural and Conservation to Urban. The petition is based on a recommendation made by the Office of State Planning (OSP) as part of the Draft State Land Use District Boundary Review (for the Island of Hawaii) which identifies the petition area for urban reclassification as a Priority Area for Action.



KONA CIVIC CENTER

Site Selection Study/EIS

DAGS Job No. 11-21-4080

Figure 2 State Land Use Districts

- U Urban
- R Rural
- A Agricultural
- C Conservation



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prepared by:  
DPD Associates, Inc.

### REQUIREMENTS FOR BOUNDARY AMENDMENTS

The proposed project may require a boundary amendment.

Section 205-17, Hawaii Revised Statutes (HRS), sets forth the following decision making criteria for reclassification of District boundaries by the State Land Use Commission:

- (1) The extent to which the proposed reclassification conforms to the applicable goals, objectives, and policies of the Hawaii State Plan and relates to the applicable priority guidelines of the Hawaii State Plan and the adopted functional plans;
- (2) The extent to which the proposed reclassification conforms to the applicable district standards; and
- (3) The impact of the proposed reclassification on the following areas of State concern:
  - (a) Preservation or maintenance of important natural systems or habitats;
  - (b) Maintenance of valued cultural, historical, or natural resources;
  - (c) Maintenance of other natural resources relevant to Hawaii's economy, including but not limited to, agricultural resources;
  - (d) Commitment of State funds and resources;
  - (e) Provision for employment opportunities and economic development; and
  - (f) Provision for housing opportunities for all income groups, and gap groups.

State Land Use Commission District Regulations require that the application for a boundary amendment show that it is reasonable, not violative of Section 205-2 and consistent with Chapter 15-15, Hawaii Administrative Rules. If necessary, the proposed project site will require a petition for urban classification. The following are relevant standards from the administrative rules.

### CHAPTER 15-15. STATE LAND USE COMMISSION ADMINISTRATIVE RULES

The following standards shall be used in determining the boundaries for the "U" urban district:

- (1) It shall include lands characterized by "city-like" concentrations of people, structures, streets, urban level of services and other related land uses;

- (2) It shall take into consideration the following specific factors:
  - (a) Proximity to centers of trading and employment except where the development would generate new centers of trading and employment;
  - (b) Substantiation of economic feasibility by the petitioner;
  - (c) Proximity to basic services such as sewers, transportation systems, water, sanitation, schools, parks, and police and fire protection; and
  - (d) Sufficient reserve areas for urban growth in appropriate locations based on a ten year projection;
- (3) It shall include lands with satisfactory topography and drainage and reasonably free from the danger of floods, tsunami, unstable soil conditions, and other adverse environmental effects;
- (4) In determining urban growth for the next ten years, or in amending the boundary, land contiguous with existing urban areas shall be given more consideration than non-contiguous land, and particularly when indicated for future urban use on State or County general plans;
- (5) It shall include lands in appropriate locations for new urban concentrations and shall give consideration to areas of urban growth as shown on the State and County general plans;
- (6) It may include lands which do not conform to the standards in paragraphs (1) to (5):
  - (a) When surrounded by or adjacent to existing urban development; and
  - (b) Only when those lands represent a minor portion of this district;
- (7) It shall not include lands, the urbanization of which will contribute toward scattered spot urban development, necessitating unreasonable investment in public infrastructure or support services;
- (8) It may include lands with a general slope of twenty percent or more which do not provide open space amenities or scenic values if the commission finds that those lands are desirable and suitable for urban purposes and that official design and construction controls are adequate to protect the public health, welfare and safety, and the public's interests in the aesthetic quality of the landscape.

#### 3.2.4 WEST HAWAII REGIONAL PLAN.

The most recent State planning document addressing long-range planning issues of West Hawaii is the West Hawaii Regional Plan by the Office of State Planning. Its main objectives are the coordination of State activities and capital improvement programs within the regional planning framework of West Hawaii.

In anticipation of imminent development in West Hawaii, the speed of which will probably threaten the orderly growth of existing communities, the West Hawaii Regional Plan designated two Subregional Planning Areas—the Northern and Southern Subregional Planning Areas—to outline and define the areas of most probable and

desirable expansion (see Figure 3). The goal is to concentrate future regional urbanization within these areas and provide for their planning and future development, while optimizing or mitigating subregional problems, issues and opportunities. Implicitly, these areas also outline the most probable extent of public efforts for infrastructure improvements and expansion in the near future.

The Northern Subregional Planning Area includes Kawaihae Harbor and the support communities of Kawaihae, Lalamilo, Waikoloa and Signal Puako.

The Southern Subregional Planning Area extends from Kailua-Kona to Keahole Airport and includes the support community of Kealahou.

### 3.2.5 COASTAL ZONE MANAGEMENT ACT (CHAPTER 205 - A, HRS).

Regulations regarding the use of coastal lands and resources were established through the Hawaii Coastal Zone Management (CZM) Program, as set forth in Chapter 205A of the Hawaii Revised Statutes. The CZM program is administered by the County Planning Department, which controls development in Special Management Areas (SMAs) to assure that attention is paid to coastal resources and that development impacts are mitigated before damage occurs. Any development within the SMA requires a use permit issued by the County. In general, the SMA covers all areas makai of Queen Kaahumanu Highway. (See Figure 4).

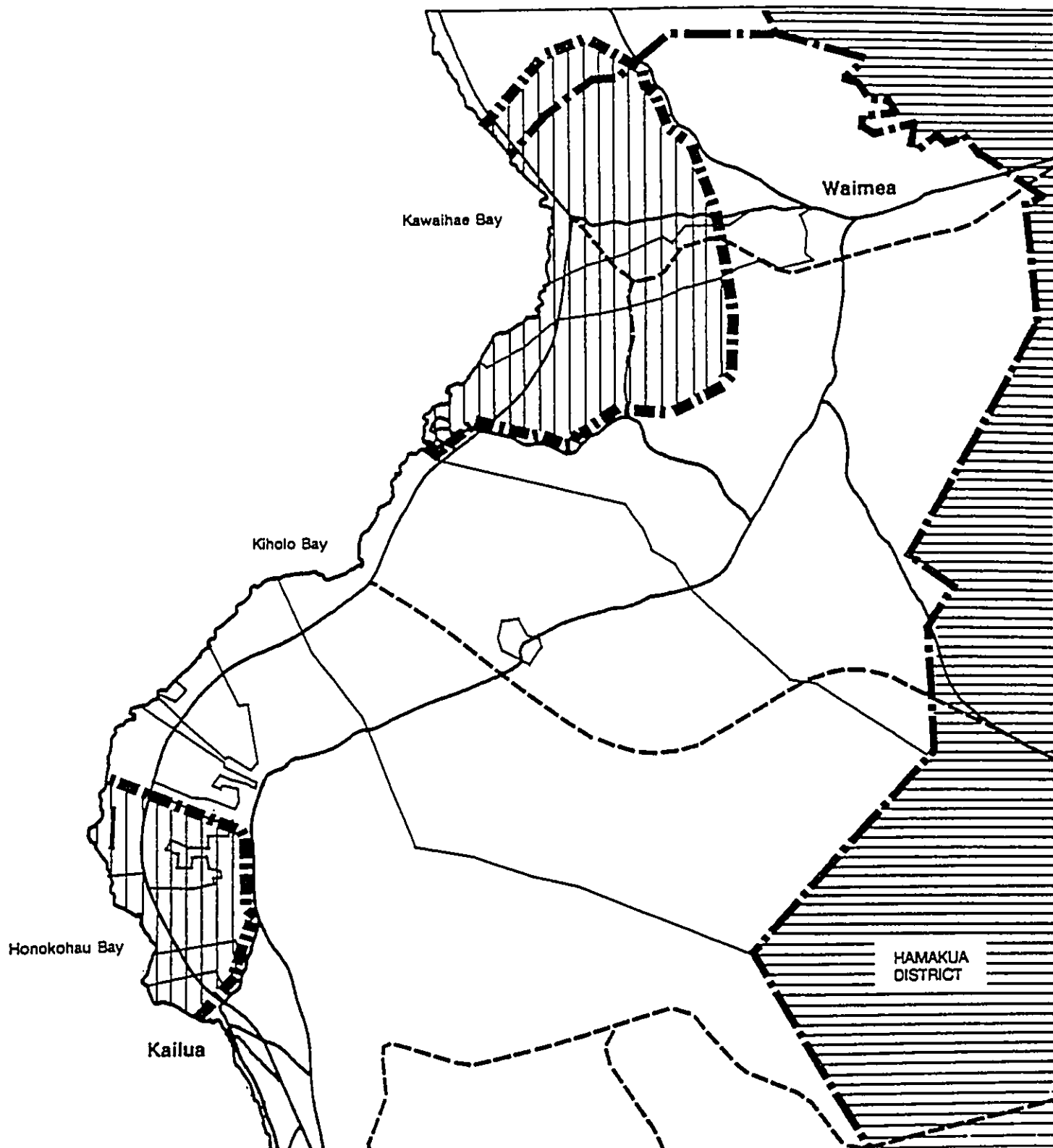
### 3.2.6 COUNTY GENERAL PLAN.




The Hawaii County General Plan is the policy document for long-range comprehensive development of the island of Hawaii. It is adopted by ordinance and provides the direction for the future growth of the County. The Plan contains goals, policies, and standards concerning twelve functional areas as well as a series of land use maps referred to as General Plan Land Use Pattern Allocation Guide (LUPAG) Maps. A majority of the Keahole to Kailua area is designated as Urban Expansion according to the most recent LUPAG map. (See Figure 5).

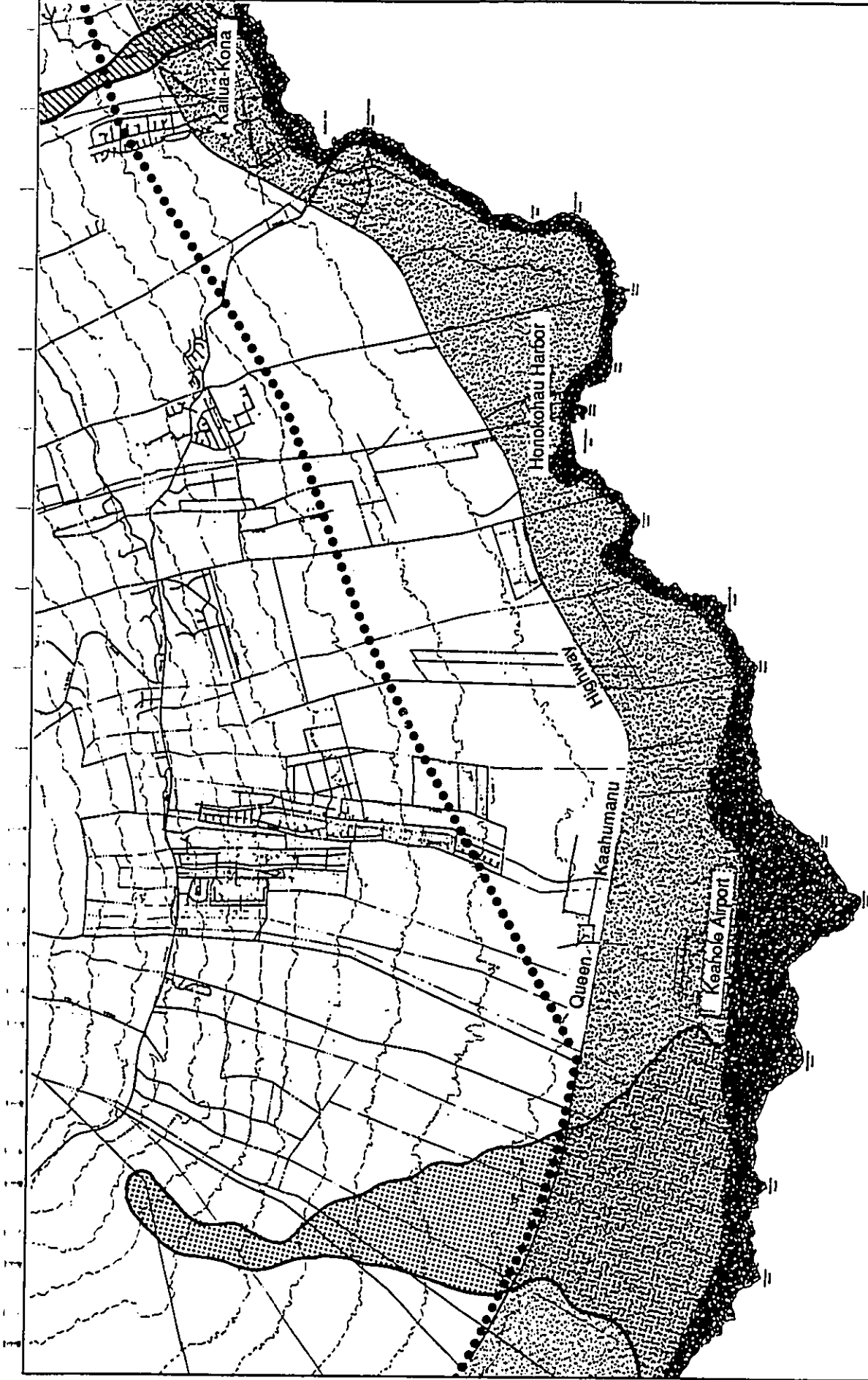
The proposed project is consistent with the following goals of the General Plan:

"Encourage the provision of public facilities that effectively service community needs and seek ways of improving public service through better and more functional facilities which are in keeping with the environmental and aesthetic concerns of the community;"

"Utilize publicly owned lands in the best public interest and to the extent possible, to the maximum benefit for the greatest number of people."








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| <p>KONA CIVIC CENTER<br/>Site Selection Study/EIS</p> <p>DAGS Job No. 11-21-4080</p> | <p><b>Figure 3</b>    <b>Subregional Planning Areas</b><br/>OSP: West Hawaii Regional Plan</p> <p> Subregional Planning Area</p> | <p></p> <p>0 1 2 5 miles</p> <p></p> <p>prepared by:<br/>DPD Associates, Inc.</p> |
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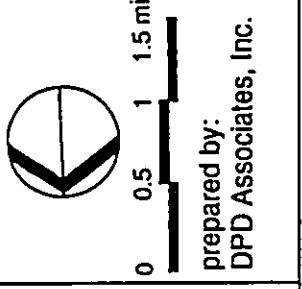
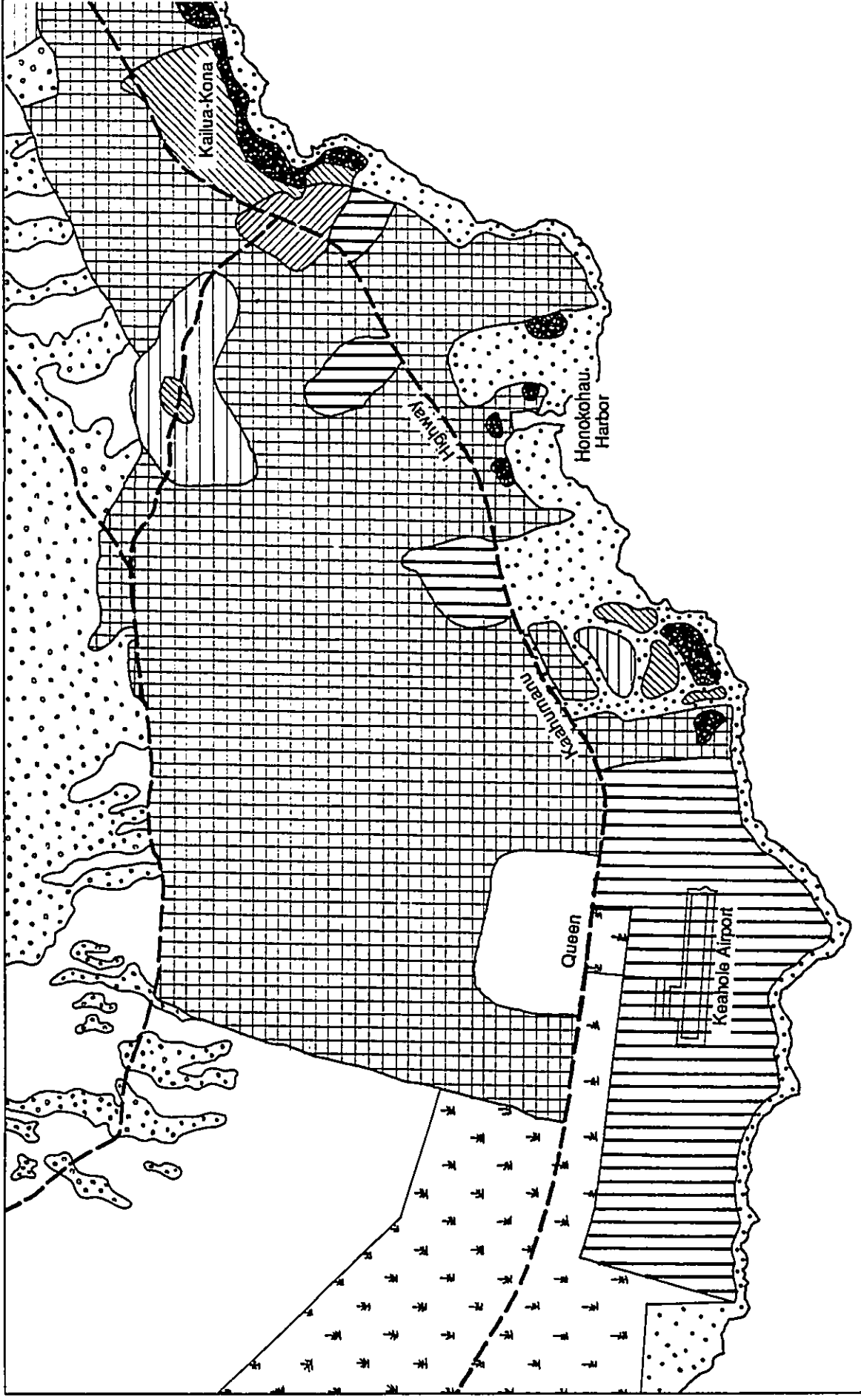
**Figure 4 Environmental Constraints**

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-  Flood Hazard Zone
-  Lava Flow
-  Tsunami Hazard Zone
-  Underground Injection Control Line
-  Special Management Area

  
 0 0.5 1 1.5 mi  
 prepared by:  
 DPD Associates, Inc.



**Figure 5 County General Plan**

|  |                                |  |                 |
|--|--------------------------------|--|-----------------|
|  | High Density Urban Development |  | Conservation    |
|  | Medium Density                 |  | Resort          |
|  | Low Density                    |  | Open Area       |
|  | Industrial                     |  | Orchards        |
|  | Extensive Agricultural         |  | Urban Expansion |

**KONA CIVIC CENTER**  
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The proposed Kona Civic Center is concordant with the following courses of action for North Kona stated in the Hawaii County General Plan:

"Encourage construction of a new library facility to serve the Kailua-Keauhou area;"

"Consolidate County offices in one public office center; and"

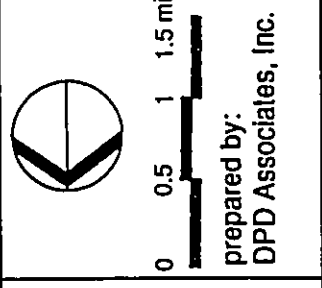
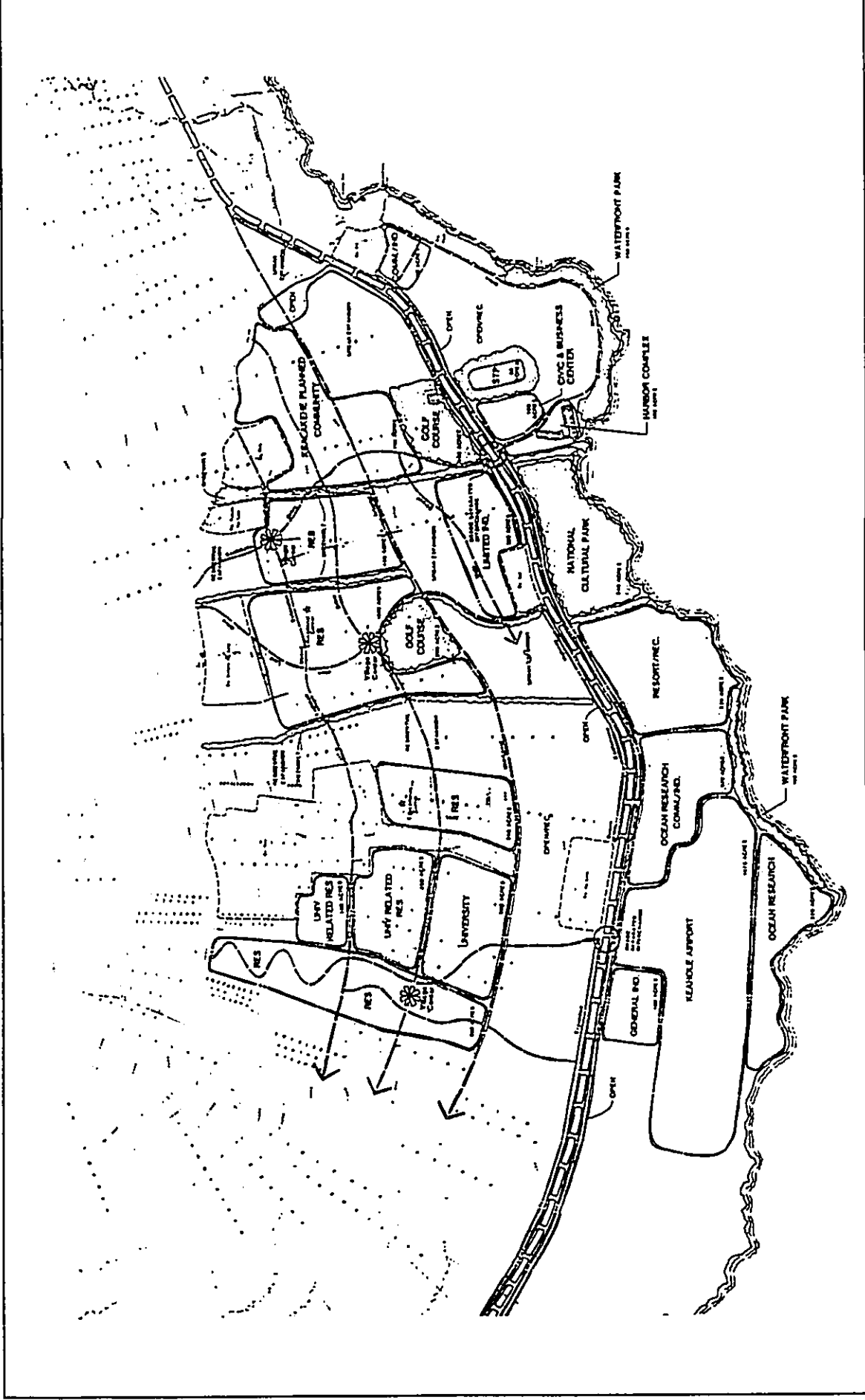
"The County should designate a second urban center in West Hawaii to facilitate government services and centralize facilities."

### 3.2.7 KEAHOLE TO KAILUA DEVELOPMENT PLAN.

The Hawaii County Planning Department has completed the final development plan to address future developments in the area from Keahole Airport to Kailua (refer to Figure 6). The implementation of the Keahole to Kailua Plan ("K to K Plan") is currently underway. The objectives of this development plan are to facilitate orderly growth in the Keahole to Kailua region by assisting the County Planning Department, the Department of Public Works, Department of Water Supply and other County agencies in the following capacities: the determination of an implementation strategy for the "K to K Plan", the coordination of both private and public master plans for the region, the formulation of guidelines such as zoning and land use permit conditions for new developments in the area, and the development of a prototype for infrastructure and public facility needs in the Keahole to Kailua project area. This site selection study is based on the final "K to K Plan" since the re-evaluation of the final is not yet available.

The "K to K Plan" was intended to be a tool to aid in the implementation of the County General Plan. It reflects coordination with the Office of State Planning and other key State agencies. In addition, it represents intensive input from members of the community and the business sector.

The plan covers an area north of Kailua-Kona which is identical to the Southern Subregional Planning Area outlined in the West Hawaii Regional Plan.



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**Figure 6 Keahole to Kailua Development Plan**  
County of Hawaii

KONA CIVIC CENTER  
Site Selection Study/EIS

DAGS Job No. 11-21-4080

The following is a list of several of the development plan concepts which are relevant to this project:

|                                 |  |
|---------------------------------|--|
| <u>Regional Center:</u>         | The "K to K Plan" depicts a 100-acre Civic and Business Center located within the State-owned Kealakehe property makai of Queen Kaahumanu Highway. In presentations to the Planning Commission by the County Planning Department, the location has been justified on the basis of the appropriateness of locating public uses on public property. In earlier drafts of the plan, the Civic and Business Center was shown as a larger Regional Center mauka of the highway. |
| <u>Residential Development:</u> | The "K to K Plan" depicts residential land uses for the entire project area mauka of the proposed golf course and designates it as the Kealakehe Planned Community.  |
| <u>Public Golf Course:</u>      | The "K to K Plan" includes a public golf course situated mauka of Queen Kaahumanu Highway which is currently under construction.   |
| <u>Mid-Level Arterial:</u>      | The "K to K Plan" proposes a mid-level arterial roadway paralleling Queen Kaahumanu Highway. As proposed, this roadway is to consist of a 120 ft. right-of-way to be developed as a major arterial roadway.  |
| <u>Queen Kaahumanu Setback:</u> | The "K to K Plan" proposes expansion of the existing highway to 4-6 lanes by establishing a 300 ft. right-of-way to accommodate the proposed construction.   |

### 3.2.8 COUNTY ZONING.

County of Hawaii Zoning within the project service area includes Residential, Resort, Commercial, Agriculture, Industrial, Open and Unplanned districts. A majority of the expanse within the Keahole to Kailua area is zoned as Open and Unplanned. (See Figure 7).

### 3.2.9 UNDERGROUND INJECTION CONTROL.

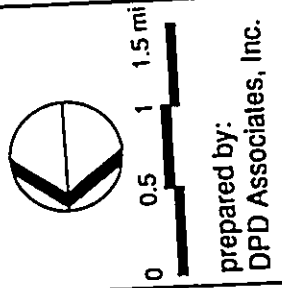
In order to protect ground water resources from pollution by subsurface wastewater disposal, the Underground Injection Control (UIC) program was established by the State Department of Health in 1984.

This program establishes a boundary line known as the "UIC Line." Lands mauka of this line are restricted from subsurface wastewater disposal by underground injection. (See Figure 4).

The UIC line within the Keahole to Kailua area runs roughly along the 500 foot elevation. All five candidate sites lie makai of the UIC line.



- LEGEND**
- RS Single Family Residential
  - RD Double Family Residential
  - RM Multiple Family Residential
  - V Resort
  - VH Village Commercial
  - VS Neighborhood Commercial
  - CV Limited Industrial
  - CH General Industrial
  - CG Agriculture
  - ML Limited Industrial
  - MG General Industrial
  - A Agriculture
  - Open (O) Open
  - Unplanned (U) Unplanned



prepared by:  
DPD Associates, Inc.

**Figure 7 County Zoning Plan**

- RS Single Family
- RD Double Family
- RM Multiple Family
- V Resort
- CV Village Commercial
- CN Neighborhood Commercial
- CG General Commercial

- ML Limited Industrial
- MG General Industrial
- Open
- Unplanned

**KONA CIVIC CENTER**  
Site Selection Study/EIS

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### 3.3 Physical Environment

#### 3.3.1 TOPOGRAPHY.

The principle topographic features of the project area are the slopes of Hualalai. Elevations range from sea level to over 1,800 feet in the northeastern corner of the project area. Slope conditions correlate generally with the climatic/elevation zones. The land is principally level in the coastal area, with slopes in the 0 to 5 percent range. The lowland areas are level to gently sloping, with slopes in the 0 to 5 percent and 5 to 10 percent ranges. The cooler upland areas are somewhat steeper, with slopes generally in the 10 to 15 percent range and some areas at 15 to over 20 percent. (See Figure 8).

#### 3.3.2 SOILS.

The Island of Hawaii, the largest in the Hawaiian Archipelago, was formed by outpourings of lava from five volcanoes: Kohala, Mauna Kea, Hualalai, Mauna Loa and Kilauea. Of these five volcanoes, only the Kohala volcano is extinct. Hualalai and Mauna Loa volcanoes have both erupted in recorded history. Kilauea volcano, however, is presently active.

The Kohala volcano on the northern end of the Island of Hawaii became extinct in the Middle Pleistocene Period. Mauna Kea, the highest mountain of the chain, has not erupted during historic time. Hualalai's last eruption of 1800-1801 produced olivine basalt. Mauna Loa, which covers 50 percent of the area of the Island of Hawaii, last erupted in 1984. Kilauea volcano, which originated on the southern slopes of Mauna Loa, is currently in an eruptive phase.

The following soil associations, as cooperatively defined by the Soil Conservation Service of the U.S. Department of Agriculture, and the University of Hawaii Agricultural Experiment Station, are found in the Keahole to Kailua-Kona project area (refer to Figure 9). Descriptions of the particular association relevant to the project study area are presented as follows:

##### 1. LAVA FLOWS ASSOCIATION

Gently sloping to steep, excessively drained, nearly barren lava flows and somewhat excessively drained and well-drained, coarse-textured and medium-textured soils that formed in volcanic ash, pumice, and cinders. These soils are on mountains at an elevation ranging from near sea level to 13,000 feet. The natural vegetation consists of lichen, moss, ohia, amaumau fern, mamane, naio, Kentucky bluegrass, and sweet vernal. Pahoehoe lava flows make up about 40 percent of this association, and Aa lava flows about 30 percent. This soil association is used for grazing, wildlife habitat and recreation. The carrying capacity for grazing and wildlife is low. The wildlife consists of goats, sheep, pigs, pheasants, and quails.

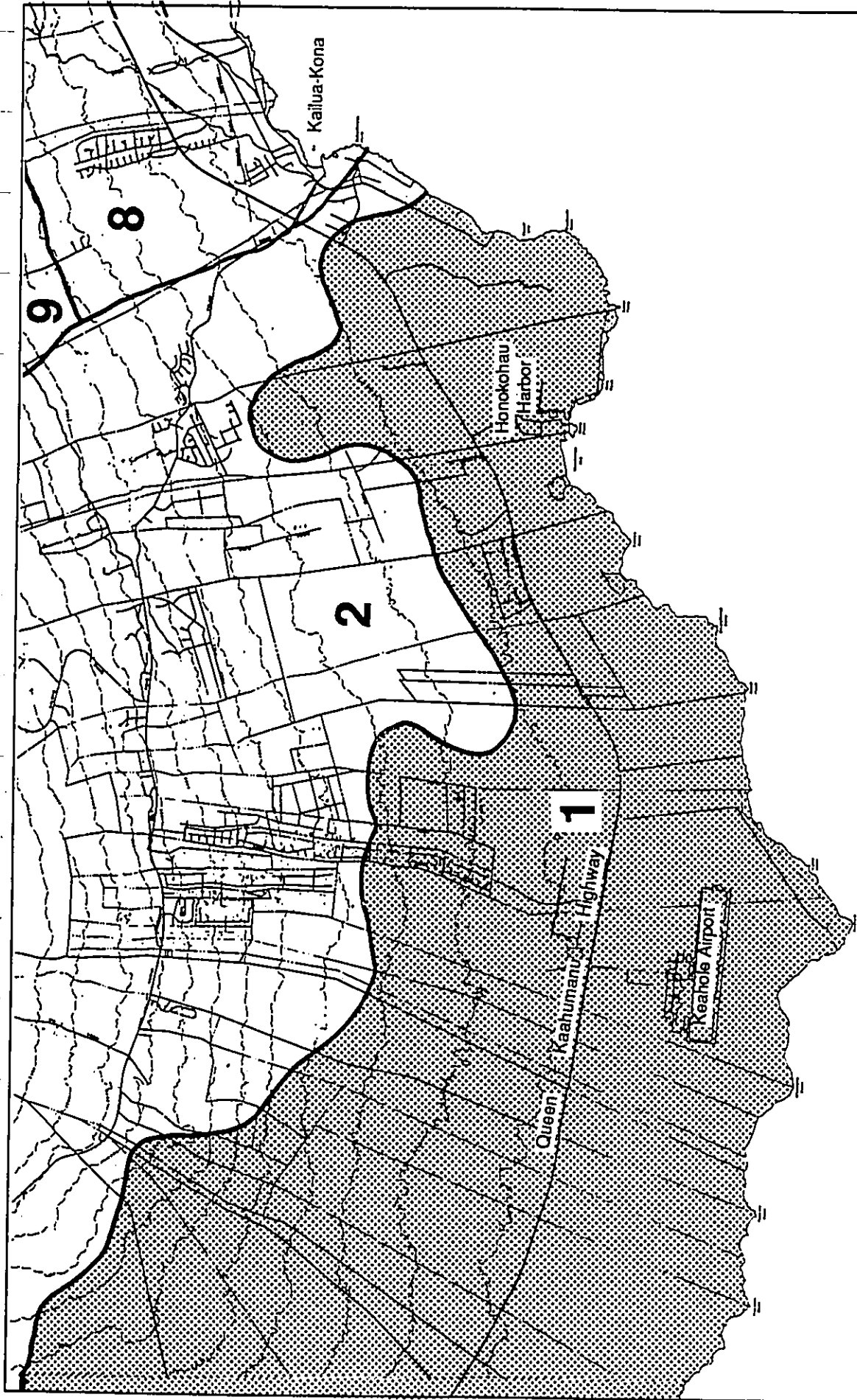


**Figure 8 Generalized Slope Pattern**

**KONA CIVIC CENTER**  
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 DAGS Job No. 11-21-4080

0 0.5 1 1.5 mi  
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- 0 to 5 percent
- 5 to 10 percent
- Over 10 percent




KONA CIVIC CENTER

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**Figure 9 Generalized Soil Associations**

 Barren Lava Flow

 Very Shallow to Very Deep Soils

2 Numbers Representing Soil Associations



0 0.5 1 1.5 mi

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2. KEKAKE-KEEI-KILOA ASSOCIATION

Very shallow, gently sloping to steep, well-drained organic soils over fragmental Aa or pahoehoe lava. These soils are on mountains at an elevation ranging from near sea level to 7,000 ft. The natural vegetation consists of ohia, tree fern, koa, guava, and Christmas berry. Kekake soils make up 20 percent of this association, Keei soils 15 percent, Kiloa soils 12 percent, and Kahaluu soils 10 percent. The remaining 43 percent consists of Kaimu, Keaukaha, Kealakekua, Kona, Lalaau, Malama, Mawae, Opihikao, Papai, Puna, and Punaluu soils. This association is used for pasture, woodland, watershed, and recreation. The wildlife consists mainly of wild pigs.

8. PUU PA-PAKINI-WAIAHA ASSOCIATION

Shallow to deep, nearly level to steep, well-drained to somewhat excessively drained soils that have a medium-textured subsoil or medium-textured underlying material that formed in volcanic ash. These soils are on mountains and alluvial plains at an elevation ranging from near sea level to 4,000 feet. The natural vegetation is lantana, natal redtop, Japanese tea, cactus, and kiawe. Puu Pa soils make up about 60 percent of this association, Pakini soils 10 percent, and Waiaha soils about 10 percent. The remaining 20 percent is made up of Kaalualu, Kainaliu, Kamakoa, Kamaoa, and Waikalua soils. This association is used mainly for pasture, and the pasture is excellent. Kainaliu soils are used for truck crops, coffee, macadamia nuts, and pasture. The wildlife consists of pheasants, quails, and doves.

9. KUKAIAU-AINAKEA-PAAUHAU ASSOCIATION

Deep and moderately deep, gently sloping to steep, well-drained soils that have a moderately fine textured subsoil. This soil association consists of moderately fine textured soils that formed in volcanic ash and basic igneous rock. These soils are on mountains at an elevation ranging from near sea level to 2,500 feet. The natural vegetation consists of bermudagrass, hilograss, molassesgrass, kikuyugrass, guava, and Christmas berry. Kukaiau soils make up 25 percent of the association, Ainakea soils 20 percent, and Paauhau soils 18 percent. The remaining 37 percent consists of Honuauulu, Moaula, Niulii, Ookala, and Puukala soils. All of these soils, except Honuauulu and Puukala soils, are used for non-irrigated sugarcane. Small areas are used for truck crops, orchards, and pasture. Coffee is grown on Honuauulu soils. Puukala soils are used for pasture and woodland. The wildlife consists of pheasant and wild pigs.

The following individual descriptions are of soils comprising the associations and are prevalent in the project service area.

rLV - Lava Flows. Aa

The lava has practically no soil covering and is bare of vegetation except for mosses, lichens, ferns, and a few small ohia trees. Lava is rough and broken; a mass of clinkery, hard, glassy, sharp pieces piled in tumbled heaps.

rLW - Lava Flows. Pahoehoe

The lava has a billowy, glassy surface that is relatively smooth. In some areas, however, the surface is rough and broken, and there are hummocks and pressure domes. The lava has no soil covering and is typically bare of vegetation except for mosses and lichens. There may be scattered ohia trees, ohelo berry, and aalu in cracks and crevices of the lava at elevations of higher rainfall.



rKED - Kaimu Extremely Stony Peat, 6 to 20 percent slopes

This soil is at low elevations on Mauna Loa. The surface layer is a very dark brown, extremely stony peat about 3 inches thick. The soil is underlain by fragmental a'a lava and neutral in reaction. Permeability is rapid, runoff is slow, and the erosion hazard is slight. The soil is not suitable for cultivation. Most of it is in the native woodland. Small areas are used for pasture, macadamia nuts, papaya, and citrus fruits.

rPYD - Punaluu Extremely Rocky Peat, 6 to 20 percent slopes

Rock outcrops occupy 40 to 50 percent of the surface in this soil association. The surface layer is black peat about four inches thick and underlain by pahoehoe lava bedrock. This soil is medium acid. The peat is rapidly permeable while the pahoehoe lava is slow permeable although water moves rapidly through the cracks. Runoff is slow and the erosion hazard is slight. Roots are matted over the pahoehoe lava. The soil is suitable for pasture.

### 3.3.3 GEOLOGY/HYDROLOGY.

#### GEOLOGY

The project area is covered with largely barren a'a and pahoehoe lava flows in the coastal and lowland area, and thin, organic soils and ash loams over lava rock in the upland areas. The project area is located on the lower slopes of Hualalai Volcano, which is still active.

#### HYDROLOGY

The following three distinct types of regional water resources are potentially available to the project area:

##### Dike Impounded Perched Ground Water

Perched water may exist at the upper elevations of Hualalai.

##### Basal Ground Water

The basal aquifer that extends from the upper slopes of Hualalai to the shoreline is recharged by the region's rainfall. Potable water wells could be developed between the 1,500 to 1,800 foot elevation. Safe yield for the potable water within the project area is about 6 million gallons per day (mgd).

##### Brackish Basal Ground Water

Seawater intrusion at the shoreline results in the creation of brackish water. Brackish wells for irrigation (less than 1000 mg/l chlorides) can be developed between the 500 to 1000 foot elevation. Safe yield for the brackish water supply within the project area is about 6 mgd.

### 3.3.4 NATURAL HAZARDS.

Included in the County General Plan are Facilities Maps which identify potential flood hazard areas and potential tsunami inundation areas (refer to Figure 4). Other natural hazards which may be experienced in the project study areas are volcano and earthquake hazards.

#### FLOOD HAZARD

The North Kona district can be divided into a northern and a southern watershed area. The northern watershed area consists of the area north of Keahole Point and the summit of Hualalai, which experience very low rainfall and runoff. Most of the area receives less than twenty (20) inches of rainfall per year, and the maximum average for the area is forty (40) inches per year. The soils of this area are extremely permeable and there is no record of hazardous flooding.

The southern area, extending southward from Keahole Point, contains most of the urban development and is subject to increasing hazards from floodwater damage as land is more intensively utilized. The area is characterized by dry vegetative growth along coastal areas and thick tropical vegetation in the upper forest reserves. The ground is steep, averaging approximately fifteen percent.

The steep slopes, shallow soils, frequent high intensity rains, and the lack of well-defined drainageways make many areas in the North Kona district susceptible to flooding and overland flows. Flash floods, primarily from overflows of the Kawanui/Lehuula/Kainaliu, Keopu/Hienaloli, Waiaha, Kamalumu and the Holualoa/Horseshoe Bend drainageways, have been identified by the USDA, SCS, "North Kona Flood Plain Management Study." Flood water and sediment damage occur along the entire coffee belt. The Kainaliu, Holualoa and Kailua Village areas usually experience the heaviest damage.

#### TSUNAMI HAZARD

The entire coastline of the North Kona district is subject to inundation by tsunamis. Both Kailua and Keauhou have recorded runup and damage from tsunamis in the past. The coastline has also been subject to damage from storm waves.

#### VOLCANIC HAZARD

Hawaiian volcanoes can erupt either at their summits or on their flanks. Flank eruptions usually take place along rift zones, which are highly fractured zones of

weakness within the volcano. Rift zones typically extend from the summit of a volcano toward the coastline and may continue for many miles under the sea.

Hawaiian volcanic eruptions pose several kinds of hazards. Lava flows are the most common hazard and pose the greatest threat to property. Other hazards include airborne particles of ash, cinder, fragile strands of volcanic gases commonly referred to as Pele's hair, and corrosive volcanic gasses. In Hawaii, volcanic activities with explosive eruptions occur less often than non-explosive eruptions which may produce pyroclastic surges, or highly destructive, turbulent gas clouds that flow rapidly along the ground carrying hot ash and rock fragments. Areas near an active or recently active volcanic vent are most affected by ground movement which may result in large cracks across roads and other property or cause uneven settling of foundations.

On a scale from 1 to 9 (9 representing the least and 1 being the greatest severity of volcanic hazard), the project area is located within volcanic hazard area 4. In zone 4, which includes all of Hualalai, about 5 percent of the area has been covered by lava from the last eruption in 1800-1801 and less than fifteen 15 percent has been covered by lava within the last 750 years. Although the frequency of eruptions is lower on Hualalai than on Kilauea and Mauna Loa, the flows typically cover large areas. The flanks of the volcano do not have a distinctly lower hazard than its rift zones because the distance from the vents to the coast is short and the slopes are steep.

#### EARTHQUAKES

The Island of Hawaii experiences thousands of earthquakes each year but only a very small percentage are actually felt and cause minor-to-moderate damage. Most of Hawaii's earthquakes are directly related to volcanic activity and are caused by magma moving beneath the earth's surface. Earthquakes may occur before or during an eruption, or they may result from the underground movement of magma that comes close to the surface but does not erupt. A few of the island's earthquakes are less directly related to volcanism; these earthquakes originate in zones of structural weakness at the base of the volcanoes or deep within the earth beneath the island.

Strong earthquakes endanger people and property by shaking structures and by causing ground cracks, ground settling, and landslides. Locally, the damage can be intensified where soft, water-saturated soils amplify earthquake ground motions. An indirect hazard produced by some earthquakes is a tsunami, a large sea wave that can be far more damaging than any of the direct seismic hazards. The size of an earthquake is commonly expressed by its magnitude on the Richter scale which is a measure of the relative size of an earthquake wave recorded on seismographs. An increase in one whole number on the Richter scale represents a tenfold increase in the amplitude of the seismograph recording. Earthquakes greater than about magnitude 3 usually can be felt by

people near the source area, those greater than magnitude 5 are potentially damaging, and any earthquake of magnitude 7 or greater that occurs near populated areas is certain to cause widespread property damage.

The earthquakes directly associated with the movement of magma are concentrated beneath the island's active volcanoes, Kilauea and Mauna Loa. Of the 14 damaging earthquakes of magnitude 6 or greater since 1868 on the Island of Hawaii, only one occurred at Hualalai. The magnitude of the quake is recorded as 6.5 and occurred on October 5, 1929. The majority of the other quakes of magnitudes greater than 6 occurred in the generalized locations of Mauna Loa and Kilauea's southern flanks.

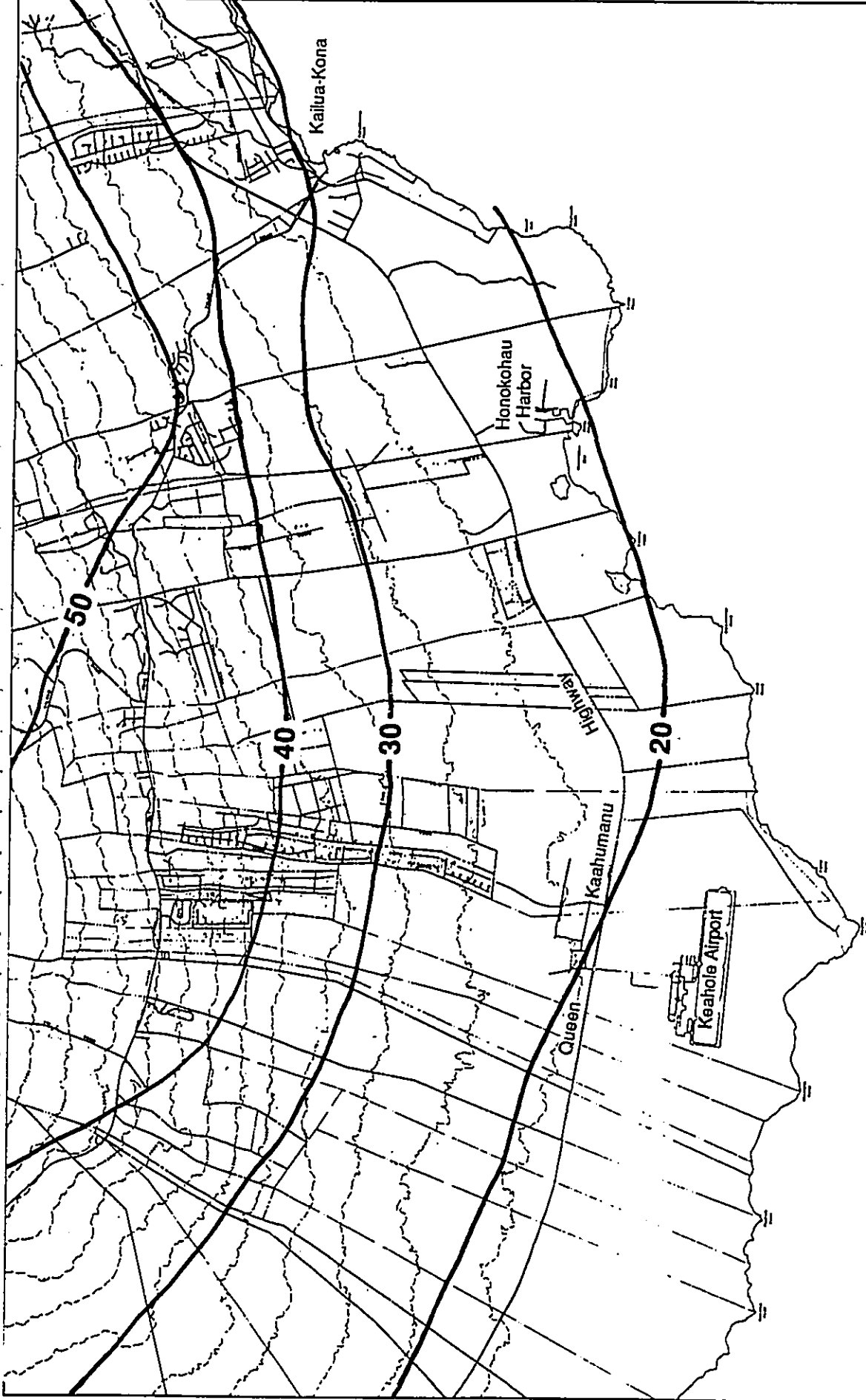
### 3.3.5 CLIMATE.

#### RAINFALL

The service area has a semi-tropical climate and receives an average annual rainfall of 25 inches (refer to Figure 10). Coastal areas from the airport to Honokohau Bay average 20 inches of rainfall annually and are generally hot and humid; lowland areas between the 50 to 600 foot elevation receive from 30 to nearly 50 inches of rainfall and are usually hot and dry; upland areas above the 600-foot elevation receive over 40 inches of rainfall and are generally cooler and moister. Rainfall is greater in the summer months and less in the winter months, a unique pattern in the State that is largely due to the greater intensity of the onshore summer breeze. Temperatures average about 75°F during the day.

#### WINDS

The Keahole to Kailua-Kona service area of West Hawaii experiences a wind pattern which is similar to the leeward side of other islands in Hawaii. The large land masses of Mauna Kea and Mauna Loa, and to a certain extent Hualalai, shield the region from prevailing northeasterly trade winds. This shadow effect causes the winds in West Hawaii to be predominantly light and variable. The result is a wind pattern that is characterized by diurnal onshore winds moving upslope and nocturnal winds moving downslope towards the sea. At Keahole Airport, there is no wind 30 percent of the time.



**Figure 10 Mean Annual Rainfall**  
Rainfall in Inches

KONA CIVIC CENTER  
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### 3.3.6 AIR QUALITY.

Existing air quality in the project area is affected by air pollutants from industrial, vehicular, and natural sources such as volcanic air pollution. Despite the growing population in Kona, the principle mobile source of the two air pollutants, carbon monoxide (CO) and nitrogen dioxide (NO<sub>2</sub>), are not routinely monitored in West Hawaii. However, due to public concern about volcanic air pollution, i.e., VOG, a special monitoring study was conducted during the 1985 - 1986 period in Kailua-Kona. The results of that study indicate very low levels of total suspended particulate matter (TSP) and sulfur dioxide (SO<sub>2</sub>). Both State and Federal air quality standards appear to be met.

### 3.3.7 NOISE QUALITY.

Existing noise sources within the Keahole to Kailua project area are limited to low volume traffic along Queen Kaahumanu Highway, Palani Road, other arterial roadways, the Keahole Airport and natural sources such as wind and ocean waves.

### 3.3.8 SCENIC CHARACTERISTICS.

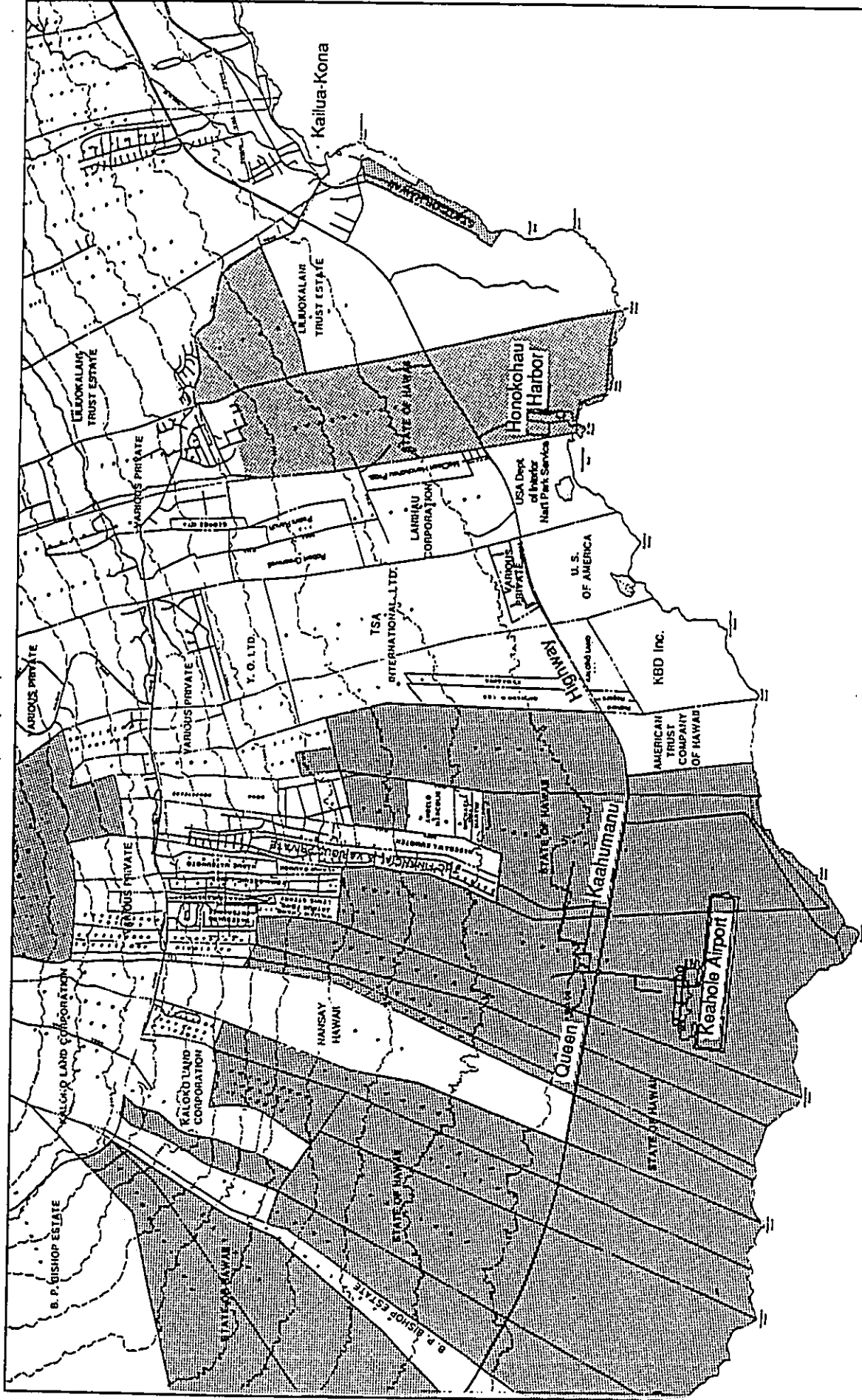
The Hualalai-Mauna Loa slopes have a distinct geographic characteristic and a specific vista pattern which extends southward along the coastline. This pattern offers limited vistas which are generally in the makai direction and dramatic ocean and mountain views from many vantage points. The expansive areas of lava flows in North Kona have a harsh, rugged visual quality that has its own special appeal. The lack of significant tree cover, especially in the shoreline and lowland areas, makes the project area highly sensitive to visual impacts.

Another aspect of Kona's beauty is the wide range of climatic conditions within a relatively short distance. Variations from the coastal regions to higher elevations result in noticeable differences in the vegetation and, therefore, a wide variety of physical environments.

### 3.3.9 LAND OWNERSHIP.

The seven major landowners of the area between Keahole Airport and Kailua-Kona are the following (refer to Figure 11):

- Lanikai Corporation
- Nansay Hawaii
- Palani Land Trust II
- Queen Liliuokalani Trust
- State of Hawaii
- TSA, Inc.
- Y.O., Ltd.



**Figure 11 Land Ownership**

State Land

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0 0.5 1 1.5 mi

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As of October 1990, approximately 450 acres of TMK: 7-04-08: portion 12 in Keahole ahupua'a, North Kona District were sold to the the State of Hawaii by the landowner Queen Liliuokalani Trust Estate. This property is adjacent to the State lands of Kealakehe ahupua'a.

### 3.3.10 EXISTING LAND USE.

The existing land use of the area between Keahole Airport and Kailua-Kona is predominantly urban and conservation with a section of agricultural land mauka of Queen Kaahumanu Highway at about the 400 foot elevation (refer to Figure 12). Although there is some agricultural activity (i.e., the cultivation of macadamia nuts, coffee, avocado, flowers, and nursery plants) and some pastureland for cattle in the upland portions of the service area, most of the project area consists of undeveloped, rocky land.

Some significant land uses include Kaloko Industrial Park, the quarry, Keahole Airport, the Natural Energy Laboratory of Hawaii (NELH) at Keahole Point, Keahole Hawaii Ocean Science and Technology (HOST) Park, Keahole Agricultural Park, Honokohau Harbor, the existing police station and the landfill. The shoreline area has a number of popular swimming, camping and fishing areas. Additional developments and uses include the new sewage treatment plant and the planned golf course of the Kealakehe development.

Makai of the intersection of Queen Kaahumanu Highway and Palani Road is Kailua Village with its shopping areas, industrial services and other businesses. Mauka of the intersection is an existing fire station; further up Palani Road are the Kealakehe Elementary and Intermediate Schools, a privately owned residential subdivision, and several State-assisted public housing and affordable housing projects.





Figure 12 Existing Land Use

KONA CIVIC CENTER  
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0 0.5 1 1.5 mi

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### 3.4 Natural Environment

#### 3.4.1 FLORA.

Although the following threatened or endangered species have reportedly been found in the Keahole to Kailua area, the known occurrences of these endangered plants do not fall within the five candidate sites (Warshauer and Gerrish, 1993):

| <u>Scientific Name</u>          | <u>Hawaiian Name</u> |
|---------------------------------|----------------------|
| <i>Bidens micrantha</i>         | <i>kokolau</i>       |
| <i>Caesalpinia kawaiensis</i>   | <i>uhi uhi</i>       |
| <i>Fimbristylis hawaiiensis</i> | (none)               |
| <i>Isodendrion pyriformium</i>  | <i>aupaka</i>        |
| <i>Mariscus fauriei</i>         | (none)               |
| <i>Neraudia ovata</i>           | <i>maaloo</i>        |
| <i>Nothoestrum breviflorum</i>  | <i>aiea</i>          |
| <i>Pleomele hawaiiensis</i>     | <i>halapepe</i>      |
| <i>Reynoldsia sandwicensis</i>  | <i>ohe makai</i>     |
| <i>Senna gaudichaudii</i>       | <i>kolomona</i>      |
| <i>Xylosma hawaiiensis</i>      | <i>maua</i>          |

Coastal areas support a plant community that typically includes a variety of grasses and shrubs, including beach naupaka, fountain grass, maiapilo, heliotrope, pluchea shrubs and akiaki grass. Along the shore are scattered strands of kiawe trees.

Lowland areas support a relatively sparse plant community, with grasses and shrubs including fountain grass, pili grass, ilima, indigo, uhaloa, and some kiawe trees.

Upland areas with cooler temperatures, more rainfall and some soil cover, support a more diverse plant community. Species in these areas include ekoa, Christmas berry, Guinea grass, guava, ohia, ulu, and silver oak.

A more detailed description of the flora at each site is provided in Chapter 6.0, "Description of the Affected Environment, Probable Environmental Consequences and Proposed Mitigation" in paragraph 6.2.1, "Flora."

#### 3.4.2 FAUNA.

The fauna in the project area consists of species common throughout the Kona District and includes rats, mice and mongoose. Birds found in the area include the mynah, dove and sparrow. Indigenous shore birds and water birds found in the area include the black crowned night heron, wandering tattler, golden plover, ruddy turnstone, sanderling, least sandpiper, and the sharp-tailed sandpiper. The Hawaiian owl, *pueo*, can

be found in the project area, as well as the endangered Hawaiian hoary bat, *opeapea*. Honokokau is a waterbird sanctuary for endangered species, including the Hawaiian stilt.

### 3.4.3 ARCHAEOLOGICAL/HISTORICAL.

Based on the general overview presented in the Keahole to Kailua Development Plan, archaeological and historical resources in the project area correlate strongly with three natural climatic/ecological zones. The coastal area, once a significant settlement area for native Hawaiians, exhibits medium to high site densities-generally within 300 feet of the shore. Included are permanent house sites, subsistence sites, heiaus, petroglyph clusters, temporary shelters and a major coastal trail. There are few sites in the lowland areas. The upland area was at one time extensively developed for a variety of agricultural uses which has resulted in a high density of sites within a band from about the 450 to 900-foot elevation, and to the 3,500-foot elevation in some places. Sites include agricultural field features and related shelters. Unfortunately, modern era development has destroyed a significant number of these upland sites.

An archaeological survey has been performed for this project by the State Historic Preservation Division and the results of the survey are addressed in Chapter 6.0, "Description of the Affected Environment, Probable Environmental Consequences and Proposed Mitigation" in paragraph 6.2.3, "Archaeological/Historical."

### 3.5 Infrastructure

#### 3.5.1 WATER.

At present, potable water is provided by the North Kona water system which is supplied by four wells and one shaft at Kahaluu, and one well at Holualoa. The system is divided into upper and lower service areas. For the upper service area, water is pumped to Mamalahoa Highway and fed by gravity to lower areas. It extends from Kalaoa to South Kona. The lower service area is served by gravity flow from Kahaluu Reservoir and extends from Keahole Airport to Keauhou Bay (see Figure 13).

Hawaii County has developed a Water Supply Plan to guide developments within the Keahole to Kailua area. The "K to K Plan" reports that,

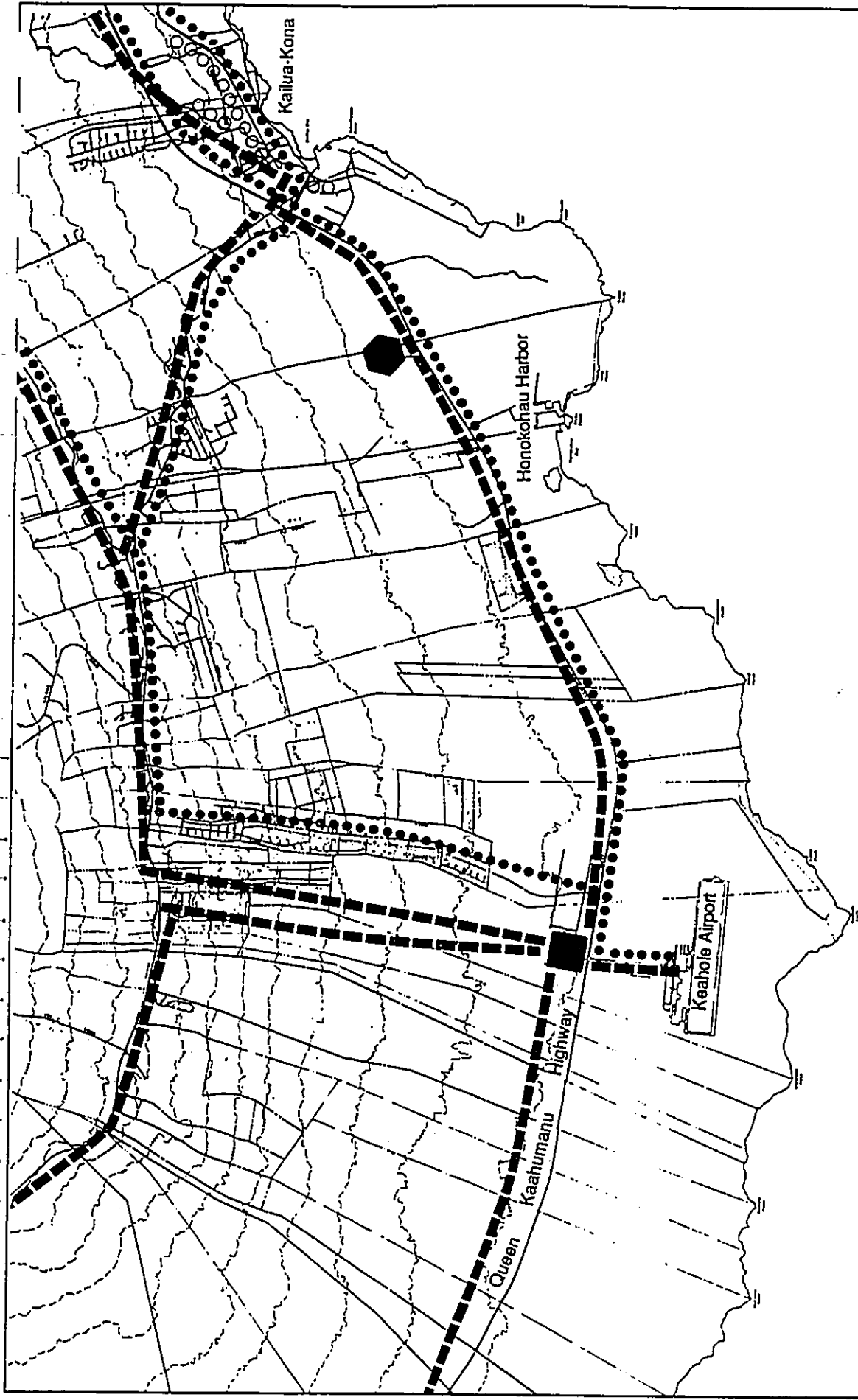
"A series of wells is proposed to be drilled in the 1,500 to 1,800-foot water resource development zone, spaced approximately half a mile apart. Approximately 36 wells would be required to supply the maximum day demand with one well out of service. Wells will be tied into a 24-inch transmission line approximately 20.3 miles long bringing water to the junction of Palani Road and Mamalahoa Highway. Two booster pump stations will be required along the length of the transmission line. From the 1,500 to 1,600-foot level the water will flow by gravity from the transmission line through the looped distribution system to the lower reaches of the system. The distribution system will be divided into service zones with pressure reducing valves between zones to maintain a water pressure range of approximately 40 to 100 pounds per square inch."

"... a new pipeline could be constructed along the new highway alignment to import from the south a portion of the water demand for areas below elevation 590 feet. This would improve the overall flexibility and energy efficiency of the water system."

"Nine 2.0 million gallon reinforced concrete reservoirs are required for the maximum day storage of 17.1 million gallons. An additional 0.75 million gallon reservoir for the general industrial area east of the Keahole Airport will also be required."

"Along the Belt Highway an existing booster pump station will be enlarged and a new booster station and reservoir are proposed to improve water pressures at the upper reaches of the water system. The existing water system along Palani Road from the junction of Hina Lani Drive to Kealakehe Drive will be reinforced with a 16-inch line. Flow in the existing system along Palani Road will be reversed with water flowing down to Kailua Village instead of pumping up Palani Road. Existing booster pump stations along Palani Road will no longer be required and could be placed on standby."

A series of new wells are proposed by both the State's Department of Land and Natural Resources (DLNR) and other private developers for developments in the region. Two wells currently under construction are near Kalaoa and Honokohau. Developed by the DLNR, these potable water wells are intended to support State projects in the area.



KONA CIVIC CENTER

Site Selection Study/EIS

DAGS Job No. 11-21-4080

**Figure 13 Existing Infrastructure**

- Existing Water System
- Existing Sewer System
- Existing Electrical System
- ▮ Existing Landfill Site
- Existing Power Plant



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DPD Associates, Inc.

Average daily water consumption for the civic center is estimated at 0.09 million gallons per day (at the rate of 3,000 gallon per acre). This consumption is consistent with the "K to K Plan" water demand projection. With the County's projection of future water demand and implementation of water storage and supply line upgrade at present and planned, the supply of water is not conceived to be a problem at this stage. However, upon selection of a site and depending on the location, confirmation with either the State or private developers for connection to the appropriate water supply system will be necessary.

### 3.5.2 SEWER.

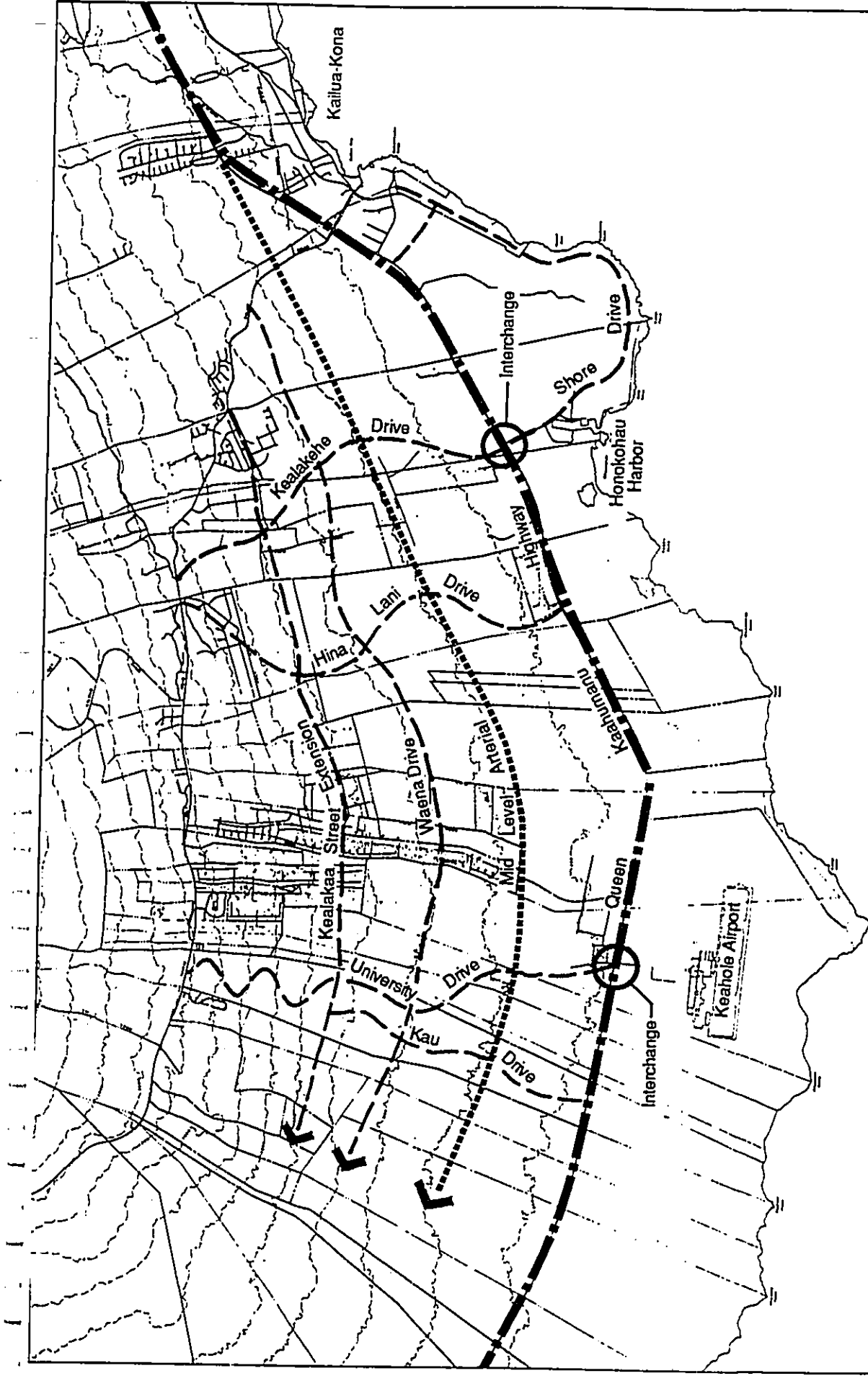
The Kona area is presently serviced by two alternative methods of sewer disposal, municipal/private sewage treatment plants and private cesspools. Developments (i.e., hotels, commercial and industrial sources and some high density residential developments) in Kailua-Kona and Keauhou are currently serviced by the new municipal wastewater treatment plant located by the Honokohau Harbor. Existing municipal wastewater lines extend from the town of Kailua to the intersection of Palani Road and Queen Kaahumanu Highway. The current municipal service area does not include developments beyond this intersection and there are no existing sewer lines beneath Queen Kaahumanu Highway. Developments beyond Kailua, such as Keahole Airport, use their own individual sewage systems. According to the "K to K Plan", the municipal wastewater system may eventually service the area from Kailua to Keahole Airport in response to future development.

### 3.5.3 DRAINAGE.

The area between Keahole and Kailua is covered with ancient a'a and pahoehoe lava flows which are extremely permeable. No known defined drainageways or perennial streams exist in the area. As a result, no floodways or flood zones have been identified or recorded. Significant alterations to existing surface water runoff patterns are not expected to occur. A storm drainage system will be master planned, designed and constructed in compliance with County and State standards.

### 3.5.4 ELECTRICAL POWER/COMMUNICATIONS.

The area between Keahole Airport and Kailua-Kona is serviced by a network of 69 kV lines and a power plant at Keahole. There are a total of nine 69 kV substations in the area. Transmission lines run along Queen Kaahumanu Highway and Palani Road. (See Figure 13).



**Figure 14 Roadway System**  
 County of Hawaii: Keahole to Kailua Development Plan

- Proposed Regional Highway
- ..... Proposed Major Arterial
- - - Proposed Collector
- Existing Roadways



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The Keahole power plant is at Kalaoa, north of Queen Kaahumanu Highway. There are no plans to relocate this power plant. To the contrary, it is to be expanded in the near future with a probable doubling of generating capacity. Recently, a Draft Environmental Impact Statement has been published for a proposed 69 kV transmission line between the Keahole Switching Station and the Kailua Substation. This project is proposed to accommodate load growth and maintain system reliability.

Telephone service is supplied by Hawaiian Telephone who usually negotiates with the Hawaiian Electric Light Company, Inc. (HELCO) to use the same poles.

### 3.5.5 GAS.

Service from The Gas Company is limited to within Kailua Village. Gas is presently unavailable beyond the limits of the village and immediate adjacent areas.

### 3.5.6 HIGHWAY/STREET NETWORK.

The primary road system for the area between Keahole Airport and Kailua-Kona consists of a lower and an upper road running almost parallel to the shoreline at elevations of approximately 130 and 1,600, feet respectively. South of Kailua-Kona in the general area of Keauhou, the two main roads, Queen Kaahumanu Highway and Mamalahoa Highway, converge and follow a single alignment along an elevation of approximately 1,300 feet.

There are existing mauka-makai connectors between the lower and upper roads in the vicinity of Keahole Airport (Kaimi Nani Drive) and in Kailua-Kona (Palani Road). One such connector at Kaloko Point, Hina Lani Drive, is currently nearing completion. The "K to K Plan" proposes additional connecting alignments between Mamalahoa Highway and Queen Kaahumanu Highway as well as several other improvements to the existing highway/street network (refer to Figure 14). The following alignments and improvements are proposed in the "K to K Plan":

#### QUEEN KAAHUMANU HIGHWAY

The State Department of Transportation has plans to improve Queen Kaahumanu Highway to a fully-access controlled facility. However, there is no indication that this will occur within the time frame used in this study (1992 - 1997). It is understood that when Queen Kaahumanu Highway is improved, access to the project sites along Queen Kaahumanu Highway would be via a frontage roadway. As an interim condition, Queen Kaahumanu Highway will be improved to a four-lane divided arterial.



#### MID-LEVEL ARTERIAL/ROADWAY

The revised "K to K Plan" shows a "Mid-Level Arterial" road parallel to and about 1 mile mauka of Queen Kaahumanu Highway. This 4-lane Arterial Roadway would have a minimum 120-foot right-of-way. It would function as an important reliever road for Queen Kaahumanu Highway, and will extend through and beyond the lands of Kau.

#### WAENA DRIVE

Most of Waena Drive and other major proposed roads of the "K to K Plan" remain unchanged, and would extend through and beyond the lands of Kau.

#### KEALAKAA STREET EXTENSION

This north-south road would extend through and beyond the lands of Kau.

#### KAU MAUKA - MAKAI ROAD 1

This major mauka-makai road is shown as running from the Mamalahoa Highway down through the Kau tract, and then through the northern section of the designated University site until it finally meets Queen Kaahumanu Highway at the proposed grade-separated intersection at Keahole Airport.

#### KAU MAUKA - MAKAI ROAD 2

This second mauka-makai road, within the Kau tract, would run from Kealakaa Street extension at about the 900-foot elevation to Queen Kaahumanu Highway.

#### HINALANI DRIVE

This proposed major roadway remains unchanged from the "K to K Plan". The roadway, a connecting alignment between the Mamalahoa and Queen Kaahumanu Highways at Kaloko Point, is currently nearing completion.

#### KEALAKEHE DRIVE

This mauka-makai roadway has been realigned to correspond approximately with the horizontal alignment that is being proposed by the Housing Finance and Development Corporation. The road could redirect some traffic from Palani Road and eliminate the need for the Palani Road bypass originally proposed. In the "K to K Plan" the roadway becomes Shore Drive along the coast.

### 3.5.7 SOLID WASTE.

Solid waste has been disposed of at the Kailua Landfill since the mid 1970s. Since its closure in 1993, the new landfill near Pu'uanahulu, midway between Waimea and Kailua-Kona, has become the location to provide service for the North Kona district. The new 300-acre landfill site has sufficient capacity to operate for at least 25 years.

Subsurface refuse fires at the Kailua Landfill are known to exist within the disposal area limits and attempts to extinguish the fires by excavation and dousing have been unsuccessful in the past. At times these fires have caused small localized brush fires on the landfill. In addition, odor complaints have been received by the County on several occasions from employees of the Kailua Police Station. Complaints were also received during the late 1980s from the Kealakehe School and residents to the east of the landfill. Although the original grade at the site was generally flat with slight sloping to the north, refuse was placed over the original grade with little or no excavation of native materials. Lava tubes are known to exist below the landfill at varying depths.

A proven method for fire control involving a geomembrane cover system which would cut off the air supply through the landfill has been proposed to the County by Parametrix, Inc. Combustion is terminated once the subsurface fires are deprived of their air supply, however, subsurface temperatures could remain high due to the insulating properties of the refuse material. A cooldown period that could possibly last for decades is necessary. During the cooldown period, any reintroduction of air could regenerate subsurface combustion. As a result, the operation, monitoring, and maintenance of the gas and fire management system proposed for the Kailua Landfill would need to be continued even after the actual closure of the landfill.

The drawbacks to the geomembrane method are the following:

- "Inclusion of a geomembrane in the final cover may result in an increased potential for landfill gas accumulation and off-site migration."
- "Fires would not be extinguished immediately, but would likely require a long cooldown period; consequently, the landfill operations and maintenance would need to include a program to ensure there are no fire recurrences."

Upon closing of the Kailua Landfill, acquisition of property adjacent to the landfill area for a buffer zone has also been suggested as an additional safety measure.

### 3.6 Socioeconomic Environment

#### 3.6.1 POPULATION.

##### EXISTING POPULATION

The project area is located within the North Kona district, one of the fastest growing districts in the State of Hawaii. Between 1970 and 1990, the growth factor of the district was 4.6; the population more than quadrupled in that span of time. North Kona grew 2.4 times as fast as the County of Hawaii, and 3.3 times as fast as the State of Hawaii between 1970 and 1990.

Table 1 illustrates these numbers.

Table 1  
Existing Population of Hawaii County

| <u>County and District</u> | <u>1970</u> | <u>1980</u> | <u>1990</u> | <u>Percent of Growth 1970-1990</u> | <u>Growth Factor 1970-1990</u> |
|----------------------------|-------------|-------------|-------------|------------------------------------|--------------------------------|
| State of Hawaii            | 769,913     | 964,691     | 1,108,229   | 44                                 | 1.4                            |
| Hawaii County              | 63,468      | 92,053      | 120,317     | 90                                 | 1.9                            |
| Puna                       | 5,154       | 11,751      | 20,781      | 303                                | 4.0                            |
| South Hilo                 | 33,915      | 42,278      | 44,639      | 32                                 | 1.3                            |
| North Hilo                 | 1,881       | 1,679       | 1,541       | -18                                | .8                             |
| Hamakua                    | 4,648       | 5,128       | 5,545       | 19                                 | 1.2                            |
| North Kohala               | 3,326       | 3,249       | 4,291       | 29                                 | 1.3                            |
| South Kohala               | 2,310       | 4,607       | 9,140       | 296                                | 4.0                            |
| North Kona                 | 4,832       | 13,748      | 22,284      | 361                                | 4.6                            |
| South Kona                 | 4,004       | 5,914       | 7,658       | 91                                 | 2.3                            |
| Kau                        | 3,398       | 3,699       | 4,438       | 31                                 | 1.3                            |

Source: Department of Business and Economic Development, The State of Hawaii Data Book: A Statistical Abstract. November 1991.

Of the 22,284 residents of the North Kona district, 9,126 or approximately forty-one percent live in Kailua; 4,490 or twenty percent live in Kalaoa; 3,834 or seventeen percent live in Holualoa; 1,990 or nine percent live in Kahaluu-Keauhou; and 1,926 or less than nine percent live in Honalo.

As of 1990, there were 7,898 households within the North Kona district. Within the project area best described by census tract 215.01, which covers the area from Kiholo Bay to Kailua-Kona, there were a total of 2,166 households and the resident population was 6,486.

Table 2 illustrates these statistics.

**Table 2**  
Resident Population and Households for Hawaii County, 1990

| <u>County, District and Census Tract</u>             | <u>Population</u> | <u>Households</u> |
|--|-------------------|-------------------|
| Hawaii County  | 120,317           | 41,461            |
| North Kona District                                  | 22,284            | 7,898             |
| 215.01 (Kiholo Bay to Kailua area, including Kalaoa) | 6,486             | 2,166             |
| 215.02 (Holualoa to Honalo area)                     | 2,944             | 1,058             |
| 215.97 (between Honalo and Kealakekua)               | 104               | 33                |
| 215.98 (Kahaluu-Keauhou to Honalo area)              | 3,089             | 1,142             |
| 216 (Kailua-Kona to Kahaluu area)                    | 9,661             | 3,499             |

Source: Department of Business and Economic Development, The State of Hawaii Data Book: A Statistical Abstract, November 1991.

The "K to K Plan" cites the 1988 housing inventory conducted by the Planning Department. The inventory indicated a total of 1,511 housing units listed by subareas within the Keahole to Kailua project area. The results of that inventory are as follows:

|     | <u>Subarea</u>            | <u>Single-Family<br/>Units</u> | <u>Multi-Family<br/>Units</u> |
|-----|---------------------------|--------------------------------|-------------------------------|
| 1.  | Keahole                   | 0                              | 4                             |
| 2.  | Makaula                   | 0                              | 0                             |
| 3.  | Kona Coastview            | 409                            | 0                             |
| 4.  | Keahole Agricultural Park | 12                             | 0                             |
| 5.  | Palisades                 | 532                            | 0                             |
| 6.  | Ooma                      | 0                              | 0                             |
| 7.  | Kaloko - Lower            | 0                              | 0                             |
| 8.  | Kaloko - Upper            | 96                             | 0                             |
| 9.  | Kohanaiki                 | 0                              | 0                             |
| 10. | National Park             | 1                              | 0                             |
| 11. | Kaloko Industrial Park    | 1                              | 0                             |
| 12. | Honokohau - Lower         | 0                              | 0                             |
| 13. | Honokohau - Upper         | 5                              | 0                             |
| 14. | Kealakehe - Makai         | 0                              | 0                             |
| 15. | Kealakehe - Middle        | 0                              | 0                             |
| 16. | Kealakehe - Upper         | 337                            | 114                           |
|     | TOTALS:                   | 1,393                          | 118                           |
|     | TOTALS, all units:        |                                | 1,511                         |

PROJECTED POPULATION

The State of Hawaii's official population projections for Hawaii County for the period between 1995 and 2010 are shown in Table 3.

Table 3  
Official State Population Projections, Hawaii County

|                     | <u>1995</u> | <u>2000</u> | <u>2005</u> | <u>2010</u> |
|---------------------|-------------|-------------|-------------|-------------|
| Resident Population | 142,500     | 160,400     | 180,800     | 206,100     |

Source: Department of Business and Economic Development, The State of Hawaii Data Book: A Statistical Abstract. November 1989.

The "K to K Plan" uses the projections developed in April 1989 by the Hawaii County Planning Department. The following table from the "K to K Plan" lists the housing, employment, schools and population projections for the Keahole to Kailua project area.

Table 4  
Population Projections from the "K to K Plan"

|                            | <u>1987</u> | <u>2010</u> | <u>Increase</u> |        |
|----------------------------|-------------|-------------|-----------------|--------|
| No. Residential Units      | 1,511       | 5,771       | 4,260           | (282%) |
| Resident Population        | 4,512       | 14,674      | 10,162          | (225%) |
| No. Hotels and Condo Units | 0           | 2,629       | --              |        |
| Employment                 | NA          | 6,612       | --              |        |
| School Enrollment          | 1,450       | 4,168       | 2,718           | (187%) |

Both projections show a definite increase in population. This increase, in turn, is expected to have a noticeable affect on employment and housing.

### 3.6.2 EMPLOYMENT AND INCOME.

In 1989, the per capita personal income in Hawaii County was \$14,969 which is below the State average of \$18,379. The unemployment rate for the County in 1990 was 3.8 percent, or approximately 2,350 were unemployed out of 61,550 persons in the Hawaii County civilian labor force.

The visitor industry provides the major source of economic activity in North Kona and has expanded tremendously, primarily in the Kailua-Kona area. As of 1988, there were about 4,750 visitor units in the district. Other industries in the district include agribusiness and small-scale farming of papaya, banana, avocados and ginger root; cattle ranching; coffee farming; cold water aquaculture; commercial fishing; construction; floriculture and nurseries specializing in orchids, anthuriums and protea; quarrying; and timber.

### 3.7 Public Services

#### 3.7.1 HEALTH CARE FACILITIES.

##### HOSPITAL

The Kona Hospital facility has been relocated to Kealahou in South Kona. It has medical/surgical, obstetrical and skilled nursing facilities. Services include intensive care, orthopedics and emergency care. Day hospital services are provided by the Department of Health at the old Kona Hospital site. Ambulance service is provided by the fire department in Kailua-Kona.

#### 3.7.2 POLICE AND FIRE PROTECTION.

##### POLICE DEPARTMENT

There is a new police substation located in Kealahou, adjacent to the existing landfill. The police substation serves both North and South Kona. The police force consists of 60 men.

##### FIRE DEPARTMENT

A 33-man, 24-hour fire facility with air, land and sea rescue capabilities is located in Kailua. Volunteer stations are located at Hualalai Ranch and the Kona Village Resort.

#### 3.7.3 OTHER SERVICES.

##### COUNTY DEPARTMENTS

The District Court is presently housed at the old Kona Hospital in Kealahou and is sharing the facility with the Department of Health. Public Works, the Deputy Managing Director, the Planning Department, Licensing and Liquor Control all have their offices in Kailua. The State operates baseyards in Kaloko and Honaunau while the County's baseyard and government offices are located in Captain Cook.

POSTAL FACILITIES

Postal facilities for North Kona are located in Holualoa and Kailua.

RECREATIONAL FACILITIES

Recreational facilities in North Kona are available at County beach parks. Other recreational facilities are located in South Kona at Captain Cook and Kealahou.



**CHAPTER 4.0 IDENTIFICATION OF POTENTIAL SITES**

## 4.0 IDENTIFICATION OF POTENTIAL SITES

### 4.1 Site Selection Methodology

The initial step of the site selection process is to identify a broad site selection area based on a set of minimum evaluation criteria. The minimum criteria includes size, land ownership, slope, tsunami and flood hazards, and displacement of existing tenants. Proximity to Kailua town and the presence or lack of nearby business and residential neighborhoods are also important considerations.

It has been previously noted that North Kona is the fastest growing district in the County of Hawaii. This growth leadership is expected to continue. Kailua-Kona is similarly expected to continue its central commercial/population related role. For these reasons, our study area for the civic center identified the Keahole to Kailua Development Plan area as the most reasonable broad site area from which to select candidate sites.

Meetings have been held with DAGS representatives as well as State and County officials to identify potential candidate sites. The identified candidate sites are evaluated in detail in the chapter to follow.

## 4.2 Minimum Site Criteria

The selection of candidate sites is based on the following minimum site criteria:

### 4.2.1 SIZE.

The site should not be less than 30 acres. Ownership by the State is desirable but not absolutely necessary.

### 4.2.2 LOCATION.

Proximity to Kailua town, the major commercial and population center, is essential to the operation and efficient use of the civic center. Moreover, as the Office of State Planning has designated the Keahole to Kailua area as one of the Subregional Planning Areas (refer to Figure 15), these areas will, implicitly, outline the most probable extent of public efforts for infrastructure improvements and expansion in the near future. Therefore, the site study area should be within the County of Hawaii Keahole to Kailua Development Plan areas.

### 4.2.3 SLOPE.

The site should not have a slope of greater than 10 percent, nor be located in a known landslide area. A relatively flat site is desirable to minimize the cost of clearing and grading. (See Figure 15).

### 4.2.4 TSUNAMI AND FLOOD HAZARD.

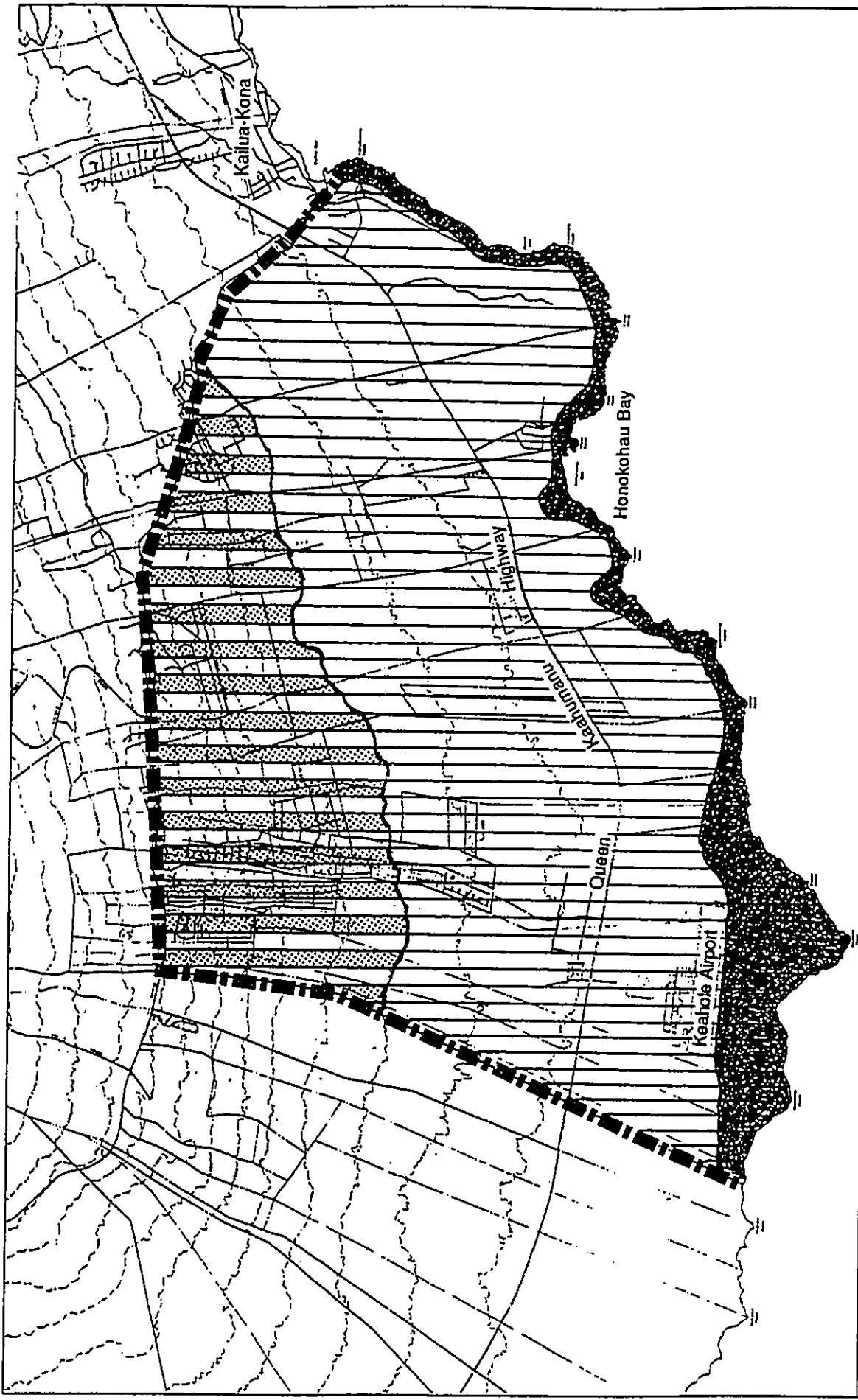
The site should not be traversed by a major drainage channel nor be located in a flood plain or tsunami inundation zone as established by FEMA. Figure 15 outlines the tsunami and flood hazard zones.

### 4.2.5 LAND OWNERSHIP.

It is preferred, but not absolutely necessary, that the site be located on State land. Figure 16 illustrates State land within the Subregional Planning Areas.

### 4.2.6 DISPLACEMENT OF EXISTING TENANTS AND COMMITTED DEVELOPMENT

The site should avoid displacing existing homes or other committed developments. Vacant lands are deemed best. Figure 16 outlines all the lands available for development.



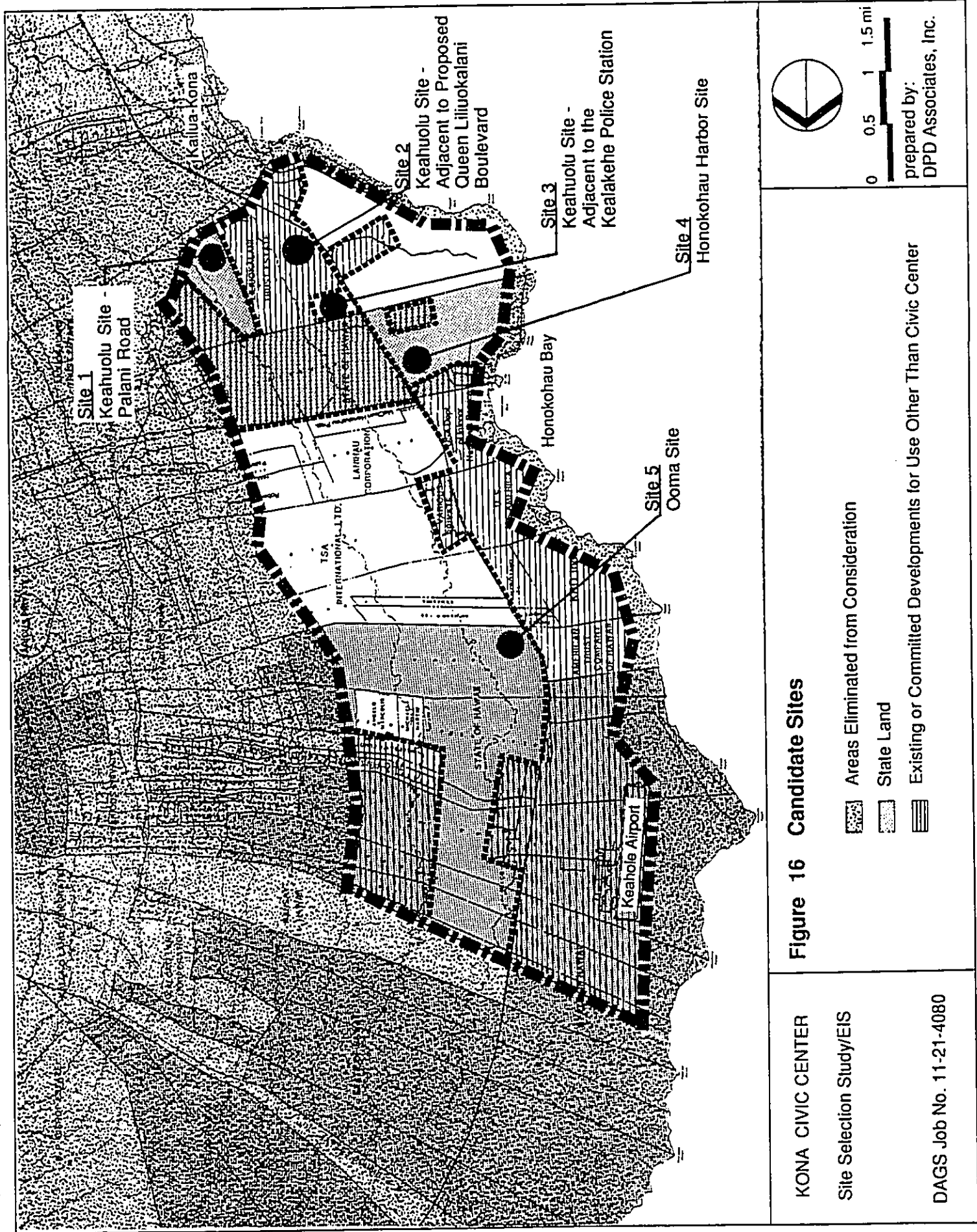
KONA CIVIC CENTER  
 Site Selection Study/EIS  
 DAGS Job No. 11-21-4080

**Figure 15 Project Area**

- ▤▤▤ Subregional Planning Area
- ▧▧▧ Subregional Planning Area with over 10 percent slope
- ▨▨▨ Subregional Planning Area within tsunami hazard zone

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Figure 16 Candidate Sites

### 4.3 Candidate Sites

The following five candidate sites meet the minimum site criteria and are illustrated in Figure 16:

- Site 1: Keahuolu Site - Palani Road
- Site 2: Keahuolu Site - Adjacent to the Proposed Queen Liliuokalani Boulevard
- Site 3: Keahuolu Site - Adjacent to the Kealakehe Police Station
- Site 4: Honokohau Harbor Site
- Site 5: Oona Site

Since all five parcels permit more than one possible location for site development, the present site locations are established so that they will relate most advantageously to all known existing physical conditions. The actual site configuration should be verified and finalized in accordance with the final adopted master plan of adjacent developments.

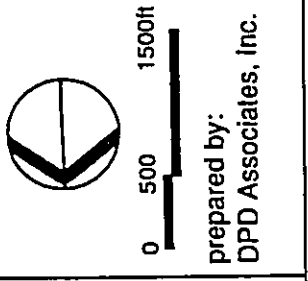
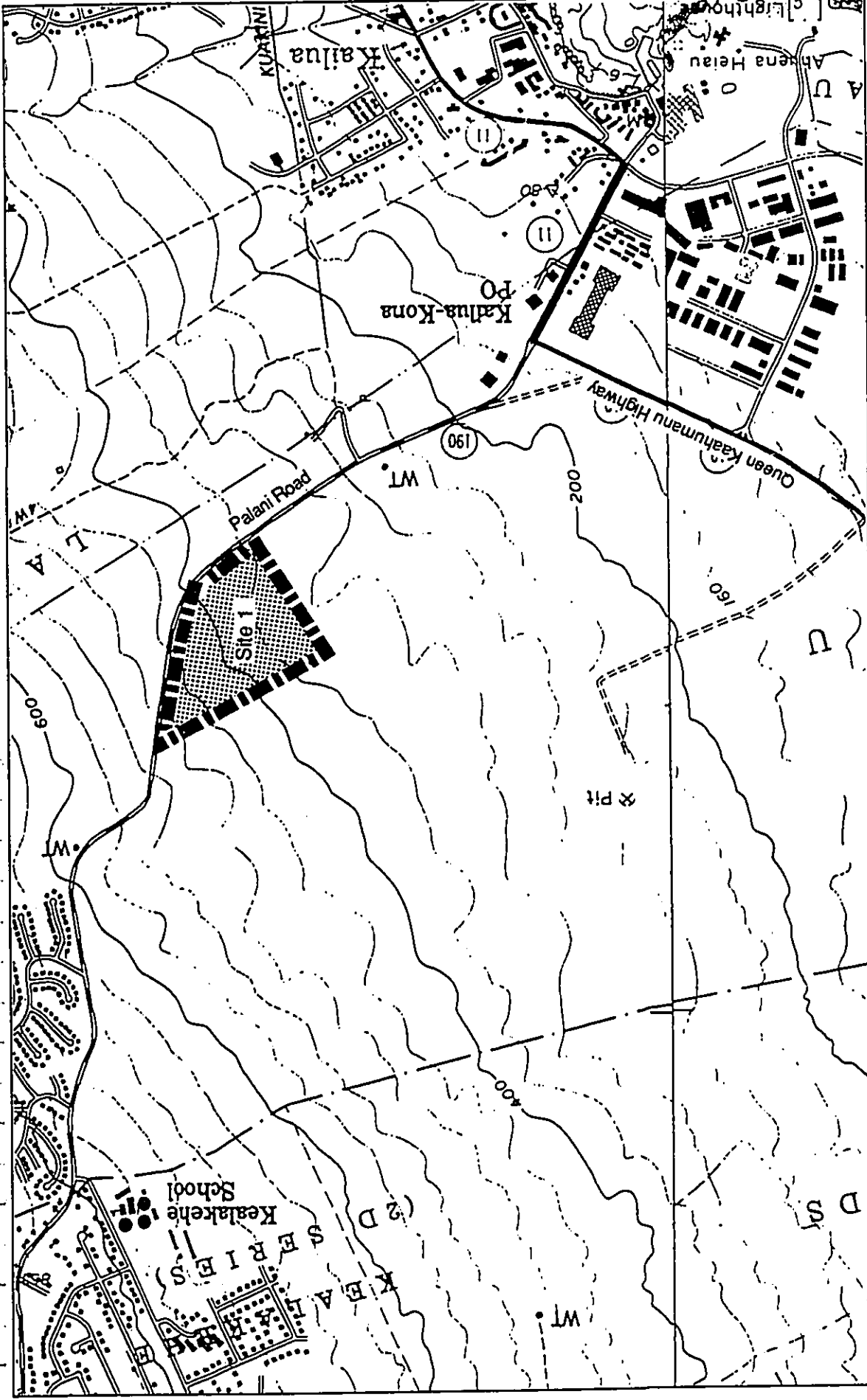
The following represents a general discussion of the main aspects of each candidate site:

**Site 1****Keahuolu Site - Palani Road****Figure 17, 18, 19**

|                            |   |
|----------------------------|---|
| Tax Map Key                | 3 - 7 - 4 - 08: 12 (Lot 1)  |
| Size                       | 30 acres  |
| Location                   | The site is located within the parcel of 450 acres purchased by the state from Liliuokalani Trust. This site extends from the proposed mid-level road at the west to the residential development (proposed by the Housing Finance and Development Corporation) at the east, with Palani Road bordering on the south side.   |
| Ownership                  | State of Hawaii   |
| State Land Use District    | Agricultural  |
| County Land Use Allocation | Urban Development<br>The "K to K Plan" further defines this "Urban Development" area for this site to "Kealakehe Planned Community", "Urban Expansion", and "Open Space" uses.  |
| Slope                      | About 10 percent  |
| Elevation                  | 300 to 500 feet   |
| Annual Rainfall            | 35 to 45 inches   |
| Utilities                  | <u>Electrical Power/Communications</u><br>Connection to existing lines along Palani Road is possible.<br><br><u>Water</u><br>A new well, storage tank and transmission lines may be required. However, it may be possible to utilize the reservoir proposed by the Housing Finance and Development Corporation at the 935 foot elevation.<br><br><u>Wastewater</u><br>New lines connecting the site to the new sewage treatment plant are required. Depending upon the final wastewater master plan of the Kealakehe Planned Community, it may be possible to incorporate this new connection into their proposed system. |

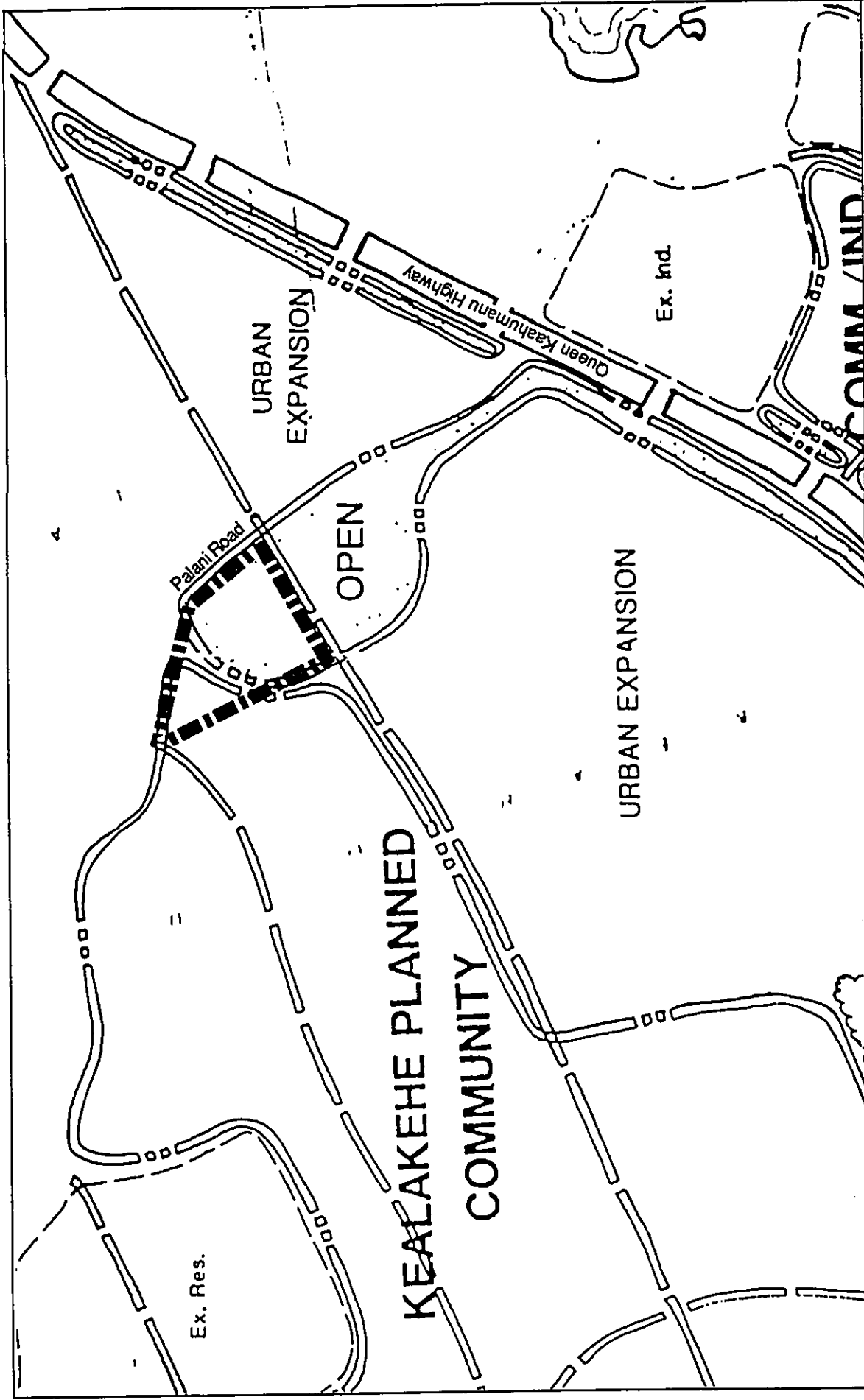
|                          |  |
|--------------------------|--|
| Archaeological Potential | According to the records of the State Historic Preservation Division, five significant archaeological sites were found in the vicinity of this site and data recovery plans are required by the State Historic Preservation Division. Thus, the site configuration should be flexible to accommodate any encountered archaeological sites at a later stage of this project.  |
| Roadway                  | <p>The major access roads for this site are the existing Palani Road, Henry Street and its extension, and the proposed mid-level road.</p> <p>The proposed mid-level road is a 120-foot, 4-lane minor arterial road, planned to function as a relief road for Queen Kaahumanu Highway. There are also proposals to connect this mid-level road with the extension of Henry Street which is perceived as an alternate alignment for the mid-level road without additional impact on Queen Kaahumanu Highway. Henry Street will also be improved to a 4-lane arterial which will serve as the main access road from Queen Kaahumanu Highway when the improvements are completed.</p> |
| Site Relationships       | <p>1 mile to the town of Kailua<br/>2 miles to the existing Police Station<br/>8 miles to Keahole Airport</p>  |
| Surrounding Land Use     | <p>The site is adjacent to the Housing Finance and Development Corporation's Kealakehe Planned Community which is in the final stage of master planning. The proposed extension of Kealakehe Drive and the golf course are both presently under construction.</p> <p>On the other side of the mid-level road is the imminent proposed commercial, office and regional shopping development proposed by Liliuokalani Trust. This can provide supporting office structures and related commercial uses to the civic center.</p> <p>The site is also within a mile from the existing Kailua Village.</p>  |

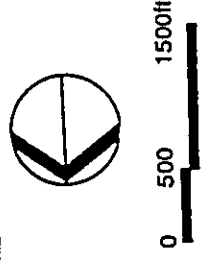


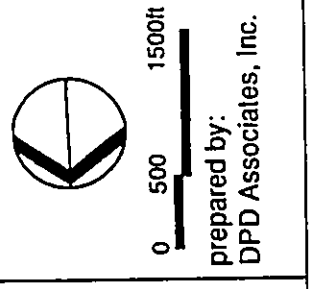
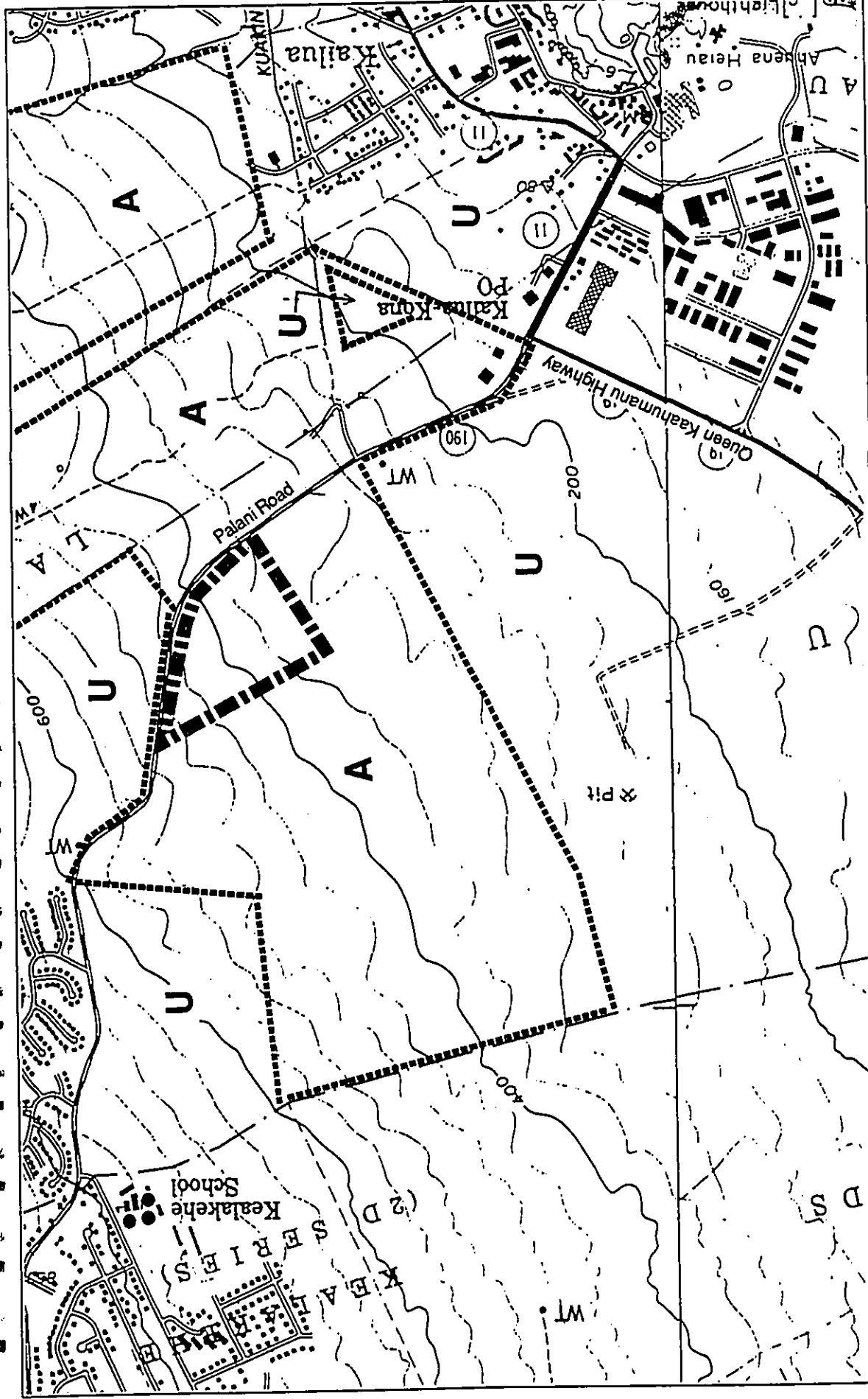


**Figure 17 Site 1  
Keahuolu Site - Palani Road**

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|  |   |  |
|--|---|--|
| <p>KONA CIVIC CENTER<br/>Site Selection Study/EIS</p> <p>DAGS Job No. 11-21-4080</p> | <p><b>Figure 18 Site 1</b><br/><b>Keahuolu Site - Palani Road</b></p> <p>Keahole to Kailua Development Plan</p> |  <p>0 500 1500ft</p> <p>prepared by:<br/>DPD Associates, Inc.</p> |
|--|---|--|



**Figure 19 Site 1**  
**Keahuolu Site - Palani Road**

State Land Use Districts  
 U Urban  
 A Agricultural  
 C Conservation

prepared by:  
 DPD Associates, Inc.

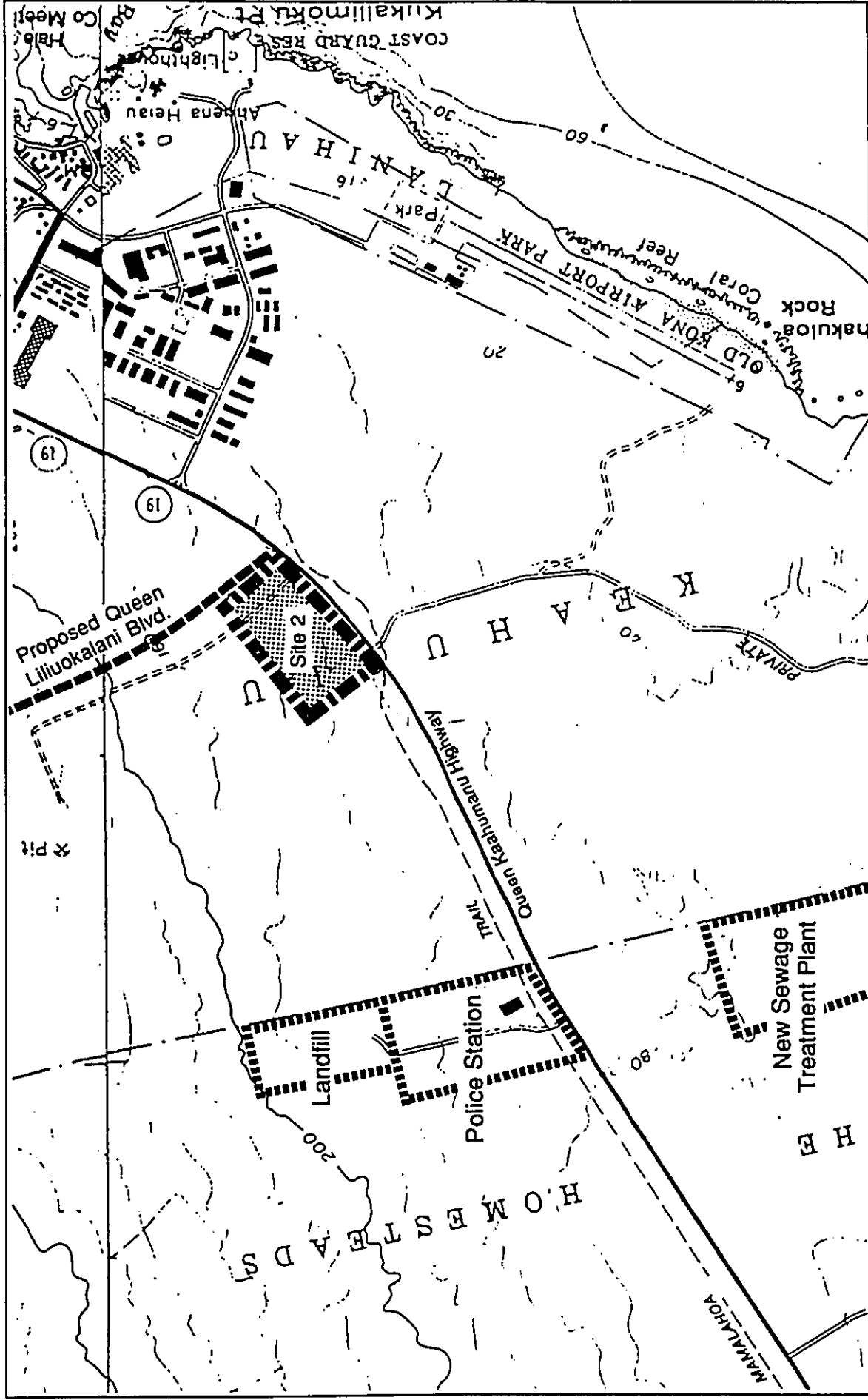
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 Site Selection Study/EIS

DAGS Job No. 11-21-4080

**Site 2****Keahuolu Site - Adjacent to the Proposed Queen Liliuokalani Boulevard**  
**Figure 20, 21, 22**

|                            |   |
|----------------------------|---|
| Tax Map Key                | 3 - 7 - 4 - 08: 12 (Lot 2)  |
| Size                       | 30 acres  |
| Location                   | This site is located to the south of the existing Police Station and is proposed to be located at the intersection of Queen Kaahumanu Highway and the proposed Queen Liliuokalani Boulevard.  |
| Ownership                  | The Liliuokalani Trust  |
| State Land Use District    | Urban   |
| County Land Use Allocation | Urban Expansion<br>The "K to K Plan" defines this area as "Urban Expansion".  |
| Slope                      | 0 to 5 percent  |
| Elevation                  | 100 feet  |
| Annual Rainfall            | 20 to 30 inches   |
| Utilities                  | <u>Electrical Power/Communications</u><br>Connection to existing lines along Queen Kaahumanu Highway is possible.<br><br><u>Water</u><br>A new well, storage tank and transmission lines are required. It may be possible for the site to utilize the water system as proposed in the Liliuokalani Trust master plan.<br><br><u>Wastewater</u><br>New lines connecting the site to the new sewage treatment plant are required. |


|                          |  |
|--------------------------|--|
| Archaeological Potential | According to the records of the State Historic Preservation Division, no significant archaeological sites are located at this site. Hence, the construction of the proposed project will have "no effect" on archaeological or historical sites.   |
| Roadway                  | Presently, the major access road to this site is the Queen Kaahumanu Highway. As the site is proposed to be located off the proposed Queen Liliuokalani Boulevard, this road and the future Front Road will become the main access roads to this site. When Queen Kaahumanu Highway becomes a limited access expressway, it is probable that no direct access to the highway will then be available for this site. |
| Site Relationships       | About 1 mile to the town of Kailua<br>About 0.6 mile to the existing Police Station<br>5.5 miles to Keahole Airport  |
| Surrounding Land Use     | This site is located within a reasonable walking distance to the existing Police Station which will offer a compatible use to the civic center.<br><br>Similar to Site 1, this site is adjacent to the proposed Liliuokalani Trust commercial and office developments which can provide supporting uses to the civic center.   |

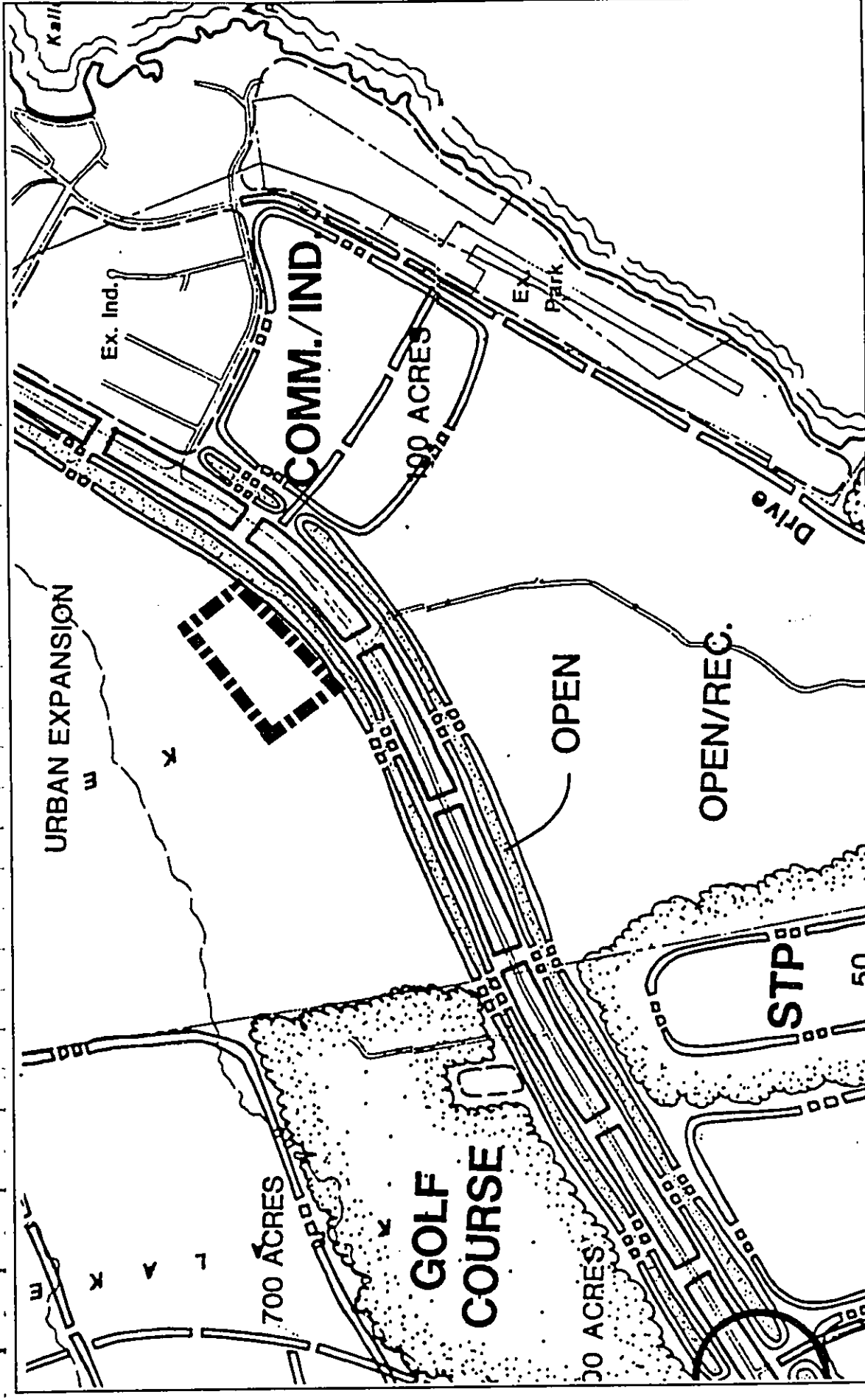


**KONA CIVIC CENTER  
Site Selection Study/EIS**

**Figure 20 Site 2  
Keahuolu Site - Adjacent to the Proposed  
Queen Liliuokalani Blvd.**

**DAGS Job No. 11-21-4080**

0 500 1500ft  
  
 prepared by:  
 DPD Associates, Inc.



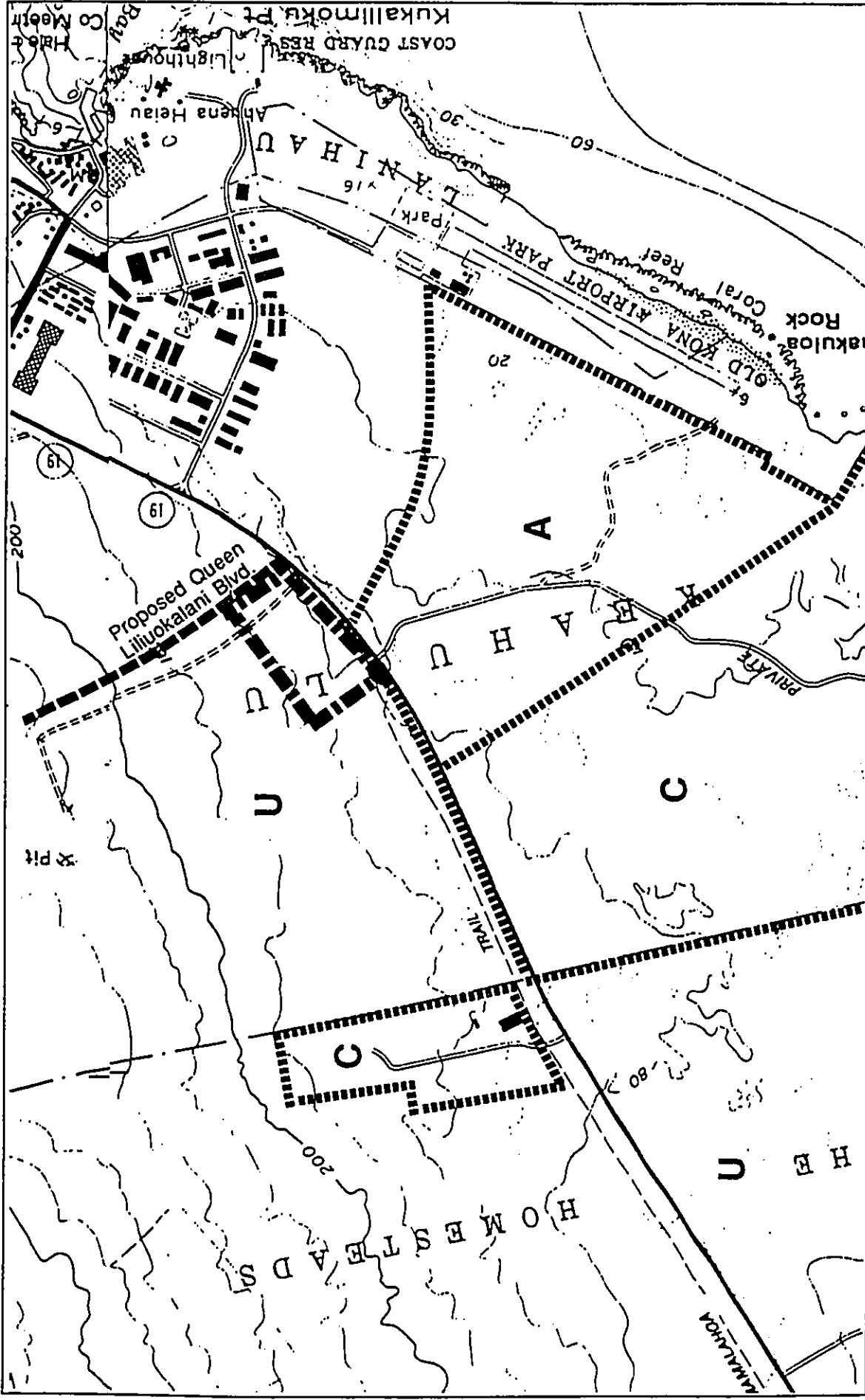
prepared by:  
 DPD Associates, Inc.

**Figure 21 Site 2**  
 Keahuolu Site - Adjacent to the Proposed  
 Queen Liliuokalani Blvd.

Keahole to Kailua Development Plan

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**Figure 22 Site 2**  
**Keahuolu Site - Adjacent to the Proposed**  
**Queen Liliuokalani Blvd.**

- State Land Use Districts
- U Urban
  - A Agricultural
  - C Conservation



0 500 1500ft

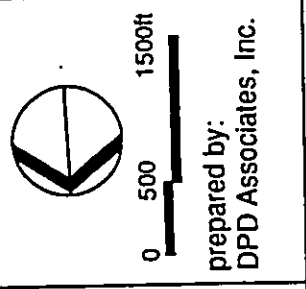
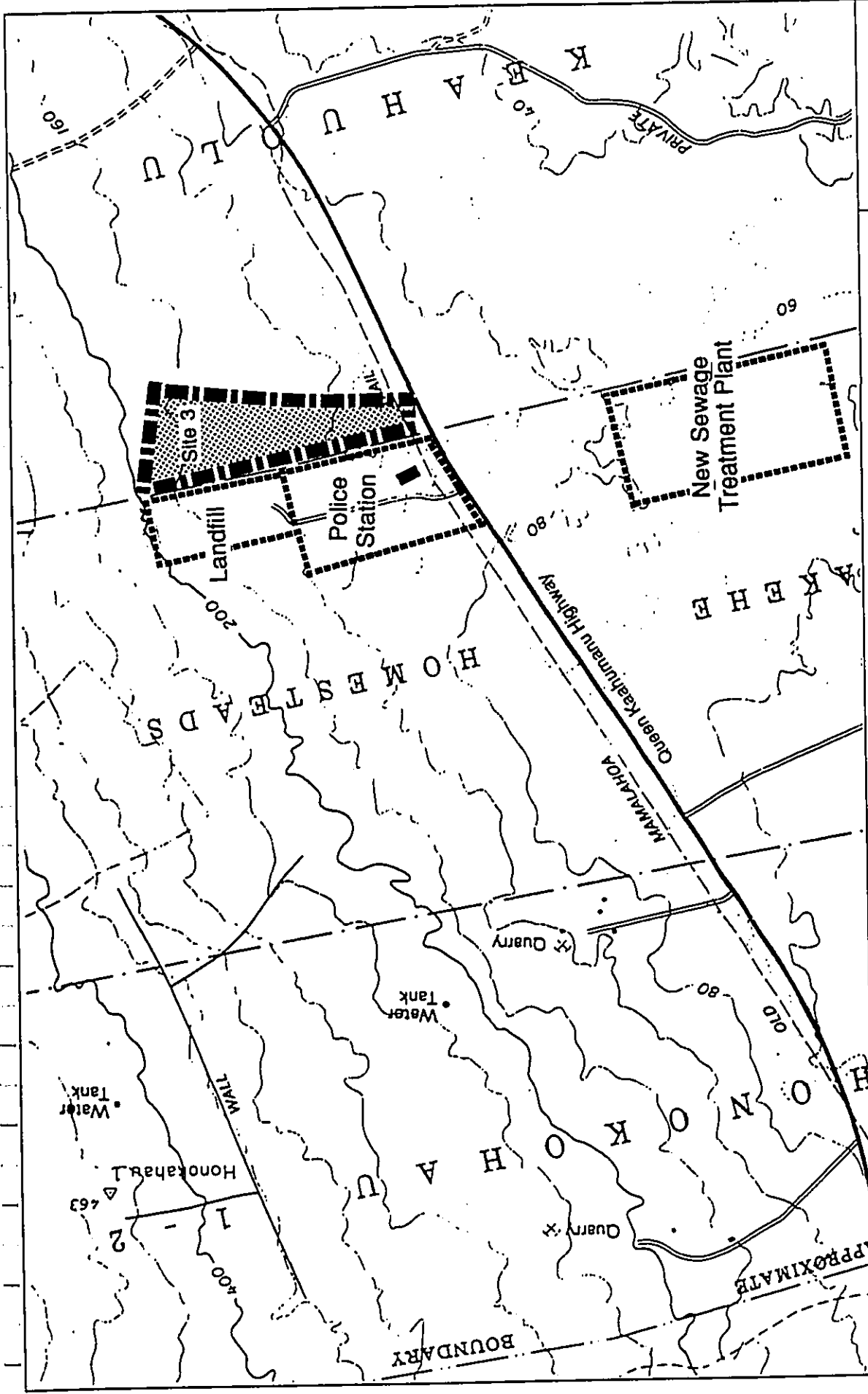
prepared by:  
DPD Associates, Inc.



**Site 3****Keahuolu Site - Adjacent to the Kealakehe Police Station****Figure 23, 24, 25**

|                            |  |
|----------------------------|--|
| Tax Map Key                | 3 - 7 - 4 - 08: 12 (Lot 2)   |
| Size                       | 30 acres   |
| Location                   | The site is located on the south side of the existing Police Station and Kailua Landfill and is proposed to be located along Queen Kaahumanu Highway.  |
| Ownership                  | The Liliuokalani Trust<br><br>Presently, this site is proposed to be located entirely on Liliuokalani Trust Land; however, it may be possible to include a portion of the adjacent State or County land as part of the civic center site. This is subject to the negotiation of land acquisition if this site is selected.   |
| State Land Use District    | Urban  |
| County Land Use Allocation | Urban Expansion<br>The "K to K Plan" defines this area as "Urban Expansion" with an adjacent area designated for a golf course.  |
| Slope                      | 0 to 5 percent   |
| Elevation                  | 100 feet   |
| Annual Rainfall            | 20 to 30 inches  |
| Utilities                  | <u>Electrical Power/Communications</u><br>Connection to existing lines along Queen Kaahumanu Highway is possible.<br><br><u>Water</u><br>New wells, a storage tank and transmission lines are required. It may be possible for the site to utilize the water system as proposed in the Liliuokalani Trust master plan.<br><br><u>Wastewater</u><br>New lines connecting the site to the new sewage treatment plant are required. |

|                          |  |
|--------------------------|--|
| Archaeological Potential | According to the records of the State Historic Preservation Division, two significant archaeological sites are found at this location. One archaeological site is recommended for data recovery and the other site is a major trail, the Mamalahoa Trail, which has been committed for preservation with some level of interpretive development. Therefore, the design of the proposed project at this location would have to incorporate appropriate measures for the preservation of the Mamalahoa Trail.  |
| Roadway                  | Presently, the major access road to this site is the Queen Kaahumanu Highway. The Liliuokalani Trust, however, has proposed connector roads from their Keahuolu development to the Queen Kaahumanu Highway. This will become crucial for accessing this site if the State decides to upgrade the existing Queen Kaahumanu Highway to a limited access expressway. If the "K to K Plan" is implemented, the nearest access to Queen Kaahumanu Highway will most likely be on Kealakehe Drive. No direct access to the highway, then, will be available for this site.   |
| Site Relationships       | 1.5 miles to the town of Kailua<br>Adjacent to the existing Police Station and accessible by walking<br>5 miles to Keahole Airport   |
| Surrounding Land Use     | The major attraction of this site is its adjacency to the existing Police Station which offers a compatible use to the civic center.<br><br>This site is the proposed location for the civic center on the Liliuokalani Trust Keahuolu Lands master plan. Similar to Site 1, the advantage of this location is its adjacency to proposed commercial and office developments. However, the principle drawback of this location is its proximity to the existing landfill site. The County of Hawaii has plans to control the underground burning as well as to completely close down the landfill. Timeliness and the success of the closure and management of the landfill site pose important implications to the viability of this location. |

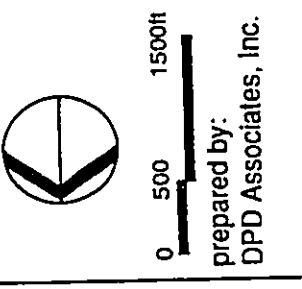
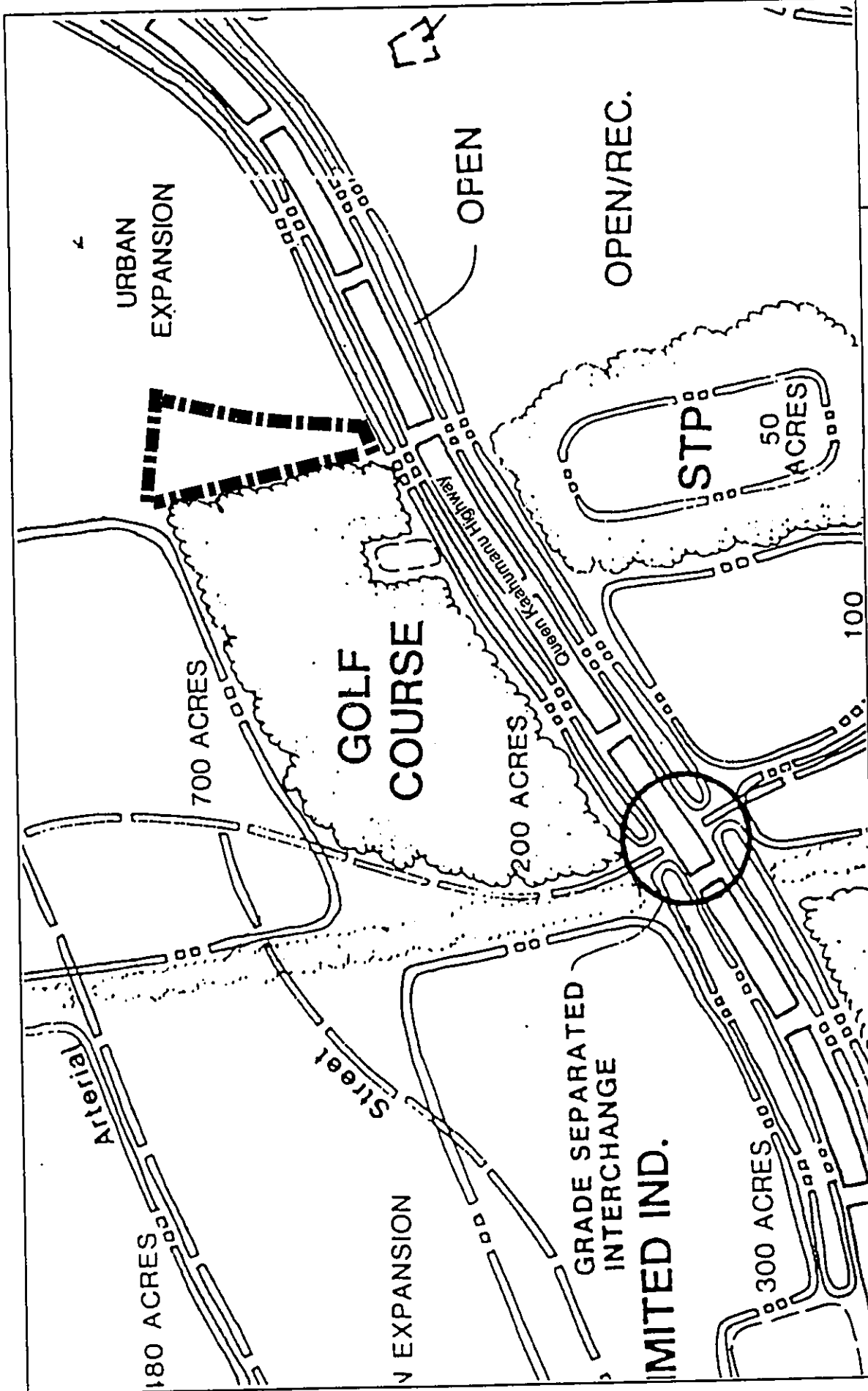


prepared by:  
DPD Associates, Inc.

**Figure 23 Site 3**  
**Keahuolu Site - Adjacent to the Kealahou Police Station**

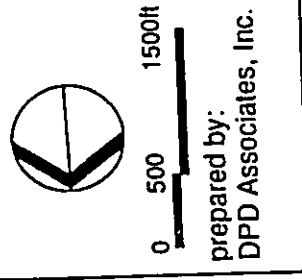
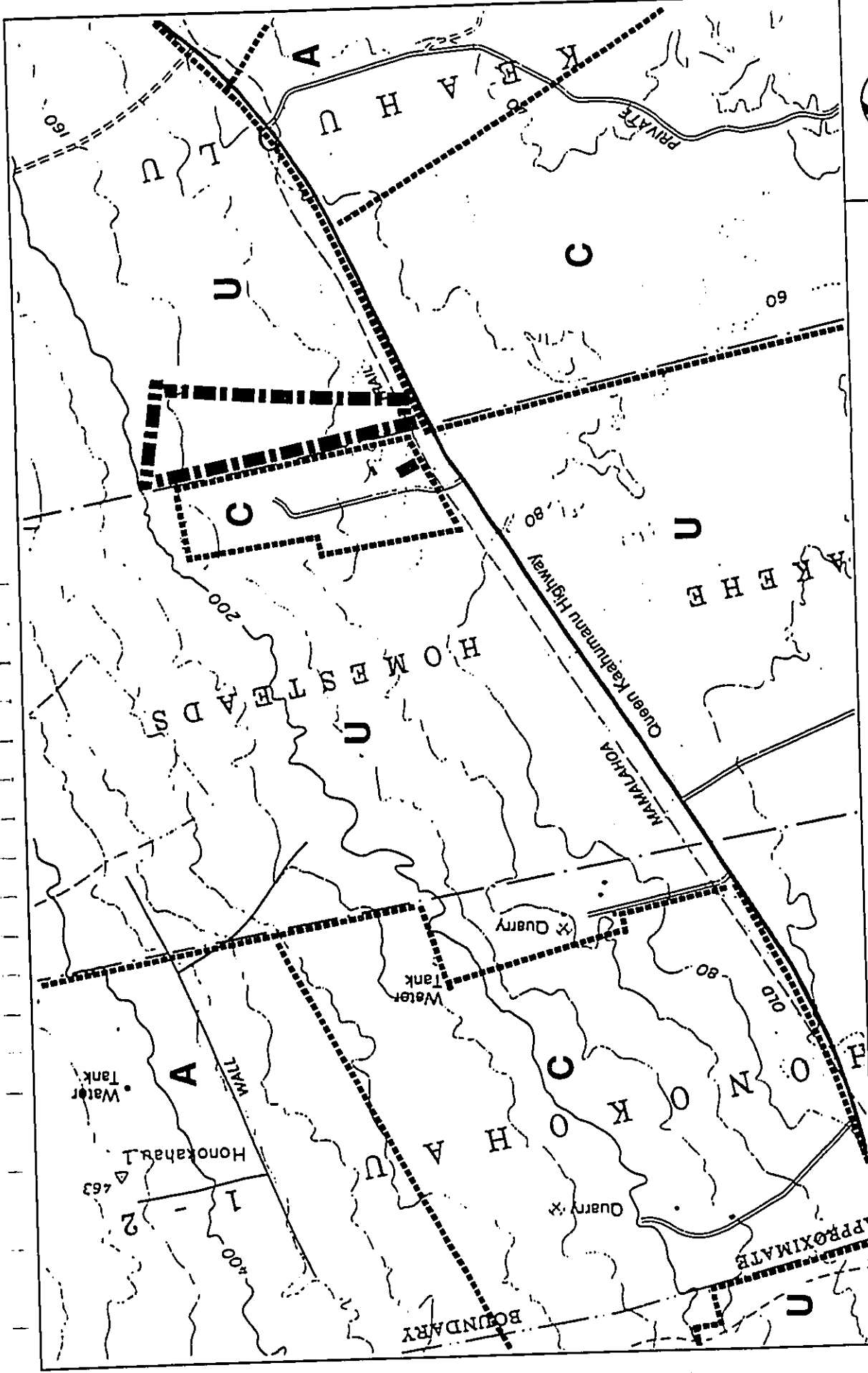
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**Figure 24 Site 3**  
**Keahuolu Site - Adjacent to the Kealahou Police Station**  
 Keahole to Kailua Development Plan

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**Figure 25 Site 3 Keahuolu Site - Adjacent to the Kealakehe Police Station**

State Land Use Districts  
 U Urban  
 A Agricultural  
 C Conservation

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 Site Selection Study/EIS

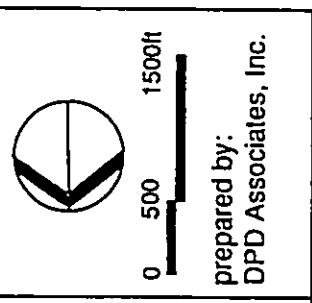
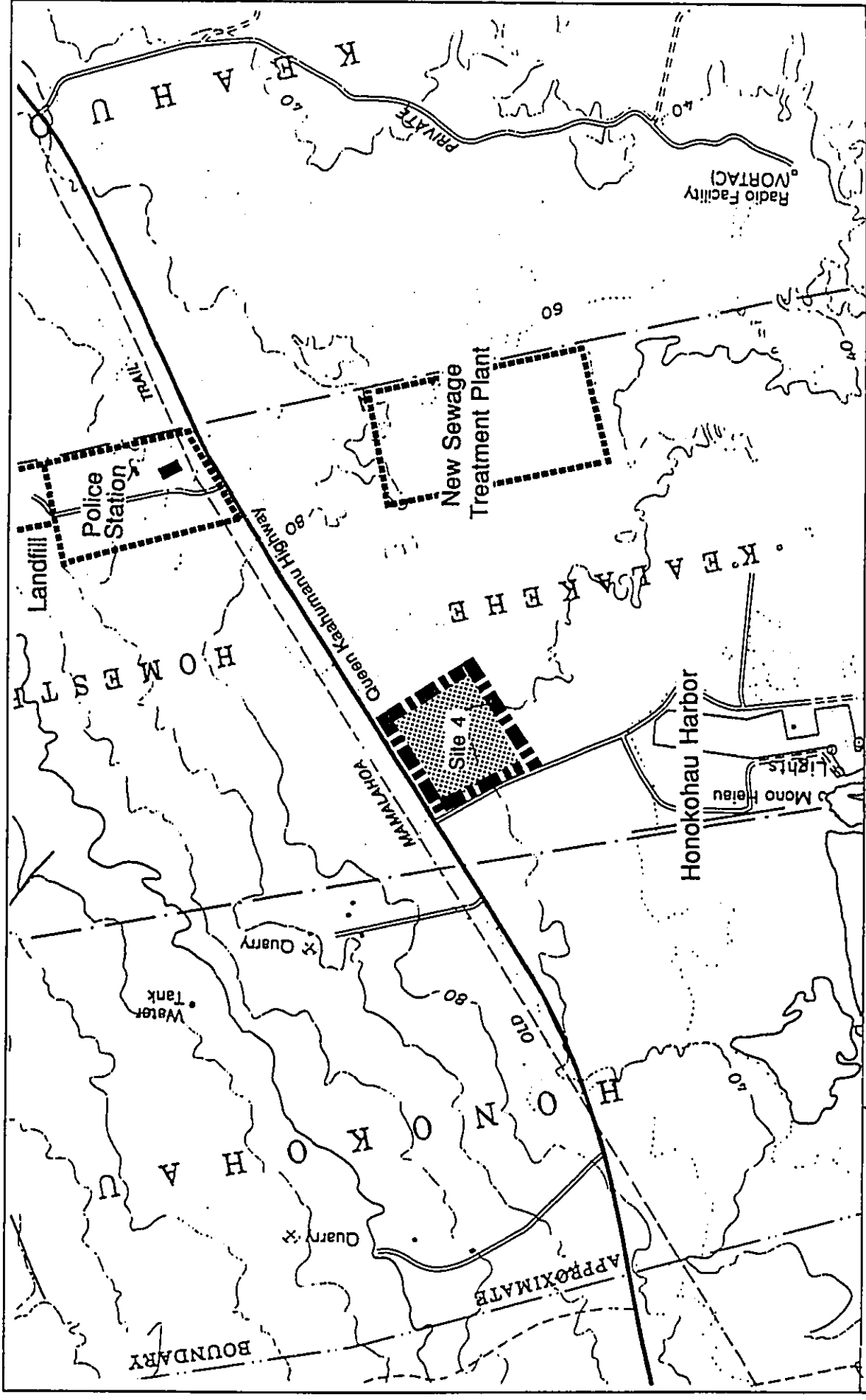
DAGS Job No. 11-21-4080

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 DPD Associates, Inc.

**Site 4**  
**Honokohau Harbor Site**  
**Figure 26, 27, 28**

|                            |  |
|----------------------------|--|
| Tax Map Key                | 3 - 7 - 4 - 08: 3  |
| Size                       | 30 acres   |
| Location                   | The site is located at the intersection of Queen Kaahumanu Highway and Kealakehe Drive. It is adjacent to the new sewage treatment plant as well as the existing Honokohau Harbor.   |
| Ownership                  | State of Hawaii  |
| State Land Use District    | Urban  |
| County Land Use Allocation | Urban Expansion<br>The "K to K Plan" designates this particular site as the 100-acre civic and business center.  |
| Slope                      | 0 to 5 percent   |
| Elevation                  | 50 to 70 feet  |
| Annual Rainfall            | 20 to 30 inches  |
| Utilities                  | <u>Electrical Power/Communications</u><br>Connection to existing lines along Queen Kaahumanu Highway is possible.<br><br><u>Water</u><br>New wells, a storage tank and transmission lines are required. However, it may be possible to utilize the reservoir that is proposed by the Housing Finance and Development Corporation at the 325 foot elevation. This reservoir is expected to accommodate the future expansion of the existing Honokohau Harbor.<br><br><u>Wastewater</u><br>New lines connecting the site to the new sewage treatment plant are required. However, this site will have immediate access to the new adjacent facility. A lift station would be required due to its lower elevation with respect to the sewage treatment plant. |

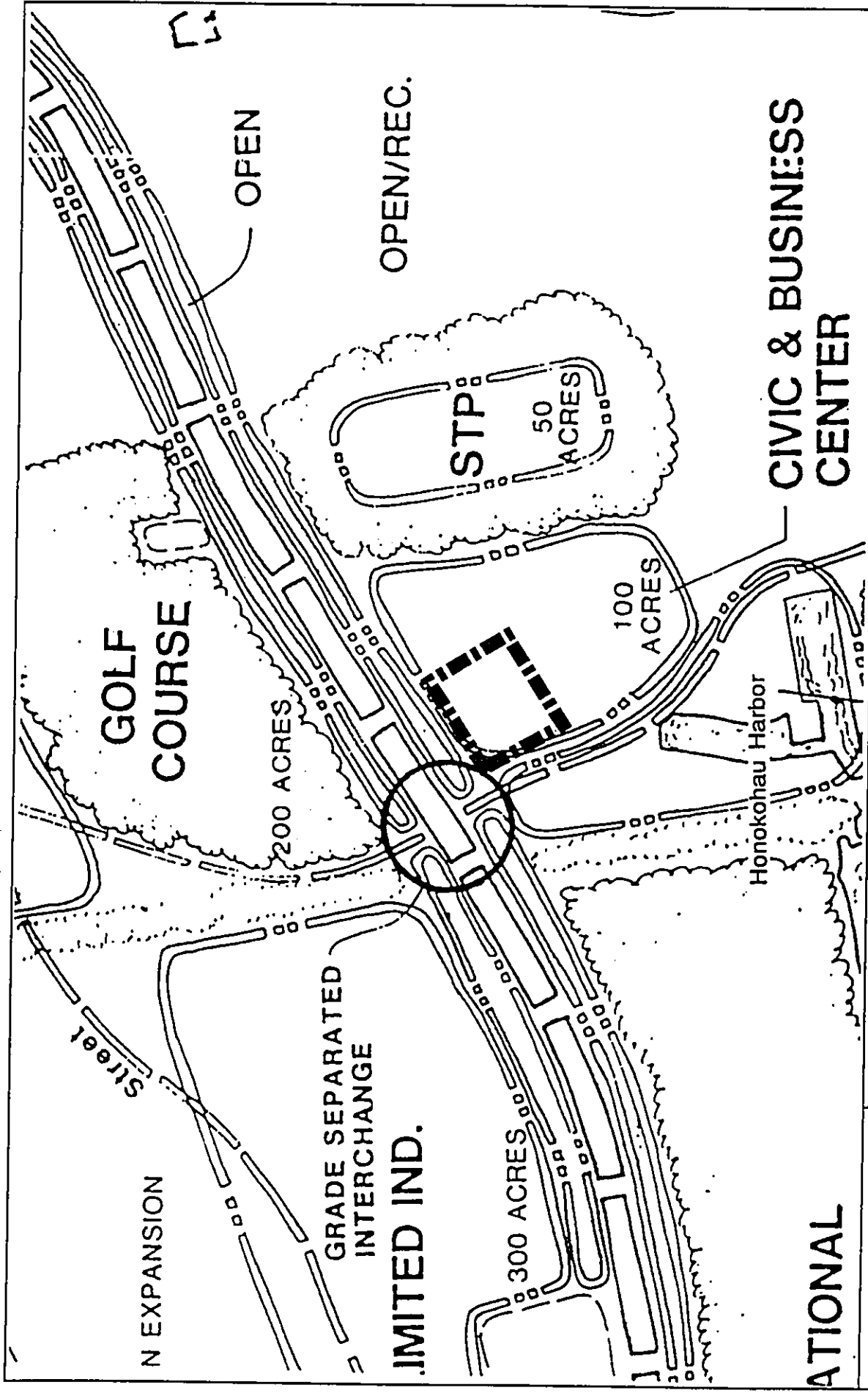
|                          |   |
|--------------------------|---|
| Archaeological Potential | <p>According to the records of the State Historic Preservation Division (HPD), no archaeological inventory survey has been conducted for this site. HPD expects very low densities of historic sites in this area. Occasional trails, associated shelters and a small grave cluster or two may be present. Burials should be preserved in place, if at all possible. It is unlikely that other sites found will need preservation, although this is always a possibility. Such other sites can probably undergo archaeological data recovery. The anticipated low density of historic sites will allow for design flexibility in this area. Nevertheless, archaeological inventory surveys will have to be conducted to confirm the presence or absence of significant historic sites.</p>                      |
| Roadway                  | <p>Since the site is situated at the intersection of Queen Kaahumanu Highway and Kealakehe Drive, these roadways will serve as major access roads to the site.</p> <p>According to the "K to K Plan," an interchange for Queen Kaahumanu Highway is proposed at Kealakehe Drive. The advantage will be direct and easy access to and from this site. However, the site location may have to be adjusted according to the required setback and easement requirements. The plan also proposes the Shore Drive, which connects Kealakehe Drive with the town of Kailua. This will provide a scenic access alternative to Queen Kaahumanu Highway into the town of Kailua.</p>  |
| Site Relationships       | <p>2 miles to the town of Kailua<br/>0.5 mile to the existing Police Station. Walking is possible with aids for pedestrians crossing the highway.<br/>4.5 miles to Keahole Airport</p>  |
| Surrounding Land Use     | <p>The site is within walking distance of Honokohau Harbor. According to the "K to K Plan," this site is proposed for a civic and business center development which, therefore, calls for other supporting business functions besides the basic civic center facilities. Without the proposed supporting business functions nearby, this site would have to rely on the Liliuokalani commercial development to provide office structures that would most likely be accessible only by vehicle from the civic center.</p> <p>The new County sewage treatment plant, which is near completion, is located on the south side of the site. Although the County has proposed a buffer area around the plant, there is still a potential concern about any noxious odors that may be emitted from the plant site.</p> |




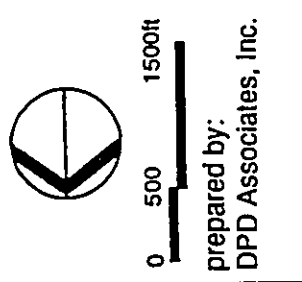
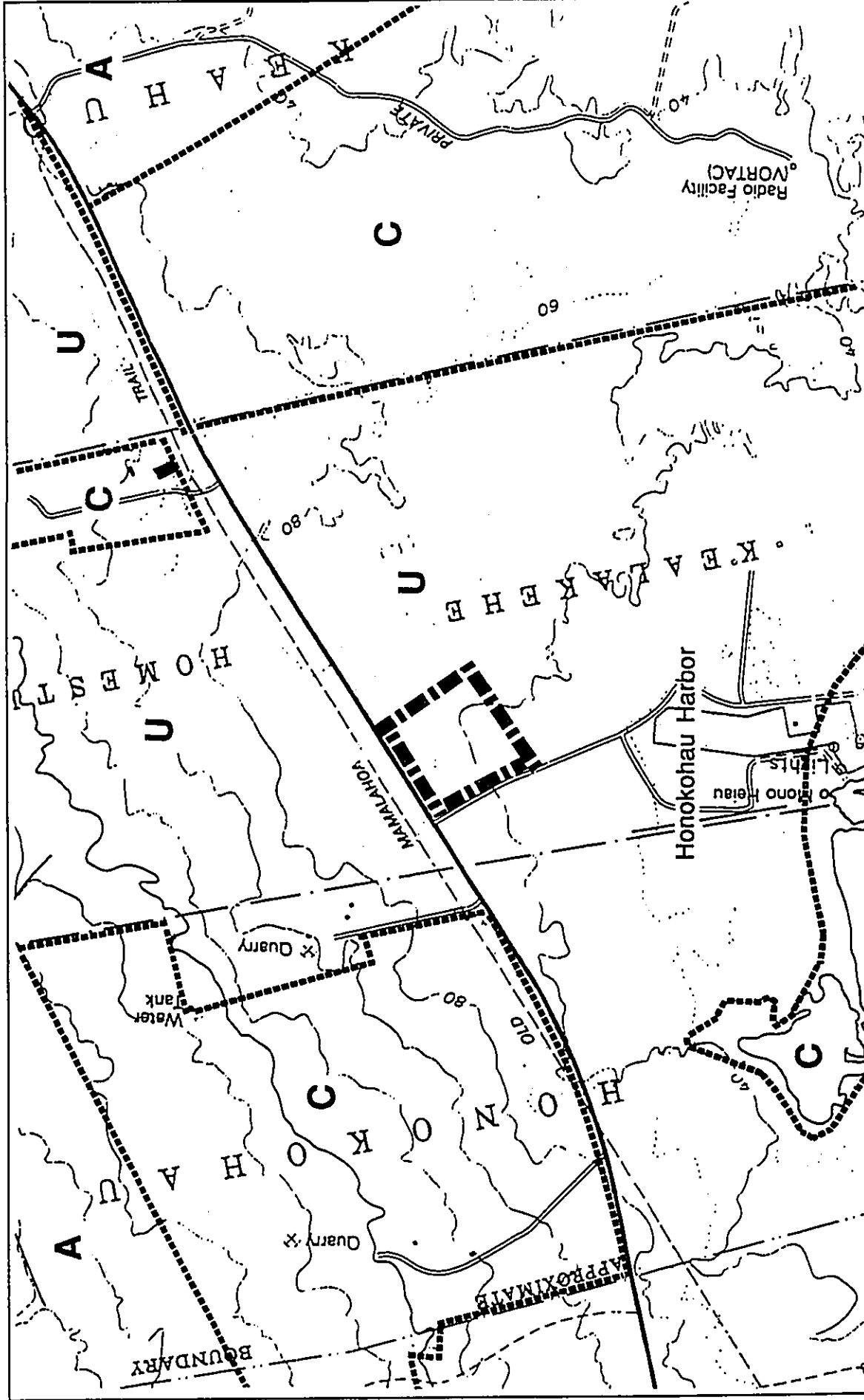
**Figure 26 Site 4  
Honokohau Harbor Site**

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|  |   |  |
|--|---|--|
| <p>KONA CIVIC CENTER<br/>Site Selection Study/EIS</p> <p>DAGS Job No. 11-21-4080</p> | <p><b>Figure 27</b>    <b>Site 4</b><br/><b>Honokohau Harbor Site</b></p> <p>Keahole to Kailua Development Plan</p> |  <p>0    500    1500ft</p> <p>prepared by:<br/>DPD Associates, Inc.</p> |
|--|---|--|



**Figure 28**  
**Site 4**  
**Honokohau Harbor Site**

State Land Use District  
 U Urban  
 A Agricultural  
 C Conservation

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 Site Selection Study/EIS  
 DAGS Job No. 11-21-4080

- Utilities**
- Electrical Power/Communications  
Connection to existing lines along Queen Kaahumanu Highway is possible.
- Water  
New wells, a storage tank and transmission lines are required. Since the State has no definite plans for water system improvements and there are no other proposed developments for this area, development at this location will probably have to account for most of the initial development costs.
- Wastewater  
Due to its distance from Kailua-Kona and its location between the new Kealakehe sewage treatment plant and the proposed second plant north of Keahole Airport, sewer connection may be tied to either plant. Depending upon the schedule of availability of the municipal sewer system, which is also related to the State effort to upgrade Queen Kaahumanu Highway, sewer connection to this site may pose a timing concern. Assuming sewer connection to the Kealakehe sewage treatment plant, two lift stations would be required to accommodate its distant run.
- Archaeological Potential** Similar to Site 4, an archaeological inventory survey for this site has not yet been undertaken. The State Historic Preservation Division (HPD) expects very low densities of historic sites in this area. Occasional trails, associated shelters and a small grave cluster or two may be present. Burials should be preserved in place, if at all possible. It is unlikely that other sites found will need preservation, although this is always a possibility. Such other sites can probably undergo archaeological data recovery. The anticipated low density of historic sites will allow for design flexibility in this area. Nevertheless, archaeological inventory surveys will have to be conducted to confirm the presence or absence of significant historic sites.
- Roadway**
- The main access road for this site is Queen Kaahumanu Highway. Presently, there are no existing connector roads from the highway to the site.
- According to the "K to K Plan," the two proposed interchanges at the highway will be at nearly equal distances from this site.
- Moreover, since there are no other commercial projects in the immediate area of the site, access may have to rely on a new road system if Queen Kaahumanu Highway becomes a limited access expressway in the future.

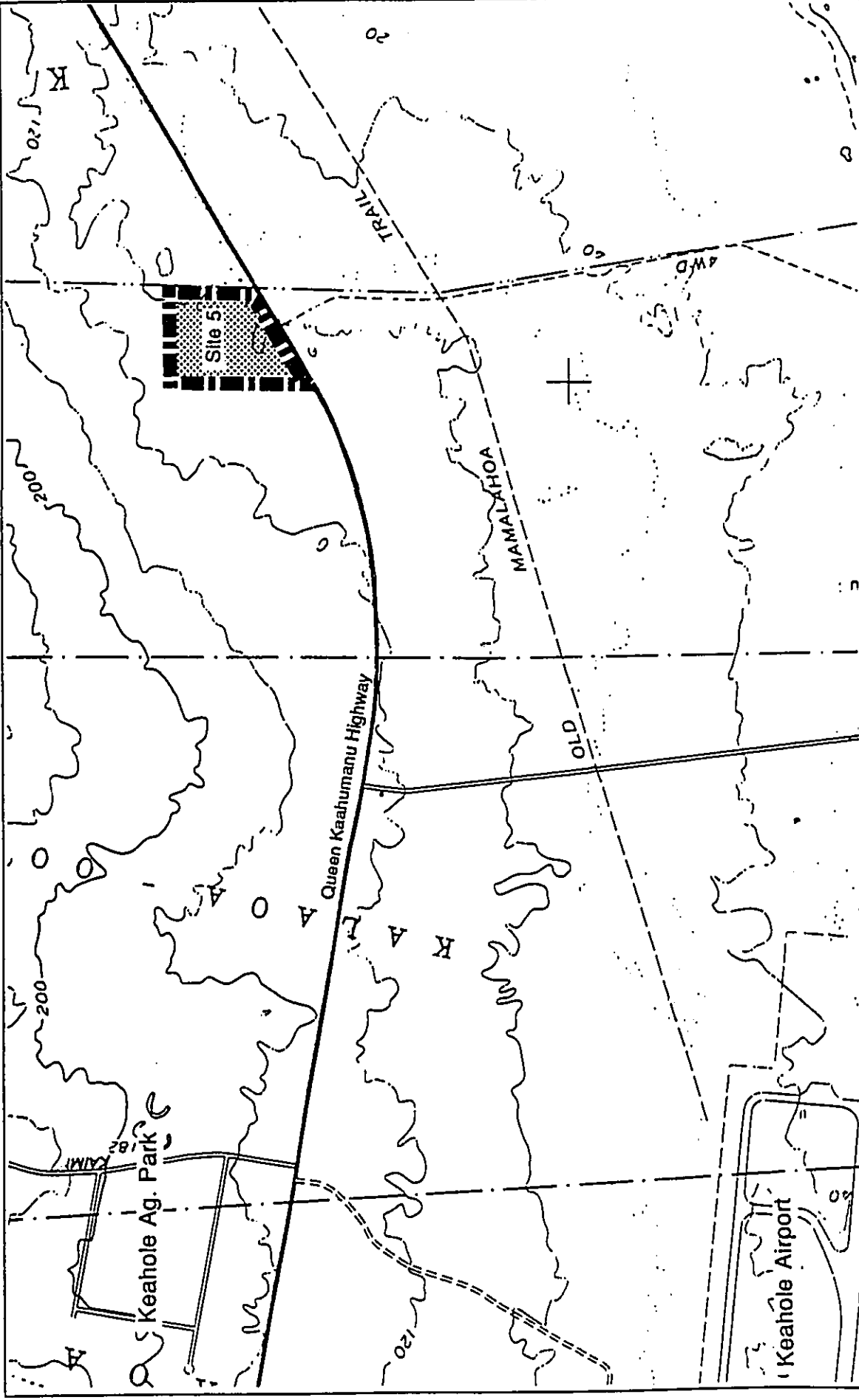
**Site 5**  
**Ooma Site**  
**Figure 29, 30, 31**

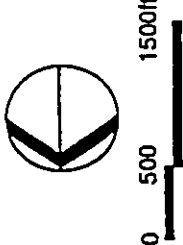
|                            |   |
|----------------------------|---|
| Tax Map Key                | 3 - 7 - 3 - 09: 5   |
| Size                       | 30 acres  |
| Location                   | The site is located near the existing Keahole Agricultural Park along Queen Kaahumanu Highway. It is the southern edge of the State-owned Ooma land.    |
| Ownership                  | State of Hawaii   |
| State Land Use District    | Urban   |
| County Land Use Allocation | Urban Expansion<br>The "K to K Plan" designates this site as "Open/Recreational" with a vast "Urban Expansion" parcel located to the south of the site. |
| Slope                      | 5 to 10 percent   |
| Elevation                  | 80 to 100 feet  |
| Annual Rainfall            | 20 to 30 inches   |

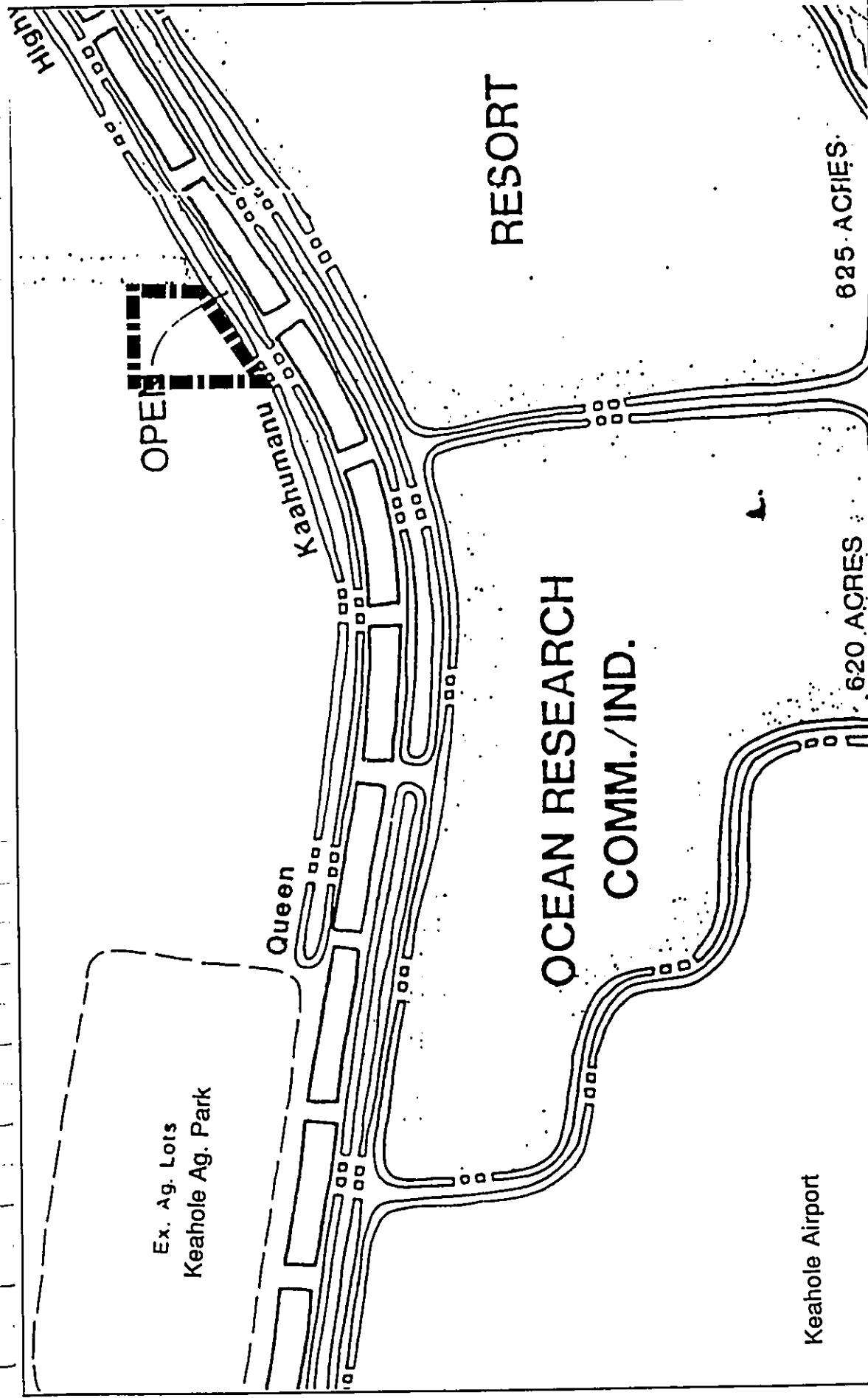
**Site Relationships**      7 miles to the town of Kailua  
6 miles to the existing Police Station  
1.5 miles to Keahole Airport

**Surrounding Land Use**      At present, the surrounding land use is predominantly agricultural and industrial. The existing Keahole Agricultural Park is located about one-half-mile to the north and the HOST Industrial Park is located across the highway. The existing Kaloko Industrial Park is located about one-half-mile to the south. To the northeast in the upland areas are the existing residential neighborhoods.

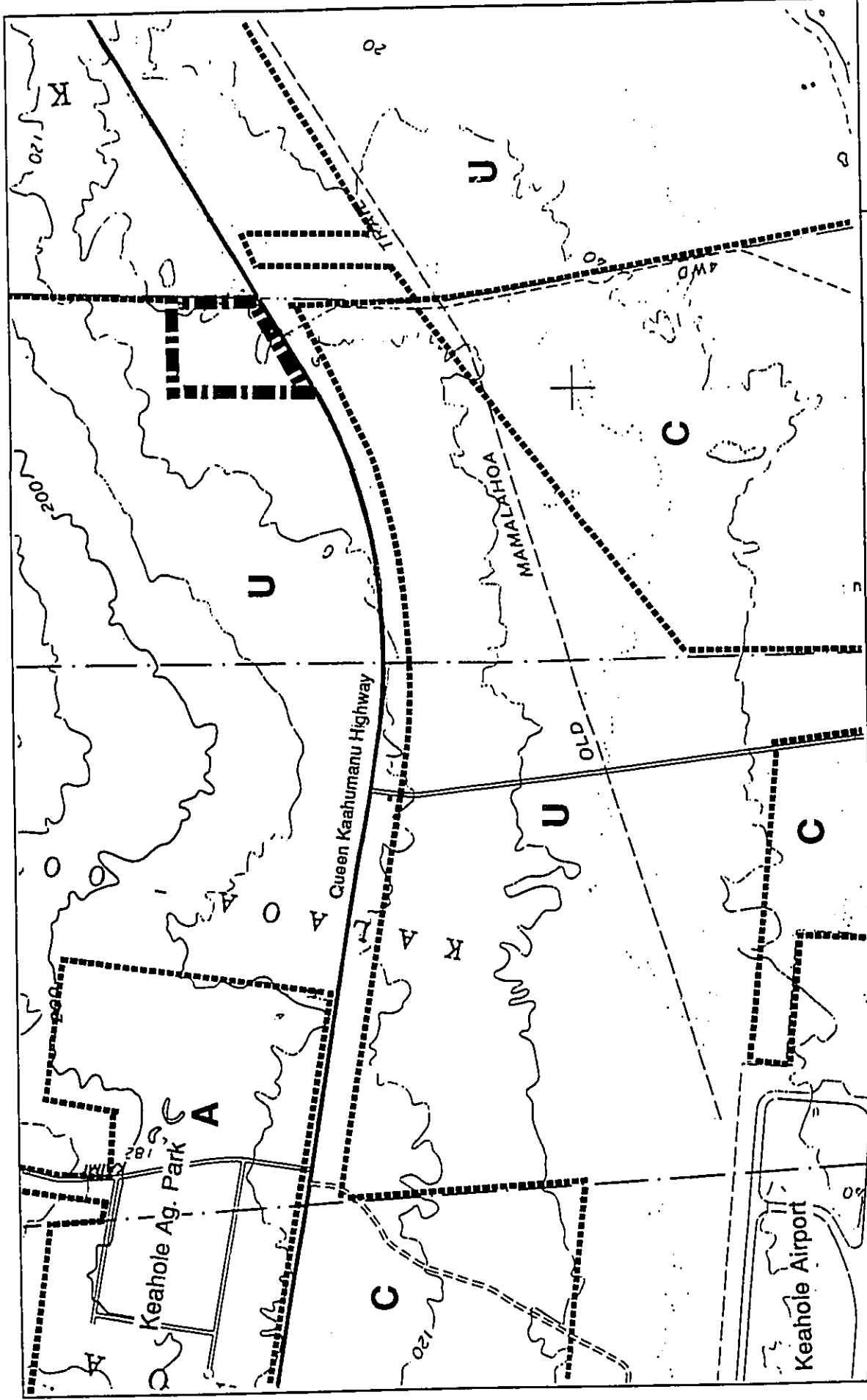
According to the "K to K Plan," the parcel adjacent to the HOST Industrial Park is designated as "Resort/Recreational" and encompasses the Kohanaiki resort project. A future university site is anticipated at the upland area about 2 miles from this site. Thus, it is projected that in the next 10 to 20 years the area around the airport may become another major cultural and resort center in north Kona.



|  |  |  |
|--|--|--|
| <p>KONA CIVIC CENTER<br/>Site Selection Study/EIS</p> <p>DAGS Job No. 11-21-4080</p> | <p><b>Figure 29 Site 5<br/>Ooma Site</b></p> |  <p>0 500 1500ft</p> <p>prepared by:<br/>DPD Associates, Inc.</p> |
|--|--|--|



|  |   |  |
|--|---|--|
| <p>KONA CIVIC CENTER<br/>Site Selection Study/EIS</p> <p>DAGS Job No. 11-21-4080</p> | <p><b>Figure 30</b>    <b>Site 5</b><br/><b>Ooma Site</b></p> <p>Keahole to Kailua Development Plan</p> | <p>0    500    1500ft</p> <p>prepared by:<br/>DPD Associates, Inc.</p>  |
|--|---|--|



KONA CIVIC CENTER  
Site Selection Study/EIS

**Figure 31 Site 5  
Ooma Site**

State Land Use District  
 U Urban  
 A Agricultural  
 C Conservation

DAGS Job No. 11-21-4080

0 500 1500ft  
 prepared by:  
 DPD Associates, Inc.



**CHAPTER 5.0 EVALUATION OF CANDIDATE SITES**

## 5.0 EVALUATION OF CANDIDATE SITES

### 5.1 Site Evaluations

The candidate sites that meet the Minimum Site Criteria as set forth in Chapter 4.0, "Identification of Potential Sites," are further assessed to determine the extent of developmental constraints and opportunities. Each of the candidate sites is evaluated within the context of existing physical and community conditions, and development costs were estimated. The criteria for the site evaluations are discussed in the following paragraphs:

- **Physical Site Criteria:**

The physical parameters which are assessed in the evaluation include environmental characteristics, roadway and accessibility, and utilities.

- **Community Site Criteria:**

The site evaluations include community parameters related to government and to community effects.

- **Cost Considerations:**

The project costs, which are estimated and assessed, include off-site and on-site development costs.

Each of the candidate sites are rated "good," "fair," or "poor" with respect to the physical and community site criteria. A discussion of the rating scales and criteria of the site evaluation is presented in the following paragraphs.

## 5.1.1 PHYSICAL SITE CRITERIA.

## 5.1.1.1 Environmental Characteristics:

a. SLOPE

GOOD - The average slope of the site is less than 5 percent.

FAIR - The average slope of the site is between 5 and 10 percent.

POOR - The average slope of the site is over 10 percent.

## EVALUATION:

Site 1 - FAIR. The average slope is between 5 and 10 percent.

Site 2 - GOOD. The average slope is less than 5 percent.

Site 3 - FAIR. The average slope is between 5 and 10 percent.

Site 4 - GOOD. The average slope is less than 5 percent.

Site 5 - FAIR. The average slope is between 5 and 10 percent.

b. SOIL SUITABILITY

This criteria relates to the suitability of soil for use as topsoil as well as for foundations. The U.S. Department of Agriculture Soil Survey of Island of Hawaii, State of Hawaii includes a rating system indicating suitability based on an interpretation of the following engineering parameters: compressibility, workability, stability, shear strength, erodibility and location of water table. All five sites, however, are designated as either a'a or pahoehoe lava flows associations. These are nearly barren lava flows with no or very thin soil covering.

## EVALUATION:

Site 1, 2, 3, 4 and 5 - POOR.

c. RAINFALL

GOOD - The site has a mean annual rainfall of less than 30 inches.

FAIR - The site has a mean annual rainfall of between 30 and 40 inches.

POOR - The site has a mean annual rainfall of greater than 40 inches.

## EVALUATION:

Site 1 - FAIR. A majority of the site is located within the 30 to 40 inches rainfall mark.

Site 2 - GOOD. The site receives less than 30 inches of rainfall annually.

Site 3 - GOOD. The site receives less than 30 inches of rainfall annually.

Site 4 - GOOD. The site receives less than 30 inches of rainfall annually.

Site 5 - GOOD. The site receives less than 30 inches of rainfall annually.

**d. SCENIC CHARACTER**

**GOOD** - The site has spectacular views. No industrial development is visible from the site.

**FAIR** - Views from certain vantage points of the site are nice. In the distance, but perhaps still visible from the site, is the industrial development.

**POOR** - Views from the site are not significant. In addition, the site has no natural beauty and may be located among overpowering industrial development.

**EVALUATION:**

Site 1 - **GOOD**. The site has a panoramic view of the entire Kailua townscape and an oceanview.

Site 2 - **FAIR**. The site has mountain views and the industrial development is visible from the site.

Site 3 - **FAIR**. The site has views to the town of Kailua and the ocean at higher points of the site.

Site 4 - **FAIR**. The site has mountain views looking across the highway.

Site 5 - **FAIR**. The site has mountain views and the Kaloko Industrial developments are visible.

**e. ENVIRONMENTAL NUISANCES**

**GOOD** - The site is free from noise, dust, odors, smoke and other nuisances created by industrial or agricultural activities.

**FAIR** - Noise, dust, odors, smoke and other nuisances are present at the site but are well within the limits of human tolerance.

**POOR** - The above-mentioned nuisances can be found at the site. These nuisances may cause considerable discomfort and may hamper surrounding activities.

**EVALUATION:**

Site 1 - **GOOD**.

Site 2 - **GOOD**.

Site 3 - **POOR**. The site is primarily affected by nuisances, such as odors, from the nearby Kailua Landfill.

Site 4 - **FAIR**. The site may be affected by nuisances from the existing landfill site and/or the new sewage treatment plant in the future.

Site 5 - **GOOD**.

Note: Evaluation is based on existing conditions.

### 5.1.1.2 Roadway and Accessibility:

#### a. ROADWAY IMPROVEMENT

In reference to the Traffic Impact Analysis Report (Rowell, 1993) and the Summary of Costs in paragraph 5.1.5, this criteria accounts for roadway improvements necessary to accommodate traffic generated from this project. The evaluation is based on the assumption that a frontage road will be required along Queen Kaahumanu Highway and that Henry Street will be extended from Queen Kaahumanu Highway to Palani Road. The candidate sites are evaluated with respect to the ease and therefore, cost, of the required roadway improvements.

GOOD - Total estimated off-site roadway improvement cost is less than \$1.0 million.

FAIR - Total estimated off-site roadway improvement cost is between \$1.0 to \$1.5 million.

POOR - Total estimated off-site roadway improvement cost is over \$1.5 million.

#### EVALUATION:

Site 1 - GOOD. (\$0.54 million).

Site 2 - FAIR. (\$1.04 million).

Site 3 - POOR. (\$1.94 million).

Site 4 - FAIR. (\$1.04 million).

Site 5 - FAIR. (\$1.34 million).

#### b. ACCESSIBILITY

Due to the functional and symbolic importance of the civic center, the candidate sites are evaluated in accordance to their proximity and ease of accessibility to a regional roadway.

GOOD - The site is situated along a regional roadway and there is existing direct access to the regional roadway.

FAIR - The site is situated along a regional roadway but there is no existing or proposed direct access to the regional roadway.

POOR - The site is not situated along a regional roadway.

#### EVALUATION:

Site 1 - POOR.

Site 2 - FAIR.

Site 3 - FAIR.

Site 4 - GOOD.

Site 5 - FAIR.

### 5.1.1.3 Utilities:

#### a. WATER

Although certain new wells are either being constructed or being proposed mauka of Mamalahoa Highway around the 1,800-foot elevation, public and private developments around this area have not progressed to a point that a comprehensive water master plan can be identified. Therefore, regardless of the potential site's location, off-site improvement costs for new wells, transmission lines and reservoirs are assumed constant either in the form of direct cost or impact cost. The variable will be the length of the required transmission line from the assumed 800-foot elevation. Therefore, the candidate sites are evaluated in accordance with their required development costs.

GOOD - Total estimated off-site development cost is less than \$1.5 million.  
FAIR - Total estimated off-site development cost is between \$1.5 to \$2.0 million.  
POOR - Total estimated off-site development cost is over \$2.0 million.

#### EVALUATION:

Site 1 - GOOD. (\$1.48 million).  
Site 2 - FAIR. (\$1.78 million).  
Site 3 - FAIR. (\$1.63 million).  
Site 4 - FAIR. (\$1.95 million).  
Site 5 - POOR. (\$2.60 million).

#### b. SEWER

Assuming all sewer connection will be made to the Kealakehe sewage treatment plant, off-site improvement costs will include costs for the required sewer line and any lift station where necessary. Therefore, the candidate sites are evaluated in accordance with their required development costs.

GOOD - Total estimated off-site development cost is less than \$1.0 million.  
FAIR - Total estimated off-site development cost is between \$1.0 to \$2.0 million.  
POOR - Total estimated off-site development cost is over \$2.0 million.

#### EVALUATION:

Site 1 - FAIR. (\$1.525 million - no lift station is required).  
Site 2 - GOOD. (\$0.75 million - no lift station is required).  
Site 3 - GOOD. (\$0.225 million - no lift station is required).  
Site 4 - GOOD. (\$0.525 million - one lift station is required).  
Site 5 - POOR. (\$2.225 million - two lift stations are required).

c. ELECTRICAL POWER/COMMUNICATIONS

GOOD - Electricity, telephone and cable television systems are readily available to the site.

FAIR - Electricity, telephone and cable television systems have been planned and will be made available to the site.

POOR - The site has no access to electricity, telephone and cable television service. Connection to existing systems will not be easily developed.

EVALUATION:

Site 1 - GOOD.

Site 2 - GOOD.

Site 3 - GOOD.

Site 4 - GOOD.

Site 5 - GOOD.

5.1.2 COMMUNITY SITE CRITERIA.

5.1.2.1 Government:

a. STATE LAND USE

GOOD - The site is within the Urban district or being petitioned for a boundary amendment which would permit urban-related developments.

FAIR - The site is within an Agriculture or Conservation district and is adjacent to the Urban district. A petition for a boundary amendment is required, but approval is more likely than if the site were not adjacent to the Urban district.

POOR - The site is within an Agriculture or Conservation district and is not adjacent to the Urban district. Boundary amendment approval may be more difficult for the site because it is not adjacent to the Urban district or a noncontiguous development.

EVALUATION:

Site 1 - FAIR. The site is within the Agriculture district and adjacent to the Urban district.

Site 2 - GOOD. The site is within the Urban district.

Site 3 - GOOD. The site is within the Urban district.

Site 4 - GOOD. The site is within the Urban district.

Site 5 - GOOD. The site is within the Urban district.

**b. COUNTY GENERAL PLAN**

**GOOD** - The site is designated Urban Development.

**FAIR** - The site is designated Urban Expansion.

**POOR** - The site is designated Industrial, Agricultural, Conservation, Resort or Open.

**EVALUATION:**

Site 1 - **GOOD**. A majority of the site is within the designated Urban Development.

Site 2 - **FAIR**.

Site 3 - **FAIR**.

Site 4 - **FAIR**.

Site 5 - **FAIR**.

**c. SPECIAL MANAGEMENT AREA (SMA)**

**GOOD** - The entire site is outside of the SMA.

**FAIR** - A portion of the site is within the SMA.

**POOR** - The entire site is within the SMA.

**EVALUATION:**

Site 1 - **GOOD**.

Site 2 - **GOOD**.

Site 3 - **GOOD**.

Site 4 - **POOR**.

Site 5 - **GOOD**.

**d. FLOOD/Tsunami HAZARD**

The development of sites within a designated flood hazard district - Floodway district, Flood Fringe district and Coastal High Flood Hazard district - must be in compliance with the National Flood Insurance Program as administered by Hawaii County through flood hazards prevention ordinances. The flood hazard districts are shown on the Flood Insurance Rate Maps by the Federal Emergency Management Agency.

**GOOD** - The entire site is outside of the flood/tsunami hazard zone.

**FAIR** - A portion of the site is within the flood or tsunami hazard zone.

**POOR** - The entire site is within the flood or tsunami hazard zones.

**EVALUATION:**

Site 1, 2, 3, 4 and 5 - **GOOD**. All sites are outside the flood and tsunami hazard zones.



## 5.1.2.2 Community Effects:

a. SURROUNDING LAND USE

The sites are evaluated in accordance with the conduciveness of surrounding land uses, either existing or proposed by committed developments, to the functions of the civic center.

GOOD - The site is located adjacent to beneficial developments.

FAIR - Some benefits can be derived from developments located adjacent to the site.

POOR - There are no existing or proposed developments of compatible use located adjacent to the site.

## EVALUATION:

Site 1 - GOOD. The site is adjacent to the office/commercial developments proposed by Liliuokalani Trust.

Site 2 - GOOD. The site is adjacent to the office/commercial developments proposed by Liliuokalani Trust.

Site 3 - GOOD. The site is adjacent to the office/commercial developments proposed by Liliuokalani Trust.

Site 4 - GOOD. This site is proposed for a civic center in the "K to K Plan." The site is located adjacent to the existing Honokohau Harbor.

Site 5 - POOR. There are no existing or proposed developments of compatible use adjacent to the site.

b. LAND OWNERSHIP

GOOD - The site is owned by the State or County government, thereby minimizing acquisition cost.

FAIR - The site is owned by less than three individuals or businesses.

POOR - The site is owned by three or more individuals or businesses.

## EVALUATION:

Site 1 - GOOD. The land is owned by the State.

Site 2 - FAIR. The land is solely owned by Liliuokalani Trust.

Site 3 - FAIR. The land is solely owned by Liliuokalani Trust.

Site 4 - GOOD. The land is owned by the State.

Site 5 - GOOD. The land is owned by the State.

c. ARCHAEOLOGICAL SITES

Based on the report by the State Historic Preservation Division, the candidate sites are evaluated with respect to the known and existing significant archaeological sites as well as the potential of the candidate sites to contain such archaeological sites.

GOOD - An archaeological inventory survey has been performed and no significant archaeological/historical sites are present.

FAIR - An archaeological inventory survey will be required. However, it is unlikely that significant archaeological/historic sites will be present.

POOR - Significant archaeological/historical sites are already known or likely to be present.

EVALUATION:

Site 1 - POOR. Five significant archaeological/historical sites have been found.

Site 2 - GOOD.

Site 3 - POOR. Two significant archaeological/historical sites have been found.

Site 4 - FAIR.

Site 5 - FAIR.

d. AESTHETIC VALUE

GOOD - The site is not an aesthetic asset to the community and will not interfere with scenic vistas when it is developed.

FAIR - The site has little aesthetic value to the community or may partially obstruct scenic vistas when it is developed.

POOR - The site is an aesthetic asset to the community or will obstruct scenic vistas when it is developed.

EVALUATION:

Site 1 - GOOD.

Site 2 - GOOD.

Site 3 - GOOD.

Site 4 - FAIR. This site may obstruct some of the views from the highway.

Site 5 - GOOD.

e. PROXIMITY TO THE EXISTING POLICE SUBSTATION AT KEALAKEHE

Since there is a close inter-relationship in functions between the police station and the proposed civic center, the candidate sites are evaluated in accordance with their proximities to the station for user convenience.

GOOD - The site is within 0.5 mile from the police station, thus, walking between the two uses is possible.

FAIR - The site is located between 0.5 and 2 miles from the police station.

POOR - The site is located more than 2 miles from the police station.

EVALUATION:

Site 1 - FAIR. The site is within 2 miles from the police station.

Site 2 - GOOD. The site is within 0.5 mile from the police station. Access by walking is possible.

Site 3 - GOOD. The site is adjacent to the police station. Access by walking is possible.

Site 4 - GOOD. The site is within 0.5 mile from the police station. Access by walking is possible.

Site 5 - POOR. The site is about 4 miles from the police station.

5.1.3 SUMMARY OF EVALUATIONS.

Tables 5 and 6 on the following pages summarize the general site evaluations.

TABLE 5  
Evaluation Ratings Summary

| CRITERIA                                | 1 | 2 | SITE<br>3 | 4 | 5 |
|---|---|---|-----------|---|---|
| <b>PHYSICAL SITE CRITERIA</b>           |   |   |           |   |   |
| A. Environmental Characteristics        |   |   |           |   |   |
| 1. Slope                                | F | G | F         | G | F |
| 2. Soil Suitability                     | P | P | P         | P | P |
| 3. Rainfall                             | F | G | G         | G | G |
| 4. Scenic Character                     | G | F | F         | F | F |
| 5. Environmental Nuisances              | G | G | P         | F | G |
| B. Roadway and Accessibility            |   |   |           |   |   |
| 1. Roadway Improvement                  | G | F | P         | F | F |
| 2. Accessibility                        | P | F | F         | G | F |
| C. Utilities                            |   |   |           |   |   |
| 1. Water                                | G | F | F         | F | P |
| 2. Sewer                                | F | G | G         | G | P |
| 3. Electrical Power/Communications      | G | G | G         | G | G |
| <b>COMMUNITY CHARACTERISTICS</b>        |   |   |           |   |   |
| A. Government                           |   |   |           |   |   |
| 1. State Land Use                       | F | G | G         | G | G |
| 2. County General Plan                  | G | F | F         | F | F |
| 3. Special Management Area (SMA)        | G | G | G         | P | G |
| 4. Flood/Tsunami Hazard                 | G | G | G         | G | G |
| B. Community Effects                    |   |   |           |   |   |
| 1. Surrounding Land Use                 | G | G | G         | G | P |
| 2. Land Ownership                       | G | F | F         | G | G |
| 3. Archaeological Sites                 | P | G | P         | F | F |
| 4. Aesthetic Value                      | G | G | G         | F | G |
| 5. Proximity to Existing Police Station | F | G | G         | G | P |
| G - GOOD<br>F - FAIR<br>P - POOR        |   |   |           |   |   |

**TABLE 6**  
Ratings Summary By Category

| <u>CRITERIA</u>                         | 1 | 2 | SITE<br>3 | 4 | 5 |
|---|---|---|-----------|---|---|
| <b>PHYSICAL SITE CRITERIA</b>           |   |   |           |   |   |
| <b>A. Environmental Characteristics</b> |   |   |           |   |   |
| GOOD                                    | 2 | 3 | 1         | 2 | 2 |
| FAIR                                    | 2 | 1 | 2         | 2 | 2 |
| POOR                                    | 1 | 1 | 2         | 1 | 1 |
| <b>B. Roadway and Accessibility</b>     |   |   |           |   |   |
| GOOD                                    | 1 | 0 | 0         | 1 | 0 |
| FAIR                                    | 0 | 2 | 1         | 1 | 2 |
| POOR                                    | 1 | 0 | 1         | 0 | 0 |
| <b>C. Utilities</b>                     |   |   |           |   |   |
| GOOD                                    | 2 | 2 | 2         | 2 | 1 |
| FAIR                                    | 1 | 1 | 1         | 1 | 0 |
| POOR                                    | 0 | 0 | 0         | 0 | 2 |
| <b>PHYSICAL SITE CRITERIA TOTAL</b>     |   |   |           |   |   |
| GOOD                                    | 5 | 5 | 3         | 5 | 3 |
| FAIR                                    | 3 | 4 | 4         | 4 | 4 |
| POOR                                    | 2 | 1 | 3         | 1 | 3 |
| <b>COMMUNITY CHARACTERISTICS</b>        |   |   |           |   |   |
| <b>A. Government</b>                    |   |   |           |   |   |
| GOOD                                    | 3 | 3 | 3         | 2 | 3 |
| FAIR                                    | 1 | 1 | 1         | 1 | 1 |
| POOR                                    | 0 | 0 | 0         | 1 | 0 |
| <b>B. Community Effects</b>             |   |   |           |   |   |
| GOOD                                    | 3 | 4 | 3         | 3 | 2 |
| FAIR                                    | 1 | 1 | 1         | 2 | 1 |
| POOR                                    | 1 | 0 | 1         | 0 | 2 |
| <b>COMMUNITY CHARACTERISTICS TOTAL</b>  |   |   |           |   |   |
| GOOD                                    | 6 | 7 | 6         | 5 | 5 |
| FAIR                                    | 2 | 2 | 2         | 3 | 2 |
| POOR                                    | 1 | 0 | 1         | 1 | 2 |

#### 5.1.4 COST CONSIDERATIONS.

Cost considerations for this project include:

- (1) Land acquisition costs (if applicable);
- (2) Off-site development costs; and
- (3) On-site development costs.

At this stage, costs for actual building construction, landscaping, pavement and parking are assumed to be constants and dependent on the final facility layout. Therefore, actual building construction costs, etc., are not included in this cost comparison. The costs are summarized in Table 7 of paragraph 5.1.5, "Summary of Costs."

##### 5.1.4.1 Land Acquisition Costs:

Candidate Site 1, Site 4, and Site 5 are on State-owned lands. These sites are considered to have no immediate acquisition costs although they are not "free." An "opportunity cost" which represents the assessment/replacement value of the land to the State is assigned to Site 1, Site 4, and Site 5. An assessed land value based on current real estate land sales will be given to Site 2 and Site 3. These assessed values may not reflect the current market values, but are useful for general budgetary and comparison purposes.

Land sales at Kealakehe has indicated a land price of \$340,000 for a 6.02-acre parcel (TMK: 3-7-4-4: 62), \$161,000 for a 1.0-acre parcel at Keahole (TMK: 3-7-3-3: 53) and \$190,000 for a 2.0-acre parcel at Kaloko (TMK: 3-7-3-24: 45). This gives a value ranging between \$161,000 and \$56,666 per acre, and a mean value of \$104,000 per acre is used for this estimate. Due to the lack of land sales information for this area, the cost of land for all five sites is estimated at \$3,120,000.

##### 5.1.4.2 Off-Site Development Costs:

The following factors are considered in estimating off-site development costs:

###### a. UTILITIES:

This category includes the cost of improving the existing utilities or the installation of new utility lines in order to meet the needs of the project. Since all five sites are located adjacent to major roadways where electricity and telephone service are available, the utilities to be considered for this cost estimate are water and sewer. Water improvement costs include costs for transmission mains, water storage and an estimated assessment charge on the well. Sewer improvement costs include costs for sewer lines connected to the new sewage treatment plant at Kealakehe and lift stations if necessary.

b. ROADWAY:

This category includes the cost of constructing or improving roadways outside of the project boundaries which are necessary to accommodate the project's needs. The estimates include costs for road improvements, frontage road alignment at Queen Kaahumanu Highway, and the required traffic signals.

5.1.4.3 On-Site Development Costs:

The following factors are considered in estimating on-site development costs:

a. GRADING/CLEARING:

This category includes the cost of grading for buildings, roadways and parking and the cost of clearing heavy foliage and any existing structures. The estimate is based on a total paved area of five acres at a cost of \$500,000 per acre. The estimated cost for each site is, therefore, \$2,500,000.

b. UTILITIES:

This category includes the cost of installing and connecting utility systems within the project boundaries. Utilities to be included in this estimate are water, sewer, drainage, electricity, telephone and lighting. The estimate is based on a total paved area of five acres at a cost of \$500,000 per acre. The estimated cost for each site is, therefore, \$2,500,000.

5.1.5 SUMMARY OF COSTS.

Table 7 on the following page summarizes the general cost considerations.

TABLE 7  
Cost Summary

|  | <u>Site 1</u>      | <u>Site 2</u>       | <u>Site 3</u>       | <u>Site 4</u>      | <u>Site 5</u>       |
|--|--------------------|---------------------|---------------------|--------------------|---------------------|
| <b>Land Acquisition Costs</b><br>(From Assessed Land Value) (\$3,120,000)* |                    | \$3,120,000         | \$3,120,000         | (\$3,120,000)*     | (\$3,120,000)*      |
| <b>Off-Site Development Costs</b>  |                    |                     |                     |                    |                     |
| Water  | \$1,480,000        | \$1,780,000         | \$1,630,000         | \$1,950,000        | \$2,600,000         |
| Sewer  | \$1,525,000        | \$750,000           | \$225,000           | \$525,000          | \$2,225,000         |
| Roadway  | \$540,000          | \$1,040,000         | \$1,940,000         | \$1,040,000        | \$1,340,000         |
| <b>SUB-TOTAL</b>   | <b>\$3,545,000</b> | <b>\$3,570,000</b>  | <b>\$3,795,000</b>  | <b>\$3,515,000</b> | <b>\$6,165,000</b>  |
| <b>On-Site Development Costs</b>   |                    |                     |                     |                    |                     |
| Grading/Clearing   | \$2,500,000        | \$2,500,000         | \$2,500,000         | \$2,500,000        | \$2,500,000         |
| Utilities (Water, sewer,<br>drainage , lighting)                           | \$2,500,000        | \$2,500,000         | \$2,500,000         | \$2,500,000        | \$2,500,000         |
| <b>SUB-TOTAL</b>   | <b>\$5,000,000</b> | <b>\$5,000,000</b>  | <b>\$5,000,000</b>  | <b>\$5,000,000</b> | <b>\$5,000,000</b>  |
| <b>GRAND TOTAL</b>   | <b>\$8,545,000</b> | <b>\$11,690,000</b> | <b>\$11,915,000</b> | <b>\$8,515,000</b> | <b>\$11,165,000</b> |

Assumptions:

1. For off-site water development costs, the estimates are based on a water consumption of 0.09 mgd with cost considerations that include transmission lines, reservoir and source charge costs.
2. For on-site development costs, the estimates are based on a total paved area of five acres. Building construction costs are not included in the estimates.

\* Costs in parenthesis are opportunity costs based on assessed land value which are excluded from the grand total.



**CHAPTER 6.0 DESCRIPTION OF  
THE AFFECTED ENVIRONMENT, PROBABLE ENVIRONMENTAL  
CONSEQUENCES AND PROPOSED MITIGATION**

## 6.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT, PROBABLE ENVIRONMENTAL CONSEQUENCES & PROPOSED MITIGATION

### 6.1 Physical Environment

#### 6.1.1 SOILS.

The project study area is comprised mainly of two soil associations: Lava Flows Association and Kekake-Keei-Kiloa Association. (See paragraph 3.3.2 for descriptions of the soil associations). These soils range from well-drained organic soils over fragmental lava to nearly barren lava flows. These associations are used for grazing, wildlife habitat and vegetation. However, the carrying capacity for grazing and wildlife is low. Out of the five candidate sites, only Site 1 is included in the Agricultural Lands of Importance in the State of Hawaii (ALISH) system. A portion of the 30-acre site is classified as Other Important Agricultural Land, indicating Statewide or local importance for agriculture. Nonetheless, there are no present agricultural uses at any of the five candidate sites.

#### PROBABLE IMPACTS:

Due to the limited soil cover and agricultural potential of the project study area, no significant impacts on soil are foreseen. Potential impacts to the existing soil would be seen as a result of massive alteration to the existing topography. Development of the civic center will alter the topography to a certain extent. However, for lands makai of Queen Kaahumanu Highway, site preparation will only imply crushing of the existing lava and grading since the land is relatively flat. For lands mauka of the highway, site preparation will involve cut and fill as well as grading due to the slope.

#### MITIGATION MEASURES:

Because of the insignificant impact on soils and the agricultural potential of the project study areas, mitigation measures are not warranted. However, grading plans of the sites, as required, will be designed to conform closely with the existing features of each site. Cut and fill activities will be balanced on-site. All applicable County grading requirements will be met.

### 6.1.2 GEOLOGY/HYDROLOGY.

None of the potential candidate sites are immediately adjacent to any body of water. Site 4, however, is located within 1,500 feet of Honokohau Harbor.

#### PROBABLE IMPACTS:

Significant alterations to existing surface water runoff patterns are not expected to occur since there are no known well defined drainageways in the study area. Increased stormwater, however, is expected since the development will increase impervious surface conditions, such as paved roadways and roofs. Potential impacts on surface and groundwater may occur due to the possible leaching of chemicals, such as fertilizers, pesticides and petroleum, into the groundwater.

Soil erosion is expected to be insignificant during construction due to the lack of topsoil in the area of the five candidate sites.

#### MITIGATION MEASURES:

A storm drainage system to minimize stormwater runoff to shorelines will be developed. Natural lava tubes or subsurface cavities may serve as potential collectors of runoff waters. Due to the high permeability nature of soil in this area, significant perturbations due to runoff from this development to nearshore water quality are not expected. All drainage systems will comply with County Department of Public Works and State Department of Health (DOH) standards. The mitigation of certain potential adverse impacts to groundwater resources also includes the use of slow, time release fertilizers and the use of State DOH and U.S. Environmental Protection Agency approved pesticides applied by, or supervised by, State-certified applicators.

### 6.1.3 NATURAL HAZARDS.

The project study area is located within volcanic hazard area 4 and the influence areas of Hualalai. In the occurrence of a volcanic eruption, earthquake, tsunami or flooding, risk to life and property exists within the impact areas. Because no candidate sites are located within tsunami or flood zones, impacts from these hazards are considered to be insignificant.

#### PROBABLE IMPACTS:

With the typical eruption interval estimated at a few hundred years, Hualalai, if accompanied by an earthquake, could cause significant impacts to the project areas.

**MITIGATION MEASURES:**

The mitigation of hazards associated with volcanic eruptions and earthquakes includes the design and construction of infrastructure and buildings that comply with applicable building codes and standards. Implementation of a civil defense warning system and an evacuation plan would also be an important measure during an emergency situation.

**6.1.4 CLIMATE.****PROBABLE IMPACTS:**

The proposed project is not expected to have any impact on the microclimate of the project study area. Planned structures would not be tall enough to significantly affect existing wind patterns.

**MITIGATION MEASURES:**

Since no significant impacts are identified, no mitigation measures are warranted.

**6.1.5 AIR QUALITY.**

The following discussion on air quality is abstracted from an *Air Quality Impact Report (AQIR)*, Kona Civic Center prepared by Morrow for this study. The report is included in this EIS in Appendix A.

The overall project can be considered an "indirect source" of air pollution, as defined in the Federal Clean Air Act, since its primary association with air quality is due to its inherent generation of mobile sources, i.e., motor vehicle activity.

**PROBABLE IMPACTS:**

The following paragraphs describe the probable impacts, which have been classified into three groups: on-site impacts, off-site impacts and mobile source impacts.

a. ON-SITE IMPACTS.

The principle source of short-term air quality impacts will be construction activity. Construction vehicle activity will increase automotive pollutant concentrations along Queen Kaahumanu Highway as well as in the vicinity of the project site itself. Because of the moderate level of existing traffic volumes, the additional construction vehicle traffic should not exceed road capacities, although the presence of large trucks can reduce a roadway's capacity, as well as lower average travel speeds. The site preparation and earth moving will create particulate emissions as well as building and on-site road construction. Construction vehicle movement on unpaved on-site roads will also generate particulate emissions.

Some of the on-site soils, e.g., silt loams, are likely to have a silt content. This, in conjunction with the possibly drier local climate, suggests a potential for somewhat greater fugitive dust emissions.

Another type of polluted emission in the short-term is exhaust emission from both on-site stationary and mobile construction equipment.

b. OFF-SITE IMPACTS.

In addition to the on-site impacts attributable to construction activity, there will be off-site impacts due to the operation of concrete and asphalt concrete batching plants needed for construction. It is too early, however, to identify the specific facilities that will be providing these materials and, thus, the discussion of air quality impacts is somewhat generic.

It is possible, however, to estimate ambient air impact using design and operating features of a typical concrete batching plant. This plant is a portable unit capable of producing up to 100 cubic yards of concrete per hour. Assuming 8-hours per day of operation and published EPA emission factors for both direct plant emission and fugitive dust emissions, estimates of worst case ambient impacts were derived using the PTPLU screening model. Ninety percent control of particulate emissions from the plant itself and 60 percent control of fugitive dust emissions from the process were assumed. One-hour concentration estimates were adjusted to 8-hour averages using an EPA-recommended factor and then to 24-hour averages based on a weighted averaging technique. The worst case concentration of total suspended particulates (TSP) was thus estimated to be 105 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) due to the plant operation.

Assuming that the plant will be located near the project site, existing data from the Kailua-Kona site were reviewed. Adding the second highest TSP concentration from the 1985-86 data ( $26 \mu\text{g}/\text{m}^3$ ) to the  $105 \mu\text{g}/\text{m}^3$  yields  $131 \mu\text{g}/\text{m}^3$  which is below the State 24-hour TSP standard of  $150 \mu\text{g}/\text{m}^3$ . Furthermore, since only part of the TSP will be less than 10 microns, then compliance with the Federal  $\text{PM}_{10}$  standard is also indicated.

Design and operating data for a typical asphalt concrete batch plant (Astec Industries Model PDM-636-C) were also obtained and reviewed. This plant has a production capacity of 186 T per hour. Two primary emission sources associated with such a plant are the drum mix asphalt plant and a 600 Kw diesel generator.

The modeling technique employed for the concrete batch plant was also applied to the asphalt plant. The estimated TSP and SO<sub>2</sub> concentrations were 60.9 and 21.6 ug/m<sup>3</sup>, respectively. Again, this is well below State and Federal standards.

### c. MOBILE SOURCE IMPACTS.

A traffic assessment was prepared for the proposed civic center and served as the basis for this mobile source impact analysis. Existing peak-hour traffic volumes and projections for 1997 at the Queen Kaahumanu Highway/Palani Road intersection were provided. It should be noted that highway improvements and mitigative measures assumed in the assessment were also assumed for the purposes of this air quality impact report.

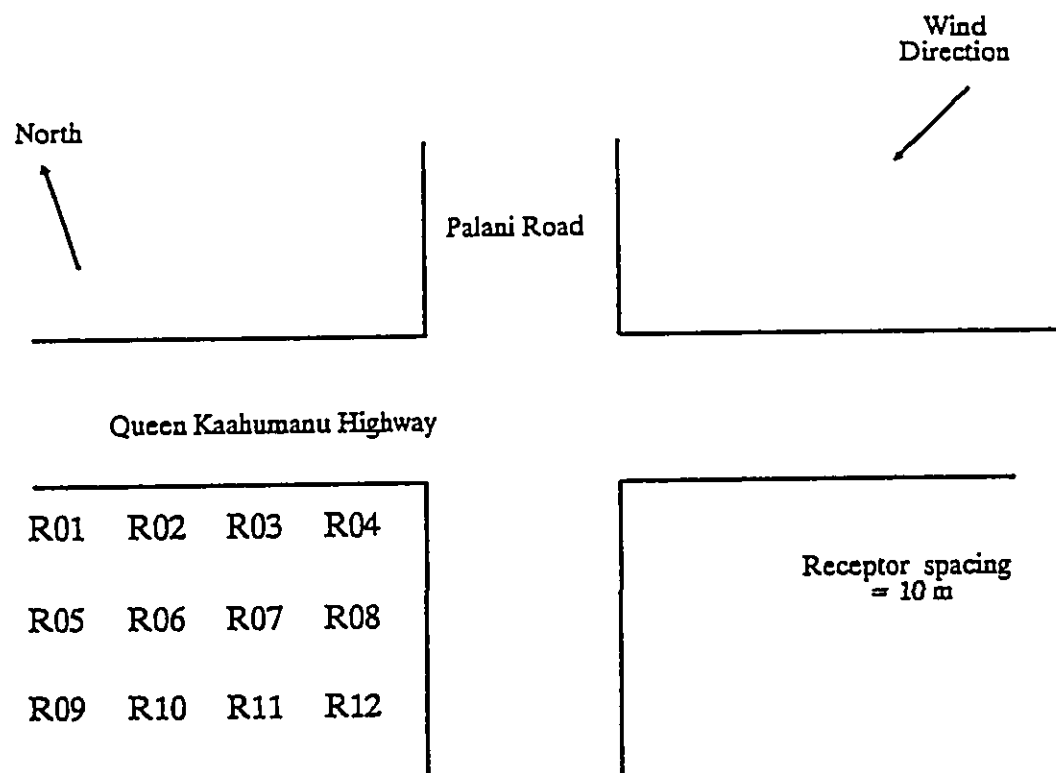
Because of the semi-rural nature of the area, a 1 meter per second (m/sec) wind speed was assumed as worst case meteorological conditions. Preliminary modeling with 10, 20, 45, and 60-degree wind-road angles indicated that the 60-degree angle would produce the maximum pollutant concentrations. Review of the traffic data, and the potential for queuing in particular, indicated that northeasterly and northwesterly wind directions were most likely to produce the maximum carbon monoxide (CO) concentrations near the intersections. Thus, these wind directions were input for all initial modeling.

An updated version of the EPA guideline model CALINE-4 was employed to estimate near-intersection CO concentrations. An array of receptor sites at distances of 10 to 40 meters from the road edge were input to the model. Because of the existing level of urban activity in the area, a background CO concentration of 1.0 milligram per cubic meter (mg/m<sup>3</sup>) was assumed.

The results of this modeling are presented in Figures 32 and 33. Each figure depicts the concentrations in mg/m<sup>3</sup> at 12 receptor locations on the southwest and southeast sides of the intersection. The results indicated existing and future compliance with State and Federal standards. There is very little difference between existing and future concentrations, with or without the project. The reason for this is that the growth in traffic activity is offset by reduced emissions from newer cars which over time replace older higher emitting cars.

Estimates of the 8-hour concentrations can be derived by applying a "persistence" factor of 0.6 to the 1-hour concentrations. This "persistence" factor is recommended in an EPA publication on indirect source analysis of CO monitoring data in Honolulu which yielded the same 8-hour-to-1-hour ratio.

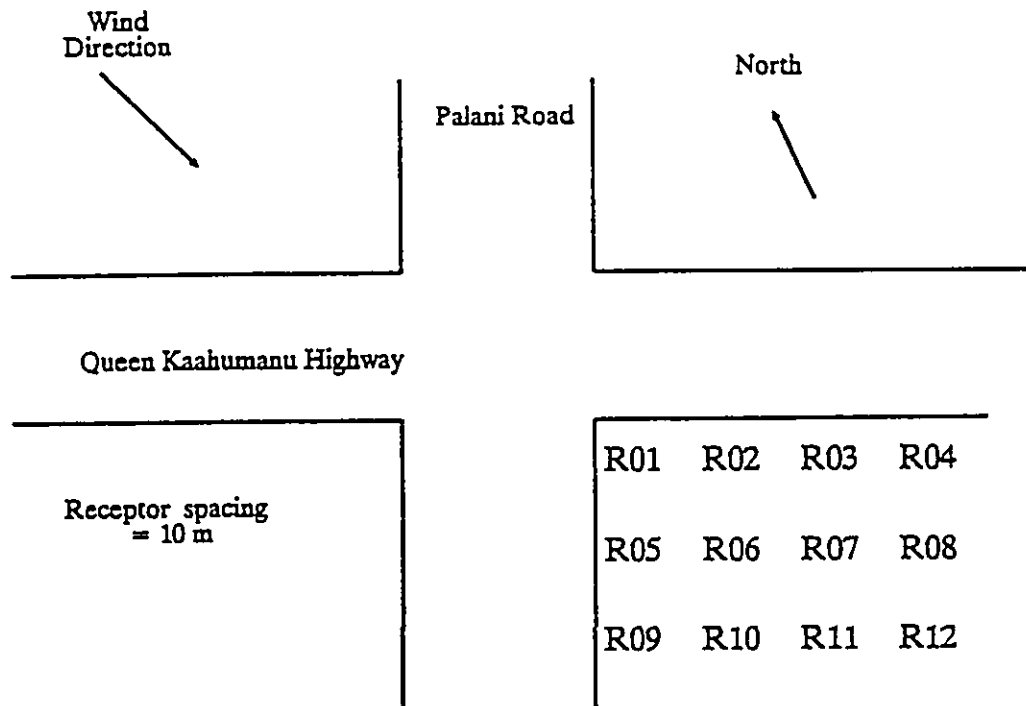
Applying this factor to the 1-hour results indicates compliance with Federal and State 8-hour standards at most receptor locations. Only within 10 meters of the intersection is possible exceedance of the State's 8-hour standard predicted during the a.m. peak hour.



| Receptor | Concentration ( $\text{mg}/\text{m}^3$ ) |          |        |
|----------|--|----------|--------|
|          | 1993                                     | w/o proj | w/proj |
| R01      | 8.5                                      | 8.4      | 8.7    |
| R02      | 8.3                                      | 7.8      | 8.0    |
| R03      | 7.2                                      | 6.7      | 6.8    |
| R04      | 5.5                                      | 5.1      | 5.2    |
| R05      | 5.6                                      | 5.1      | 5.4    |
| R06      | 4.8                                      | 4.4      | 4.6    |
| R07      | 3.8                                      | 3.5      | 3.6    |
| R08      | 3.1                                      | 3.1      | 3.2    |
| R09      | 3.6                                      | 3.4      | 3.4    |
| R10      | 3.0                                      | 2.8      | 3.0    |
| R11      | 2.4                                      | 2.5      | 2.5    |
| R12      | 2.2                                      | 2.4      | 2.4    |

Source: Morrow, 1993

|   |  |
|---|--|
| <p>KONA CIVIC CENTER</p> <p>Site Selection Study/EIS</p> <p>DAGS Job No. 11-21-4080</p> | <p><b>Figure 32</b></p> <p><b>Estimates of Maximum 1-Hour Carbon Monoxide Concentrations</b></p> <p>Queen Kaahumanu Highway at Palani Road A.M. Peak Traffic Hour</p> <p>1993 - 1997</p> |
|---|--|



| Receptor | Concentration (mg/m <sup>3</sup> ) |                  |                |
|----------|------------------------------------|------------------|----------------|
|          | 1993                               | 1997<br>w/o proj | 1997<br>w/proj |
| R01      | 7.5                                | 7.3              | 7.5            |
| R02      | 6.8                                | 6.2              | 6.4            |
| R03      | 6.7                                | 5.5              | 5.7            |
| R04      | 6.6                                | 5.1              | 5.1            |
| R05      | 5.8                                | 5.9              | 6.3            |
| R06      | 5.6                                | 5.5              | 5.7            |
| R07      | 5.4                                | 4.9              | 5.1            |
| R08      | 5.1                                | 4.4              | 4.6            |
| R09      | 4.4                                | 4.7              | 4.9            |
| R10      | 4.4                                | 4.6              | 4.8            |
| R11      | 4.4                                | 4.3              | 4.6            |
| R12      | 4.3                                | 4.1              | 4.2            |

Source: Morrow, 1993

|   |  |
|---|--|
| <p>KONA CIVIC CENTER</p> <p>Site Selection Study/EIS</p> <p>DAGS Job No. 11-21-4080</p> | <p><b>Figure 33</b></p> <p><b>Estimates of Maximum 1-Hour Carbon Monoxide Concentrations</b></p> <p>Queen Kaahumanu Highway at Palani Road P.M. Peak Traffic Hour</p> <p>1993 - 1997</p> |
|---|--|



#### MITIGATION MEASURES:

Measures to control equipment and dust emissions are required according to the Department of Health's Public Health Regulations on Air Pollution Control.

Equipment emissions can be minimized by proper maintenance of all vehicles and equipment.

Dust emissions can be minimized by strict adherence to State air pollution control standards. Certain practical precautionary methods can be effective in preventing and controlling airborne particulate matters. Some of these methods are first, to employ a frequent watering program throughout the construction phase to limit dust generating areas from overdrying; second, to require all open-bodied trucks be covered when transporting dirt or dust-producing materials; and, third, to pave and landscape the site early in the construction process to minimize areas of possible dust production.

As noted in paragraph 6.1.5 (c), 1-hour CO standards will be met even in close proximity to the busiest intersection. However, there appears to be some possibility that the State's 8-hour standard could be exceeded during the a.m. peak traffic hour. It should be noted that this 8-hour estimate is based on the highest 1-hour estimate which is based on "worst case" conditions of traffic and meteorology. The maximum concentration is also predicted to occur within 10 meters of the Palani Road intersection, a location where a constant 8-hour exposure of a person or persons is not likely. Furthermore, the State standard provides a larger margin of safety for public health than does the less stringent Federal standard. Thus, exceedance of the State standard does not automatically imply potential health effects. The conclusion is that there is low probability of exceeding the State's 8-hour standard, but if an exceedance were to occur it would not represent a threat to public health.

#### 6.1.6 NOISE QUALITY.

Existing noise sources within the Keahole to Kailua project area are limited to low volume traffic along Queen Kaahumanu Highway, Palani Road, and other arterial roadways; Keahole Airport; and natural sources such as wind and ocean waves.

#### PROBABLE IMPACTS:

Site 5, which is located nearest to the airport, is not considered to be adversely impacted from airport generated noise due to its considerable distance from the airport. Potentially significant traffic noise effects are related to future volume along Queen Kaahumanu Highway, the proposed Mid-Level Road and other proposed collector roads.

Construction related noise represents additional short-term noise sources. During grading and construction, short-term noise levels will increase on-site. Residences and businesses near the civic center site may be sensitive to the increased noise levels during construction. Noise will be generated due to the nature of work - pile driving, concrete pouring, grading, trenching and earth removing, etc.

MITIGATION MEASURES:

Adequate setbacks or other noise attenuation measures (berms and walls) will be integrated into the project design, as necessary, to assure that exterior and interior noise levels will meet acceptable standards for the planned development.

Audible construction noise will probably be unavoidable during the entire project construction period. Adverse impacts from construction noise, however, are not expected to be in the "public health and welfare" category due to the temporary nature of work and the administrative controls available for its regulation.

The contractor will be required to obtain a noise permit if noise levels are expected to exceed allowable levels as specified in the State Department of Health's Public Health Regulations, Title 11, Chapter 43. The contractor is responsible for properly maintaining construction equipment to minimize noise levels. All internal combustion engines will be required to have mufflers or other noise suppression devices in proper working order. Heavy vehicles required for construction must comply with the State Department of Health's regulations for vehicular noise control.

#### 6.1.7 SCENIC CHARACTERISTICS.

PROBABLE IMPACTS:

The proposed project will result in the development of man-made structures in a predominantly natural setting. However, the impact will have to be evaluated on the basis of the replacement of open space with built structures. Though institutional by nature, the civic center is expected to be a low-rise development that integrates landscaped areas, open space and parking.

Short-term impacts of the proposed project include disturbance of scrub vegetation by grading and on-site location of temporary buildings to house personnel as well as materials.

MITIGATION MEASURES:

To minimize the degree of impact to the scenic characteristics of the site, attention should be given to the building design as well as landscape design of the project. This will also help to achieve a visual harmony at the project site. However, the degree of significance of the changes in visual character to the site is highly subjective.

In the short-term, mitigation measures may include limiting the time that rock and bare soil are exposed during the construction period and the implementation of landscaping for the project site at an early stage of construction. Design utilizing the existing site terrain as much as practicable will also reduce the extent of necessary grading.

## 6.2 Natural Environment

### 6.2.1 FLORA.

The information in this section on flora is an excerpt from a *Botanical Report of Five Candidate Sites for Proposed Kona Civic Center* prepared by Warshauer and Gerrish. This report is included in Appendix B.

The vegetation on the lower slopes of west Hualalai is a mosaic of different plant communities, many of which can be assigned to various described types. The diversity of vegetation types is arrayed along north-south and mauka-makai rainfall gradients. Differences in the amount and frequency of rainfall and local moisture conditions in this dry environment tend to control the structure and canopy height of the vegetation. The driest areas are often the most open, least diverse and of lowest stature.

In general, as the proportion of woody shrubs and trees within the vegetation diminishes, so does the probability that rare native species occur at the site. Similarly, as the proportion of native species in the shrub and tree layers of the vegetation diminishes, so does the probability that rare native species occur at the site. However, even examples of open grassland with low shrubs have produced infrequent sightings of two or three rare species, especially in the areas of transition to open shrubland. In the Hualalai region, where vegetation succession is retarded by aridity, rare species have been found in nearly all reported examples of medium to tall woody vegetation in the region. Findings of rare plants in open and low stature vegetation are less frequent.

Each of the vegetation types described in this section are known to include at least two rare or endangered species of flora. Although none of the eleven species listed below were found at the candidate sites during preliminary site investigations, a number of studies for the Keahole to Kailua region have reported the presence of the following eleven species of rare or endangered flora:

| <u>Hawaiian Name</u> | <u>Scientific Name</u>          | <u>Abbreviation<br/>for this section</u> |
|----------------------|---------------------------------|--|
| <i>kokolau</i>       | <i>Bidens micrantha</i>         | Bm                                       |
| <i>uhi uhi</i>       | <i>Caesalpinia kawaiensis</i>   | Ck                                       |
| (none)               | <i>Fimbristylis hawaiiensis</i> | Fh                                       |
| <i>aupaka</i>        | <i>Isodendron pyriformum</i>    | Ip                                       |
| (none)               | <i>Mariscus fauriei</i>         | Mf                                       |
| <i>maaloa</i>        | <i>Neraudia ovata</i>           | No                                       |
| <i>aiea</i>          | <i>Nothoestrum breviflorum</i>  | Nb                                       |
| <i>halapepe</i>      | <i>Pleomele hawaiiensis</i>     | Ph                                       |
| <i>ohe makai</i>     | <i>Reynoldsia sandwicensis</i>  | Rs                                       |
| <i>kolomana</i>      | <i>Senna gaudichaudii</i>       | Sg                                       |
| <i>maua</i>          | <i>Xylosma hawaiiensis</i>      | Xh                                       |

A barren lava flow and a total of five vegetation types - Grassland/Low Shrubland, Open Shrubland, Open Forest/Shrubland, Canthium-Schinus Forest, Prosopis Forest - can be found at the candidate sites. Discrete boundaries between some types reflect differences in lava flow or surface texture. Two types were seen at more than one site. The following paragraphs contain brief descriptions of each vegetation type including the distribution of common, rare, and endangered species which have been reported for each of the five types.

#### GRASSLAND/LOW SHRUBLAND (GLS) - FOUND AT SITES 2, 3, 4 AND 5

The lower and drier portions of this band of vegetation are generally more open, largely due to the proportional reduction in fountain grass cover. Although the GLS type generally occurs on gently sloping pahoehoe lava, it may also be found on patches of a'a and scoriaceous pahoehoe. The GLS is the lowest vegetation band in the region (except for the coastal strand which is not relevant here), and mauka it grades into the Open Shrubland. Three different ages of pahoehoe lava flows ranging from 2,250 to nearly 10,000 years old can be found at the candidate sites and support the GLS.

The grass component of the GLS is heavily dominated by fountain grass (*Pennisetum setaceum*) and also includes natal reedtop (*Rhynchelytrum repens*) and possibly *pili* (*Heteropogon contortus*). The shrubs usually include small individuals (less than 3 feet tall) of *uhaloa* (*Waltheria americana*), *ilima* (*Sida fallax*), *klu* (*Acacia farnesiana*), *noni* (*Morinda citrifolia*), and *maiapilo* (*Capparis sandwichiana*). In the upper portions of this vegetation band there may be emergent Christmas berry (*Schinus terebithifolius*), *alahee* (*Canthium odoratum*), *kiawe* (*Prosopis pallida*), and *lantana* (*Lantana camara*).

Two rare or endangered species, Nb and Xh, have been reported in the GLS of Kau. Both Rs and Xh have been found in the GLS of Kealakehe. No rare or endangered species have been reported in the GLS of Ooma.

#### OPEN SHRUBLAND (OSL) - FOUND AT SITES 2 AND 3

This vegetation type is composed of most of the species in the GLS which is makai of the OSL, plus additional species. This vegetation type occurs in both more textured pahoehoe and a'a lava flows. Compared to the GLS, the shrub cover of the OSL is variably dominant and taller (up to 10' tall or more) in stature. The OSL serves as a transition between the lower GLS and the Open Forest/Shrubland or other taller arborescent or dense tall shrub vegetation types above it.

In addition to most of the species of the GLS, the OSL includes more woody species and some herbs, vines and ferns including opiuma (*Pithecellobium dulce*), indigo (*Indigofera suffruticosa*), air plant (*Kalanchoe pinnata*), sword fern (*Nephrolepis multiflora*), portulaca (*Portulaca pilosa*), *koa haole* (*Leucaena leucocephala*), *iliee* (*Plumbago zeylanica*), *Peperomia leptostachya*, and *aalii* (*Dodonaea viscosa*). There may be much low stature *alahee* or *koa haole* and the native species may be prominent.

In the OSL of Ooma and Keahuolu, no rare or endangered species have been identified. Bm and Ck have been reported in the OSL of Kealakehe.

OPEN FOREST/SHRUBLAND (OFSL) - FOUND AT THE UPPER PORTION OF SITE 3

Either pahoehoe or a'a surfaces may underlie the vegetation of the OFSL. The dense shrub layer (6' - 10' tall) forms the matrix with emergent individuals or clumps of trees (15' - 30' tall). Smaller species of shrubs and herbs of lower elevations are absent or much reduced in number. Tree and tall shrub species may increase considerably with elevation, including numerous native species. Dominance or prominence of *koa haole* may occur in areas previously used for cattle grazing.

Additional species noted in this vegetation type include *wiliwili* (*Erythrina sandicensis*), *iliahi* (*Santalum paniculatum*), *huehue* (*Cocculus trilobus*), *Coccinia grandis*, and monkeypod (*Samanea saman*).

At Kau, the OFSL reportedly contains Ph and Sg. Both Bm and Sg have been reported in the OFSL of Ooma. At Keahuolu, no rare or endangered flora have been reported.

CANTHIUM-SCHINUS FOREST (CSF) - FOUND AT SITE 1

The CSF is underlain by pahoehoe lava. Except for the more open patches often found on rugged a'a sections, the canopy of the CSF is continuous and dense. Emergent trees and stands (15' - 25' tall) are frequent. The understory is generally thick, often of canopy species, and the groundcover is variable in composition and amount.

*Alahee* or Christmas berry may dominate the canopy locally, but usually co-occur. Emergent species include monkeypod, kiawe, Christmas berry and perhaps, opiuma. The understory and groundcover includes air plant, fameflower (*Talinum triangulare*), *uhaloa*, *lauae* (*Phymatosorus scolopendria*), peperomia, *Coccinia*, *iliee*, *lantana*, *noni*, *koa haole*, *koali* (*Ipomoea indica*), and Guinea grass (*Panicum maximum*). Except for *Canthium*, native species are not prominent. The CSF may grade into an OFSL dominated by *koa haole* at its lower limits, where the canopy is discontinuous.

Rs has been reported in the CSF at Kau. In the CSF at Keahuolu, both Bm and Sg have been identified.

PROSOPIS FOREST (PF) - FOUND AT THE SOUTHERN 3/4 OF SITE 2

The open understory of shrubs and small trees is much more open and less shaded in the PF than in the CSF. The groundcover of the PF is fairly continuous, except in patches of coarser a'a. This vegetation is limited to an old (10,000 to 25,000 year-old) a'a kipuka and does not occur farther north in this region of consideration. The PF vegetation of the kipuka is similar to that of the area around Kailua to Kahaluu, which is also on similar old lava flow surfaces.

*Kiawe* trees (20' - 30' tall) dominate the canopy, which is interspersed with trees of opiuma, Christmas berry and monkeypod. The understory includes *alahee*, *lantana*, *klu*, much *koa haole*, *maiapilo*, *iliee*, *aali*, *ilima* and indigo. The groundcover consists mostly of fountain grass, with some portulaca, Natal redbud and a few other species.

No rare or endangered species of flora have been reported in the PF at Keahuolu.

In addition to the five previously described vegetation types, three other types - Open Mixed Shrubland, Koa Haole Shrubland and Ohia Lowland Dry Forest - are prominent in the Keahole to Kailua study area. Although none of the proposed civic center sites were found to contain any of the three vegetation types during a preliminary site investigation, the three types are next to the sites or are compositionally similar enough to consider that the rare species which they contain might also occur at one or more of the candidate sites.

#### OPEN MIXED SHRUBLAND (OMSL) - KALAOA TO OOMA

For Kalaoa to Ooma, the OMSL type runs from the 400 to 640-foot elevation. At Kealakehe, the OMSL generally occurs above the 400-foot elevation, but extends lower in places, and runs upward to about the 600-foot elevation. Although the OMSL does not appear to be contiguous with any of the vegetation types described from the 5 sites, the elevation and rainfall parameters do, leaving the possibility that the rare species of the OMSL may also exist in the area of Site 1. The lower OMSL is replaced by the Koa Haole Shrubland to the south near the top of Site 3 and the bottom of Site 1.

Common introduced species in the OMSL include Christmas berry and *koa haole*; silk oak (*Grevillea robusta*) is also scattered in the northern areas. Fountain grass is found on pahoehoe surfaces.

Numerous native species were noted, especially on a'a surfaces. These include the rare species Bm, Nb, Rs, and Sg. In the Kealakehe area, the OMSL also contains Ck, Ph, and Xh. The specie IP was also discovered in lower Kealakehe.

#### KOA HAOLE SHRUBLAND (KHSL) - KEALAKEHE

This vegetation type is found at Kealakehe, above the GLS, below and alongside the OMSL. At Kealakehe, the KHSL may extend as low as the 200-foot elevation and up to the 700-foot elevation, where it is replaced by the CSF. The KHSL extends south into Keahuolu, where it may become equivalent to the OFSL at the top of Site 3 and extends up toward the lower part of Site 1.

The KHSL generally occurs on pahoehoe surfaces and is dominated by *koa haole* (8' - 12' tall), and may have emergent *kiawe* and *opiuma* trees present. The lower KHSL may be equivalent to areas of the OSL and OFSL which have become dominated by *koa haole*. This particular type of KHSL occurs on the 2,250 year-old pahoehoe flow at Kealakehe and Keahuolu.

Introduced species are dominant, however, the native species include the rare Ck, Rs, and Sg.

#### OHIA LOWLAND DRY FOREST (OLDF) - KALOKO AND HONOKOHAU

The OLDF at Kaloko and Honokohau consists of a very rugged a'a flow about 2,200 to 2,300 years old which supports the best preserved native forest remnant in the region.

Above the 300-foot elevation, the very open vegetation cover is dominated by native trees and shrubs in clumps and as scattered individuals. *Ohia* (*Metrosideros polymorpha* var. *incana*) is the most common tree, but there is a large component of native trees and shrubs, including *alahee*, *lama* (*Diospyros ferrea*), *nehe* (*Lipochaeta subcordata*), *mamane* (*Sophora chrysophylla*), *naio* (*Myoporum sandwicense*), and *maiapilo*. Introduced species, especially Christmas berry, *koa haole*, and fountain grass are especially sparse. The OLDF is an outstanding example of native vegetation for preservation consideration.

The native species that occur in the OLDF include Bm, Ck, Nb, No, Ph, Rs, and Sg. The rare sedges Fh and Mf also occur in the sparse ground cover of the OLDF.

#### PROBABLE IMPACTS:

The development of areas comprised primarily of open lava fields, fountain grass and common introduced species will have minimal impact on the existing total island population of these species, which are typically found throughout the general area. The loss of this vegetation by clearing and grading will be offset by landscaping of the site. Existing trees which are desirable may be incorporated in the landscaping where possible, or transplanted.

The medium to tall woody vegetation types are most likely to contain rare species. The bands of such vegetation occur mauka of Sites 4 and 5, and in only the upper portion of Site 3. Most of Site 2 and all of Site 1 support such medium to tall woody vegetation. Consequently, the development of Sites 1, 2 and 3 would potentially result in adverse impacts to rare or endangered species.

#### MITIGATION MEASURES:

The planning for the development of Sites 1, 2 and the upper portion of 3 must be preceded by a moderately intense botanical survey for rare species. Since it is unwise to predict that rare species do not occur in any west Hualalai examples of medium to tall woody vegetation where an intensive search has not been undertaken, a survey of the existing flora should precede the development of any of the sites. Searches of moderate intensity could yield a general assessment of the relative abundance of rare plants, but a thorough search is required to locate all rare plant populations to guide development around them.

In addition, the necessary actions should be taken to protect any endangered species that are identified within the selected civic center site. Native plants will be suggested as landscaping material whenever possible.



## 6.2.2 FAUNA.

Rats, mice, mongoose, mynah, dove, sparrow, black crowned night heron, wandering tattler, golden plover, ruddy turnstone, sanderling, least sandpiper, and the sharp-tailed sandpiper are among the common and indigenous species generally found in the Keahole to Kailua area. The Hawaiian owl, *pueo*, and the endangered Hawaiian hoary bat, *opeapea*, may also be found in the Keahole to Kailua area.

### PROBABLE IMPACTS:

Limited habitat and wildlife resources will be removed or displaced from the development areas. Impacts to existing common species of fauna, such as rats and mongoose, are unavoidable and not viewed as a negative impact. However, potential impacts to the *pueo* and *apeapea*, such as the disturbance of their nesting or feeding habitats, would be an adverse impact that would necessitate mitigative measures. However, other habitat opportunities are available on the island and in the West Hawaii region. Furthermore, the loss of trees for the nesting and feeding of birds in the area will be a temporary adverse impact until the civic center landscaping is planted and has matured. Despite the deliberate avoidance of habitat and wildlife resources during development of the Kona Civic Center, ambient noise and human activity may deter birds and animals from frequenting the site.

### MITIGATION MEASURES:

A reconnaissance survey of the project site will identify rare and endangered plant and animal species to guide development away from the animal populations and habitats. Necessary actions will be taken to protect any endangered species identified within the project sites.

## 6.2.3 ARCHAEOLOGICAL/HISTORICAL.

According to the State Historic Preservation Division, a previous archaeological inventory survey was initiated by the Queen Liliuokalani Trust for the area of Sites 1, 2 and 3. A summary of the findings of the survey is included in Appendix C. The survey identified a total of seven significant archaeological sites: five of the sites (numbers 13425, 13428, 13430, 13435, and 13438) are located in the vicinity of Site 1; the two remaining sites (numbers 13315 and 00002) are located at Site 3. The survey reported the absence of significant archaeological sites at Site 2. Although Sites 4 and 5 have yet to undergo an archaeological inventory survey, cursory field inspection and available records in the State Historic Preservation Division files suggest that the presence of significant archaeological sites is unlikely due to the terrain, topography and location of Sites 4 and 5. This preliminary finding, however, has yet to be verified by an actual site inventory survey.

#### PROBABLE IMPACTS:

The Kona Civic Center development has the potential to disturb or destroy significant archaeological/historical sites at Sites 1 and 3. Although efforts will be made to preserve sites with potentially high research, cultural or interpretive value, inadvertent disturbances to preserved sites could occur from uncontrolled human activity.

At Site 2, no negative impacts to archaeological/historical resources are expected to result from the proposed project. Similarly, no adverse impacts are anticipated as a result of the development of the Kona Civic Center at Sites 4 or 5 due to the probable absence of significant archaeological/historical sites. The records for Sites 4 and 5, however, have not yet been verified by an actual archaeological survey.

#### MITIGATION MEASURES:

The appropriate level of archaeological work needed to recover the significant data present, such as intensive survey, has the potential to preserve the valuable archaeological information, rather than the physical remains themselves. Archaeological/historical remains which have only limited significance in terms of potential research could be preserved and included in the landscaping of the civic center project area.

A data recovery plan for a total of six archaeological sites (numbers 13425, 13428, 13430, 13435, 13438 at Site 1 and 13315, at Site 3) has been accepted by the State Historic Preservation Division. Compliance with the data recovery plan will be necessary for the development of the Kona Civic Center at Sites 1 or 3. Furthermore, the archaeological site numbered 00002 at Site 3 is the Mamalahoa Trail, a major trail in the area. This trail has been committed for preservation with some level of interpretive development on adjacent federal, State and private lands. Therefore, the construction of the Kona Civic Center at Site 3 would have to allow for the protection of the trail and a preservation plan would have to be approved by the State Historic Preservation Division.

Archaeological inventory surveys will have to be conducted to determine the presence or absence of significant archaeological/historical sites at Sites 4 or 5 if either is selected as the Kona Civic Center site. The survey results will have to be submitted to the State Historic Preservation Division for approval and a mitigation plan covering data recovery and/or in place preservation will also have to be submitted if significant historic sites are present at the sites.

Construction of the proposed project at Site 2 is not expected to require mitigative measures due to the absence of significant archaeological/historical resources at this site.

### 6.3 Infrastructure

#### 6.3.1 WATER.

Potable water is available from the North Kona water system. Existing potable water wells in the Kailua-Kona area are estimated to have a safe yield capacity of over 4 million gallons per day (mgd). The maximum yield of the aquifer is estimated to be about 10 mgd. With the estimated average daily consumption for the civic center at approximately 0.09 mgd, the water demand for this project can be viewed as minimal. The study area may be served by the existing 16-inch transmission line which diminishes to a 12-inch line along Queen Kaahumanu Highway, or the 12-inch line along Mamalahoa Highway. With this projected water consumption level, a storage reservoir and new supply transmission lines are anticipated to be implemented into the water supply system of the subject site development.

#### PROBABLE IMPACTS:

Although minimal, development of this project will have an impact on the overall water supply system in this area.

#### MITIGATION MEASURES:

The mitigation will include the development of the water source, transmission lines and storage reservoirs as necessary. If development of a new water supply system is necessary, the probable impacts may be mitigated by compliance with all applicable regulations and codes, i.e., State Water Resource Management Commission and the County Department of Water Supply requirements. However, if the developments are not required, this project will then share the water supply development with the subject site development.

#### 6.3.2 SEWER.

The candidate sites are not served by the public sewer system currently. However, a new sewage treatment plant is already in operation replacing the existing one at the Kona Industrial subdivision. This plant is designed to be expandable to approximately 8 mgd for the projected growth of the entire Keahole to Kailua area. The impact on the design capacity is again considered to be minimal for this project. Depending upon the final site selection, sewage lift stations may be required along the new transmission lines.

**PROBABLE IMPACTS:**

The proposed project will utilize the new Kealakehe STP for wastewater disposal. Due to the minimal design capacity resulting from this development, impacts to the new STP should be insignificant.

**MITIGATION MEASURES:**

Since no adverse impacts have been identified, mitigation measures are not warranted. Nevertheless, all new wastewater transmission lines and lift stations shall be planned, designed and constructed in compliance with applicable State and County regulations and codes.

**6.3.3 DRAINAGE.**

There are no known defined drainageways or perennial streams in the project study area. In general, due to the high permeability of the soil types in this area, drainage of surface water is relatively rapid.

**PROBABLE IMPACTS:**

The development of the site will create increased runoff as areas are paved. A potential impact on surface and groundwater is the possible leaching of chemicals, such as fertilizers, pesticides and petrochemicals, into groundwater. Of the five candidate sites, only a portion of Site 1 is located mauka of the underground injection control (UIC) line. Because no defined drainageways have been identified, significant alterations to the existing surface water runoff patterns are not expected to occur.

**MITIGATION MEASURES:**

Potential adverse impacts to the groundwater and drainage of the project site would be mitigated through proper design and construction of a drainage system in compliance with applicable State and County regulations and codes. The use of U.S. Environmental Protection Agency (EPA) and State Department of Health (DOH) approved insecticides and to be applied by licensed applicators, the use of slow, time-release or rapid uptake fertilizers will also mitigate the potential adverse impacts.

#### 6.3.4 ELECTRICAL POWER/COMMUNICATIONS.

Electrical power on the island of Hawaii is provided primarily by Hawaiian Electric Light Company (HELCO). The County's current generating capacity is about 150 megawatts (MW). A powerline corridor with a 69 kV line runs along the major roadways in the study area. Telephone service is provided by the Hawaiian Telephone Company via their Kailua-Kona facilities. Cable television (CATV) signals are also received by microwave dish and extended to all development sites by underground lines.

##### PROBABLE IMPACTS:

No significant increases in electrical power demand and telephone or cable television services are anticipated as a result of the proposed project.

##### MITIGATION MEASURES:

Because the project is not expected to result in significant impacts to the utility services, mitigation measures are not warranted. Coordination with the utility companies will occur at the appropriate time to provide an extension of services to the selected civic center site. Furthermore, all design and construction of the utility extensions will be accomplished in compliance with the public utilities commission rules and regulations as well as applicable building codes.

#### 6.3.5 HIGHWAY/STREET NETWORK.

The traffic growth trends are likely to continue, given the anticipated population and tourism growth. The increase in traffic volume will impose heavier loads on the roadway network and additional roadway improvements will be needed.

The principle roadway in the project area is Queen Kaahumanu Highway, a two-lane State highway. Mauka-makai connectors intersect the highway at selected points. A proposed mid-level arterial roadway is expected to ease traffic congestion by providing an alternative to Queen Kaahumanu Highway.

##### PROBABLE IMPACTS:

The following discussion on traffic impacts is abstracted from the Traffic Impact Analysis Report (Barton-Aschman, 1993) prepared for this study. The report is included in this report in Appendix D.

Criteria have been established in various cities to define a significant traffic impact requiring mitigation. Specific guidelines have not been established in Kailua-Kona. Generally, the criteria are as follows: if the level-of-service under cumulative conditions without the project is E or F, and the volume/capacity (V/C) ratio changes less than 0.030, the project's traffic impacts are considered insignificant. However, if the V/C ratio change is greater than 0.030, then mitigation measures which will reduce the V/C ratio change to less than 0.030 must be identified. For this project, the 0.030 criterion has been used. If the LOS with project traffic is D or better, then no mitigation measure needs to be identified.

A number of roadway improvements will also result from the related projects in the area. These roadway improvements are part of the project itself, such as the Mid-Level Road, or mitigation measures required as part of the project. Since the roadway improvements are committed as part of the project, or required to mitigate the project's impacts, they are considered as part of the cumulative background conditions. Based on a review of the traffic studies for the related projects, the following roadway improvements are considered to be completed by the design year of the project:

- (1) Henry Street Between Kuakini Highway and Palani Road, Including Signalization of Henry Street at Queen Kaahumanu Highway. Henry Street is to be constructed as a four-lane arterial with separate left-turn lanes and acceleration and deceleration lanes along Queen Kaahumanu Highway.
- (2) Kealakehe Parkway Between Queen Kaahumanu Highway and Palani Road. The EIS information obtained did not indicate the type of roadway. However, it was assumed that Kealakehe Parkway would be a four-lane arterial based on the traffic volumes shown in the report.
- (3) Mid-Level Road Between Kealakehe Parkway and Palani Road. As with Kealakehe Parkway, the type of roadway was not indicated. A four-lane arterial was assumed, which is consistent with Henry Street south of Palani Road. It was also assumed that the Mid-Level Road would intersect Palani Road at Henry Street. Henry Street has been designed such that it will intersect Palani Road in the vicinity of the existing Ololi Road, 200 feet south of the water tank along Palani Road. The intersection of Palani Road at the Mid-Level Road will be signalized.
- (4) The Intersection of Palani Road at Queen Kaahumanu Highway. This intersection will be improved to provide an additional lane into the town center. With signal modifications, this lane may optionally be used as a left-turn lane.
- (5) Queen Kaahumanu Highway. This highway will be improved to a four-lane divided arterial as an interim condition until a fully-access controlled facility is constructed. Review of the related projects indicate that the highway will have to be widened to accommodate traffic generated by projects already approved for development. Several of the traffic studies indicate that Queen Kaahumanu Highway will be a four-lane divided highway by the design year and have used this configuration as the background condition to estimate the study projects' traffic impacts. As part of this, the intersection of Queen Kaahumanu Highway at Palani Road will also be improved to provide double left-turn lanes along Queen Kaahumanu Highway, and an additional through lane along Palani Road from the town center and along Queen Kaahumanu Highway.

The State currently has plans to improve Queen Kaahumanu Highway to a fully-access controlled facility. As yet, there is no indication that this will occur within the time frame used in this study (1992 - 1997). It is understood that when Queen Kaahumanu Highway is improved, access to the project sites along Queen Kaahumanu Highway would be via a frontage road. This scenario has not been studied as part of this study because plans for Queen Kaahumanu Highway have not progressed to the point where access routes can be identified. Therefore, traffic from any of the proposed sites must be considered in the assessment and design of Queen Kaahumanu Highway in the future.

A summary of the level-of-service analyses results for the key intersections under study is presented in Figure 34.

The results of this analysis indicated that the intersections along Queen Kaahumanu Highway will be over capacity as a result of background growth and the related projects assumed to be constructed over the next five years. The capacity constraint is a result of overall development and is not the result of traffic generated by any of the candidate sites proposed for the Kona Civic Center development, as indicated by the small change in the v/c ratio.

Furthermore, increased traffic at the civic center is anticipated during construction, as construction equipment will use existing roadways. These effects are unavoidable and will be compounded due to the fact that there are no alternative routes through the area.

#### MITIGATION MEASURES:

Impacts from any site location along Queen Kaahumanu Highway would be mitigated through planning and design of Queen Kaahumanu Highway and coordination with roadway implementation of the various related projects in the study area. As indicated in Figure 34, the v/c ratio is not projected to change significantly with the inclusion of the proposed project. Therefore, for site locations along Queen Kaahumanu Highway, considerations should be taken to include separate through lanes and left-turn lanes for any intersections along the highway.

In contrast, Site 1, along Palani Road, would generate less traffic onto Queen Kaahumanu Highway. Traffic impacts at the intersections of Queen Kaahumanu Highway at Palani Road and Henry Street can be mitigated with relatively simple improvements. In reference to Figure 34, widening to separate through and left-turn lanes would result in improving the LOS from "E" to "D" at both the intersections of Palani Road and Henry Street at Queen Kaahumanu Highway. The intersection of Palani Road at the Mid-Level Road would have to be improved to provide a double left-turn lane from the Mid-Level Road to Palani Road to mitigate the project impacts. This improvement would improve the LOS from "D" to "C."

| Intersection                            | Cumulative |     | Cumulative Plus Site 1 |                        | Cumulative Plus Sites 2,3,4,or 5 |     |
|---|------------|-----|------------------------|------------------------|----------------------------------|-----|
|   | v/c        | LoS | v/c                    | LoS                    | v/c                              | LoS |
| Queen Kaahumanu Highway At Palani Road  | 0.754      | C   | 0.757                  | C                      | 0.771                            | C   |
| Queen Kaahumanu Highway At Henry Street | 0.548      | A   | 0.569                  | A                      | 0.552                            | A   |
| Palani Road At Henry Street             | 0.504      | A   | 0.548<br>(0.518)       | A<br>A) <sup>(1)</sup> | 0.497                            | A   |

| Afternoon Peak Hour                     |            |     |                        |                        |                                  |     |
|---|------------|-----|------------------------|------------------------|----------------------------------|-----|
| Intersection                            | Cumulative |     | Cumulative Plus Site 1 |                        | Cumulative Plus Sites 2,3,4,or 5 |     |
|   | v/c        | LoS | v/c                    | LoS                    | v/c                              | LoS |
| Queen Kaahumanu Highway At Palani Road  | 0.873      | D   | 0.901                  | E                      | 0.894                            | D   |
| Queen Kaahumanu Highway At Henry Street | 0.841      | D   | 0.907                  | E                      | 0.862                            | D   |
| Palani Road At Henry Street             | 0.698      | B   | 0.816<br>(0.765)       | D<br>C) <sup>(1)</sup> | 0.702                            | C   |

Notes: v/c = volume-to-capacity ratio  
LoS = Level-of-Service  
(1) = LoS resulting from mitigations discussed in report.

Source: Barton-Aschman, 1993

|  |   |
|--|---|
| <p>KONA CIVIC CENTER<br/>Site Selection Study/EIS</p> <p>DAGS Job No. 11-21-4080</p> | <p><b>Figure 34</b><br/><b>Cumulative Level-of-Service Analysis</b></p> |
|--|---|



To mitigate the short-term increase of traffic during construction periods, mitigation measures such as requiring the Contractor to provide traffic control arrangements and safety precautions, can be taken to minimize traffic congestion.

#### 6.3.6 SOLID WASTE.

The North Kona area is currently served by the new sanitary landfill near Pu'uuanahulu, 15 miles north of Keahole Airport. The existing Kailua Landfill has ceased its operation since 1993.

##### PROBABLE IMPACTS:

Since the new landfill site is designed to serve the West Hawaii area, solid waste generated from the proposed civic center is not anticipated to have a significant impact on its landfill capacity.

##### MITIGATION MEASURES:

Because no adverse impacts are identified, mitigation measures are not warranted.

## 6.4 Socioeconomic Environment

### 6.4.1 POPULATION.

More than one-third of the Island of Hawaii's population reside in the two Kohala and two Kona districts. The North Kona district experienced the most rapid population growth (with a growth factor of 4.6) between 1970 and 1990.

#### PROBABLE IMPACTS:

The development of the civic center will increase population around the site location and elsewhere on the island. Besides the relocation of certain State functions which may not cause any increase in employee population, the civic center also includes certain new facilities such as the Judiciary, a correctional facility and possibly a library and senior center. These functions are expected to increase the population in the study area. This increase in population may be an off-site increase or an on-site increase.

#### a. OFF-SITE POPULATION IMPACTS.

The civic center is expected to impact the County's population by attracting employees from other localities for the proposed project's construction and operation. Additional population growth is anticipated to come from household members who accompany the in-migrant operational employees.

#### b. ON-SITE POPULATION IMPACTS.

On-site population is expected to increase due to the implementation of the correctional facility at the project site.

The total population impacts are not anticipated to be significant.

#### MITIGATION MEASURES:

Population growth, which essentially implies an increase in economic activities, is generally accepted as a desirable goal for Hawaii County.

#### 6.4.2 EMPLOYMENT.

A high volume of economic and fiscal activity is concentrated in West Hawaii, particularly in the South Kohala and North Kona districts. Currently, these two districts are at the heart of the visitor industry. Agribusiness and commercial fishing are other important industries in the North Kona district.

##### PROBABLE IMPACTS:

Development of the civic center will generate short-term employment during the construction of new facilities and long-term employment in the operation and support of those facilities. Employment effects may also be classified as being direct or indirect. Direct effects are those directly employed by the establishments, either as construction workers or employees of the facilities. Direct employment would generally be located in Hawaii County around the site area. Indirect effects occur when directly affected establishments purchase goods or services from other businesses. Because both direct and indirect effects of this development are expected to have a positive impact on employment, mitigation measures are not warranted. Nevertheless, the development of a civic center and its multiplier effects on the surrounding land use pattern, business opportunities and commercial activities should not be undermined.

## 6.5 Public Services

### 6.5.1 HEALTH CARE FACILITIES.

Full-service health care is available at the Kona Hospital. According to the State Department of Health, the hospital's resources do not adequately meet existing regional population needs.

#### PROBABLE IMPACTS:

As discussed in paragraph 6.4.1, the population increase resulting from this development is not considered to be significant. However, the impact of the civic center development on the existing health care facilities is considered to be cumulatively adverse in combination with anticipated residential and commercial development that the civic center will attract.

#### MITIGATION MEASURES:

Market demand for additional health care facilities will dictate future expansion in private and public sector medical services requirements.

### 6.5.2 POLICE AND FIRE PROTECTION.

The new police substation is located at Kealakehe. The Kailua-Kona Fire Station on Palani Road is a multiple engine company equipped with a ladder truck.

#### PROBABLE IMPACTS:

Development of the Kona Civic Center will place additional demands on existing police and fire services.

#### MITIGATION MEASURES:

Demands on County police services at Kailua-Kona will be partially offset by on-site security personnel and nightwatch services. Necessary safety precautions shall be taken during construction. The civic center design will comply with all applicable County fire requirements and building code provisions.

**CHAPTER 7.0 ALTERNATIVES TO THE PROPOSED ACTION**

**7.0 ALTERNATIVES TO THE PROPOSED ACTION**

**7.1 No Action Alternative**

The no action alternative would retain the present status of the existing Civic Center and the Police Headquarters at Captain Cook; the Judiciary and the Department of Health at Kealahou; and the Correction Center at Hilo. While this alternative would maintain the present government operational conditions, it does not provide an efficient use of government facilities for its users. Moreover, it is not compatible with the State and County's policy and commitment of promoting the construction of a civic center within the Keahole to Kailua area.

## 7.2 Smaller Scale Alternative

Smaller scale development of the project means development of only a portion of the proposed functions from the original program. Although this alternative would incur a consolidation of certain, but not all, government functions, it again does not provide an efficient use of facilities for users. In addition, certain off-site infrastructure costs including roadway improvement, potable water development and wastewater development, might be borne by the State regardless of the size of the project. Reducing the size of the project may result in an increase in the unit cost of the development.

Another disadvantage in reducing the development size is the limitation on future expansion possibilities.

**CHAPTER 8.0 TOPICAL ISSUES**



## 8.0 TOPICAL ISSUES

### 8.1 The Relationship Between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

The short-term effects of the civic center development on man's environment is expected to be minimal in comparison to the long-term benefits to the community. Construction activities will have direct, short-term adverse impacts on the environment with the increase in noise, traffic, and thus, air-borne particulate matter and exhaust emissions. However, with proper planning and precautionary measures, the probable impacts are not expected to be significant.

Long-term benefits will result as the new civic center will provide an efficient use of public services and facilities to the project area. This development will provide the needed facilities that will serve West Hawaii residents. Consistent with the policies of the Keahole to Kailua Development Plan, this new civic center will essentially create a second economic center, thereby influencing the anticipated growth of Kailua-Kona. Significant socio-economic benefits to the community will result in the form of increased job opportunities and increased tax revenues. Direct, full-time employment opportunities and temporary construction employment will be generated by the project. Similarly, indirect, induced employment will be generated by other industries providing services to the proposed project. With the increase in revenues from taxes, economic benefits are expected to more than offset aggregate public costs associated with providing services to the project.

Because all five candidate sites are largely barren lava fields with little or no agricultural value, future options for alternate uses of the land are limited; thus, the range of beneficial uses of the environment will not be significantly narrowed.

## 8.2 Irreversible and Irretrievable Commitment of Resources

The construction and operation of the new civic center would result in the irreversible and irretrievable commitment of certain natural and fiscal resources. Major resource commitments include the land upon which the structure will be constructed, money, construction materials, manpower and energy. The impact of using these resources should, however, be weighed against the economic benefits to the residents of the region, County and State, and the consequences resulting from taking no action.

The commitment of resources required to accomplish the project includes labor and materials which are mostly unrenowable and irretrievable. The operation of the project will also include the consumption of potable water and petroleum-generated electricity which also represents an irretrievable commitment of resources.

The proposed project does not call for a substantial commitment of government supplied services or facilities that would be required without the proposed project. On the other hand, the project will benefit the residents as well as the local government by the addition of cultural, public, educational facilities and tax revenues.

### 8.3 Unresolved Issues

The proposing agency is aware of the many questions and public concerns at this time regarding the proposed project. The agency has and will continue to work with the various State and County agencies, local community, and business organizations as well as all interested individuals and parties to assure that the final selected site and the development will meet the agency's objective and satisfactorily address the concerns that have been raised to date as well as those that may be raised during the public review phase of this Draft EIS. As one of the objectives of this report is to identify and evaluate potential candidate sites, no final site has been determined to date. Until a final site is selected, the following list of issues will require further study at appropriate stages of project planning and review.

#### 8.3.1 FLORA/FAUNA.

Since different site locations support different vegetation and animal species, possibility of the site containing rare species may vary from site to site. Any planning for development should be preceded by surveys for rare and endangered animal and plant species, particularly for organisms in Honokohau Harbor and the anchialine pools near the selected project site.

#### 8.3.2 ARCHAEOLOGICAL/HISTORICAL.

As noted in Section 6.2.3, archaeological inventory surveys would be required to determine the presence of significant historic sites if either Site 4 or Site 5 is selected. The result of the survey will have to be submitted to the State Historic Preservation Division for review and comment. If significant historic sites are present, then a mitigation plan covering data recovery and/or in place preservation will also have to be submitted for review and concurrence.

#### 8.3.3 ROADWAY IMPROVEMENTS

Timing of improvements to Queen Kaahumanu Highway, including the intersection improvements and the upgrade to a fully-access controlled highway in response to cumulative traffic volumes generated by this proposed project as well as other proposed development in the Keahole to Kailua areas will need to be assessed by the State Department of Transportation.

**CHAPTER 9.0 PARTIES CONSULTED AND THOSE WHO  
PARTICIPATED IN THE PREPARATION OF THE EIS**

9.0 PARTIES CONSULTED AND THOSE WHO PARTICIPATED IN THE PREPARATION OF THE EIS

9.1 Agencies, Organizations and Individuals Consulted in the Preparation of This Document

The agencies, organizations, and individuals listed below were consulted during the preparation of the Site Selection Study and/or EIS.

Federal Agencies

U.S. Department of Agriculture, Soil Conservation Service  
U.S. Army Corps of Engineers, Pacific Ocean Division  
U.S. Department of Commerce, National Marine Fisheries Service  
U.S. Department of the Interior, Fish and Wildlife Services  
U.S. Department of the Interior, National Park Service  
U.S. Department of Transportation, Federal Aviation Administration

State Agencies

Department of Agriculture  
Department of Business, Economic Development and Tourism (DBEDT)  
DBEDT, State Energy Office  
Department of Defense  
Department of Education  
Department of Hawaiian Home Lands  
Department of Health  
Department of the Judiciary  
Department of Land and Natural Resources (DLNR)  
DLNR State Historic Preservation Office  
Department of Planning and Economic Development  
Department of Public Safety  
Department of Transportation  
Housing Finance and Development Corporation  
Office of Environmental Quality Control  
Office of State Planning  
Office of Hawaiian Affairs

University of Hawaii

Environmental Center  
Water Resources Research Center

Hawaii County

|  |                            |
|--|----------------------------|
| Department of Parks and Recreation     | Department of Public Works |
| Department of Research and Development | Department of Water Supply |
| Fire Department                        | Hawaii County Council      |
| Planning Department                    | Police Department          |

Public Utilities

The Gas Company, Hawaii Division  
Hawaii Electric Light Company  
Hawaiian Telephone Company

Major Landowner, Developer, Resort Operators

Liliuokalani Trust

Organizations

|                                    |                                   |
|------------------------------------|-----------------------------------|
| All Incorporated                   | American Lung Association         |
| Daughters of Hawaii                | Hawaii Hotel Association          |
| Hawaii Leeward Planning Conference | Hawaii Restaurant Association     |
| Kailua Village Design Commission   | Kailua Village Improvement Assoc. |
| Kona Board of Realtors             | Kona - Kohala Chamber of Commerce |
| West Hawaii Bar Association        | West Hawaii Committee             |

Individuals

Mr. Jim Bell, Belt Collins and Associates  
Ms. Wanda Dertling, Bradley Properties, Ltd.  
Representative Virginia Isbell, Hawaii State House of Representatives  
Senator Andrew Levin, Hawaii State Senate  
Mr. Gregory Ogin, Gerry Rott and Associates  
Mr. John Parazette, John Parazette, AIA, Inc.  
Mr. Mark Van Pernis, Gallup and Van Pernis  
Mr. Dennis Reid, Reid and Associates, Inc.  
Mr. Michael J. Riehm, Riehm Owensby Planners and Architects  
Senator Malama Solomon, Hawaii State Senate

## 9.2 List of Preparers of This Document

The Site Selection Study and draft EIS was prepared for the State Department of Accounting and General Services by Design, Planning, and Development, Inc. with input provided by the consultants. The following were involved:

### Consultants

Barton-Aschman Associates, Inc.  
Daniel, Mann Johnson and Mendenhall - Planning, Architecture, Engineering  
Systems and Economics  
Morrow, J. W. - Environmental Management Consultant  
Warshauer, F. R. and G. Gerrish - Natural Science Division, University of Hawaii  
at Hilo

### Design, Planning, and Development, Inc.

Wil Chee  
Louis Fung  
Ivan Tilgenkamp  
Claire Tom

Principal  
Project Manager/Senior Planner  
Project Planner/Senior Planner  
Word Processor/Junior Planner

**CHAPTER 10.0 LIST OF NECESSARY APPROVALS**



## 10.0 LIST OF NECESSARY APPROVALS

The following is a list of major approvals and permits required for the implementation of the proposed project. Additional permits and approvals may be necessary. In addition to State Land Use Commission approval for redesignation of land use districts, the State will seek necessary State and County approvals for the development of the project.

| <u>Permit or Approval</u>        | <u>Authority</u>                    |
|----------------------------------|-------------------------------------|
| Conservation District Use Permit | Board of Land and Natural Resources |
| Land Use Boundary Amendment      | State Land Use Commission           |
| Change of Zoning                 | Hawaii County Planning Commission   |
| Special Management Area Permit   | Hawaii County Planning Commission   |
| Building and Grading Permits     | Hawaii County Planning Department   |

**CHAPTER 11.0 EIS CONSULTATION PHASE COMMENTS AND  
RESPONSES**

**COMMENTS AND RESPONSES FOR EIS PREPARATION NOTICE**



DEPARTMENT OF THE ARMY  
U.S. ARMY ENGINEER DISTRICT, HONOLULU  
FORT SHAFTER, HAWAII 96858-5440



JOHN WARREN  
30-EN-00A



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES

ROBERT P. IANUSH  
COMPTROLLER  
LLOYD UHEBASAAN  
DEPUTY COMPTROLLER

LETTER NO. (P)1428.3

ATTENTION OF  
Planning Division

May 20, 1993

Mr. Louis Fung  
Design, Planning, and Development, Inc.  
1585 Kapiolani Boulevard, Suite 816  
Honolulu, Hawaii 96814

Dear Mr. Fung:

Thank you for the opportunity to review and comment on the Environmental Impact Statement Preparation Notice for the Kona Civic Center Site Selection Study, Kona, Hawaii. The following comments are provided pursuant to Corps of Engineers authorities to disseminate flood hazard information under the Flood Control Act of 1960 and to issue Department of the Army (DA) permits under the Clean Water Act, the Rivers and Harbors Act of 1899, and the Marine Protection, Research and Sanctuaries Act.

- a. The project does not involve work in waters of the U.S.; therefore, a DA permit is not required.
- b. The flood hazard information provided on page 3 of the report is correct.

Sincerely,

*Kisuk Cheung*  
Kisuk Cheung, P.E.  
Director of Engineering

JUN 23 1993

Mr. Kisuk Cheung  
Director of Engineering  
Department of the Army  
Planning Division  
U. S. Army Engineer District, Honolulu  
Fort Shafter, Hawaii 96858-5440

Dear Mr. Cheung:

Subject: Kona Civic Center  
Site Selection Study/  
EIS Preparation Notice

Thank you for your May 20, 1993 comments regarding the subject project. We appreciate your input to the EIS process.

Very truly yours,

*Gordon Hatsuoka*  
GORDON HATSUOKA  
State Public Works Engineer

RY:jk



OR GENERAL BOARD OF ACCOUNTS  
OFFICE OF THE DIRECTOR  
1401 C. PRICE, 1A  
1001 WASHINGTON STREET, HONOLULU, HAWAII 96813-1111



RECEIVED  
JUN 3 2 31 PM '93  
DIV. OF PUBLIC WORKS

STATE OF HAWAII  
DEPARTMENT OF CIVIL DEFENSE  
OFFICE OF THE DIRECTOR OF CIVIL DEFENSE  
1401 C. PRICE, 1A  
HONOLULU, HAWAII 96813-1111

ROUTING SLIP  
TO: [ ] FROM: [ ]  
DATE: [ ] TIME: [ ]  
BY: [ ]

June 2, 1993

TO: Mr. Ralph Yukumoto  
Public Works Division  
Department of Accounting and General Services

FROM: Roy C. Price, Sr.  
Vice Director of Civil Defense

SUBJECT: KONA CIVIC CENTER, SITE SELECTION STUDY, ENVIRONMENTAL IMPACT  
STATEMENT PREPARATION NOTICE (EISPN)

Mr. Ralph Yukumoto  
June 2, 1993  
Page 2

Consideration should be given to RJ-11 phone jacks and instruments being installed in line, ahead of the key system, preferably in a limited access area of the facility. This equipment configuration allows for one telephone line of communication to be open in the event of a power failure. Provided that the telephone transmission lines are still intact. Additionally, the possibility of a cellular phone being available for use in emergencies by the head of the facility with the simulator installed, should also be explored.

The elevation for the sites range from 50 to 1,800 feet above sea level. The impact of the terrain amplification of tropical cyclone and hurricane force winds require consideration. Structures for the Kona Civic Center should be designed and constructed to withstand tropical cyclone and hurricane force winds for the selected site. The structures could then be surveyed for use as potential public shelters in times of disasters.

Our SCD planners and technicians are available to discuss this further if there is a requirement. Please have your staff call Mr. Hai Hishihara of my staff at 734-2161.

We appreciate this opportunity to comment on the EISPN by the Department of Accounting and General Services, State of Hawaii, for the Kona Civic Center Site Selection Study, located in the North Kona District, Island of Hawaii, County of Hawaii.

State Civil Defense (SCD) does not have negative comments specifically directed at the EISPN. However, we do have a proposal that the developer purchase and install at least one new siren simulator warning device at the final selected site. The location of this device is normally in any 24-hour manned office. If none is available, a location such as an Administration Office, manned while the facilities are occupied, can be used. The purpose of the siren simulator is to help alert staff of an impending or actual event that threatens the area. This simulator must be compatible with the existing civil defense siren warning system. A siren simulator is a large, suitcase sized portable siren, complete with a built-in battery backup system. The simulator is sounded by the same signal that triggers the outdoor sirens. The installation of a siren simulator consists of a siren simulator (with adjustable volume control), an antenna cable duct, 110 volt AC electrical power and a backup source of AC electrical power, if available.





DEPARTMENT OF LAND AND NATURAL RESOURCES

PLANNING AND CONSERVATION DIVISION

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

P.O. BOX 521  
HONOLULU, HAWAII 96809

File No.: 93-600  
DOC. ID.: 2912

MAY 17 1993

Mr. Louis Rung, Project Manager  
Design, Planning & Development, Inc.  
1585 Kapiolani Boulevard, Suite 816  
Honolulu, Hawaii 96814

REF: OCEA:SRK

Mr. L. Rung

-2-

File No.: 93-600

Site 4 - Ikaohiau Harbor Site

This area was originally included in the Housing Finance and Development Corporation's (HFDC) Kealahela Master Planned Community. However, the public as well as certain legislators lobbied to retain the area for open space. Should there be any urban use of this area, it should be an extension of the harbor and/or its related commercial/industrial uses. This area should remain with DLR and should not be available to any other agency.

Site 5 - Oona Site

Subject to archaeological and biological studies, the site may be available for a civic center. A competing use for the site would be a county regional park. Should this site be chosen, the 30-acre site should be either square in shape or rectangular in a mauka-makai configuration rather than utilizing so much of the highway frontage.

Division of Forestry and Wildlife

The Division of Forestry and Wildlife comments that botanical as well as wildfire concerns need to be addressed in the EIS as well as any impacts to the Mamalahoe Trail.

Division of Water and Land Development

The Division of Water and Land Development comments that a water master plan for the Kona area is being prepared. Accordingly, this project's water needs should be coordinated with us to determine its proportionate share of water development and infrastructure costs.

We will forward our Historic Preservation Division comments as they become available.

We have no other comments to offer at this time. Thank you for the opportunity to comment on this matter.

Please feel free to call Steve Tegawa at our Office of Conservation and Environmental Affairs, at 587-0377, should you have any questions.

Very truly yours,  
*Keith H. Nime*  
KEITH H. NIME

SUBJECT: Environmental Impact Statement Preparation Notice (EISRN) for the Kona Civic Center Site Selection Study, Keahole-Kailua, Hawaii, TRK: various

We have reviewed the EISRN information for the proposed civic center project transmitted by your memorandum dated May 10, 1993, and have the following comments:

Division of Land Management

The Division of Land Management comments that:

Site 1 - Kealahou Site - Palani Road

Unless the State and/or County government is proposing to upgrade Palani Road, the traffic generated from a civic center site comprising of a State Office Building, Judiciary, a correctional facility and possible senior center and library would overburden the already congested Palani Road.

Site 2 - Kealahou Site - Adjacent to the Proposed Queen Liliuokalani Blvd.

Subject to archaeological and biological studies, this site has potential for the development of a civic center. The major drawback is the cost of acquisition from Queen Liliuokalani Children's Center.

Site 3 - Kealahou Site - Adjacent to the Kealahela Police Station

Subject to archaeological and biological studies, this site, being adjacent to the Police Station, would provide efficiency for the criminal justice community. When the Police Station was sited at Kealahela, it was envisioned that a correctional facility and the courts would be located in close proximity. The major drawbacks for Site 3 is the cost of acquisition and the proximity to the Kealahela dump.



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF STATE PARKS  
P. O. BOX 611  
HONOLULU, HAWAII 96810

Mr. Gordon Matsuoka  
State Public Works Engineer  
State of Hawaii  
Department of Accounting and General Services  
P.O. Box 119  
Honolulu, Hawaii 96810

Dear Mr. Matsuoka,

Draft Environmental Assessment for Land Exchange at  
Makalawena, North Kona, Akaoka Point, North Kohala,  
and Keahole, North Kona

We acknowledge receipt of your letter dated November 10, 1993, concerning the proposed land exchange and potential impact to the site selection process for the Kona Civic Center. It is our understanding that a portion of TMK: 7-3-09-05, one of the Keahole parcels being considered for the land exchange, has also been identified as one of five alternative sites for the proposed Kona Civic Center.

Appraisals of and negotiations for the areas to be exchanged are continuing at this time. While it is not possible to specifically state how many acres out of the total 2114 acre Keahole area will be proposed for exchange, or to determine which portion of the Keahole property will be selected, it is not expected that the entire area will be required for the exchange of the Bishop Estate land at Makalawena and Akaoka Point.

The Kona Civic Center EIS Preparation Notice indicates that a 30-acre area is required for development of the Center. Parcel 5 is a large parcel totalling 903,789 acres. During negotiations with Bishop Estate, we will consider the need to retain land for public use within parcel 5, should it be designated as the Kona Civic Center site. Thank you for reviewing the draft environmental assessment.

Very truly yours,

*[Signature]*  
Ralph H. Magallon, Director  
Administrator

cc: Office of Environmental Quality Control  
Office of State Planning  
Department of Land and Natural Resources  
Division of Land Management

AGRI. W. HALL, Chairman  
Board of Land and Natural Resources  
Honolulu, Hawaii  
10/12/93 3:56 PM-1993

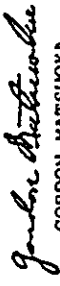
Mr. Ralston II. Nagata  
Page 2

Ltr. No. (P)1780.3

(P)1780.3

Thank you for the opportunity to review the subject draft  
EIS and if there are any questions regarding the above matter,  
please have your staff call Mr. Ralph Yukumoto of the Planning  
Branch at 586-0488.

Very truly yours,



GORDON MATSUOKA  
State Public Works Engineer

RY:jj  
cc: Mr. Hilbert Chee

NOV 10 1993

Mr. Ralston II. Nagata  
State Parks Administrator  
Division of State Parks  
Department of Land and  
Natural Resources  
State of Hawaii  
Honolulu, Hawaii

Dear Mr. Nagata:

Subject: Land Exchange at Makalawena, Akoakoa Point,  
North Kohala, and Keahole  
North Kona, Island of Hawaii  
Draft EIS

This is in response to your October 19, 1993 request for  
comments regarding the subject draft EIS and is to inform you of  
the following:

1. The Department of Accounting and General Services is  
currently seeking a 30-acre parcel for the Kona Civic  
Center.
2. Our consultant has identified five alternative sites  
for our civic center project, one of which is a portion  
of one of the State's parcels (TMK 7-3-09:05) the  
subject project has identified for the land exchange.
3. The draft EIS for the civic center is scheduled for  
distribution in late November or early December of this  
year.

Enclosed for your information and use is a copy of our Site  
Selection/EISPH for the proposed civic center which provides more  
details regarding the location of the alternative site in  
question.

The Honorable Robert P. Takushi  
June 28, 1993  
Page 2

Underground Storage Tanks

1. A record search should be made to check for the presence of any USTs that may currently be or may previously have been located at the proposed site. If any such USTs are discovered, they should be closed in accordance with the requirements of 40 CFR Part 280 Subpart G before construction on the site begins.
2. The installation and use of any underground storage tanks (USTs) would be regulated pursuant to the technical standards and financial responsibility requirements of 40 CFR Part 280. In addition, these USTs would be subject to State administrative rules on underground storage tanks promulgated under HRS Chapter 342L. Owners of newly installed USTs must notify our UST Section of the existence of such USTs within 30 days of installation. Also, the appropriate fire and building permits must be obtained from the City and County of Honolulu before the installation of any USTs.
3. Lastly, to avoid disruptive scheduling delays and budget overruns, potential soil and ground-water contamination problems should be properly identified and assessed early on before construction activities. This is especially significant in the development of areas which have been used for commercial and/or industrial activities in the past. Also, we would like to point-out that the assessment and remediation of soil and ground water contamination can be costly and time-consuming.

If you should have any questions on this matter, please call Roxanne Kwan of our Underground Storage Tank Section at 586-4233.

Solid Waste

The Department of Health strongly suggests that the Environmental Impact Statement for the Kona Civic Center include a discussion of the volume of solid waste anticipated to be generated at the site and the measures that can be taken to mitigate the impacts of this waste generation. The State of Hawaii has committed to waste reduction and recycling efforts through Act 324-91, the Integrated Solid Waste Management Act, which mandates statewide waste diversion goals of 25% by 1995 and 50% diversion by the year 2000. As this Civic Center is being proposed by the State Department of Accounting and General Services, it is essential that the design of the Center incorporate waste diversion measures. We suggest that the design include areas for the collection of recyclables.

We also request that secondary resources (recycled materials) are used in the construction of the Center whenever available. Act 213-92 mandates that all State and County projects incorporate glassphalt (crushed glass in asphalt) for paving purposes when available. For further information, please contact Ms. Carrie McCabe of the Office of Solid Waste Management at 586-4227.

RY



OFFICE OF PUBLIC WORKS, LAND, & OCEANS  
 1300 Kalia Road, Suite 100  
 Honolulu, HI 96813  
 Tel: 521-5500  
 Fax: 521-5501  
 Date: 6/28/93  
 To: Mr. Robert P. Takushi  
 From: Mr. John C. Lewin  
 Subject: Request for Comments on Environmental Impact Statement Preparation Notice for Kona Civic Center Site Selection Study

RECEIVED  
 JUL 5 3 21 PM '93  
 STATE OF HAWAII  
 DEPARTMENT OF HEALTH  
 P. O. BOX 3111  
 HONOLULU, HAWAII 96813

June 28, 1993

To: The Honorable Robert P. Takushi, State Comptroller  
 Department of Accounting and General Services

From: John C. Lewin, M.D. *John C. Lewin*  
 Director of Health

Subject: Request for Comments  
 Environmental Impact Statement Preparation Notice  
 Kona Civic Center Site Selection Study  
 Kailua-Kona, Hawaii

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

Hazardous Waste

1. The developer of a site should be aware of the hazardous waste rules and regulations promulgated under Resource Conservation and Recovery Act (RCRA) of 1976, as amended. Hazardous waste regulations are codified in title 40 of the Code of Federal Regulations Parts 260 through 270. The hazardous waste regulations incorporate the management of hazardous waste from the point of generation to its final disposal, storage or treatment.
2. If the developer of a site generates solid waste as defined in 40 CFR 261.2, they must determine if that waste is a hazardous waste as defined in 40 CFR 261.3.
3. The developer of a site who generates and/or transports hazardous waste must notify the Environmental Protection Agency (EPA) Region 9 of their hazardous waste activities and are subject to 40 CFR Parts 262, 263, 268.
4. The developer of a site who intends to treat, store, or dispose of hazardous waste are subject to RCRA section 3005, USC 6925, and 40 CFR Parts 264 and 270.

If you have any questions on this matter, please contact Mr. Paul Kalaalwa of the Hazardous Waste Section at 586-4237.

The Honorable Robert P. Takushi  
June 28, 1993  
Page 3

Drinking Water

1. The preparation notice seems to imply that the proposed facility will be served by the County of Hawaii, Department of Water Supply. In this situation, Hawaii Administrative Rules, Title 11, Chapter 20, "Rules Relating to Potable Water Systems," would not be applicable.
2. In the event that the project includes the development of new sources of potable water, it will be necessary to comply with Chapter 11-20. Section 11-20-29 of Chapter 20 requires that all new sources of potable water serving a public water system be approved by the Director of Health prior to its use. Such an approval is based primarily upon the submission of a satisfactory engineering report which addresses the requirements set in Section 11-20-29.
3. Section 11-20-30 of Chapter 20 requires that new or substantially modified distribution systems for public water systems be approved by the Director. However, if the water system is under the jurisdiction of the County of Hawaii, the Department of Water Supply will be responsible for the review and approval of the plans.

Underground Injection Control

1. Site Nos. 2, 3, 4 and 5 are situated below the UIC line. Site No. 1 appears to be situated partially above the UIC line. Any land areas above the UIC line are considered to contain underground sources of drinking water. Thus, these areas should be protected against all sources of groundwater contamination.
2. The Summary of Proposed Mitigative Measures indicates that a drainage infrastructure system will be developed to accommodate the increased runoff. If the project plans to use drainage injection wells (drywells), it will be necessary to obtain a UIC permit to authorize the construction and operation of these wells.
3. The UIC rules prohibit sewage or industrial disposal wells in areas above the UIC line. This rule may apply to the project's wastewater disposal plans at Site No. 1.
4. Injection wells cannot be sited within 1/4 mile of any drinking water source.

If you should have any questions on this matter, please contact Stuart Yamada (Drinking Water) or Chauncey Ilew (Underground Injection Control) of the Safe Drinking Water Branch at 586-4258.

c: Hazardous Waste Branch  
Safe Drinking Water Branch  
Office of Solid Waste Management  
Waste Water Branch



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 1111, HONOLULU, HAWAII 96810

ROBERT P. TAKUSHI  
COMPTROLLER  
LOYD UNEBASAWA  
DEPUTY COMPTROLLER

LETTER NO. (P)1576.3

Honorable John C. Lewin  
Page 2

Ltr. No. (P)1576.3

AUG 2 1993

Honorable John C. Lewin  
Director of Health  
Department of Health  
State of Hawaii  
P. O. Box 3378  
Honolulu, Hawaii 96801

Dear Dr. Lewin:

Subject: Kona Civic Center  
Site Selection Study  
EIS Preparation Notice

Thank you for your letter of June 28, 1993 relating to the proposed Kona Civic Center. The following are our responses to your comments:

Hazardous Waste

We do not anticipate hazardous wastes to be generated nor transported from the site at this time. However, should any hazardous wastes be generated at the selected site, they will be disposed of in compliance with Federal and State regulations.

Underground Storage Tanks

All five candidate sites are presently vacant and have never been developed. However, should any underground storage tanks be discovered at the selected site location, they will be disposed of in compliance with Federal and State regulations.

Solid Waste

The draft EIS will include a discussion on solid waste and the mitigative measures. Your recommendations of waste reduction and recycling efforts will be included in the draft EIS.

Drinking Water

Potable water system for the civic center may either be incorporated into the State system or private development system. Upon the selection of a final site, the project potable water system improvements will be in compliance with the applicable State and/or County standards.

Underground Injection Control

The draft EIS will include your recommendations concerning the need for UIC permits and restrictions for developments above the UIC line.

Thank you for participating in the EIS process.

Very truly yours,

ROBERT P. TAKUSHI  
State Comptroller

HIIN WAHIEE  
GOVERNOR  
STATE OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF HAWAIIAN HOMES LANDS  
P O BOX 1478  
HONOLULU, HAWAII 96814

MAY 28 1993

HUALIKU L. DRAKE  
CHAIRMAN  
HAWAIIAN HOMES COMMISSION



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 111, HONOLULU, HAWAII 96810

ROBERT P. TAKUSHI  
COMPTROLLER  
1101 KUIBESMAN  
OFFICE BUILDING, 12

LETTER NO [P]1430.3

JUN 28 1993

Mr. Louis Fung  
DPD Associates, Inc.  
1585 Kapiolani Boulevard  
Suite 816  
Honolulu, Hawaii 96814

Dear Mr. Fung:

Subject: Kona Civic Center EIS Preparation Notice

Thank you for providing a copy of the Kona Civic Center Site Selection Study dated April 12, 1993.

We suggest that the environmental impact statement include estimates of the relative costs for acquiring and developing each of the five candidate sites. The positive and negative impacts of closing the separate facilities where the service activities are currently located should also be discussed.

For further coordination on this proposal, please feel free to call Joe Chu of our Planning Office at 586-3838.

Harmest aloha,

*Robert P. Takushi*  
ROBERT P. TAKUSHI  
State Comptroller

HLD:BH:JC:asy/2848.14

Honorable Hoaliku L. Drake  
Chairperson  
Hawaiian Homes Commission  
State of Hawaii  
Honolulu, Hawaii

Dear Ms. Drake:

Subject: Kona Civic Center  
Site Selection Study/  
EIS Preparation Notice

Thank you for your letter of June 1, 1993 relating to the proposed Kona Civic Center project.

Cost estimates including land acquisition and development costs will be included in the draft EIS as well as the impacts of closing the separate facilities.

Thank you for participating in the EIS process.

Very truly yours,

*Robert P. Takushi*  
ROBERT P. TAKUSHI  
State Comptroller



JOHN WADSWORTH  
GOVERNOR



ROBERT P. TAKUSHI  
COMPTROLLER  
LLOYD UHEBASAKI  
CAPTAIN COMPTROLLER

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STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 111, HONOLULU, HAWAII 96810

LETTER NO [P]1429.3

MAY 25 1993

JUN 23 1993

TO: Robert P. Takushi, Comptroller  
Department of Accounting and General Services

FROM: *Rax D. Johnson*  
Rax D. Johnson, Director  
Department of Transportation

SUBJECT: KOHA CIVIC CENTER, EIS PREPARATION NOTICE

Thank you for your letter of May 7, 1993, transmitting the subject document for our review and comments.

We will defer our comments until we have reviewed the project's Traffic Impact Analysis Report.

FC:yjm

c: Mr. Louis Fung /  
Design, Planning & Development, Inc.  
1585 Kapiolani Boulevard, Suite 816  
Honolulu, Hawaii 96814  
HHY-II, -PS

Honorable Rax Johnson  
Director  
Department of Transportation  
State of Hawaii  
Honolulu, Hawaii

Dear Mr. Johnson:

Subject: Kona Civic Center  
Site Selection Study/  
EIS Preparation Notice

Thank you for your letter of May 25, 1993 relating to the proposed Kona Civic Center project. The Traffic Impact Analysis Report will be included in the draft EIS.

We appreciate your input to the EIS process.

Very truly yours,

*Robert P. Takushi*  
ROBERT P. TAKUSHI  
State Comptroller





JOHN W. WILSON  
COMMISSIONER



ROBERT P. TANUSIN  
COMMISSIONER  
LLOYD D. HIEBASAIN  
COMMISSIONER

STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 111, HONOLULU, HAWAII 96810

OFFICE NO. (P) 111217

JUN 24 1993

Mr. Maurice H. Kaya  
Energy Program Administrator  
Energy Division  
Department of Business, Economic  
Development and Tourism  
State of Hawaii  
Honolulu, Hawaii

Dear Mr. Kaya:

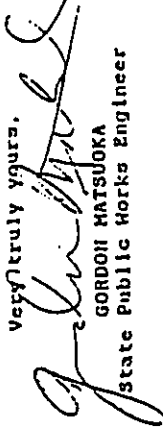
Subject: Kona Civic Center  
Site Selection Study/  
EIS Preparation Notice

Thank you for your comments of June 2, 1993 relating to the proposed Kona Civic Center as transmitted to me by the Director of the Department of Business, Economic Development and Tourism.

Energy efficiency guidelines in accord with the Model Energy Code will be considered during the architectural design phase of the project.

Thank you for participating in the EIS process.

Very truly yours,

  
GORDON MATSUOKA  
State Public Works Engineer

RY:jk

STATE OF HAWAII  
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM  
LAND USE COMMISSION  
Room 104, Old Federal Building  
311 North Street  
Honolulu, Hawaii 96813  
Telephone 535-3111



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 111, HONOLULU, HAWAII 96810

JOHN WASHIE  
GOVERNOR

ROBERTE IAPUNIAH  
COMPTROLLER  
LELOI UHENEKAIHA  
DEPUTY COMPTROLLER IN  
CHARGE  
TITLE NO. (P)1433.3

May 20, 1993

JUN 23 1993

SUBJECT: EIS Preparation Notice (EISPN) for Kona Civic Center  
Site Selection Study

We have reviewed the subject EISPN and have the following comments:

- 1) We confirm that the five sites are located within the respective State Land Use Districts as stated on page 2 of the EISPN. For your information, the areas comprising Sites 2 and 3 were reclassified from the Conservation and Agricultural Districts to the Urban District by the Land Use Commission under Docket No. A89-646/Liliuokalani Trust. The area comprising Site 1 was denied reclassification to the Urban District by the Commission under the same docket.
- 2) Additionally, we would like to point out that Site 5 is within the property that is the subject of a petition currently before the Commission for the urban expansion of State lands under Docket No. A92-685/Office of State Planning.
- 3) Also on page 2 of the EISPN, reference is made to the State Land Use Plan when identifying the land use designation of the five sites. We suggest that the word "plan" be replaced with "District Boundary Map" in the draft EIS.
- 4) We suggest that the draft EIS include maps showing the proposed five sites in relation to the State Land Use Districts.

We have no other comments to offer at this time.

EU:DKS:lh

Ms. Esther Ueda  
Executive Officer  
Land Use Commission  
State of Hawaii  
Honolulu, Hawaii

Dear Ms. Ueda:

Subject: Kona Civic Center  
Site Selection Study/  
EIS Preparation Notice

Thank you for your letter of May 20, 1993 relating to the Proposed Kona Civic Center. The following are responses to your comments:

1. We acknowledge your confirmation of the State Land Use Districts for the five candidate sites and appreciate the update of the current petition relating to Site 5. These changes will be reflected in the draft EIS.
2. The notation will be revised in the draft EIS.
3. A map showing the proposed five sites in relation to the State Land Use Districts will be included in the draft EIS.

Thank you for participating in the EIS process.

Very truly yours,

GORDON HATSUOKA  
State Public Works Engineer

RY:jk

STATE OF HAWAII  
GOVERNOR

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JUN 18 20 AM '93

DIV. OF PUBLIC WORKS  
DAGS



STATE OF HAWAII  
DEPARTMENT OF EDUCATION  
P. O. BOX 1848  
HONOLULU, HAWAII 96818

OFFICE OF THE SUPERINTENDENT

May 24, 1993

MEMO TO: Honorable Robert P. Takushi, Comptroller  
Department of Accounting and General Services

FROM: Charles T. Toguchi, Superintendent  
Department of Education

SUBJECT: Kona Civic Center  
Site Selection Study and EIS Preparation Notice

We have reviewed the subject EIS preparation notice and have no comments on the proposed candidate sites.

It is our understanding that the West Hawaii District Office of the Department of Education will be an occupant at the State Office Building within the Kona Civic Center.

Thank you for the opportunity to respond.

CTT:hy

cc: A. Suga, OBS  
A. Garson, HIDO

TO: DIRECTOR OF PUBLIC WORKS  
STATE OF HAWAII  
P.O. BOX 1848  
HONOLULU, HI 96818  
FROM: CHARLES T. TOGUCHI  
SUPERINTENDENT  
DEPARTMENT OF EDUCATION  
P.O. BOX 2360  
HONOLULU, HI 96804  
DATE: 5/24/93

Charles T. Toguchi  
Superintendent

JOHN WARD  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 118, HONOLULU, HAWAII 96810

LETTER NO. (P)1546.3

ROBERT P. TAKUSHI  
COMPTROLLER  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES

JUL 27 1993

Honorable Charles T. Toguchi  
Superintendent  
Department of Education  
State of Hawaii  
P. O. Box 2360  
Honolulu, Hawaii 96804

Dear Mr. Toguchi:

Subject: Kona Civic Center  
Site Selection Study  
EIS Preparation Notice

Thank you for your letter of May 24, 1993 relating to the proposed Kona Civic Center.

The project proposes to accommodate a state office building and our space planning for it includes the DOE West Hawaii District office.

Thank you for participating in the EIS process.

Very truly yours,

*Robert P. Takushi*  
ROBERT P. TAKUSHI  
State Comptroller



DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII

JOHN WAILEA  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 119, HONOLULU, HAWAII 96810

ROBERT P. TAKUSHI  
COMPTROLLER  
LLOYD UNEDASAKI  
DEPUTY COMPTROLLER  
LETTER NO. (P)1575.3

June 1, 1993

Hr. Robert P. Takushi  
State Comptroller  
State of Hawaii  
Department of Accounting and  
General Services  
P. O. Box 119  
Honolulu, Hawaii 96810

KONA CIVIC CENTER  
EIS PREPARATION NOTICE  
LETTER NO. (P)1269.3

We have reviewed the subject preparation notice.

The alternate sites for the proposed civic center are located along the Queen Kaahumanu Highway and Palani Road. The Department's existing water system facilities that service the area will need to be improved. Improvements will include, but not be limited, to source, storage and pipeline.

The State of Hawaii Department of Land and Natural Resources, through its Division of Water and Land Development (DOMALD), is preparing a master plan for water system improvements in the area. The master plan is primarily for the needs of development projects administered by various State agencies. The proposed civic center project should be coordinated with DOMALD.

William Sewake  
Manager

DA

copy - DPD Associates, Inc.

JUL 30 1993

Mr. William Sewake  
Manager  
Department of Water Supply  
County of Hawaii  
25 Aupuni Street  
Hilo, Hawaii 96720

Dear Mr. Sewake:

Subject: Kona Civic Center  
Site Selection Study  
EIS Preparation Notice

Thank you for your letter of June 1, 1993 relating to the proposed Kona Civic Center. We are aware of the necessary improvement requirements to the existing water system. Our consultants have met with planners at the Division of Water and Land Development and this project will be coordinated with their office throughout the EIS phase.

Thank you for participating in the EIS process.

Very truly yours,

GORDON HATSUOKA  
State Public Works Engineer

RY: jy  
CC: DPD, Inc.

... Water brings progress...

Stephen K. Yamashiro  
Mayor

RECEIVED

JUN 4 11 30 AM '93

CITY OF HONOLULU  
0403



County of Hawaii

DEPARTMENT OF PUBLIC WORKS  
11 Hospital Street, Room 202 - Honolulu, HI 96813  
(808) 941-4111 - Fax (808) 941-7134

June 3, 1993

MR ROBERT P TAKUSHI STATE COMPTROLLER  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P O BOX 119  
HONOLULU HI 96810

SUBJECT: KONA CIVIC CENTER EIS PREPARATION NOTICE

We have reviewed the subject proposal and have the following comments:

1. Site 3, adjacent to the existing Kailua Landfill, should be deleted due to the continuing noxious odor problem emanating from the landfill as experienced at the existing Police Station site.
2. If Site 1 is chosen, a fully channelized intersection shall be provided on Palan Road.

Should you have any questions, please contact Stanley Takemura at 961-8327.

*Robert P. Takushi*  
 ROBERT P. TAKUSHI, Acting Division Chief  
 Engineering Division

STT:byf

Donna Fay K. Kiyosaki  
Chief Engineer

Riley W. Smith  
Deputy Chief Engineer

*Kakipoh*

ATTENTION OF STATE COMPTROLLER  
 JUN 3 1993  
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 - Site 2 - See map  
 - Site 3 - See map  
 - Site 4 - See map  
 - Site 5 - See map  
 - Site 6 - See map  
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 - Site 98 - See map  
 - Site 99 - See map  
 - Site 100 - See map



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 119, HONOLULU, HAWAII 96810

JOHN WAZIIE  
GOVERNOR

JUL 27 1993

Mr. Galen H. Kuba  
Acting Division Chief  
Engineering Division  
Department of Public Works  
County of Hawaii  
25 Aupuni Street, Room 202  
Hilo, Hawaii 96720-4252

Dear Mr. Kuba:

Subject: Kona Civic Center  
Site Selection Study  
EIS Preparation Notice

Thank you for your letter of June 3, 1993 relating to the proposed Kona Civic Center. The following are our responses to your comments.

1. Regarding Site 3, we share your concern of the noxious odor problem emanating from the landfill at present. However, it is our understanding that the landfill site will be closed for operation by this year, capped by mid-1994 and monitored for the next ten years; and the odor problem is expected to be eliminated or controlled to a minimum level.
2. Regarding Site 1, the issue on traffic and roadway improvements will be discussed in the draft EIS.

Thank you for participating in the EIS process.

Very truly yours,

*Gordon Hatsuoka*  
 GORDON HATSUOKA  
 State Public Works Engineer

RY:jy

ROBERT TAKUSHI  
LOWANOLUA  
LLOYD UHEDASAM  
DEPT. COMPTROLLER  
LETTER NO. (P)1549.3

Stephen K. Yamashiro  
Mayor



**County of Hawaii**

PLANNING DEPARTMENT

15 Arapaho Street, Room 109 - Hahaione, Hawaii 96720-4133  
(808) 941-2124 - Fax: (808) 941-9413

Virginia Guljarica  
Director

Norman Olesza  
Deputy Director

Honorable Governor John Waiheae  
Page 2  
June 1, 1993

Thank you for the opportunity to provide comments on the proposed  
Kona Civic Center Site Selection.

June 1, 1993

Honorable Governor John Waiheae  
c/o Office of Environmental  
Quality Control  
220 S. King Street, Suite 400  
Honolulu, HI 96813

Dear Governor Waiheae:

**EIS Preparation Notice (EISPN)  
Kona Civic Center Site Selection Study**

We have reviewed the subject EISPN for the proposed Kona Civic  
Center Site Selection Study and provide the following comments:

1. The EIS should discuss the criteria used for selecting  
these five sites.
2. The proposed project indicates that the proposed Kona Civic  
Center will include only State facilities. Are there any  
plans to accommodate County offices at the site? If so,  
then the EIS should include such a discussion.
3. The EIS should provide detail discussion on the kind of  
government facilities and agencies are proposed at the  
Civic Center.
4. A final archaeological survey report should be included in  
the Draft EIS. Similarly, a botanical survey of each of  
the sites should be included in the Draft EIS.
5. Other possible sites should be included in the alternative  
section.

Sincerely,

VIRGINIA GULJARICA  
Planning Director

AK:mjh  
9251D

cc: Mr. Ralph Yukimoto, DAGS  
Mr. Louis Fung, DPD

ADMINISTRATIVE  
ATTACHMENT



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES

100 SOUTH KING STREET, HONOLULU, HAWAII 96813

ROBERT P. JARVIS  
COMPTROLLER  
LLOYD I. UHESAKI  
DEPUTY COMPTROLLER

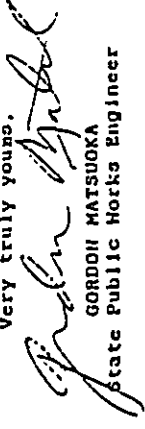
LETTER NO. (P)1431-3

Ms. Virginia Goldstein  
Page 2

Ltr. No. (P)1431-3

Thank you for participating in the EIS process.

Very truly yours,

  
GORDON MATSUOKA  
State Public Works Engineer

RV:jk

Ms. Virginia Goldstein  
Planning Director  
County of Hawaii  
25 Aupuni Street, Room 109  
Hilo, Hawaii 96720-4252

Dear Ms. Goldstein:

Subject: Kona Civic Center  
Site Selection Study/  
EIS Preparation Notice

Thank you for your letter of June 1, 1993 relating to the proposed Kona Civic Center project. The following are our responses to your comments:

1. Site selection criteria will be discussed in the draft EIS.
2. The project proposes to accommodate a State office building, a Judiciary building, a correctional facility, a library and a senior center. The proposed site size (30 acres) precludes our inclusion of County facilities in our civic center.
3. The proposed facilities and functions will be discussed in the draft EIS.
4. A preliminary archaeological survey and a botanical survey will be included in the draft EIS. After a site is selected, the Department of Accounting and General Services will conduct more detailed archaeological surveys as required by the State Historic Sites Division.
5. Other possible sites, if applicable within the criteria for selection, will be included in the alternative.



*Robert P. Takushi*

Trustees of the  
**LILIUOKALANI TRUST**  
David M. Peters, Mgr. Charles A. Kakumano, First Hawaiian Bank  
P.O. Box 3200, Honolulu, Hawaii 96847

May 24, 1993

Mr. Robert P. Takushi  
Comptroller  
State of Hawaii  
Department of Accounting &  
General Services  
P. O. 119  
Honolulu, HI 96810

Dear Mr. Takushi:

Liliuokalani Trust acknowledges the receipt of the Kona Civic Center Preparation Notice dated May 7, 1993. We have reviewed the Preparation Notice and have no comments to offer at this time, but the Trust would like to continue to be a participant and consulted party in the EIS process for the Kona Civic Center. We acknowledge that two of the sites being evaluated are owned by the Trust.

If we can provide your consultants with additional information, please let me know.

Sincerely,

FIRST HAWAIIAN BANK  
MANAGING TRUSTEE

*Frank G. Jahrling*

FRANK G. JAHRLING  
Vice President & Trust Officer

FGL:jg\*  
L783.1.1

cc: Louis Fuug

REVISIONS OF PUBLIC WORKS  
FILED FOR UNIT

|                   |           |  |
|-------------------|-----------|--|
| State P.W. Eng    | Approval  |  |
| P.W. Serv         | Sign      |  |
| State Serv. Br    | Info      |  |
| Planning Br.      | File      |  |
| Proj. Mgmt. Br.   | See me    |  |
| Design B          | Comments  |  |
| Inst. Br.         | Instruct. |  |
| Legal Coun. Eng   | Rec'd     |  |
| Testing Serv. Br. |           |  |

Created by her Late Majesty Queen Liliuokalani



SOULIWAHINE  
GOVERNOR

STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 119, HONOLULU, HAWAII 96810

ROBERT P. TAKUSHI  
COMPTROLLER  
LLOYD UHEB-SAM  
DEPUTY COMPTROLLER  
OFFICE NO. (P) 1548.3

JUL 27 1993

Liliuokalani Trust  
c/o Mr. Frank G. Jahrling  
Vice President and Trust Officer  
First Hawaiian Bank  
P. O. Box 3200  
Honolulu, Hawaii 96847

Dear Mr. Jahrling:

Subject: Kona Civic Center  
Site Selection Study  
EIS Preparation Notice

Thank you for your letter of May 24, 1993 relating to the proposed Kona Civic Center. We will provide you with a copy of the draft EIS upon its completion.

Thank you for participating in the EIS process.

Very truly yours,  
*Robert P. Takushi*  
ROBERT P. TAKUSHI  
State Comptroller

**COMMENTS AND RESPONSES FOR DRAFT EIS**



DEPARTMENT OF THE ARMY  
U S ARMY ENGINEER DISTRICT, HONOLULU  
FT SHAFTER, HAWAII 96858-5440

MAY 10  
ATTENTION OF

March 4, 1994

Planning Division



ROBERT P. TAKUSHI  
COMPTROLLER  
LLOYDI UMEBASAMI  
DEPUTY COMPTROLLER

STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 115, HONOLULU, HAWAII 96819

LETTER NO. (P)1616.1

JUL 22 1994

Mr. Louis Fung  
Land Use Planners and  
Environmental Consultants  
Ala Moana Pacific Center  
1585 Kapiolani Boulevard, Suite 818  
Honolulu, Hawaii 96814

Dear Mr. Fung:

Thank you for the opportunity to review and comment on the Draft Environmental Impact Statement for the Kona Civic Center, Kona, Hawaii. We do not have any additional comments to offer beyond those provided in our previous letter dated May 20, 1993.

Sincerely,

  
KISUUK CHEUNG, P.E.  
Director of Engineering

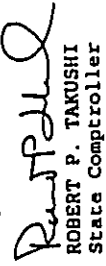
Mr. Kisuik Chang  
Director of Engineering  
Planning Division  
Department of the Army  
U.S. Army Engineer District, Honolulu  
Fort Shafter, Hawaii 96858-5440

Dear Mr. Cheung:

Subject: Kona Civic Center  
Site Selection Study  
Draft EIS

Thank you for your letter of March 4, 1994 relating to the proposed Kona Civic Center. We appreciate your input to the EIS process.

Very truly yours,

  
ROBERT P. TAKUSHI  
State Comptroller



DEPARTMENT OF THE NAVY  
 COMMANDER  
 NAVAL BASE PEARL HARBOR  
 BOX 110  
 PEARL HARBOR, HAWAII 96860-5020

11010  
 Ser M4(23)/ 7152  
 18 MAR 1994

Mr. Louis Fung  
 Will Chee - Planning  
 1585 Kapiolani Boulevard, Suite 818  
 Honolulu, HI 96814

Dear Mr. Fung:

Subj: EIS PREPARATION NOTICE FOR KONA CIVIC CENTER SITE  
 SELECTION STUDY

Thank you for the opportunity to review the Draft  
 Environmental Impact Statement (EIS) for Kona Civic Center Site  
 Selection Study dated January 23, 1994.

The Navy has no comments to offer at this time and  
 appreciates the opportunity to participate in your review process.

The Navy's point of contact is Mr. Stanford Kuen at  
 474-0439.

Sincerely,

M. D. CLAUSSEN  
 Commander, CEC, U.S. Navy  
 Deputy ACOS Facilities and Environment  
 By direction of  
 the Commander



STATE OF HAWAII  
 DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
 P. O. BOX 115, HONOLULU, HAWAII 96818

JUL 22 1994

Mr. M. D. Clausen  
 Commander, CEC, U.S. Navy  
 Deputy ACOS Facilities and Environment  
 Department of the Navy  
 Naval Base Pearl Harbor  
 Box 110  
 Pearl Harbor, Hawaii 96860-5020

Dear Commander Clausen:

Subject: Kona Civic Center  
 Site Selection  
 Draft EIS

Thank you for your letter of March 18, 1994 relating to the  
 proposed Kona Civic Center. We appreciate your input to the EIS  
 process.

Very truly yours,

ROBERT P. TAKUSHI  
 State Comptroller

ROBERT P. TAKUSHI  
 COMPTROLLER  
 LLOYD UNDERBUSH  
 DEPUTY COMPTROLLER  
 LETTER NO. (P)1615.4



U.S. Department  
of Transportation  
Federal Aviation  
Administration

March 4, 1994

Western-Pacific Region  
P. O. Box 50109  
Honolulu, Hawaii 96850-4983

Mr. Louis Fung  
Will Chee Planning  
1585 Kapiolani Boulevard, Suite 818  
Honolulu, Hawaii 96814

Dear Mr. Fung:

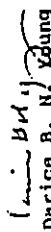
Your memorandum of February 18, 1994, requested comments on your Draft Environmental Impact Statement for the Kona Civic Center Site Selection Study dated January 23, 1994 at Kailua-Kona, Hawaii.

The Federal Aviation Administration has no objection to the subject project as it appears that all five (5) candidate sites will have no impact on Federal Aviation Administration (FAA) facilities.

The only FAA facility in the areas described is the Kona Very High Frequency Omnidirectional Tactical Air Navigation (VORTAC) facility, which is located on Liliuokalani Trust property (TMK: 7-4-08, Parcels 2 (por.) and 11).

We appreciate this opportunity to comment on your proposed project. Please contact me at 541-1236, if there are any ways we may be of assistance.

Sincerely,

  
Darice B. N. Young  
Realty Contracting Officer, AHNL-56



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 111, HONOLULU, HAWAII 96810

JUL 18 1994

ROBERT F. JAKUSHI  
COMPTROLLER  
LLOYD UMEBASAMA  
DEPUTY COMPTROLLER  
LETTER NO. (P) 1612.4

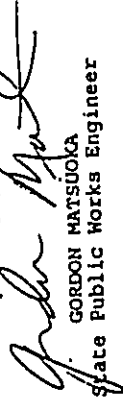
Mr. Darice B. N. Young  
Realty Contracting Officer, AHNL-56  
Federal Aviation Administration  
Western-Pacific Region  
U.S. Department of Transportation  
P. O. Box 50109  
Honolulu, Hawaii 96850-4983

Dear Mr. Young:

Subject: Kona Civic Center  
Site Selection Study  
Draft EIS

Thank you for your letter of March 4, 1994 relating to the proposed Kona Civic Center project. We appreciate your input to the EIS process.

Very truly yours,

  
GORDON MATSUOKA  
State Public Works Engineer

RY:jy  
cc: DPD Associates, Inc.



United States Department of the Interior



WATER RESOURCES DIVISION  
677 Ala Moana Blvd., Suite 415  
Honolulu, Hawaii 96813

JOHN WARE  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES

ROBERT P. TANUSH  
COMPTROLLER  
LLOYD UHEBASAKI  
DEPUTY COMPTROLLER  
OFFICE NO. (P) 1608.4

March 4, 1994

JUL 18 1994

Mr. Louis Fung  
Wil Chee-Planners  
Land Use Planners and Environmental Consultants  
Ala Moana Pacific Center  
1585 Kapiolani Blvd., Suite 818  
Honolulu, Hawaii 96814

Mr. William Meyer  
District Chief  
Water Resources Division  
United States Department  
of the Interior  
677 Ala Moana Boulevard  
Suite 415  
Honolulu, Hawaii 96813

Dear Mr. Fung:

Subject: Environmental Impact Statement Preparation Notice (EISP/N) for  
Kona Civic Center Site Selection Study

The staff of the U.S. Geological Survey, Water Resources Division, Honolulu District, has reviewed the subject EISP/N and we have no comments to offer at this time.

Thank you for allowing us to review this EISP/N.

We are returning the EISP/N to your office for your future use.

Dear Mr. Meyer:

Subject: Kona Civic Center  
Site Selection Study  
Draft EIS

Thank you for your letter of March 4, 1994 relating to the proposed Kona Civic Center. We appreciate your input to the EIS process.

Sincerely,

*William Meyer*  
William Meyer  
District Chief

Very truly yours,  
*Gordon Matsuoaka*  
GORDON MATSUOKA  
State Public Works Engineer

RY:JY  
cc: DPD Associates, Inc.

Enclosure



United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Pacific Islands Office  
P.O. Box 50167  
Honolulu, Hawaii 96850

In Reply Refer To: CAW

Mar. 21 1994

Mr. Louis Fung  
Design, Planning, and Development, Inc.  
1585 Kapiolani Boulevard, Suite 816  
Honolulu, Hawaii 96814

Re: Comments on the Site Selection Study / Draft Environmental Impact Statement for the Proposed Kona Civic Center, Keahole-Kailua, Hawaii.

Dear Mr. Fung:

The U.S. Fish and Wildlife Service (Service) has reviewed the Site Selection Study / Draft Environmental Impact Statement (DEIS) for the Proposed Kona Civic Center, Keahole-Kailua, Hawaii. The State of Hawaii proposes to construct a new Kona Civic Center closer to Kailua-Kona. The complex will include space for judiciary offices and rooms, police and detentional facilities, several State offices and possibly a senior center and library. The proposed Kona Civic Center development would require a minimum of 12 hectares (30 acres) to accommodate the proposed office space, open space, landscaping, parking, and future expansion needs. The Service offers the following comments for your consideration.

General Comments

The Service recommends that plant surveys be conducted at Sites 1-5. Specifically, the Service recommends that the surveyors be aware for the presence of the federally endangered *Caesalpinia kavaiensis*, *Isodendron pyriformis*, *Mangisus fauvelii*, and *Nothoscastrum brevifolium*; the Category 1 candidate species *Bidens micrantha* ssp. *stenophylla* and *Pleomele hawaiiensis*; the Category 2 candidate species *Capparis sandwichiana* (mia pito) and *Embristylis hawaiiensis*.

The Service also recommends that surveys be conducted to identify any anchialine pools that will be affected by alterations to existing patterns of runoff, percolation, or chemical leaching as a result of the proposed project. Surveys of these pools should include flora and fauna, including invertebrates and specifically, *Megalagrion xanthomelas* (orange-black Megalagrion damselfly). These damselflies rely on the freshwater stratification that occurs in many anchialine pools and disruption of freshwater runoff patterns could destroy their habitat. Anchialine pools are known to occur in 'a'a lava beds.

Specific Comments

- a. Chapter 2.0. Project Setting. 2.2. Land Use Plans, Policies, and Controls. p. 11  
Projected changes on maps from the State Land Use Plan (Figure 3), the County General Plan (Figure 5), and the Keahole-Kailua Development Plan (Figure 6), are difficult to interpret. We recommend overlaying these changes on a single map to make the projected changes clearer.
- b. Chapter 3.0. Description of the Affected Environment, Probable Environmental Consequences & Proposed Mitigation. 3.1.2. Geology/Hydrology. p. 76.  
Mitigation measures to use natural lava tubes or subsurface cavities to filter runoff may not work for proposed Site 4 due to its proximity to Honokohau Harbor. Also, the use of natural lava tubes and subsurface cavities for stormwater management may adversely affect anchialine pools that are hydrologically connected underground. Therefore, the Service recommends that mitigation measures for possible leaching of chemicals, such as fertilizers, pesticides and petroleum, into the groundwater, anchialine pools, and Honokohau Harbor should be included.
- c. Chapter 5.0. Description of the Affected Environment, Probable Environmental Consequences & Proposed Mitigation. 5.2.2. Fauna. p. 88.  
This section should also address all resources found in Honokohau Harbor. The Service recommends that any project-related impacts to marine species and seabirds resulting from changes in harbor water quality and an increase in the number of transmission lines, respectively, should be discussed fully.
- d. Chapter 5.0. Description of the Affected Environment, Probable Environmental Consequences & Proposed Mitigation. 5.3.1. Water. p. 90.  
A reference is made to the anticipated installation of a storage reservoir and new supply transmission lines into the water supply system at the site. However, this anticipated action is never mentioned in the text as part of the project description. The Service recommends that the project description reflect this anticipated installation and also identify and incorporate into the proposed project plan the source of potable water for the facility.
- e. Chapter 7.3. Unresolved Issues. 7.3.1. Flora. p. 105.  
Any planning for development should be preceded by surveys for rare and endangered animal and plant species. The Service recommends that data from reconnaissance surveys for anchialine pools in the watershed below the proposed project sites and for organisms in Honokohau Harbor be included and discussed in the final EIS. The Service would consider the lack of adequate survey data and other information in the final EIS on organisms in Honokohau Harbor and anchialine pools near the project site as an unresolved issue.

(d)

(e)

(e)

1 2 3 4 5 6 7 8 9 10 11 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

f. Chapter 10.0. Site Selection Report and EIS Consultation Phase Comments and Responses. Ltr. No. (P) 1780.3

The Service recommends that any land exchange for the Kona Civic Center be evaluated for potential impacts to fish and wildlife resources. Maps of the parcels of land proposed for exchanges need to be included in the final EIS with discussions of flora and fauna surveys, proposed land-use changes, and potential project-related impacts.

g. Chapter 10.0. Site Selection Report and EIS Consultation Phase Comments and Responses File No.: 93-600

We concur with the Department of Land and Natural Resources that wildfire concerns need to be addressed in the final EIS.

Summary

In summary, the Service believes the DEIS contains insufficient information on the potential impacts to Honokohau Harbor and the locations of and potential impacts to anchialine pools. The Service also feels that water supply and other project-related hydrological impacts that may affect anchialine pools need to be addressed. Finally, any potential project-related land exchanges need to be identified and evaluated prior to the final EIS. Site 1 presents the least threat to anchialine pools from contamination or changes in hydrology. However, Site 1 would require a plant survey as described in the General Comments section and additional surveys to determine the presence of any Hawaiian owls (*Nyctalus*) and Hawaiian hoary bats (*Myotis*) in the area.

The Service appreciates the opportunity to provide these comments. If you have questions concerning these comments, please contact Fish and Wildlife Biologist, Christine Willis, at (808-541-3441).

Sincerely,



Brooks Harper  
Acting Field Supervisor  
Pacific Islands Office

possible anchialine pools  
with Land  
extensive hydrology  
reservoir  
Department of Land and Natural Resources  
Honolulu, Hawaii



JOHN WAIKANE  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 111, HONOLULU, HAWAII 96850

ROBERT P. FARJUN  
COMPTROLLER  
LLOYD L. HEBERSON  
DEPUTY COMPTROLLER

LETTER NO. (P)1632.4

Mr. Brooks Harper  
Page 2  
Ltr. No. (P)1632.4

JUL 19 1994

Mr. Brooks Harper  
Acting Field Supervisor  
Pacific Islands Office  
Fish and Wildlife Service  
U. S. Department of the Interior  
P. O. Box 50167  
Honolulu, Hawaii 96850

Dear Mr. Harper:

Subject: Kona Civic Center  
Site Selection Study/Draft EIS

Thank you for your letter of May 31, 1994 relating to the proposed Kona Civic Center project. The following are our responses to your comments.

General Comments

Plant surveys will be conducted once final site selection is complete. At such time, surveys will also be conducted, where appropriate, to identify any anchialine pools that will be affected by alterations to existing patterns of runoff, percolation or chemical leaching as a result of the proposed civic center project. Surveys for these pools will include flora and fauna.

Specific Comments

- Chapter 2.0. Project Setting. 2.2 Land Use Plans, Policies, and Controls.  
The proposed use of the project is consistent with the State Land Use Plan, the County General Plan and the Keahole-Kailua Development Plan. Therefore, there are no requirements for any changes to the subject plans.
- Chapter 5.0. Description of the Affected Environment, Probable Environmental Consequences and Proposed Mitigation. 5.1.2. Geology/Hydrology.  
Your comments will be incorporated into the final EIS.

- Chapter 5.0. Description of Affected Environment, Probable Environmental Consequences and Proposed Mitigation. 5.2.2. Fauna.  
Chapter 7.0. Unresolved Issues. shall be revised to include your comments.
- Chapter 5.0. Description of Affected Environment, Probable Environmental Consequences and Proposed Mitigation. 5.3.1. Water.  
As mentioned in the DEIS, the water source will be available from existing potable water wells in the Kailua-Kona area. Based on the estimated average daily consumption for the civic center at approximately 0.09 mgd, this project will only have a minimal impact on the overall water supply system in this area. If development of a new water supply system is necessary depending upon selection of the final site, the probable impacts may be mitigated by compliance with all applicable codes and regulations. However, if the developments are not required, this project will then share the water supply development with the subject site development.
- Chapter 7.3. Unresolved Issues. 7.3.1. Flora.  
Due to a lack of adequate survey data for rare and endangered animal and plant species for anchialine pools in the watershed below the proposed project sites and for organisms in Honokohau Harbor, this chapter shall be revised to include the aforementioned.
- Chapter 10.0. Site Selection Report and EIS Consultation Phase Comments and Responses. Ltr. No. (P)1780.3.  
According to letter No. (P)1780.3, certain proposed sites are subject to land exchange. We agree that final site configuration and boundaries should take into consideration impacts to fish and wildlife resources.
- Chapter 10.0. Site Selection Report and EIS Consultation Phase Comments and Responses. File No. 93-600.  
Wildfire is spontaneous in nature and as a result, we will work with the fire department and all appropriate

1000

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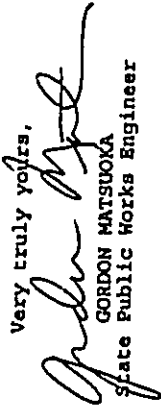
Mr. Brooks Harper  
Page 3

Ltr. No. (P)1632.4

agencies to find ways to prevent wildfire at the site.  
In the event that there is a fire, alternatives will  
be considered to prevent it from spreading. We will  
also accept suggestions from these agencies on wild-  
fire concerns prior to construction.

We appreciate your input to the EIS process.

Very truly yours,

  
GORDON MATSUOKA  
State Public Works Engineer

RY:jk  
cc: DPD Associates, Inc.

JOHN WALKER  
GOVERNOR



STATE OF HAWAII  
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

2ND SOUTH KING STREET  
FOURTH FLOOR  
HONOLULU, HAWAII 96813  
TELEPHONE: 552-3119  
FACSIMILE: 552-3124

BRUCE S. ANDERSON, Ph.D.  
Interim Director

JOHN WALKER  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES

P. O. BOX 111, HONOLULU, HAWAII 96810

ROBERT P. TAKUSHI  
COMPTROLLER  
LLOYD UKERASAKI  
DEPUTY COMPTROLLER  
(P) 1722-4  
LEITER NO.

April 21, 1994

Mr. Ralph Yukumoto  
Department of Accounting and General Services  
1151 Punchbowl Street, 4th Floor  
Honolulu, Hawaii 96813

Dear Mr. Yukumoto:

Subject: Draft EIS for the Kona Civic Center

Thank you for the opportunity to review and comment on the subject document. We have the following comments:

1. Pursuant to Hawaii Administrative Rules §11-200-17(b), please provide a summary sheet which concisely discusses the following:
  - a) A brief description of the action;
  - b) Significant beneficial and adverse impacts;
  - c) Proposed mitigation measures;
  - d) Alternatives considered;
  - e) Unresolved issues; and
  - f) Compatibility with land use plans and policies, and a listing of permits or approvals.
2. Please describe how natural lava tubes would allow for the natural filtration of the runoff. (page 76)

If you have any questions, please call Jeyan Thirugnanam at 586-4185. Thank you.

Sincerely,

*Bruce Anderson*  
BRUCE S. ANDERSON, Ph.D.  
Interim Director

c: Louis Fung

AUG 12 1994

Mr. Bruce S. Anderson, Ph.D.  
Interim Director  
Office of Environmental  
Quality Control  
State of Hawaii  
Honolulu, Hawaii

Dear Dr. Anderson:

Subject: Kona Civic Center  
Site Selection Study/Draft EIS

Thank you for your letter of April 21, 1994 relating to the proposed Kona Civic Center. The following are our responses to your comments:

1. A project summary will be incorporated in the final EIS.
2. Page 76 of the draft EIS (Geology/Hydrology: Mitigation Measures) will be amended to read:

"...may serve as potential collectors of runoff waters. Due to the high permeability nature of soil in this area, significant perturbations due to runoff from this development to nearshore water quality are not expected. All drainage systems will comply with..."

Thank you for participating in the EIS process.

Very truly yours,

*Robert P. Takushi*  
ROBERT P. TAKUSHI  
State Comptroller

COMPTROLLER  
OF THE STATE OF HAWAII



ALTIMA AND COMPANY  
BOARD OF LAND AND NATURAL RESOURCES  
SERVICES  
JOINT OFFICES  
DONUT SERVICE

REF:OCEA:DKP STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

P.O. BOX 821  
HONOLULU, HAWAII 96809  
File No.: 94-513a  
DOC. ID.: 4301  
MAR 29 1994

JOHN WAIKHE  
COMPTROLLER



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES

P. O. BOX 115, HONOLULU, HAWAII 96810

ROBERT P. TAKUSHI  
COMPTROLLER  
LLOYD LUKELASIAN  
DEPUTY COMPTROLLER  
LETTER NO. (P)1613.4

Mr. Louis Fung  
Wil Chee Planning  
1585 Kapiolani Boulevard, Suite 818  
Honolulu, Hawaii 96814

Dear Mr. Fung:

SUBJECT: Environmental Impact Statement Preparation Notice (EISRN):  
Kona Civic Center Site Selection Study, (DMCS ID. NO.  
11-21-4080), Kona, Hawaii

The following are our additional comments on the subject project which  
supplement those forwarded by our previous letter dated March 22, 1994:

Division of Aquatic Resources

The Division of Aquatic Resources (DAR) comments that there appears to be  
little chance for adverse environmental impact to nearshore aquatic  
resources and habitat from the construction and long-term operation of the  
proposed civic center. Any site along Queen Kaahumanu highway would be  
well removed from the shoreline. Kona's climate is dry, so there is  
little chance of runoff picking up pollutants and washing them into the  
sea. All of the proposed center's facilities (eg. courts, offices,  
correctional complex, library, senior center, parking areas, etc.) would  
not contribute significantly to air or waterborne pollutants. Therefore,  
DAR has no programmatic basis for objecting to this proposed project at  
this time.

We have no other comments to offer at this time. Thank you for the  
opportunity to comment on this matter.

Please feel free to call Steve Tagawa at our Office of Conservation and  
Environmental Affairs, at 597-0377, should you have any questions.

Very truly yours,

KEITH W. AHUE

Honorable Keith W. Ahue  
Chairperson  
Board of Land and Natural Resources  
Department of Land and Natural Resources  
State of Hawaii  
Honolulu, Hawaii

Attention: Division of Aquatic Resources

Dear Mr. Ahue:

Subject: Kona Civic Center  
Site Selection Study  
Draft EIS

Thank you for your letter of March 29, 1994 relating to the  
proposed Kona Civic Center. We appreciate your input to the EIS  
process.

Very truly yours,

ROBERT P. TAKUSHI  
State Comptroller

JUL 22 1994

DEPARTMENT OF LAND AND NATURAL RESOURCES  
 DIVISION OF LAND AND NATURAL RESOURCES  
 STATE OF HAWAII  
 DEPARTMENT OF LAND AND NATURAL RESOURCES  
 HONOLULU, HAWAII 96809  
 P. O. BOX 621  
 MAR 22 1994 File No.: 94-513  
 DOC. ID.: 4273



ADMINISTRATIVE SERVICES  
 COMMUNITY AFFAIRS  
 DONALD HANAU  
 AQUATIC DEVELOPMENT  
 PROGRAM  
 AQUATIC RESOURCES  
 AQUATIC AND OCEAN RECREATION  
 CHILDREN'S AND YOUTH AFFAIRS  
 COMMUNITY AFFAIRS  
 CONSERVATION AND  
 RECREATION  
 CONTRACTS  
 CONTRACTS  
 CONTRACTS  
 LAND MANAGEMENT  
 STATE PARKS  
 WATER AND LAND DEVELOPMENT

REF: OCEA:SKK

Mr. Louis Fung  
 Hill Chee Planning  
 1585 Kapiolani Boulevard, Suite 818  
 Honolulu, Hawaii 96814

Dear Mr. Fung:

SUBJECT: Environmental Impact Statement Preparation Notice (EISRN):  
 Kona Civic Center Site Selection Study, (DNCS ID. NO.  
 11-21-4080), Kona, Hawaii

We have reviewed the EISRN information for the subject project transmitted by your memorandum dated February 18, 1994, and have the following comments:

Historic Preservation Division

The Historic Preservation Division (HPD) comments that the statements on historic site information are accurate with two exceptions:

1. Site 4 (Ihokohau Harbor) and 5 (Oama) do need archaeological inventory survey, but it is inaccurate to say that it is highly unlikely that significant historic sites will be present. HPD expects very low densities (numbers) of significant historic sites in such areas -- occasional trails and associated shelters and perhaps a small grave cluster or two. Burials should be preserved in place, if at all possible. It is unlikely that other sites found will need preservation -- although this is always a possibility. Such other sites can probably undergo archaeological data recovery. But, without a survey, this cannot yet be evaluated. The anticipated low density will undoubtedly also allow for design flexibility on each of these parcels.
2. The same two sites are closed to the edge of the Kaloko-Ihokohau National Historic Park (part of the National Park System). To keep this park attractive for tourists (certainly an economic aim of considerable importance) and for local residents (as this is to be in part a cultural park for native Hawaiian learning), tall buildings or visually intrusive buildings should not be planned immediately nearby. This is a potential effect of some importance that needs to be addressed.

Mr. L. Fung

-2-

File No.: 93-513

Commission on Water Resource Management

The Commission on Water Resource Management's (CWRM) staff comments that the subject document does not provide site specific information to allow them to comment on the requirements for stream related permits. CWRM will offer comments to this project when the applicant provides site specific information for the proposed Civic Center.

We have no other comments to offer at this time. However, we will forward our Forestry & Wildlife and Aquatic Resources Divisions' comments as they become available.

We appreciate the opportunity to comment on this matter.

Please feel free to call Steve Tagawa at our Office of Conservation and Environmental Affairs, at 597-0377, should you have any questions.

Very truly yours,

*Keith W. Tagawa*  
 KEITH W. TAGAWA

JOHN WARD  
COMPTROLLER



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 115, HONOLULU, HAWAII 96810

ROBERT P. TAKUSHI  
COMPTROLLER

LORDI UMEKASUMI  
DEPUTY COMPTROLLER

LETTER NO. (P)1611.4

JUL 22 1994

Honorable Keith W. Ahue  
Chairperson  
Department of Land and  
Natural Resources  
State of Hawaii  
Honolulu, Hawaii

Dear Mr. Ahue:

Subject: Kona Civic Center  
Site Selection Study  
Draft EIS

Thank you for your letter of March 22, 1994 relating to the proposed Kona Civic Center. The following are our responses to your comments.

Historic Preservation Division

Your comments pertaining to Site 4 (Honokohau Harbor) and Site 5 (Ooma) will be addressed in the Final EIS.

Commission on Water Resource Management

Since there are no known well defined drainageways in the study area, significant alterations to the existing water runoff patterns are not expected. Meanwhile, we will appreciate comments from your office upon selection of a final site.

Thank you for participating in the EIS process.

Very truly yours,

ROBERT P. TAKUSHI  
State Comptroller

*Archival copy for Site 4 + 5*

Division of Land Management



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
P. O. BOX 621  
HONOLULU, HAWAII 96809

REF:OCEA:DKP

Division of Land Management

DEPARTMENT OF LAND AND NATURAL RESOURCES  
P. O. BOX 621  
HONOLULU, HAWAII 96809

ADULT CARE DEVELOPMENT  
PROGRAM  
ADULT RESOURCES  
BUILDING AND OCCUPANCY INSPECTION  
CONSTRUCTION PERMITS  
CONSERVATION AND  
RESOURCES ENFORCEMENT  
CONTRACTS  
LAND AND NATURAL RESOURCES  
LAND MANAGEMENT  
STATE PLANS  
WATER AND LAND DEVELOPMENT

File No.: 94-5130  
DOC. ID.: 4479

MAY 20 1994

Mr. Louis Rung  
111 Chee Planning  
1585 Kapiolani Boulevard, Suite 818  
Honolulu, Hawaii 96814

Dear Mr. Rung:

**SUBJECT:** Environmental Impact Statement Preparation Ibtice (EISPR):  
Kona Civic Center Site Selection Study, (DACS ID. 10,  
11-21-1080), Kona, Hawaii

The following are further additional comments on the subject project which supplement those forwarded by our previous letters dated March 29 and March 29, 1994:

Division of Land Management

The Division of Land Management (DLM) suggest that before selecting the most beneficial site, that a review of the Kealahou Parkway parcel consisting of approximately 768 acres (7-4-08; 17) just south of Queen Kaahumanu Highway be conducted. This parcel is currently being developed by the State of Hawaii's Housing Finance and Development Corporation (HFDC).

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

Please feel free to call Steve Tegawa at our Office of Conservation and Environmental Affairs, at 587-0377, should you have any questions.

Very truly yours,

*Keith W. Ahue*  
KEITH W. AHUE



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 111, HONOLULU, HAWAII 96810

JUL 22 1994

ROBERT P. TAKUSHI  
COMPTROLLER  
LLOYD LUREBASAMI  
DEPUTY COMPTROLLER  
(P) 1617-4

Honorable Keith W. Ahue  
Chairperson  
Department of Land and  
Natural Resources  
State of Hawaii  
Honolulu, Hawaii

Attention: Division of Land Management

Dear Mr. Ahue:

**Subject:** Kona Civic Center  
Site Selection Study  
Draft EIS

Thank you for your letter of May 20, 1994 relating to the proposed Kona Civic Center.

Our consultants have reviewed the Kealahou Parkway parcel consisting of approximately 76 acres (7-4-08; 17). As this parcel has been identified in the Draft EIS as the development site of State of Hawaii's Housing Finance and Development Corporation for a golf course and residential community, therefore, this site is considered not available for development of the proposed civic center.

We appreciate your input to the EIS process.

Very truly yours,

*Robert P. Takushi*  
ROBERT P. TAKUSHI  
State Comptroller

JOHN WILKINS  
SAC, HONOLULU



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
885 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5007

March 15, 1994

RE: D. JOHNSON  
DIRECTOR  
PLANNING DIVISION  
KAREN HOLT  
GLENN H. OROFIO  
JOYCE T. OSBORN  
CALVIN H. TAYLOR  
CURRENT REFER TO  
STP 8-5845

Mr. Louis Fung  
Page 2  
March 15, 1994

STP 8-5845

Mr. Louis Fung  
Wil Clee - Planning  
Ala Moana Pacific Center  
1585 Kapiolani Boulevard, Suite 818  
Honolulu, Hawaii 96814

Dear Mr. Fung:

Subject: Environmental Impact Statement Preparation Notice  
For Kona Civic Center Site Selection Study  
DAGS Job No. 11-21-4080  
TMK: 7-4-08: 3 & 12; 7-3-09: 5

We have reviewed the Kona Civic Center Site Selection Study and Draft EIS and offer the following comments:

1. Candidate Civic Center sites 2, 4, and 5 may conflict with long-range plans to upgrade Queen Kaahumanu Highway as a limited access high-speed highway. Whichever site is selected, the planning of the center facilities must take into consideration the additional right-of-way that may be required to accommodate the geometrics of a potential interchange being located in the same area and future highway widening. Furthermore, site 4 must be coordinated with the proposed development of the Kealahou Parkway.
2. The Traffic Study assumes that by 1997, Henry Street will be extended as a 4-lane arterial to Palani Street and a 4-lane Mid-Level Road will be constructed to meet Palani Street. Since these projects may be delayed beyond 1997, thereby affecting the merits of site 1, the study should be amended to evaluate this scenario.
3. If the selected site accesses onto Queen Kaahumanu Highway, then a fully channelized intersection with acceleration and deceleration lanes, lighting, and possible traffic signalization will be required.

4. Once a selection is made, the Traffic Study should be amended to analyze the site in more detail and identify the specific measures required to mitigate traffic impacts. At that time, a traffic signal warrant study should also be submitted for our review.
5. The developer will be responsible for providing all the improvements necessary to mitigate the impacts of the proposed project at no cost to the State.
6. Diversion of storm runoff onto the State highway will not be permitted.
7. Plans for construction within the State highway right-of-way must be submitted for our review and approval.

We appreciate the opportunity to provide comments.

Sincerely,

*Rex D. Johnson*

Rex D. Johnson  
Director of Transportation



JOHN WAMSEE  
-JWF:BAK



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 118, HONOLULU, HAWAII 96819

ROBERT P. TAKUSHI  
COMPTROLLER  
LLOYD LUKIBASAKI  
DEPUTY COMPTROLLER  
LETTER NO. (P) 1610.4

Honorable Rex Johnson  
Page 2

Let. No. (P) 1610.4

JUL 22 1994

Honorable Rex Johnson  
Director  
Department of Transportation  
State of Hawaii  
Honolulu, Hawaii

Dear Mr. Johnson:

Subject: Kona Civic Center  
Site Selection Study  
Draft EIS


Thank you for your letter of March 15, 1994 relating to the proposed Kona Civic Center project. The following are our responses to your comments.

1. Setback requirements, where applicable, will be met by any site selected. The Department of Accounting and General Services is aware of the proposed plans for Queen Kaahumanu Highway and Kealahou Parkway.
2. Our traffic consultants, who are also working for the developer of Crossroads Phases I and II at the intersection of Queen Kaahumanu Highway and Palani Road, confirmed that Henry Street would be extended to Palani Road. This extension may only be a two-lane roadway pending acquisition of sufficient right-of-way to construct a four-lane roadway. The extension of Henry Street is an integral component of the access/egress plan for the Crossroads development and a mitigation for the traffic impacts at the Queen Kaahumanu Highway/Palani Road intersection.
3. We understand the required improvements for access onto Queen Kaahumanu Highway should the selected site be located along the highway. Therefore, these required improvements will be included as part of the site improvement plan.
4. Once a selection is made with the site located along Queen Kaahumanu Highway, further detailed traffic studies will be conducted.

5. The Department of Accounting and General Services, in consultation with State Department of Transportation (SDOT) will provide all improvements necessary to mitigate the project's impacts to Queen Kaahumanu Highway.
6. The design of storm drainage will be submitted to SDOT for review and approval during the plan review process.
7. Construction plans will be submitted to SDOT for review and approval during the appropriate permit process as required.

Thank you for participating in the EIS process.

Very truly yours,

  
ROBERT P. TAKUSHI  
State Comptroller



STATE OF HAWAII  
DEPARTMENT OF BUDGET AND FINANCE  
HOUSING FINANCE AND DEVELOPMENT CORPORATION  
317 OHEHI STREET, SUITE 200  
HONOLULU, HAWAII 96813  
FAX: (808) 531-9688

JOSEPH A. CONANT  
Executive Director

BY WHAT REFER TO:  
94:PPF/2159

March 18, 1994

Mr. Louis Fung  
Wil Chee Planning  
1585 Kapiolani Boulevard, Suite 818  
Honolulu, Hawaii 96814

Dear Mr. Fung:

Re: Draft EIS for Kona Civic Center Site Selection Study

Thank you for the opportunity to review the subject document. Our comments are as follows:

1. Overall, a 100-bed correctional facility seems incompatible with the other Civic center uses proposed.
2. The assumption is made that there is adequate capacity in the Kealahou STP to service any of the sites. While allowance for the development of Queen Liliuokalani Trust lands is provided, an expansion of the plant will be needed to service additional development within the area of our sewer master plan.
3. The development cost analysis assumes that all sites are equal in on-site and off-site costs. However, the two state-owned sites are assumed to be less expensive due to the saving of \$3.2 million for site acquisition. This ignores the opportunity cost of employing the land in other needed public and community uses, and skews the analysis greatly.

Our site-specific comments are as follows, as related to the impact on the planned Villages of La'i'opua project:

Site 1: This site is on the south edge of the Villages of La'i'opua. With a 100-bed correctional facility, this site would not be compatible with the residential uses proposed in the adjacent Villages of La'i'opua. Additionally, there are a

J. A. CONANT  
Executive Director

Mr. Louis Fung  
Page 2  
March 18, 1994

number of other proposals for this general area, including OHHL housing and the regional sports complex.

Site 2: There appears to be no impact on the Villages of La'i'opua.

Site 3: The use of this site could accelerate full beautification measures to be applied to the landfill site. As the adjacent property owner on the north side, this could have positive impacts on the Villages of La'i'opua.

Site 4: Selection of this site would foreclose future commercial uses of the Makai Honokohau state lands. HFDC believes that these lands could function well as an economic and employment center for the Villages of La'i'opua. He do not believe that this valuable land resource should be planned in a "piecemeal" fashion as different public facility needs arise.

Site 5: Selection of this site would spread the future urban center of the region toward Keahole Airport, giving the Villages of La'i'opua a more central location in terms of regional patterns.

Should you have any questions, please contact Mike McElroy, Project Manager at 587-0550.

Sincerely,  
  
J. A. CONANT  
Executive Director

JOHN WAIKANE  
COMPTROLLER



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 114, HONOLULU, HAWAII 96810

JUL 20 1994

ROBERT P. TAKUSH  
COMPTROLLER  
LELOI UKEBASAM  
DEPUTY COMPTROLLER  
LETTER NO. (P) 1607.4

Mr. Joseph K. Conant  
Page 2

LCR. No. (P) 1607.4

Mr. Joseph K. Conant  
Executive Director  
Housing Finance and Development  
Corporation  
Department of Budget and Finance  
State of Hawaii  
Honolulu, Hawaii

Dear Mr. Conant:

Subject: Kona Civic Center  
Site Selection Study/Draft EIS

Thank you for your letter of March 18, 1994 relating to the proposed Kona Civic Center. The following are our responses to your comments.

1. We understand the concern of locating a correctional facility within the civic center. Both the security and aesthetic qualities of the correctional facility are some of the major considerations in this project. Certain measures for higher security have been considered, including a direct physical connection between the courts and the correctional facility for secure vehicle rally port transport. Furthermore, it has been an expressed need of the Judiciary to be in the proximity of the Department of Public Safety. With proper and sensitive planning as well as architectural design, security and aesthetic harmony with surrounding uses can be achieved.
2. We have been in contact with the County Department of Public Works and all sewage disposal requirements will be met.
3. As stated in the draft EIS, the sites located on State-owned land are considered to have no immediate acquisition costs although they are not "free." An "opportunity cost" which represents the assessment/replacement value of the land is assigned to Site 1, Site 4 and Site 5. An opportunity cost cannot easily

be compared to the current market value of the privately-owned sites because the two concepts are dissimilar. As for employing the land for other needed public and community uses, the proposed Kona Civic Center is needed for general public use and will benefit the community as a whole.

Our site specific responses to your comments relating the proposed Kona Civic Center to the planned Villages of La'opua project are as follows:

Site 1: Refer to Item 1.

Site 3: Beautification measures would be applied and benefit the site as well as the general community.

Site 4: We agree that these lands could function well as an economic and employment center for the Villages of La'opua as well as for the entire Kona area. We also agree that this land should not be planned in a "piecemeal" fashion. Should this site be selected, implementation of a master plan to include developments of the civic center, the future HFDC proposal and possibly the Honokohau Harbor expansion will be beneficial for the overall design control of lands makai of Queen Kaahumanu Highway.

Site 5: We agree that there is significant regional impact should this site be selected.

Thank you for participating in the EIS process.

Very truly yours,

GORDON MATSUOKA  
State Public Works Engineer

RY:jk  
cc: DPD Associates, Inc.

JOHN WAIHEE  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM  
LAND USE COMMISSION  
Room 104, Old Federal Building  
335 Merchant Street  
Honolulu, Hawaii 96813  
Telephone: 571-3322

ESTHER UEDA  
EXECUTIVE OFFICER

JOHN WAIHEE  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 111, HONOLULU, HAWAII 96819

ROBERT P. TARUSHI  
COMPTROLLER  
LLOYDI UKEBASAMU  
DEPUTY COMPTROLLER  
(P) 1609.4  
OFFICE NO.

March 7, 1994

MIL 18 1994

SUBJECT: Director's Referral No. 94-067-H  
Draft Environmental Impact Statement (DEIS) for the  
Kona Civic Center Site Selection Study

Ms. Esther Ueda  
Executive Officer  
Land Use Commission  
Room 104, Old Federal Building  
335 Merchant Street  
Honolulu, Hawaii 96813

We have reviewed the DEIS for the subject study and have the following comments:

1) We confirm that Site 1 is located within the State Land Use Agricultural District. We also confirm that Sites 2, 3, and 4 are located within the State Land Use Urban District. For your information, Site 5 comprised a portion of approximately 2,610.11 acres of State-owned land that the Land Use Commission reclassified from the Conservation and Agricultural Districts to the Urban District under LIC Docket No. BR92-685/Office of State Planning by Order dated December 9, 1993. We have attached Exhibit "A" showing the amended area.

2) In Figure 2, we suggest that the title be amended to "State Land Use Districts." The land use district boundaries depicted in Figure 2 should also be revised to reflect the above boundary amendment.

3) Figure 19 appears to incorrectly delineate the land use district boundaries in the vicinity of the Kailua-Kona Post Office. Figure 28 also appears to incorrectly delineate the land use district boundaries in the vicinity of Honokohau Harbor. We have attached copies of the Official Maps for these areas (highlighted in yellow) for your information.

We have no further comments to offer at this time.

EU:BKS:th  
att.

Subject: Kona Civic Center  
Site Selection Study  
Draft EIS

Thank you for your letter of May 7, 1994 relating to the proposed Kona Civic Center, which was transmitted to us by Mr. Mufi Hannemann of the Department of Business, Economic Development and Tourism. We appreciate the time taken to review the Draft EIS. The valuable information provided in your letter will be incorporated in the Final EIS.

Thank you for participating in the EIS process.

Very truly yours,

GORDON MATSUOKA  
State Public Works Engineer

RY:jj  
cc: DPD Associates, Inc.



STATE OF HAWAII  
 OFFICE OF HAWAIIAN AFFAIRS  
 711 KAPOLAHU BOULEVARD, SUITE 500  
 HONOLULU, HAWAII 96813-5218  
 PHONE (808) 584-1488  
 FAX (808) 584-1485

March 31, 1994

Mr. Louis Fung  
 Will Chee Planning  
 Ala Moana Pacific Center  
 1585 Kapiolani Blvd. Suite 818  
 Honolulu, HI 96814

Dear Mr. Fung:

Thank you for the opportunity to review the Site Selection Study and the Draft Environmental Impact Statement (DEIS) concerning the Kona Civic Center, Island of Hawaii. At this stage we find the DEIS sufficient and have no objections to the proposal to develop a Kona Civic Center. OHA views the proposed development to be essential in consolidating State functions (i.e., a State Office building, the Judiciary, a correctional facility, and son on) for the West Hawaii region.

But OHA is concerned by the two facts: (i) three of the potential sites for the Kona Civic Center are ceded lands with specific trust responsibilities to the Native Hawaiian community, and (ii) two sites contain already known significant archeological features while two are likely to contain archeological remains culturally affiliated to native Hawaiians.

Because of the potential impacts to the OHA trust, we request that in close consultation with OHA, the DEIS should state specific provisions for the use of ceded lands. We also advise that further archeological inventories should be conducted to minimize the risk of disturbing or destroying significant archeological remains.

Please contact me or Linda Delaney, Land and Natural Resource Officer at 594-1938 if you have further questions on this matter.

Sincerely yours,  
  
 Dante K. Carpenter  
 Administrator

LM:es

*Handwritten notes:*  
 ① ceded lands  
 ② sites



JOHN WARDEN  
COMPTROLLER



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 112, HONOLULU, HAWAII 96810

ROBERT P. TAKUSHI  
COMPTROLLER  
LLOYD UMEKASAMA  
DEPUTY COMPTROLLER  
LETTER NO. (P) 1616.4

JUL 22 1994

Mr. Dante Carpenter  
Administrator  
Office of Hawaiian Affairs...  
711 Kapiolani Boulevard  
Suite 500  
Honolulu, Hawaii 96813

Dear Mr. Carpenter:

Subject: Kona Civic Center  
Site Selection Study/Draft EIS

Thank you for your letter of March 31, 1994 relating to the proposed Kona Civic Center project.

We are aware that three of the five potential sites for the civic center are on ceded lands and of the entailed responsibility to the Native Hawaiian community. We are also aware of the provisions outlined in the Admission Act. If one of these sites is chosen for the civic center, appropriate measures will be taken to adhere to the Admission Act.

According to the State Historic Preservation Division (HPD), a previous archaeological inventory survey was performed for the areas of Sites 1, 2 and 3 which identified some archaeological sites around Sites 1 and 3. A data recovery plan has been accepted by the HPD and compliance with the data recovery plan will be necessary for the development of the civic center at any one of these two sites.

We appreciate your input to the EIS process.

Very truly yours,

ROBERT P. TAKUSHI  
State Comptroller



DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII

June 1, 1993

Mr. Robert P. Takushi  
State Comptroller  
State of Hawaii  
Department of Accounting and  
General Services  
P. O. Box 119  
Honolulu, Hawaii 96810

KONA CIVIC CENTER  
EIS PREPARATION NOTICE 7-3-93; 7-4-93; 7-11-93  
LETTER NO. (P)1269.3

We have reviewed the subject preparation notice.

The alternate sites for the proposed civic center are located along the Queen Kaahumanu Highway and Palani Road. The Department's existing water system facilities that service the area will need to be improved. Improvements will include, but not be limited, to source, storage and pipeline.

The State of Hawaii Department of Land and Natural Resources, through its Division of Water and Land Development (DOWALD), is preparing a master plan for water system improvements in the area. The master plan is primarily for the needs of development projects administered by various State agencies. The proposed civic center project should be coordinated with DOWALD.

H. William Sewake  
Manager

QA

copy - DPD Associates, Inc.

... Water brings progress...

JOHN WARD  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO. (P)1614.4

ROBERT P. TAKUSHI  
COMPTROLLER

LLOYD UHEBASAKI  
DEPUTY COMPTROLLER

JUL 20 1994

Mr. William Sewake  
Manager  
Department of Water Supply  
County of Hawaii  
25 Aupuni Street  
Hilo, Hawaii 96720

Dear Mr. Sewake:

Subject: Kona Civic Center  
Site Selection Study/Draft EIS

Thank you for your letter of March 1, 1994 relating to the proposed Kona Civic Center.

Our consultants have been in contact with the State of Hawaii Department of Land and Natural Resources, Water and Land Development (DOWALD). The requirements necessary for the proposed Kona Civic Center's water system have been considered and are addressed in the draft EIS. Further coordination with DOWALD will continue upon final selection of the site.

Thank you for participating in the EIS process.

Very truly yours,

GORDON MATSUOKA  
State Public Works Engineer

RY:jk  
cc: DPD Associates, Inc.



STATE OF HAWAII  
DEPARTMENT OF HEALTH  
P. O. BOX 328  
HONOLULU, HAWAII 96814

JOHN C. LEWIS, M.D.  
DIRECTOR OF HEALTH

IN REPLY, PLEASE REFER TO:

94-031/epo

May 26, 1994

Mr. Louis Fung  
c/o Hill Chee-Planning  
Ala Moana Pacific Center  
1585 Kapiolani Boulevard, Suite 818  
Honolulu, Hawaii 96814

Dear Mr. Fung:

Subject: Draft Environmental Impact Statement (DEIS) and  
Site Selection Study  
Kona Civic Center  
DAGS Job No. 11-21-4080  
Kailua-Kona, Hawaii

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

Solid Waste

The DEIS suggests that since a new landfill is being designed to serve the West Hawaii area, solid waste generated from the proposed Civic Center is not anticipated to have a significant impact on landfill capacity. Further, it states that since no adverse solid waste impacts are identified, mitigation measures are not warranted. In fact, the recently opened West Hawaii Landfill is receiving waste at a rate nearly twice as great as anticipated and at a cost of \$40.00 to \$50.00 per ton. We feel that mitigation measures are warranted. In addition, Chapter 3426, Hawaii Revised Statutes, formally adopted waste diversion goals for the State of 25% by 1995 and 50% by the year 2000. Each county, as detailed in their Integrated Waste Management Plan, must focus upon alternative waste management technologies, rather than relying upon traditional landfill disposal.

The DEIS should estimate the volumes of waste to be generated at the Civic Center and implement a waste minimization plan to recycle or reduce the solid waste needing disposal. Chapter 3426 also established an office paper recycling mandate for all State offices. As this project is being proposed by a State agency and can be expected to generate significant volumes of paper, a recycling program is necessary.

*Solid Waste*

Mr. Louis Fung  
May 26, 1994  
Page 2

We strongly suggest that a waste reduction plan is developed prior to construction to reduce the volume of construction and demolition wastes needing disposal. We also recommend using secondary resources (recycled materials) whenever possible. Locally produced compost may be used for landscaping and plastic lumber is available for construction. Crushed glass in asphalt should be used for road paving, as Act 213-92 formally established the State's commitment to pave with asphalt.

If you should have any questions on this matter, please call Carrie McCabe of the Office of Solid Waste Management at 586-4243.

Water Pollution

A National Pollutant Discharge Elimination System (NPDES) permit is required for any discharge to waters of the State including the following:

1. Storm water discharges relating to construction activities for project equal to or greater than five acres;
2. Storm water discharges from industrial activities;
3. Construction dewatering activities;
4. Cooling water discharges less than one million gallons;
5. Ground water remediation activities; and
6. Hydrotesting water.

Any person wishing to be covered by the NPDES general permit for any of the above activities should file a Notice of Intent with the Department's Clean Water Branch at least 90 days prior to commencement of any discharge to waters of the State.

Any questions regarding this matter should be directed to Mr. Denis Lau of the Clean Water Branch at 586-4309.

Wastewater

At this time, we concur with the proposal of conveying wastewater to the "Kailua-Kona Plant" where it will be treated and disposed by the municipal wastewater system.

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



Mr. Louis Fung  
May 26, 1994  
Page 3

If you should have any questions on this matter, please contact  
Ms. Lori Kajiwara of the Wastewater Branch at 586-4290.

Very truly yours,



JOHN C. LEMIH, M.D.  
Director of Health

c: Office of Solid Waste Management  
Clean Water Branch  
Wastewater Branch



JOHN WARD  
DIRECTOR



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 115, HONOLULU, HAWAII 96810

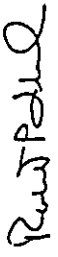
ROBERT P. TAKUSHI  
COMPTROLLER  
LLOYD UHEBASAMI  
DEPUTY COMPTROLLER  
LETTER NO. (P)1631.4

Honorable Peter Sybinsky  
Page 2

Let. No. (P)1631.4

We appreciate your input to the EIS process.

Very truly yours,

  
ROBERT P. TAKUSHI  
State Comptroller

Honorable Peter Sybinsky  
Director  
Department of Health  
State of Hawaii  
Honolulu, Hawaii

Dear Dr. Sybinsky:

Subject: Kona Civic Center  
Site Selection Study/Draft EIS

Thank you for Department of Health's letter of May 26, 1994 relating to the proposed Kona Civic Center project. The following are our responses to your comments:

Solid Waste

Development of the proposed civic center will generate a relatively small amount of solid waste. Using the County's refuse generation rate of 6.0 pounds per capita per day, it is projected that at full capacity, the civic center will generate approximately 3,600 pounds of refuse per day. This is equivalent to 1.8 tons per day. Nevertheless, we agree that a recycling program is necessary and will be implemented. Also, prior to construction, a waste reduction plan will be considered to reduce the volume of construction and demolition wastes needing disposal.

Water Pollution

The project will comply, if necessary, with all requirements of the National Pollutant Discharge Elimination System (NPDES).

Wastewater

Wastewater disposal will comply with all applicable provisions of the Department of Health's Administrative Rules.

JOHN WABBE  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF PUBLIC SAFETY  
819 Ala Moana Boulevard, 4th Floor  
Honolulu, Hawaii 96814

GEORGE FRANK  
DIRECTOR  
ERIC PEJAROSA  
DEPUTY DIRECTOR  
ROBERT C. VOUYA  
DEPUTY DIRECTOR  
CLAYTON FRANK  
DEPUTY DIRECTOR

No. \_\_\_\_\_

November 4, 1994

The Honorable Robert P. Takushi  
State Comptroller  
Department of Accounting  
and General Services  
P. O. Box 119  
Honolulu, HI 96810

Dear Mr. Takushi:

RE: Kona Civic Center, Site Selection Study/Final EIS

Thank you for the opportunity to review the Kona Civic Center Site Selection Study/Final Environmental Impact Study dated August 1994. We wish to provide the following comments:

1. Nearly 50 per cent of the population presently incarcerated at our Hawaii Community Correctional Center are from the West Hawaii region and, as such, are required to appear in the West Hawaii courts. This has placed an additional transportation burden on our Hilo operations. This will be mitigated with the construction of a detention facility in the Kona Civic Center.
2. The department intends to consolidate the operating components of its Division of Law Enforcement, as well as its Kona office of the Hawaii Intake Service Center. Their space requirements would be incorporated into this PSD regional facility.
3. The department understands the anxiety expressed by the Housing Finance and Development Corporation as to the suitability of our proposed facility within the Civic Center Complex. However, it is our intention to construct a secure facility complex that will be quite attractive architecturally and which will rely solely on its building envelope to provide for its exterior security needs (i.e., zero escape tolerance). This approach has been implemented successfully in urban settings across the nation and would be further enhanced by the stationing of the department's Kona-based law enforcement personnel within the structure.

"An Equal Opportunity Employer/Agency"

The Honorable Robert P. Takushi  
November 4, 1994  
Page 2

Thank you for the opportunity to review the subject document and to respond to the study. If there are any questions, please have your staff contact John Borders, Acting CIP Coordinator at 587-3459.

Sincerely,

George Frank, Director

PPB-C:JB/ph  
[PSD\_900/PSD-KONA/DAGS\_1104.doc]

BENJAMIN J. CAYETANO  
GOVERNOR



ROBERT P. TAKUSHI  
COMPTROLLER

STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 111, HONOLULU, HAWAII 96810

LETTER NO. (P) 2029.4

DEC 9 1994

Honorable George Iranon  
Director  
Department of Public Safety  
State of Hawaii  
Honolulu, Hawaii

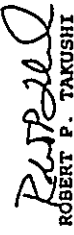
Dear Mr. Iranon:

Subject: Kona Civic Center  
Site Selection Study/Draft EIS

Thank you for your letter of November 4, 1994 relating to the proposed Kona Civic Center project. We appreciate your providing more details regarding the operations of and need for a correctional facility in West Hawaii.

We appreciate your input to the EIS process.

Very truly yours,

  
ROBERT P. TAKUSHI  
State Comptroller





# University of Hawaii at Manoa

Environmental Center  
A Unit of Water Resources Research Center  
Crawford 317 • 2530 Campus Road • Honolulu, Hawaii 96822  
Telephone: (808) 956-7361

Governor Waihee  
April 22, 1994  
Page 2

## Archaeology

Sections dealing with archaeology do not appear to have any provisions for stopping work to consult with on-site archaeologists in the event that cultural materials are encountered. We note that site 2 has been "cleared" archaeologically, but according to Appendix C, this conclusion was based on "aerial photographs and records (from the State Historic Preservation Office) ... and on a cursory field check conducted by our (SHPO) Hawaii Island archaeologist on July, 11, 1993". Since not all significant cultural resources are visible on the ground surface, there needs to be some provision for recognizing and dealing with sub-surface archaeological materials. We also concur with the statement (Appendix C) that if sites four or five are selected, they must be properly surveyed by trained archaeologists prior to any ground clearing.

## Geology

Page 23, paragraph 3 states that Mauna Loa last erupted in 1950. That statement is erroneous, Mauna Loa last erupted in 1984. It is also incorrect to say that Mauna Loa and Hualalai are dormant; they have both erupted in recorded history, and are therefore not considered dormant. Based on the fact that these volcanoes are not dormant, a map should be included that shows the location of the northwest rift zone of Hualalai, and the flow from the 1800 and 1881 eruption, in relation to the location of each of the proposed civic center sites. In addition, a discussion of each site's distance from the rift zone and topographic conditions regarding the potential for future flows should be included.

The last paragraph on page 28 addresses air quality, but does not include any of the relevant information from Appendix A on volcanic air pollution. We suggest that the final EIS include a summary of the results and findings presented in Appendix A.

## Traffic

Pages 92 through 95 address highway and traffic concerns. There appears to be agreement that traffic has increased, and is likely to continue to increase on Queen Kaahumanu Highway. Even though the proposed Civic Center may not be the sole cause of the traffic problems, it will certainly contribute. While the mitigation efforts outlined should alleviate some of the peak hour congestion, it is not clear to what extent or for how long those efforts will be sufficient. Since traffic is already bad, and projected to get worse, Queen Kaahumanu Highway should be expanded to a four lane highway prior to, or in conjunction with, plans to build a civic center. Information on long-term traffic forecasts and plans should be included in the final EIS as well as ways the Kona Civic Center project will support and encourage long-term traffic planning. We would also like to point out that level of service conditions for Henry street are given in Appendix D, but Henry street is not open for traffic. This inconsistency should be eliminated from the final EIS.

OK

April 22, 1994  
RE:0646

Governor John Waihee  
c/o Office of Environmental Quality  
220 South King Street, Fourth Floor  
Honolulu, Hawaii 96813

Dear Governor Waihee:

Draft Environmental Impact Statement  
Kona Civic Center Site Selection Study  
Kona, Hawaii

The Department of Accounting and General Services (DAGS) proposes to construct a new Civic Center in the North Kona District. Establishment of the Kona Civic Center will facilitate public business with State government agencies by consolidating them in one central location. The proposed civic center will be located on an approximately 30 acre site and is planned to include a Judiciary complex, State office building, correctional facility, senior center, and a library.

We have reviewed the Draft Environmental Impact Statement (DEIS) with the assistance of Joseph Halbig, Geology U.H. Hilo; Kathleen Morrison, Anthropology; Martin Vitousek, Emeritus, Geology and Geophysics; and Heather Keavill of the Environmental Center.

In general, the information provided in the DEIS adequately addresses most of the major issues of concern. The logic regarding the site selection criteria was clear, and the evaluation of candidate sites was comprehensive. We do however, have a few comments. Some updating of information is needed for the final EIS. For instance, page 10 refers to black sand beaches that have been eliminated by recent lava flows. Another example is on page 34 where reference is made to the scheduled take over of a sewage treatment plant in 1993.

Governor Wallace  
April 22, 1994  
Page 3

Specific Sites

In terms of location, sites three and five are the least suitable based on the information presented in table five on page 69. The table indicates that sites three and five have the lowest number of "good" ratings and the highest number of "poor" ratings. Site four is located at the entrance to the harbor and should probably be kept open for future harbor expansion. That leaves sites one and two looking best, each with advantages and disadvantages according to the information presented in the DEIS. Site one is less costly than site two, is closer to town, and is considered to be the best location in terms of traffic concerns. Site two on the other hand is within walking distance of the police station, which is considered desirable, and an archaeological survey has already been conducted. We would like to note that it would be helpful if future site selection studies incorporated a recommendation of the preferred site based on the information presented in the DEIS.

New Building Construction

Since the specific site has not been selected yet, it may be a bit premature to discuss the building design, but we do have a few ideas we hope will be kept in mind in finalizing any plans. Kona has a reputation for being excessively hot and dry. Given those conditions, architectural plans should incorporate the most efficient designs to promote energy efficiency and minimize water consumption. Some specific features may include low flow bathroom fixtures, open areas directed towards capturing trade winds, extended roof overhangs to shade the sides of the building, landscaping to provide additional shade, use of fluorescent lighting, and light colored pavement in the parking lot to reduce heat absorption.

Sincerely,  
*Jacquelin N. Miller*  
Jacquelin N. Miller  
Associate Environmental Coordinator

cc: OEQC ✓  
Royer Fujjoka  
Joseph Halbig  
Kathleen Morrison  
Marnin Vitousek  
Heather Keewill



BENJAMIN J. CAYETANO  
GOVERNOR

ROBERT P. FARUSHI  
COMPTROLLER

STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P. O. BOX 118, HONOLULU, HAWAII 96810

LETTER NO. (P)2031.4

DEC 8 1994

Ms. Jacquelin N. Miller  
Associate Environmental Coordinator  
Environmental Center  
University of Hawaii at Manoa  
Crawford 317, 2550 Campus Road  
Honolulu, Hawaii 96822

Dear Ms. Miller:

Subject: Kona Civic Center  
Site Selection Study/Draft EIS

Thank you for your letter of April 22, 1994 relating to the proposed Kona Civic Center which was recently received by the Department of Accounting and General Services. The following are our responses to your comments.

We appreciate the information noting the current status of black sand beaches and the scheduled takeover of the sewage treatment plant. You are correct that the black sand beaches have been eliminated by recent lava flows. However, the statement appearing on page 10 of the draft EIS was intended to give a general overview of the natural splendor of the island and does not specifically refer to the black sand beach at Kaimu, which is no longer in existence.

In regards to the new sewage treatment plant, as it is already in operation replacing the plant within the Kona Industrial subdivision, the Final EIS shall be amended to include this provision. Other specific comments are as follows:

Archaeology

Sections regarding archaeological findings and mitigation measures in the draft EIS are, as you also mentioned, based on conclusions described in the State Historic Preservation Office memorandum in Appendix C. As stated in the memo, "sites 1, 2, and 3 were included as part of an archaeological inventory survey (Donham 1990) initiated by the Queen Liliuokalani Trust. The results of the survey were found acceptable by our office."

Aerial survey, ground survey as well as subsurface reconnaissance testing were indicated in the Donham report as methods used for the survey. However, we understand the significance of undergoing further archaeological work once a specific site has been selected. The appropriate level of archaeological work will be performed to recover the significant data present which has the potential to preserve the valuable archaeological information.

Geology

You correctly noted that Mauna Loa last erupted in 1984 and because both Mauna Loa and Hualalai have erupted in recorded history, they are not considered dormant. The final EIS will be amended accordingly. The northwest rift zone of Hualalai at about 1,600-foot elevation produced a lava flow extending to the shoreline in the vicinity of Keahole Airport. The general project study area is within lava flow hazard zone 4, indicating a zone of "medium" threat. Candidate sites 1, 2, 3 and 4 are all generally located to the south of the rift zone where site 5 is located to the west. The project study area has been subjected to lava flows from Hualalai, however, lava flow hazards for the project sites are relatively low. For the map showing the lava flows, we refer you to Figure 4, Environmental Constraints.

Regarding your comment on air quality, a paragraph summarizing relevant information from Appendix A will be included in the final EIS.

Traffic

The Queen Kaahumanu Master Plan is a long-range plan for the entire highway corridor between Kailua-Kona and Kawaihae. Widening of Queen Kaahumanu Highway to a four-lane highway is expected to be completed by 1996 which is within the time frame of this project. As stated in the draft EIS, "the results of the traffic analysis indicated that Queen Kaahumanu Highway will be over capacity as a result of background growth and the related projects assumed to be constructed over the next five (5) years. However, the capacity constraint is a result of overall development and is not the result of traffic generated by any of the candidate sites proposed for the Kona Civic Center development, as indicated by the small change in the v/c (volume to capacity) ratio." We also agree with you that design of the civic center should consider long-term traffic planning, with the State regulating various individual developers. As mentioned in the draft EIS, "impacts from any site location along Queen Kaahumanu Highway would be mitigated through planning and design of Queen

Kaahumanu Highway and coordination with roadway implementation of the various related projects in the study area." In regards to the assumption of using Henry Street as one of the traffic mitigation measures, we have confirmed with our traffic consultants, who are also working for the developer of Crossroad Phase I and II at the intersection of Queen Kaahumanu Highway and Palani Road, that Henry Street will be extended to Palani Road. Therefore, this assumption is considered to be consistent with the guidelines of the traffic analysis for this project.

Specific Site

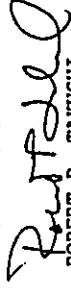
We appreciate your suggestion of incorporating a recommendation of the preferred site. However, as stated in the draft EIS summary, "this selection study does not purport to recommend a preferred site; it identifies the relative advantages and disadvantages of the candidate sites to facilitate decision-making."

New Building Construction

Your suggestions on building design will be taken into consideration during the design phase.

Thank you for participating in the EIS process.

Very truly yours,

  
ROBERT P. TAKUSHI  
State Comptroller

**CHAPTER 12.0 APPENDICES**



**APPENDIX A**

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AIR QUALITY IMPACT REPORT  
(AQIR)

KONA CIVIC CENTER

20 August 1993

PREPARED FOR:

DDP, Inc.  
1585 Kapiolani Boulevard, Suite 816  
Honolulu, Hawaii 96814

PREPARED BY:

J. W. MORROW  
Environmental Management Consultant  
1481 South King Street, Suite 54B  
Honolulu, Hawaii 96814

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20 AUG 93

## 1. INTRODUCTION

The State of Hawaii is proposing to move several government facilities which are presently dispersed in the West Hawaii area into a single new civic center to be located in close proximity to Kailua-Kona. The proposed complex will include:

- judiciary building
- correctional facility
- State office building
- senior citizen center
- library

Five potential sites are currently under consideration (Figure 1). Existing conditions at four of these sites are depicted in Figures 2 and 3. The fifth site (Oona) is similar to Site 2.

The purpose of this report is to assess the impact of the proposed development on air quality on a local and regional basis. The overall project can be considered an "indirect source" of air pollution as defined in the federal Clean Air Act (1) since its primary association with air quality is due to its inherent generation of mobile source, i.e., motor vehicle, activity. Much of the focus of this analysis, therefore, is on the project's ability to generate traffic and the resultant impact on air quality. Air quality impact was evaluated for existing (1993) and future (1997) conditions.

During construction of the various buildings and facilities air pollutant emissions will be generated due to vehicular movement, grading, concrete and asphalt batching, and general dust-generating construction activities. These impacts have also been addressed.

## 2. AIR QUALITY STANDARDS

A summary of State of Hawaii and national ambient air quality standards is presented in Table 1 (2, 3). Note that Hawaii's standards are not divided into primary and secondary standards as are the federal standards.

Primary standards are intended to protect public health with an adequate margin of safety while secondary standards are intended to protect public welfare through the prevention of damage to soils,

J. V. MORROW

1

20 AUG 93

water, vegetation, man-made materials, animals, wildlife, visibility, climate, and economic values (4).

Some of Hawaii's standards are clearly more stringent than their federal counterparts but, like their federal counterparts, may be exceeded once per year. It should also be noted that in April, 1986, the Governor signed amendments to Chapter 59 (Ambient Air Quality Standards) making the state's standards for particulate matter and sulfur dioxide the same as national standards. In the case of particulate matter, however, this uniformity did not last long. On July 1, 1987, the EPA revised the federal particulate standard to apply only to particles 10 microns or less in diameter ( $PM_{10}$ ) (5), leaving the state once again with standards different than the federal ones.

In the case of the automotive pollutants (carbon monoxide (CO), oxides of nitrogen (NOx), and photochemical oxidants (OX)), there are only primary standards. Until 1983, there was also a hydrocarbons standard which was based on the precursor role hydrocarbons play in the formation of photochemical oxidants rather than any unique toxicological effect they had at ambient levels. The hydrocarbons standard was formally eliminated in January, 1983 (6).

The U.S. Environmental Protection Agency (EPA) is mandated by Congress to periodically review and re-evaluate the federal standards in light of new research findings (7). The last review resulted in the relaxation of the oxidant standard from 160 to 235 micrograms/cubic meter ( $ug/m^3$ ) (8). The carbon monoxide (CO), particulate matter, sulfur dioxide ( $SO_2$ ), and nitrogen dioxide ( $NO_2$ ) standards have been reviewed, but no new standards were proposed.

Finally, the State of Hawaii also has fugitive dust regulations for particulate matter (PM) emanating from construction activities (9). There simply can be no visible emissions from fugitive dust sources.

## 3. EXISTING AIR QUALITY

3.1 General. The State Department of Health maintains a limited network of air monitoring stations around the state to gather data on the following regulated pollutants:

- o particulate matter < 10 microns ( $PM_{10}$ )
- o sulfur dioxide ( $SO_2$ )

J. V. MORROW

2

- o carbon monoxide (NO<sub>2</sub>)
- o ozone (O<sub>3</sub>)

In the case of TSP, PM<sub>10</sub>, and SO<sub>2</sub>, measurements are made on a 24-hour basis to correspond with the averaging period specified in State and Federal standards. Samples are collected once every six days in accordance with U.S. Environmental Protection Agency (EPA) guidelines. Carbon monoxide and ozone, however, are measured on a continuous basis due to their short-term (1-hour) standards. Lead concentrations are determined from the TSP samples which are sent to an EPA laboratory for analysis. It should also be noted that the majority of these pollutants are monitored only in Honoiulu.

3.2 Department of Health Monitoring. Since 1985 when the State Department of Health reduced its monitoring network on the Neighbor Islands, there has been no permanent air monitoring of regulated pollutants in Hilo or West Hawaii. However, due to public concern about volcanic air pollution, i.e., VOG, a special monitoring study was conducted during the 1985 - 1986 period in Kailua-Kona. The results of that study are presented in Table 2 and indicate very low levels of total suspended particulate matter (TSP) and sulfur dioxide (SO<sub>2</sub>). Both State and Federal air quality standards appear to be met.

Unfortunately, and despite the growing population in Kona, the principal mobile source pollutants, carbon monoxide (CO), and nitrogen dioxide (NO<sub>2</sub>) are not routinely monitored in West Hawaii.

3.3 Other Air Quality Data. Analysis of the airborne particulate matter during the 1983 eruption revealed some rather interesting results as unusually high concentrations of selenium, arsenic, indium, gold, and sulfur were found along with strikingly high concentrations of iridium [10]. A more recent 12-month study in West Hawaii has identified sulfates as the chief component of inhalable particles in the volcanic aerosol, comprising approximately 40%. Most metals were found at trace levels [11].

As suggested by the above references to VOG, the worst air pollution episodes experienced in Hawaii County are due to the infrequent and unpredictable volcanic eruptions. While volcanic emissions are somewhat variable and have not been fully characterized, it is well known that visibility is affected by the presence of fine particulates resulting directly from volcanic activity as well as secondarily from forest fires caused by lava flows.

3.4 Onsite Carbon Monoxide Sampling. In conjunction with this study, air sampling was conducted at the Queen Kaahumanu Highway - Palani Road Intersection in July 1993. The sampling site was within 10 meters of the road edge on the makai (west) side depending on wind direction during the peak traffic hours. A continuous carbon monoxide (CO) instrument was set up and operated during the a.m. and p.m. peak traffic hours. An anemometer and vane were installed to record onsite surface winds during the air sampling. A simultaneous manual count of traffic was also performed. The variability of each of the parameters measured during the peak hours is clearly seen in Figures 4 and 5.

Onsite weather conditions during the afternoon of 20 July 1993 were light north - northeasterly winds with slightly unstable atmosphere. Traffic counts were comparable to those reported in the latest traffic assessment [12]. CO concentrations were of the same order of magnitude as the computer-predicted concentrations discussed in Section 6 of this report, i.e.,  $< 10 \text{ mg/m}^3$ .

On the morning of 21 July 1993, winds were less than 1 meter per second and generally northeasterly in direction. Atmospheric stability was neutral throughout most of the time but gradually became slightly unstable as the sun rose. Traffic counts were again comparable to the traffic assessment [12], and the CO level was similar to that found during the p.m. peak hour.

#### 4. CLIMATE AND METEOROLOGY

4.1 Temperature and Rainfall. The project area is typical of Hawaii's climate with little seasonal or diurnal temperature variation. Monthly temperature averages vary by only about 6 degrees from the warmest months (July and August) to the coolest (January and February) [13]. Average annual temperature is 78 degrees Fahrenheit.

As in most locations in Hawaii, rainfall is very much affected by local terrain with a gradient which increases with increasing elevation and distance from the shoreline. Mean annual rainfall ranges from 20 to 40 inches in the project area with Site 1 at the upper end of the range and Sites 2 - 4 near the lower end. With this temperature and rainfall profile, the area has a Thornwaite precipitation/evaporation (P/E) index in the 25 - 54 range [14].

4.2 Surface Winds. Because of the presence of two 13,000-foot volcanic mountain masses northeast and southeast of it, the Kona area is not dominated by the northeast trade winds as are most other areas of Hawaii. Winds are generally characterized by a diurnal land-sea breeze regime. Daytime onshore winds arise from

the more rapid heating of the land surface while nighttime offshore winds result from the more rapid cooling of the land.

One year (1977) of surface wind observations from the old Kona Airport had been previously collected and reduced to produce various wind roses (15). The annual joint frequency distribution of wind speed and direction (Figure 6, Table 3) gives a clear indication of the dominance of onshore winds (SSW to WSW) whereas most other locations in Hawaii show a predominance of ENE trade winds. There also appears to be a seasonal variation with the winter months, typified by January, showing a greater diversity of wind direction and lower speeds (Figure 7, Table 4) as compared to August where winds speeds are higher and there is a greater frequency of onshore SSW to WSW winds (Figure 8, Table 5).

#### 5. SHORT-TERM IMPACTS

**5.1 Onsite Impacts.** The principal source of short-term air quality impact will be construction activity. Construction vehicle activity will increase automotive pollutant concentrations along Queen Kaahumanu Highway as well as in the vicinity of the project site itself. Because of the moderate level of existing traffic volumes, the additional construction vehicle traffic should not exceed road capacities although the presence of large trucks can reduce a roadway's capacity as well as lower average travel speeds. The site preparation and earth moving will create particulate emissions as will building and onsite road construction. Construction vehicles movement on unpaved on-site roads will also generate particulate emissions. EPA studies on fugitive dust emissions from construction sites indicate that about 1.2 tons/acre per month of activity may be expected under conditions of medium activity, moderate soil silt content (30%), and a precipitation/evaporation (P/E) index of 50 (14,16).

Some of the onsite soils, e.g., silt loams, are likely to have a silt content greater than the 30% cited above. This in conjunction with the possibly drier local climate (P/E Index 25 - 54), suggests a potential for somewhat greater fugitive dust emissions.

**5.2 Offsite Impacts.** In addition to the onsite impacts attributable to construction activity, there will also be offsite impacts due to the operation of concrete and asphalt concrete batching plants needed for construction. It is too early, however, to identify the specific facilities that will be providing these materials and thus the discussion of air quality impacts is somewhat generic.

It was possible, however, to estimate ambient air impact using design and operating features of a typical concrete batching plant. This plant (Rex Transit Mix Batch Plant, Model LO CO 5) (17), is a portable unit capable of producing up to 100 cubic yards of concrete per hour. Assuming 8 hours/day operation and published EPA emission factors (xx) for both direct plant emissions and fugitive dust emissions, estimates of worst case ambient impact were derived using the P/PFU screening model. Ninety percent control of particulate emissions from the plant itself and 60% control of fugitive dust emissions from the process were assumed. One-hour concentration estimates were adjusted to 8-hour averages using an EPA-recommended factor (18) and then to 24-hour averages based on a weighted averaging technique. The worst case concentration of total suspended particulates (TSP) was thus estimated to be 105 micrograms/cubic meter (ug/m<sup>3</sup>) due to the plant operation.

Assuming that the plant would be located near the project site, existing data from the Kailua-Kona site were reviewed (Table 2). Adding the second highest TSP concentration from the 1985-86 data (26 ug/m<sup>3</sup>) to the 105 ug/m<sup>3</sup> yields 131 ug/m<sup>3</sup> which is below the State 24-hour TSP standard of 150 ug/m<sup>3</sup>. Furthermore, since only part of the TSP will be less than 10 microns, then compliance with the Federal PM<sub>10</sub> standard is also indicated.

Design and operating data for a typical asphalt concrete batch plant (Astec Industries Model PDH-636-C) were also obtained and reviewed. This plant has a production capacity of 186 T/hour. The two primary emission sources associated with such a plant are the drum mix asphalt plant and a 600 Kw diesel generator.

The modeling technique employed for the concrete batch plant was also applied to the asphalt plant. The estimated TSP and SO<sub>2</sub> concentrations were 60.9 and 21.6 ug/m<sup>3</sup>, respectively, again well below state and federal standards.

#### 6. MOBILE SOURCE IMPACTS

**6.1 Mobile Source Activity.** A traffic assessment was prepared for the proposed civic center and served as the basis for this mobile source impact analysis (12). Existing peak-hour traffic volumes and projections for 1997 at the Queen Kaahumanu Highway - Palani Road intersection were provided. It should be noted that highway improvements and mitigative measures assumed in the assessment were also assumed for the purposes of this air quality impact report. Current conditions at this intersection are depicted in Figure 9.

6.2 Emission Factors. Automotive emission factors for carbon monoxide (CO) were generated for calendar years 1993 and 1997 using the Mobile Source Emissions Model (MOBILE-4.1) [19]. To localize the emission factors as much as possible, the September 1988 age distribution for registered vehicles in the City & County of Honolulu [20] was input in lieu of national statistics. That same age distribution was the basis for the distribution of vehicle miles travelled as well.

6.3 Modeling Methodology. Due to the present state-of-the-art in air quality modeling, analyses such as this generally focus on estimating concentrations of non-reactive pollutants. For projects involving mobile sources as the principal source, carbon monoxide is normally selected for modeling because it has a relatively long half-life in the atmosphere (ca. 1 month) [21], and it comprises the largest fraction of automotive emissions.

Using the available traffic data, modeling was performed for the intersection of Queen Kaahumanu Highway and Palani Road for 1993 and 1997 (with and without the project).

Because of the semi-rural nature of the area, a stable atmosphere (Category "F") was assumed in the morning and a neutral atmosphere (Category "D") [22] in the afternoon. A 1 meter per second (m/sec) wind speed was also assumed as worst case meteorological conditions. Preliminary modeling with 10, 20, 45, and 60-degree wind-road angles indicated that the 60-degree angle would produce the maximum pollutant concentrations. Review of the traffic data, and the potential for queuing in particular, indicated that a northeasterly and northwesterly wind directions were most likely to produce the maximum CO concentrations near the intersections; thus, these wind directions were input for all initial modeling.

An updated version of the EPA guideline model CALINE-4 [23,24] was employed to estimate near-intersection carbon monoxide concentrations. An array of receptor sites at distances of 10 to 40 meters from the road edge were input to the model. Because of the existing level of urban activity in the area, a background CO concentration of 1.0 milligram per cubic meter (mg/m<sup>3</sup>) was assumed.

6.4 Results: 1-Hour Concentrations. The results of this modeling are presented in Figures 10 and 11. Each figure depicts the concentrations in milligrams per cubic meter (mg/m<sup>3</sup>) at 12 receptor locations on the southwest and southeast sides of the intersection. The results indicate existing and future compliance with state and federal standards. There is very little difference between existing and future concentrations, with or without the project. The reason for this is that the growth in traffic activity is

offset by reduced emissions from newer cars which over time replace older higher emitting cars.

6.5 Results: 8-Hour Concentrations. Estimates of 8-hour concentrations can be derived by applying a "persistence" factor of 0.6 to the 1-hour concentrations. This "persistence" factor is recommended in an EPA publication on indirect source analysis [25] and has been further corroborated by analysis of carbon monoxide monitoring data in Honolulu which yielded the same 8-hour-to-1-hour ratio [26].

Applying this factor to the 1-hour results indicates compliance with federal and state 8-hour standards at most receptor locations. Only within 10 meters of the intersection is possible exceedance of the state's 8-hour standard predicted during the a.m. peak hour.

#### 7. DISCUSSION AND CONCLUSIONS

7.1 Short-Term Impacts. Since as noted in Section 5, there is a potential for fugitive dust due to the dry climate and fine soils, it will be important for adequate dust control measures to be employed during the construction period. Dust control could be accomplished through frequent watering of unpaved roads and areas of exposed soil. The EPA estimates that twice daily watering can reduce fugitive dust emissions by as much as 50% [xx]. The soonest possible landscaping of completed areas will also help.

7.2 Mobile Source Impacts. As noted in Section 6, 1-hour carbon monoxide standards will be met even in close proximity to the busiest intersection; however, there appears to some possibility that the state's 8-hour standard could be exceeded during the a.m. peak traffic hour. It should be noted that this 8-hour estimate is based on the highest 1-hour estimate which is based on "worst case" conditions of traffic and meteorology. The maximum concentration is also predicted to occur within 10 meters of the Palani Road intersection... a location where a constant eight hour exposure of a person or persons is not likely. Furthermore, the state standard provides a larger margin of safety for public health than does the less stringent federal standard; thus, exceedance of the state standard does not automatically imply potential health effects. The conclusion is that there is a low probability of exceeding the state's 8-hour standard, but if an exceedance were to occur it would not represent a threat to public health.

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AQIR: KONA CIVIC CENTER

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## TABLES

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TABLE 1  
SUMMARY OF STATE OF HAWAII AND FEDERAL  
AMBIENT AIR QUALITY STANDARDS

| POLLUTANT        | SAMPLING PERIOD       | HAAQS PRIMARY | HAAQS SECONDARY | STATE STANDARDS |
|------------------|-----------------------|---------------|-----------------|-----------------|
| TSP              | Annual geometric mean | ---           | ---             | 60              |
|                  | 24-hr                 | ---           | ---             | 150             |
| PM <sub>10</sub> | Annual                | 50            | 50              | ---             |
|                  | 24-hr                 | 150           | 150             | ---             |
| SO <sub>2</sub>  | Annual                | 80            | ---             | 80              |
|                  | 24-hr                 | 365           | ---             | 365             |
| NO <sub>2</sub>  | 3-hr                  | ---           | 1,300           | 1,300           |
|                  | Annual                | 100           | ---             | 70              |
| CO               | 8-hr                  | 10            | ---             | 5               |
|                  | 1-hr                  | 40            | ---             | 10              |
| O <sub>3</sub>   | 1-hr                  | 235           | ---             | 100             |
| Pb               | Calendar Quarter      | 1.5           | ---             | 1.5             |

KEY: TSP - total suspended particulate matter  
 PM<sub>10</sub> - particulate matter < 10 microns  
 SO<sub>2</sub> - sulfur dioxide  
 NO<sub>2</sub> - nitrogen dioxide  
 CO - carbon monoxide  
 O<sub>3</sub> - ozone  
 Pb - lead

All concentrations in micrograms per cubic meter (ug/m<sup>3</sup>)  
 except CO which is in milligrams per cubic meter (mg/m<sup>3</sup>).

TABLE 2  
PM<sub>10</sub> AND SO<sub>2</sub> MONITORING DATA  
KAILUA-KONA, HAWAII  
1985 - 1986

| Mo/Yr  | PM <sub>10</sub> |     |     |      | SO <sub>2</sub> |     |     |      |
|--------|------------------|-----|-----|------|-----------------|-----|-----|------|
|        | No.              | Min | Max | Mean | No.             | Min | Max | Mean |
| Sep 85 | 5                | 07  | 10  | 08   | 5               | <5  | <5  | <5   |
| Oct 85 | 5                | 07  | 20  | 14   | 5               | <5  | <5  | <5   |
| Nov 85 | 5                | 06  | 11  | 09   | 5               | <5  | 8   | 5    |
| Dec 85 | 5                | 06  | 18  | 12   | 5               | <5  | <5  | <5   |
| Jan 86 | 5                | 04  | 16  | 13   | 5               | <5  | <5  | <5   |
| Feb 86 | 5                | 06  | 26  | 15   | 5               | <5  | <5  | 5    |
| Mar 86 | 5                | 09  | 20  | 14   | 5               | <5  | <5  | <5   |
| Apr 86 | 4                | 10  | 15  | 13   | 4               | <5  | <5  | <5   |
| May 86 | 5                | 12  | 17  | 13   | 5               | <5  | <5  | <5   |
| Jun 86 | 5                | 12  | 20  | 15   | 5               | <5  | 5   | <5   |
| Jul 86 | 5                | 13  | 25  | 18   | 5               | <5  | 12  | 6    |
| Aug 86 | 5                | 18  | 28  | 22   | 5               | <5  | <5  | <5   |
| -----  | ---              | --- | --- | ---  | ---             | --- | --- | ---  |
| Annual | 59               | 04  | 28  | 14   | 57              | <5  | 12  | <5   |

SOURCE: State of Hawaii  
 Department of Health

TABLE 3

ANNUAL JOINT FREQUENCY DISTRIBUTION \*  
OF WIND SPEED AND DIRECTION  
KEAHOLE AIRPORT

| Dir | Wind Speed (kts) |        |        |        |        |        | Total  |
|-----|------------------|--------|--------|--------|--------|--------|--------|
|     | 1-3              | 4-6    | 7-10   | 11-16  | 17-21  | >21    |        |
| N   | .00193           | .00935 | .01547 | .00564 | .00081 | .00032 | .03353 |
| NNE | .00032           | .00371 | .00838 | .00596 | .00258 | .00081 | .02176 |
| NE  | .00064           | .01015 | .01354 | .00677 | .00258 | .00032 | .03401 |
| ENE | .00387           | .02869 | .01015 | .00693 | .00177 | .00016 | .05158 |
| E   | .00419           | .02434 | .00725 | .00161 | .00000 | .00000 | .03740 |
| ESE | .00387           | .02966 | .01564 | .00064 | .00000 | .00000 | .04981 |
| SE  | .00387           | .03337 | .01902 | .00048 | .00016 | .00000 | .05690 |
| SSE | .00387           | .02853 | .02821 | .00404 | .00000 | .00000 | .06464 |
| S   | .00097           | .01950 | .03385 | .01821 | .00081 | .00000 | .07334 |
| SSW | .00226           | .01547 | .05093 | .02676 | .00097 | .00000 | .09639 |
| SW  | .00193           | .02418 | .09317 | .03643 | .00000 | .00000 | .15571 |
| WSW | .00226           | .02708 | .08656 | .02192 | .00000 | .00016 | .13798 |
| W   | .00081           | .01596 | .03852 | .00596 | .00000 | .00000 | .06125 |
| WNW | .00210           | .01467 | .03852 | .00258 | .00000 | .00000 | .05787 |
| NW  | .00097           | .00838 | .02063 | .00290 | .00000 | .00000 | .03288 |
| NNW | .00081           | .00919 | .02160 | .00322 | .00016 | .00000 | .03498 |
| TOT | .03466           | .30222 | .50145 | .15006 | .00983 | .00177 | 1.0000 |

\* Based on surface observations, 6:00 a.m. - 10:00 p.m. daily  
SOURCE: National Weather Service

TABLE 4

JANUARY JOINT FREQUENCY DISTRIBUTION \*  
OF WIND SPEED AND DIRECTION  
KEAHOLE AIRPORT

| Dir | Wind Speed (kts) |        |        |        |        |        | Total  |
|-----|------------------|--------|--------|--------|--------|--------|--------|
|     | 1-3              | 4-6    | 7-10   | 11-16  | 17-21  | >21    |        |
| N   | .00190           | .02846 | .05313 | .00380 | .00000 | .00000 | .08729 |
| NNE | .00000           | .01139 | .01898 | .01518 | .00000 | .00000 | .04554 |
| NE  | .00000           | .02087 | .02467 | .00000 | .00000 | .00000 | .04554 |
| ENE | .00759           | .05503 | .00190 | .00190 | .00000 | .00000 | .06641 |
| E   | .01328           | .02467 | .00569 | .00000 | .00000 | .00000 | .04364 |
| ESE | .00949           | .04744 | .01708 | .00000 | .00000 | .00000 | .07400 |
| SE  | .00949           | .04554 | .01139 | .00000 | .00000 | .00000 | .06641 |
| SSE | .00759           | .02846 | .00759 | .00000 | .00000 | .00000 | .04364 |
| S   | .00190           | .02846 | .01518 | .00380 | .00000 | .00000 | .04934 |
| SSW | .00569           | .01898 | .02467 | .00190 | .00000 | .00000 | .05123 |
| SW  | .00190           | .03416 | .04364 | .00949 | .00000 | .00000 | .08918 |
| WSW | .00569           | .04175 | .03605 | .00380 | .00000 | .00000 | .08729 |
| W   | .00190           | .02467 | .02277 | .00000 | .00000 | .00000 | .04934 |
| WNW | .00380           | .03605 | .04175 | .00000 | .00000 | .00000 | .08159 |
| NW  | .00190           | .01708 | .01328 | .00000 | .00000 | .00000 | .03226 |
| NNW | .00000           | .02467 | .05693 | .00569 | .00000 | .00000 | .08729 |
| TOT | .07211           | .48767 | .39469 | .04554 | .00000 | .00000 | 1.0000 |

\* Based on surface observations, 6:00 a.m. - 10:00 p.m. daily  
SOURCE: National Weather Service

TABLE 5  
AUGUST JOINT FREQUENCY DISTRIBUTION \*  
OF WIND SPEED AND DIRECTION  
KEAHOLE AIRPORT

| Dir | Wind Speed (kts) |        |        |        |        |        | Total  |
|-----|------------------|--------|--------|--------|--------|--------|--------|
|     | 1-3              | 4-6    | 7-10   | 11-16  | 17-21  | >21    |        |
| N   | .00196           | .00784 | .00588 | .00000 | .00000 | .00000 | .01569 |
| NNE | .00000           | .00000 | .00196 | .00000 | .00000 | .00000 | .00196 |
| NE  | .00000           | .01373 | .01373 | .00196 | .00000 | .00000 | .02941 |
| ENE | .00196           | .00980 | .01373 | .00196 | .00000 | .00000 | .02745 |
| E   | .00000           | .02549 | .01176 | .00000 | .00000 | .00000 | .03725 |
| ESE | .00784           | .01961 | .01961 | .00000 | .00000 | .00000 | .04706 |
| SE  | .00392           | .03725 | .01765 | .00196 | .00000 | .00000 | .06078 |
| SSE | .00196           | .02157 | .02941 | .00000 | .00000 | .00000 | .05294 |
| S   | .00588           | .01176 | .04510 | .02549 | .00000 | .00000 | .08824 |
| SSH | .00196           | .02353 | .04510 | .04118 | .00000 | .00000 | .11176 |
| SW  | .00000           | .02157 | .12549 | .07843 | .00000 | .00000 | .22549 |
| WSW | .00000           | .01961 | .13333 | .03137 | .00000 | .00000 | .18431 |
| W   | .00000           | .00392 | .03922 | .00196 | .00000 | .00000 | .04510 |
| WNW | .00000           | .00392 | .03137 | .00196 | .00000 | .00000 | .03725 |
| NW  | .00196           | .00784 | .01176 | .00000 | .00000 | .00000 | .02157 |
| NNW | .00000           | .00588 | .00784 | .00000 | .00000 | .00000 | .01373 |
| TOT | .02745           | .23333 | .55294 | .18627 | .00000 | .00000 | 1.0000 |

\* Based on surface observations, 6:00 a.m. - 10:00 p.m. daily  
SOURCE: National Weather Service

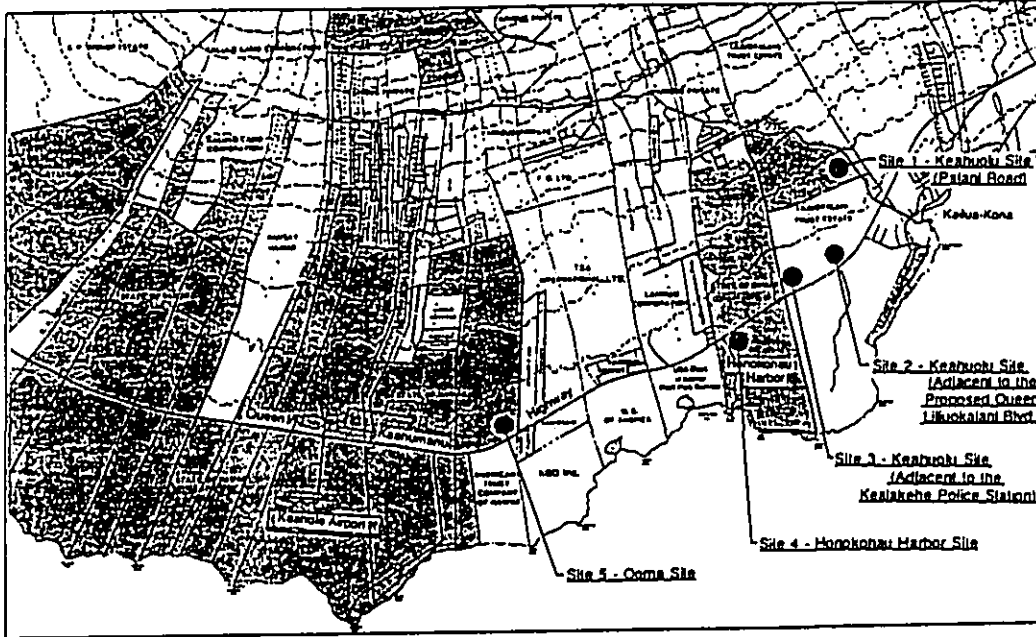
TABLE 6  
EMISSIONS INVENTORY  
COUNTY OF HAWAII  
1980

| Source Category                            | Emissions (T/yr) |                 |       |        |       |  |  |
|--|------------------|-----------------|-------|--------|-------|--|--|
|  | TSP              | SO <sub>2</sub> | NOx   | CO     | HC    |  |  |
| Steam electric plants                      | 263              | 3,233           | 1,309 | 66     | 22    |  |  |
| Gas utilities                              | 0                | 0               | 11    | 0      | 0     |  |  |
| Fuel combustion in agriculture             | 2,252            | 996             | 798   | 0      | 7     |  |  |
| Petroleum Storage                          | 0                | 0               | 0     | 0      | 392   |  |  |
| Mineral products industry                  | 1,080            | 14              | 11    | 0      | 0     |  |  |
| Motor vehicles                             | 263              | 177             | 3,048 | 42,177 | 4,035 |  |  |
| Construction, farm and industrial vehicles | 40               | 32              | 454   | 1,516  | 152   |  |  |
| Aircraft                                   | 6                | 5               | 46    | 1,450  | 174   |  |  |
| Vessels                                    | 11               | 91              | 63    | 66     | 29    |  |  |
| Agricultural field burning                 | 1,800            | 0               | 0     | 20,627 | 2,446 |  |  |
| TOTAL                                      | 5,715            | 4,547           | 5,741 | 65,902 | 7,258 |  |  |

SOURCE: State of Hawaii  
Department of Health

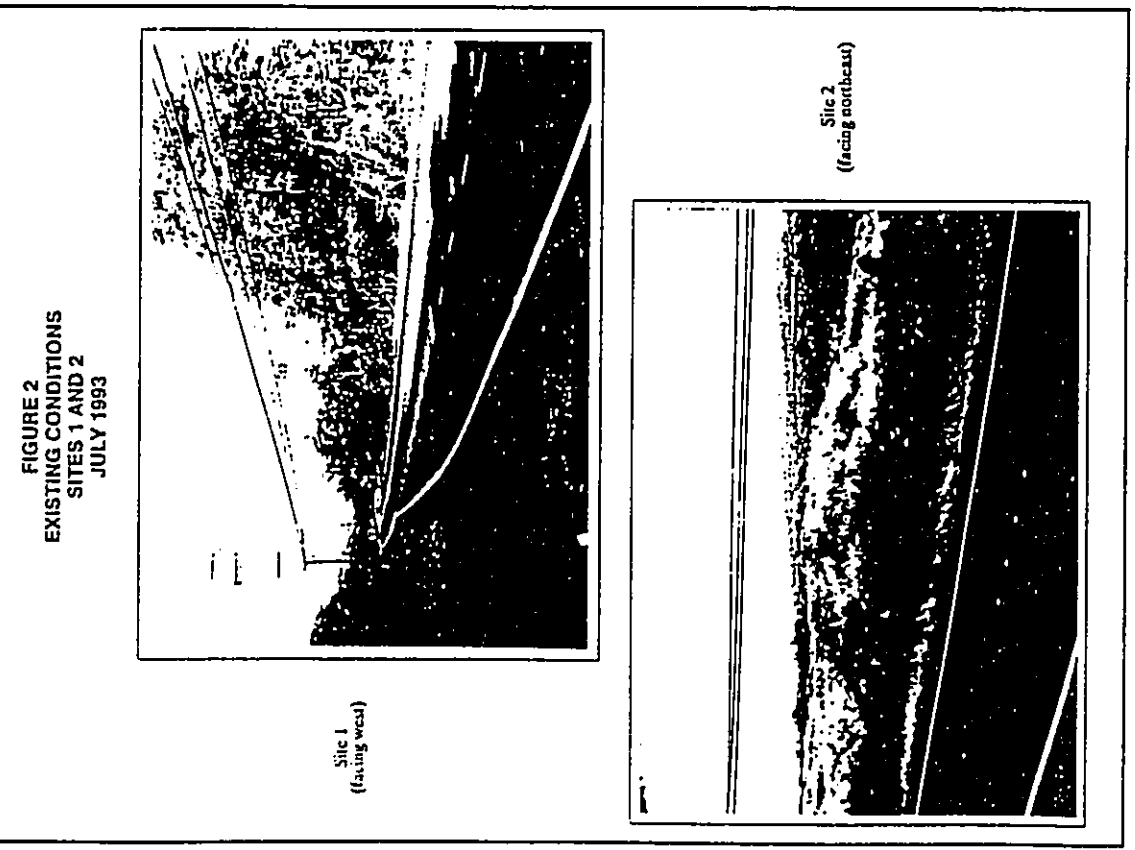
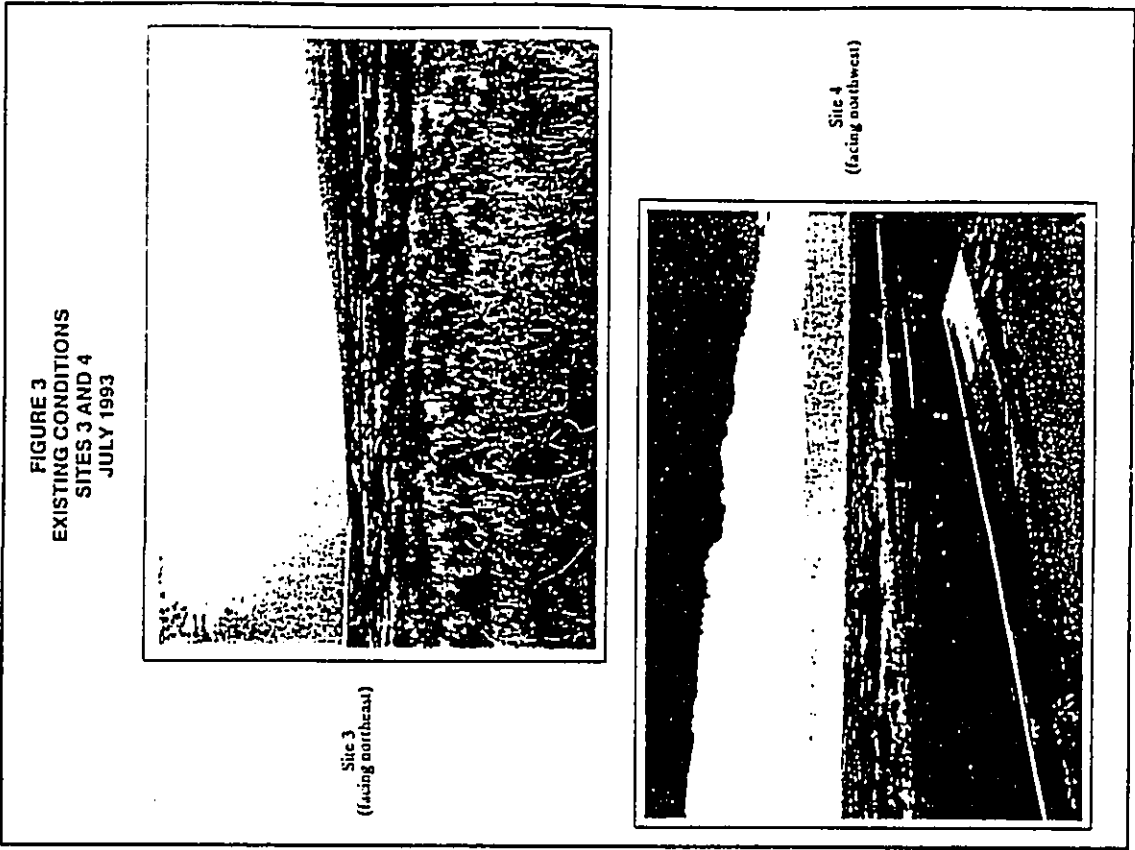
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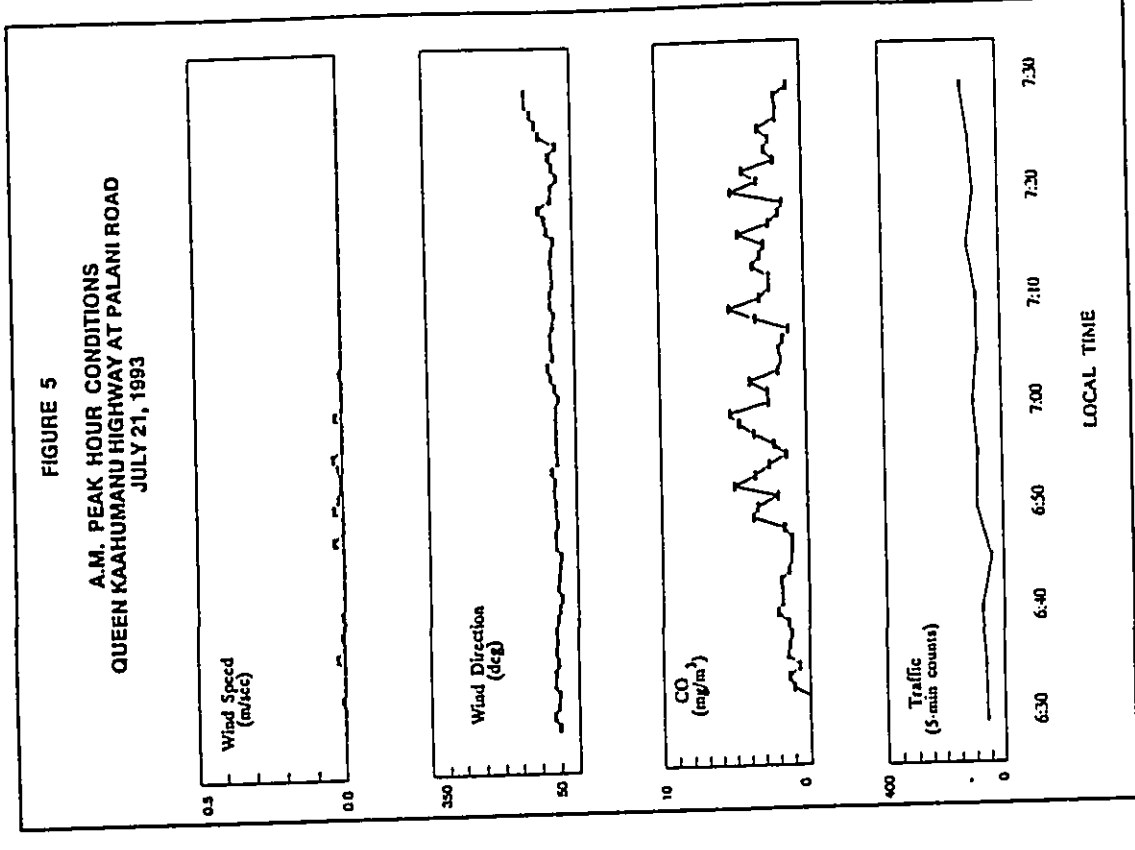
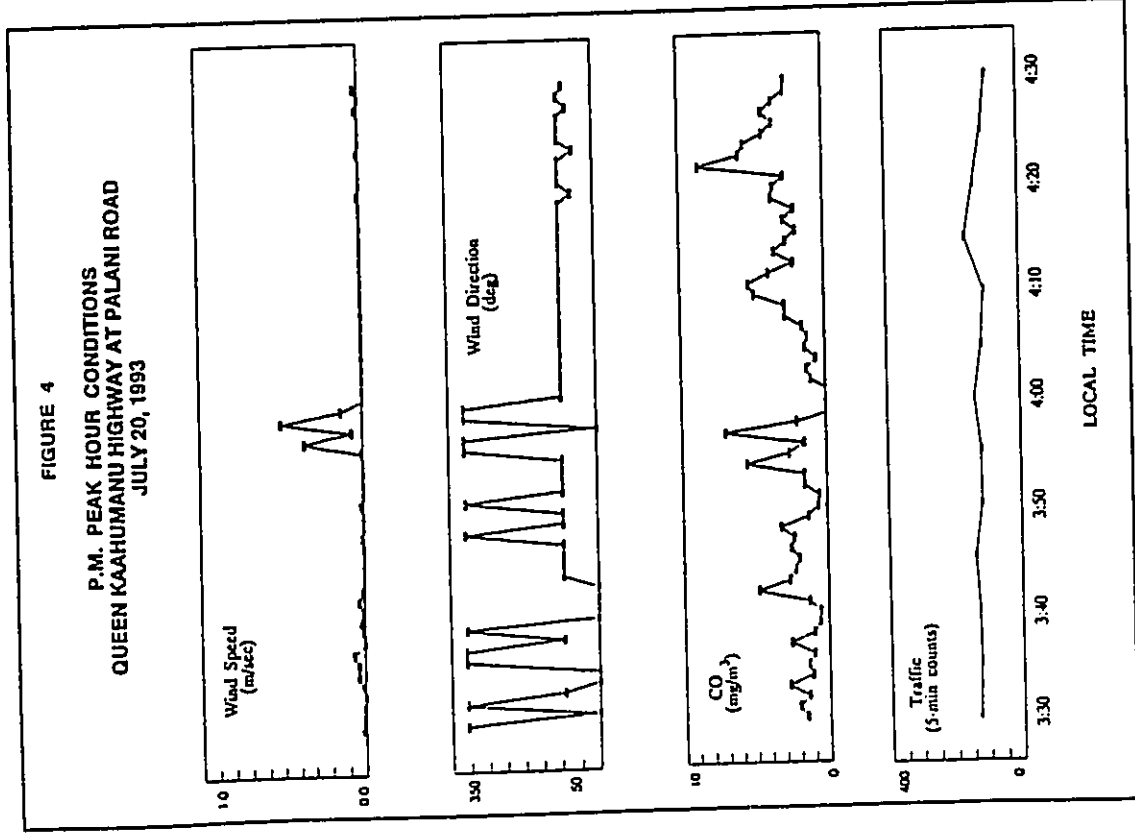
FIGURE 1  
PROJECT LOCATION



FIGURES

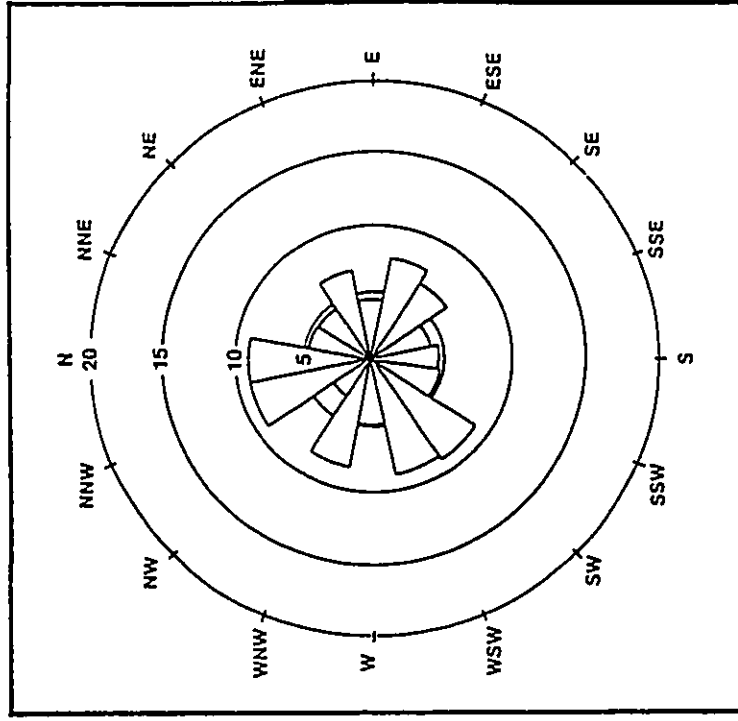
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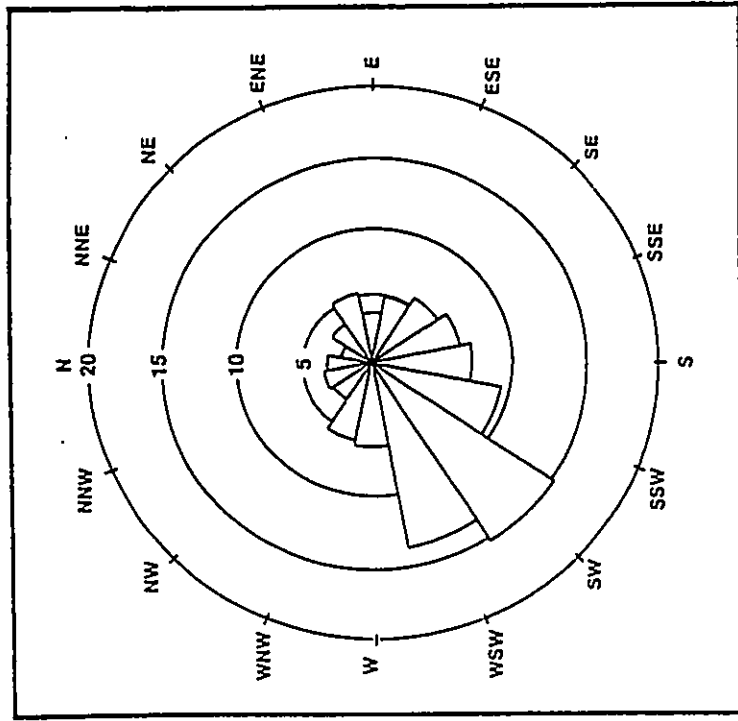
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FIGURE 7  
 JANUARY WIND ROSE  
 KEAHOLE AIRPORT  
 1973



SOURCE: National Weather Service

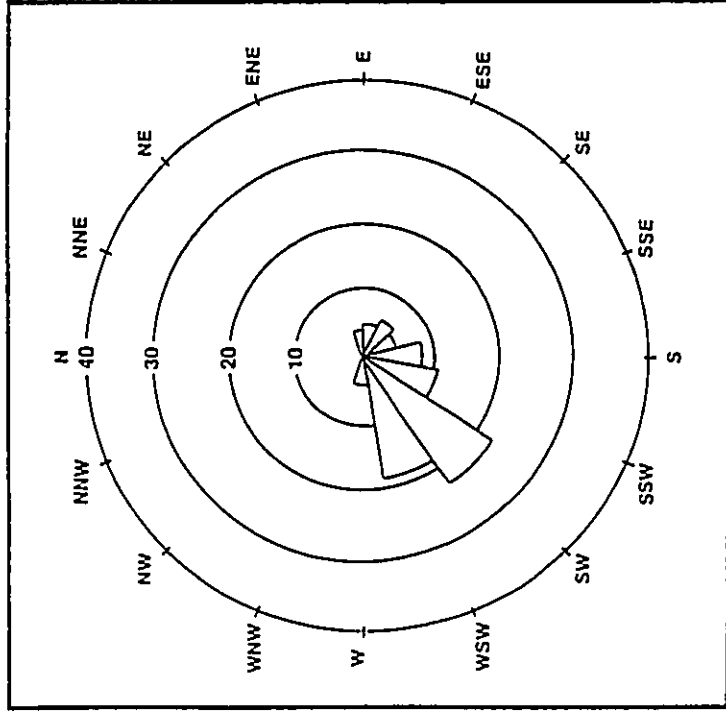
FIGURE 6  
 ANNUAL WIND ROSE  
 KEAHOLE AIRPORT  
 1973



SOURCE: National Weather Service

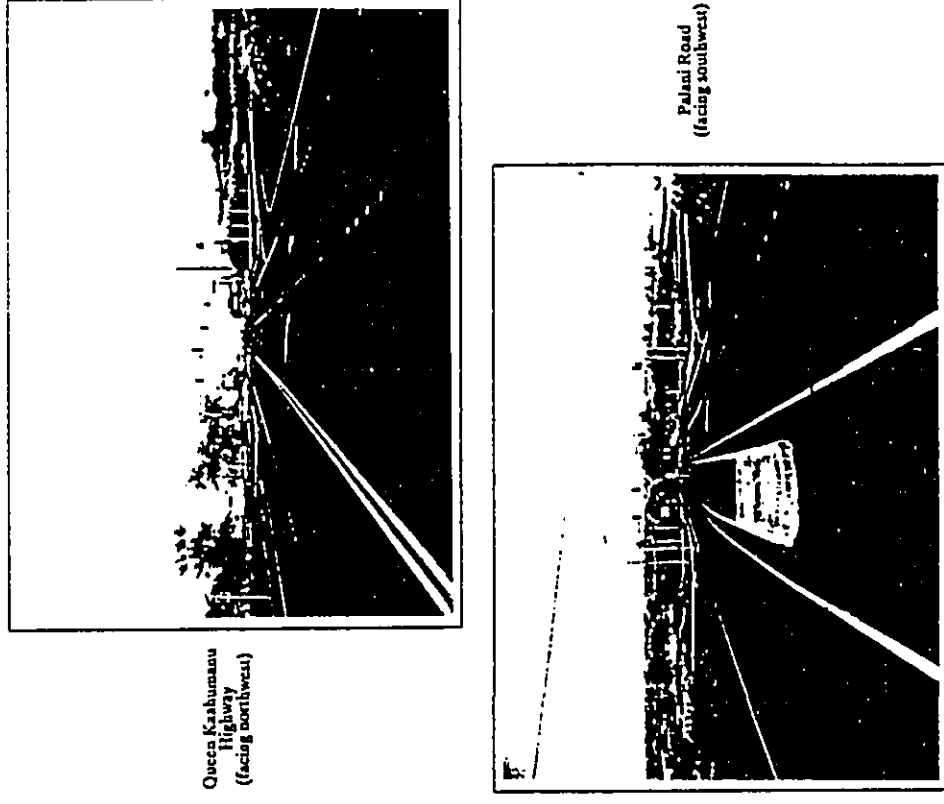


FIGURE 8  
AUGUST WIND ROSE  
KEAHOLE AIRPORT  
1973



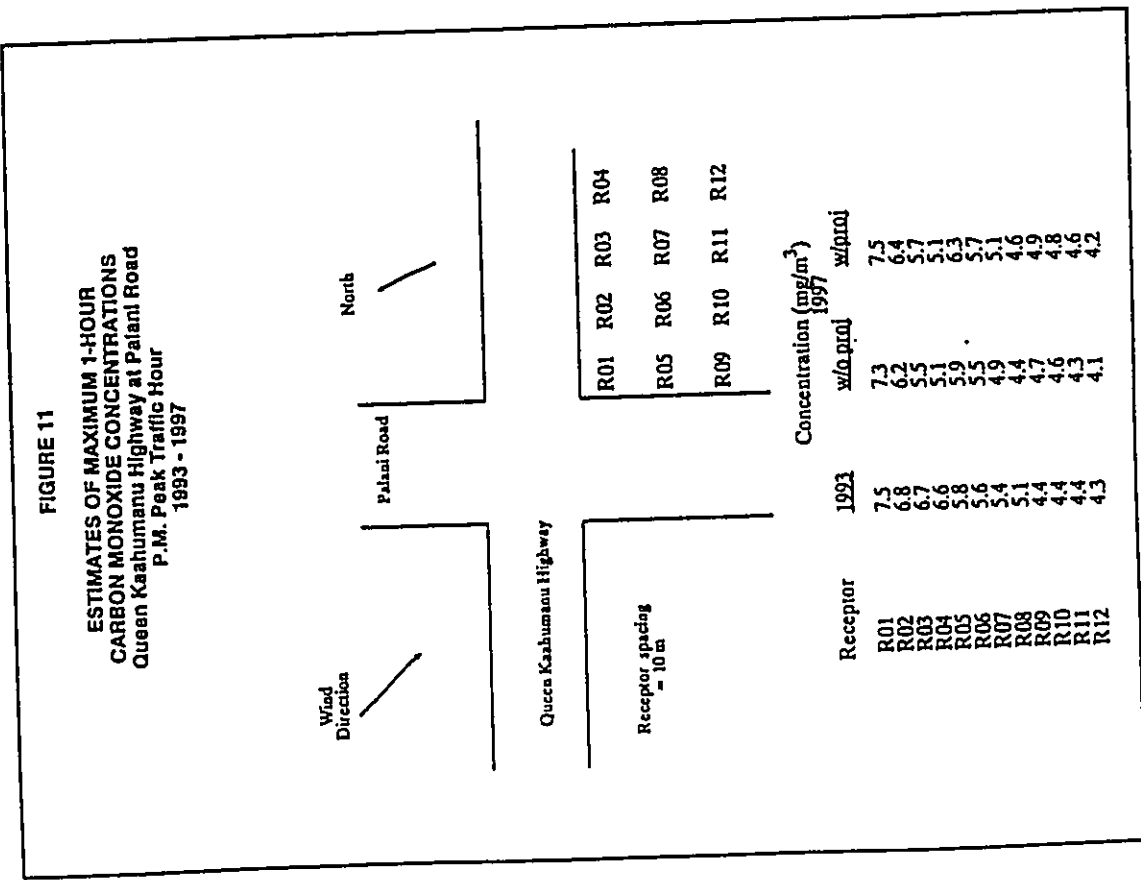
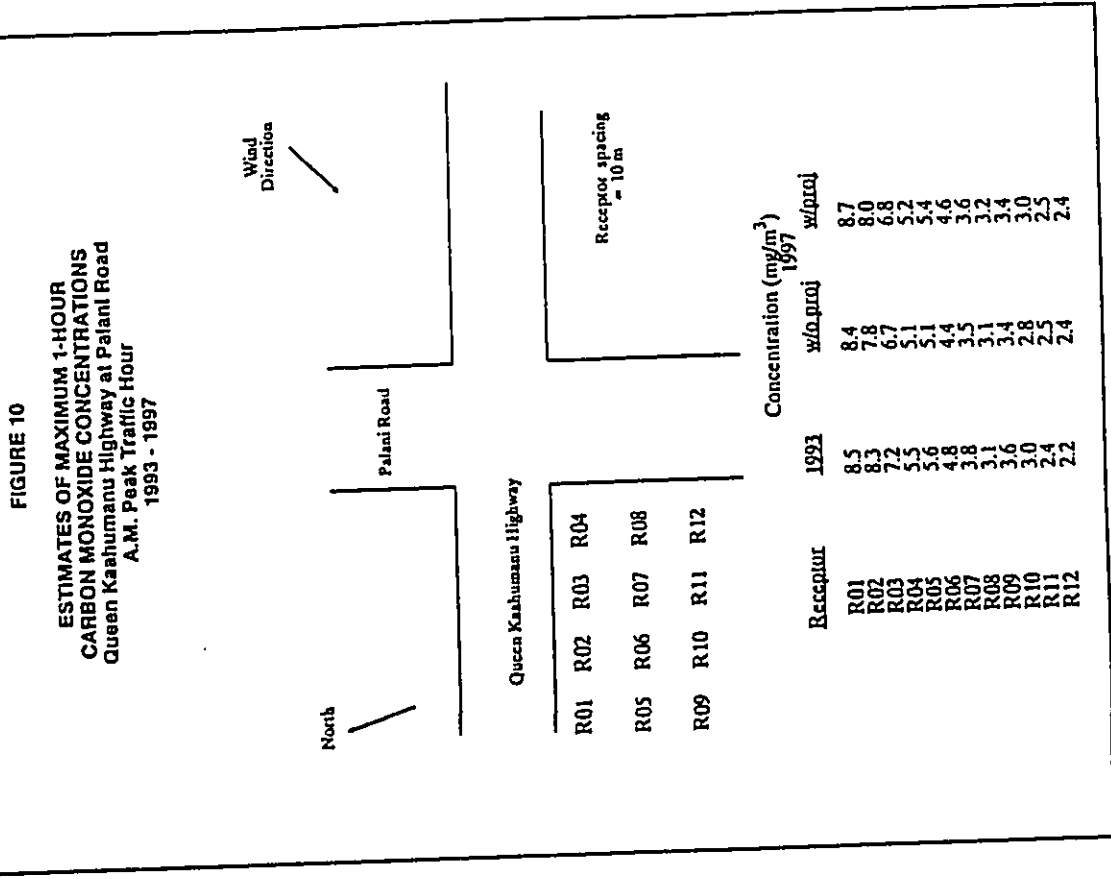
SOURCE: National Weather Service

FIGURE 9  
QUEEN KAAHUMANU HIGHWAY  
AT PALANI ROAD  
JULY 1993



Queen Kaahumanu Highway  
(facing northwest)

Palani Road  
(facing southwest)



**APPENDIX B**

TABLE OF CONTENTS

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**BOTANICAL REPORT OF FIVE CANDIDATE SITES  
FOR PROPOSED KONA CIVIC CENTER**

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**BOTANICAL REPORT OF FIVE CANDIDATE SITES  
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**INTRODUCTION**

This report was prepared in support of a site selection study and Environmental Impact Statement for the Kona Civic Center which are being prepared for the State of Hawaii by DPD, Inc.

The objectives of this botanical study are 1) to determine and describe the major vegetation types present on the five candidate sites (Figure 1), 2) to determine which rare or endangered plants are known to be present in the vicinity of the sites by review of previously conducted environmental reports, and 3) to assess the probability that rare or endangered plants may occur on each of the five sites by characterizing the vegetation and other site conditions their at known points of occurrence in the region.

The objectives of this study do not include searching for rare or endangered species on the sites.

**METHODS**

The following eight vegetation reports for the area around the five candidate sites were obtained: Char (1985), Char (1988), Char (1989), Char (1990a), Char (1990b), Char (1992), Nagata (1983), and Nishida (1992). The vegetation types identified in these documents were not consistently described and named in the various reports. It was necessary to reanalyze the data presented to determine equivalency between the types described. A uniform set of vegetation type names was devised and given in this report. A recent geological map (Moore and Clague, 1991) and a rainfall map (Department of Land and Natural Resources, 1982) were also examined and used to characterize the environmental conditions of the candidate sites and the nearby areas referenced in the reviewed documents. The lava flow unit labels and delineations from the geologic map are useful in locating vegetation examples cited in the reviewed report (Figure 2).

A brief walk-through of the five sites was made on June 11 and 12, 1993. These visits traversed the length and breadth of each site in order to assess the general vegetation types present and to characterize them by species composition. The very dry site conditions at the time of the survey made it impossible to record all the expected species in the area, especially the annuals, or to identify some of the grasses. This inspection was not made with the intense effort required to search for rare plant species nor was that the intent.

RESULTS

**RARE OR ENDANGERED PLANTS KNOWN FROM THE REGION**

The following eleven species have been reported in other sources from the Kailua to Keahole region and within the elevation and rainfall ranges of the five candidate sites (Table 1). A two-letter code precedes each name and will be used in the text as a shorthand reference instead of the full name. A reference to its particular federal endangered status situation is also given. As this status may change periodically, an inquiry to the U.S. Fish and Wildlife Service office in Honolulu is advised when it is critical to know the current status. A descriptive note is also given parenthetically.

(Bm) *Bidens micrantha* Gaud. sp. *citonophylla* (Sherff) Nagau & Ganders; koko'lau  
[category 2 candidate endangered; monopodial shrub up to 10+' in height]

(Ck) *Caesalpinia kawaiensis* H. Mann; uhi uhi  
[listed endangered; tree, often caespitose, up to 20']

(Fh) *Fimbristylis hawaiiensis* Hillebr.  
[category 2 candidate endangered; sedge]

(Ip) *Isodonion pyriformum* A. Gray; aupaka  
[proposed endangered, considered extinct until recently; monopodial shrub up to 12+']

(Mf) *Marisus fauriei* (Kukenth.) T. Koyama  
[proposed endangered; sedge]

(No) *Neraudia oxala* Gaud.; ma'aloa  
[category 2 candidate endangered; caespitose shrub]

(Nb) *Naucleostegium breviflorum* A. Gray; aiea  
[proposed endangered; tree up to 20+']

(Ph) *Pleomele hawaiiensis* Degener & Degener; halapepe  
[category 2 candidate endangered; tree up to 25']

(Rs) *Reynoldia sandwicensis* A. Gray; ohe makai  
[rare, not listed; distinctive tree up to 30+']

(Sg) *Senna sandwicensis* (Hooker & Arnott) H. Irwin & Barneby; kolomona  
[rare, not listed; monopodial shrub up to 15']

(Xh) *Xylocarpus hawaiiensis* Seem.; maua  
[rare, not listed; tree up to 20' tall]

**GENERALIZED SITE DESCRIPTIONS AND CONDITIONS**

**Site 1.** This location, near the south margin of Keahuolu, is on the north side of of Palani road, between the elevations of 340' and 500' (Figure 1). The whole site is occupied by *Canthium-Schinus Forest* (CSF). Within this vegetation type are relatively open patches. Along the makai western margin of site 1, the CSF appears to grade into an open forest/shrubland rich in koa haole (*Leucaena leucoccephala*). The lava flow surface is mostly pahoehoe, with patches of accumulated organic soil and areas of 'a'a and scoriaceous pahoehoe (intermediate with 'a'a). This flow is mapped (unit 15d/04.1) as 2250 (+/- 150) years old. Median annual rainfall is about 30 inches makai and 35 inches mauka.

**Site 2.** The location in central Keahuolu is mauka of Queen Kaahumanu Highway, between the road to the VORTAC radio facility and the proposed Queen Liliuokalani Boulevard, between 80' and 125' elevation (Figure 1). Three lava flow units are found here, and these support as many vegetation types. With only a little over 25 inches of rainfall at site 2, the same 2250 year old lava flow as found on site 1 supports the *Grassland/Low Shrubland* (GLS) vegetation type in a small part of northern site 2. Just to the south, the majority of site 2 lies in a kipuka of two older lava flows. One is an 'a'a flow mapped (unit 12d/m15) to be near the older extreme of its 10,000-25,000 year old age class. This flow supports the *Pecosopia Forest* (PF) vegetation that covers the bulk of site 2. An adjacent small segment of a slightly younger flow is mapped (unit 12e/n2.3) to be 19,950 (+/- 150) years old. It supports an *Open Shrubland* (OSL) similar in species composition to the PF, but more open and of a lower stature.

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Table 1. Rare and Endangered plant species distributions by vegetation types and ahupua'a in the vicinity of the five candidate sites for the Kona Civic Center. See preceding page for species codes.

| VEGETATION TYPE          | NAME                           | CODE | AHUPUA'A | SPECIES                              |
|--------------------------|--------------------------------|------|----------|--------------------------------------|
| Grassland/Low Shrubland  | Ka'u<br>O'oma<br>Kealakehe     | GLS  |          | Nb, Xh                               |
|                          |                                |      |          | None                                 |
| Open Shrubland           | O'oma<br>Keahuolu<br>Kealakehe | OSL  |          | Ra, Xh                               |
|                          |                                |      |          | None                                 |
| Open Forest/Shrubland    | Kau<br>O'oma<br>Keahuolu       | OFSL |          | None                                 |
|                          |                                |      |          | None                                 |
| Scaevola-Schinus Forest  | Kau<br>Keahuolu                | CSF  |          | Ph, Bg                               |
|                          |                                |      |          | None                                 |
| Protopia Forest          | Kau<br>Keahuolu                | PF   |          | Ra                                   |
|                          |                                |      |          | Bg, Bm                               |
| Open Mixed Shrubland     | Kealakehe                      | OMSL |          | None                                 |
|                          |                                |      |          | Bm, Ck, Ip, Ph                       |
| Koa Haole Shrubland      | Kealakehe                      | KHSL |          | Ra, Bg, Mb                           |
|                          |                                |      |          | Bg, Ck, Ra                           |
| 'Ohia Lowland Dry Forest | Kaloko                         | OLDP |          | Ra, Bm, Ph, Mb, Bg<br>Ck, Ho, Ph, MZ |

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Site 1. The location is also just above the Queen Kaahumanu Highway along the northern edge of Keahuolu, next to Kealakehe and the Police Station (Figure 1). The site starts from the highway at about 90' elevation and runs up to just above the County landfill at 200' elevation. This location next to "Puu Opala" is pungent, dusty and noisy. The rainfall map indicates that the annual rainfall is slightly less than 25 inches, and that the mauka part of the site may receive a few inches more. This rainfall difference seems hardly enough to account for the observed transition in vegetation types, from Grassland/Low Shrubland (GLS), through an Open Shrubland (OSL), and just into an Open Forest/Shrubland (OFSL) at the top. The whole site is on the same 2250 year old lava flow as sites 1 and 2 at Keahuolu. The lower plain is relatively smooth pahoehoe. The middle and upper slopes are steeper and broken up more by cracked, uneven topography and patches of 'a'a and scoriaceous pahoehoe. These flow surface differences may contribute significantly to the vegetation variation by providing more opportunities for pockets of organic soil to accumulate in the areas with more texture.

Site 4. The location is immediately makai and south of the intersection of the Queen Kaahumanu Highway and the road to Honokohau Harbor at Kealakehe (Figure 1). Most of the site is on a fairly level pahoehoe flow at about 30'-50' elevation. This flow is mapped to be in the 5000-10,000 year old age class (unit f3d/n15.8). The southwest corner of the site enters into the 2250 year old flow noted above. These smooth pahoehoe flow units support a low stature (up to 3' tall) Grassland/Low Shrubland (GLS) vegetation. The northeast corner of the site (near the road intersection) is occupied by an imposing, rugged 'a'a flow lying 10'-15' above the pahoehoe. This flow (unit f4c/n7.8) is from the older end of the 2000-5000 year old age class. At site 4 this flow is barren, but 1/2 to 1 mile upslope this same flow supports a dense and fairly diverse vegetation which includes rare and endangered plant species. Site 4 receives a little over 20 inches of rain a year; the area a mile mauka receives a little less than 30 inches.

(GLS) Grassland/Low Shrubland. This type occurs at site 5 (Ooma, ca. 80'-120' elevation), site 4 (Kealahou, ca. 20'-40'+'), site 3 (Keahuolu, 90'-120') and site 2 (Keahuolu, ca. 80'-120'). Lower and drier portions of the band are generally more open, due much to the proportional reduction in fountain grass cover. The GLS generally occurs on gently sloping pahoehoe lava, but it may also be found on patches of 'a'a and scoriaceous pahoehoe. This is the lowest band in the region (except for the coastal strand, not relevant here), and mauka it grades into the Open Shrubland. At the candidate sites, three different ages of pahoehoe lava flow support this vegetation, ranging from 2250 to nearly 10,000 years old.

The grass component is heavily dominated by fountain grass (*Pennisetum setaceum*) and also includes Natal redtop (*Rhynchoselytrum repens*) and possibly \* pili (*Heteropogon contortus*). The shrubs are generally less than 3 feet tall and commonly include small individuals of \* uhaloa (*Waltheria americana*), \* iilima (*Sida fallax*), klu (*Acacia farnesiana*), noni (*Morinda citrifolia*), and \* maiapilo (*Capparis sandwicensis*). In the upper portions of this vegetation band there may be emergent Christmas berry (*Schinus molle*), \* alaha'e (*Cambium odoratum*), kiawe (*Prosopis pallida*), and lantana (*Lantana camara*).

(OSL) Open Shrubland. This type occurs at site 3 (northern Keahuolu, 120'-160') and site 2 (southern Keahuolu, ca. 80'-130'). The OSL is composed of most of the species named above for the GLS makai of it, plus additional species. In the OSL, the shrub cover is variably dominant and taller in stature (up to 10' or more) than in the GLS. The OSL occurs on both more textured pahoehoe and 'a'a flows. The OSL is transitional between the lower GLS and the Open Forest/Shrubland or other taller arborescent or dense tall shrub vegetation types above it.

Site 5. The location is along the mauka side of Queen Kaahumanu Highway, 3/4 of a mile south of the access road to the NELHA facilities, in O'oma 2 along the boundary with Kohalaiki (Figure 1). The site is a fairly level area composed of smooth pahoehoe and fairly barren 'a'a, from about 80'-110' in elevation. The lava is all from a flow (unit 4d/o10.6) dated to be 3020 (+/- 150) years old. The vegetation present is an open to scattered Grassland/Low Shrubland (GLS), which has developed upon the pahoehoe portions. Mapped annual rainfall is 20 inches.

#### VEGETATION AT THE CANDIDATE SITES

Five vegetation types and a barren lava flow were recorded at the five proposed alternative sites. Two of these types were seen at more than one site, and all but the Propolis Forest have been reported at other locations in the Kailua to Keahole region which this report is evaluating. Char (1992), in a survey of lands north of Kohalaiki, recognized three vegetation types occurring in elevational sequence and influenced by environmental factors. Indeed, some vegetation types may occur as a discontinuous band, predictably above or below another band into which it is transitional. Discrete boundaries between some types reflect differences in lava flow age or surface texture. Descriptions of the five observed vegetation types are given below. The type name is preceded by a code which is used as a shorthand reference in the text. Native species are preceded by an asterisk in the text when not otherwise identified. The ahupua'a name and the elevation range at each candidate site are also given.

Each of the vegetation types listed in this paper is known to include at least two rare or endangered plant species, except for the PF type (for which no report has been located). These known occurrences of endangered plants are not within the candidate sites. Table 2 lists rare and endangered species for each vegetation type described herein.



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In addition to most of the species found in the GLS, the diversity of the OSL is supplemented by more woody species and some herbs, vines and ferns. These plants may include opiuma (*Pithecellobium dulce*), indigo (*Indigofera suffruticosa*), air plant (*Kalanchoe pinnata*), sword fern (*Nephrolepis multiflora*), portulaca (*Portulaca pilosa*), koa haole (*Leucaena leucocephala*), \* ilie'e (*Plumbago zeylanica*), \* *Pogononia leptostachya*, \* a'ali'i (*Dodonaea viscosa*). There may be considerable low stature alaha'e or koa haole. Native species may be prominent.

(OFSL) Open Forest/Shrubland. This type occurs at the upper portion of site 3 (northern Kahaolu, 160'-200+' ). Either pahoehoe or 'a'a surfaces, both generally on moderate slopes, may underlie the vegetation. The dense shrub layer 6'-10' tall forms the matrix with emergent individuals or clumps of trees 15'-30' tall. Smaller species of shrubs and herbs of lower elevations are absent or much reduced in numbers. The diversity of tree and tall shrub species may increase considerably with elevation, including numerous native species (as seen on previous trips through the upper area). Dominance or prominence may be achieved by koa haole in certain areas, especially those with a history of cattle grazing. The upper portion of site 3 includes this type. Additional species noted were \* williwili (*Erythrina sandicensis*), \* iliahi (*Santalum paniculatum*), \* huehue (*Coccoloba lobata*), *Coccinia grandis* and monkeypod (*Samanea saman*).

(CSF) *Canthium-Schinus* Forest. This type of vegetation covers site 1 (Kahaolu, 350'-500'), most of which is underlain by pahoehoe lava. Except for more open patches (often on rugged 'a'a sections), the canopy is continuous, dense and 15'-25' tall. Emergent trees and stands are frequent. The understory is generally thick, often of canopy species, and the groundcover is variable in composition and amount. \* *Canthium* or Christmas berry (*Schinus*) may dominate the canopy locally, but usually co-occur. Emergent species include monkeypod, kiawe, Christmas berry and occasionally opiuma. Understory and groundcover species include air

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plant, fameflower (*Calium triangulare*), \* uhaloa, laua'e (*Phymatosorus scolopendria*), \* peperomia, *Coccinia*, \* ilie'e, laniana, noni, koa haole, \* koali (*Ipomoea indica*), Guinea grass (*Panicum maximum*). Except for *Canthium*, native species are not prominent. This type may grade into an OFSL dominated by koa haole at its lower limits, where the canopy is discontinuous.

(PF) *Prosopis* Forest. This type of vegetation occurs on the southern 3/4 of site 2 (southern Kahaolu, ca. 80'-130+' ). The canopy is dominated by kiawe trees (*Prosopis pallida*) 20'-30' tall. The open understory of shrubs and small trees is much more open and less shaded than is the CSF. The groundcover is fairly continuous, except in patches of coarser 'a'a. This vegetation is limited to an old (10,000-25,000 years old) 'a'a kipuka and does not occur farther north in this region of consideration. This PF vegetation of the kipuka is similar to that of the area around Kailua to Kahaluu, also on similar old lava flow surfaces. The canopy is interspersed with trees of opiuma, Christmas berry and monkeypod. The understory includes \* alaha'e, laniana, klu, considerable koa haole, \* malapilo, \* ilie'e, \* a'ali'i, \* ilima and indigo. Groundcover is predominantly fountain grass, with some portulaca, Natal redtop and a few other species.

OTHER VEGETATION TYPES OF THE REGION

Three other vegetation types prominent in the study area from Kailua to Keahole were not found on any of the candidate sites. These types, described below, are next to those of the 5 sites or are compositionally similar enough to consider that the rare species which they contain might also occur at one or more of the 5 sites.

(OMSL) Open Mixed Shrubland. This was reported by Char (1989, 1992) in the Kealahoe area (on a 3000-5000 year old flow, unit 4c/n7.8) and also in the Kalaoa 5 to O'oma area (units 4d/o9.7 and/or 4d/o10.6, 3000-5000 and 3020 +/- 150 years old, respectively). At Kalaoa-

of site 3, and extends up to about the lower part of site 1. The lower KHSL may be equivalent to areas of this report's OSL and OFSL which have become dominated by koa haole. At Kealakehe and Keahuolu, this type occurs on the 2250 year old pahoehoe flow (unit F5J/04-1) and also to the north on portions of at least one older flow.

**(OLDF) Ohii'a Lowland Dry Forest.** This type was first reported at Kaloko by Nagata (1983) and referred to as "a'a flows with remnant native forest". More recently, Nishiida (1993) described the vegetation on the same flow at Kaloko and Honokohau as "ohii'a lowland dry forest". This is a very rugged 'a'a flow 2200-2300 years old (unit F5c/07), which supports the best preserved native forest remnant in the region. Above about 300' the very open vegetation cover is composed dominantly of native trees and shrubs in clumps and as scattered individuals. Ohii'a (*Microsideros polymorpha* var. *incana*) is the most common tree, but there is a considerable component of other native trees and shrubs, including alaka'e, lama (*Diospyros ferrae*), nehe (*Lipochiaeta subcordata*), mamane (*Sophora chrysophylla*), naio (*Myoporum sandwicense*), maipilo, and the rarer Rs, Bm, Ph, Nb, Sg, Ck and No. The rare sedges Fb and Mf also occur here in the sparse ground cover. Of particular note is the scarcity of introduced species, especially Christmas berry, koa haole and fountain grass. The paucity of fountain grass minimizes the chances of destructive fires, and the minor presence of all three problematic introduced plants reduces the competition which has caused considerable degradation of native vegetation in dry areas. The coarseness of the 'a'a surface has minimized the influence from grazing and browsing animals. Overall, the minimal impacts from introduced species, the very low fire hazard and the rich diversity of native species all combine to make this vegetation type an outstanding example of native vegetation for preservation consideration. As far as conservation of rare species goes, this Kaloko-Honokohau flow portion is considerably more valuable than any of the 5 sites proposed for the Kona Civic Center.

O'oma, the OMSL type runs from 400' to 640' elevation, where it becomes a Closed Mixed Shrubland (Char 1992). There the shrubs are 6'-15' tall, the trees 15'-25' tall, and the combined cover less than 60%. At Kealakehe, this type generally occurs above 400' elevation, but extends lower in places, and runs upward to about 600+', where it grades into Char's *Canthium*-Christmas berry shrubland (which is called CSF in this report). Char's "mixed shrubland" (at Ka'u, 600'-800', 3/90) and "closed shrubland" (at O'oma 2, 600+', 11/88) may be nearly equivalent to the upper portions of this OMSL (Table 1) type. The OMSL does not appear to be contiguous with any of the vegetation types described from the 5 sites, but the elevation and rainfall parameters do, leaving the possibility that the rare species of the OMSL may also exist in the area of site 1. The lower OMSL is replaced by the koa haole shrubland (KHSL) to the south near the top of site 3 and the bottom of site 1. Common introduced species in the OMSL are Christmas berry and koa haole; silk oak (*Grevillea robusta*) is also scattered in the northern areas. Fountain grass is found on pahoehoe surfaces. Numerous species of native plants were noted, especially on 'a'a surfaces. These include the rare species Sg, Rs, Bm, and Nb. In the Kealakehe area, this type also contains Ck, Xb, and Fb. After the initial surveys at Kealakehe were done, the aupaka (*Isodendron pyriformis*, or Ip), a species long considered extinct, was discovered by K. Nagata in lower Kealakehe. Subsequent intensive survey work revealed more Ip and more sightings of the other rare species reported earlier from Kealakehe (Evangeline Funk, Personal Communications, 1993).

**(KHSL) Koa Haole Shrubland.** This type was reported by Char (1989) to occur at Kealakehe, above her "fountain grass grassland" (herein called GLS) and below and alongside the OMSL. The KHSL, generally occurring on pahoehoe surfaces, is dominated by koa haole 8'-12'+ tall, and may have emergent kiawe and opiuma trees present. Introduced species are dominant, but native species include the rare Sg, Ck and Rs. At Kealakehe, the KHSL may extend as low as 200' and up to 700', where it is replaced by the CSF (or Char's equivalent type). It extends south into Keahuolu, where it may become equivalent to the OFSL at the top

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### DISCUSSION: PATTERNS AND PREDICTABILITY

#### NATURAL PATTERNS

The vegetation of the lower slopes of west Hualalai is a mosaic of different plant communities, many of which can be assigned to various described types. The diversity of vegetation types is arrayed along north-south and mauka-makai rainfall gradients. Differences in the amount and frequency of rainfall and of local moisture conditions in this dry environment tend to control the structure and canopy height of the vegetation. The driest areas are generally the most open, least diverse and of lowest stature. The species composition of the general structure types are influenced in part by moisture and in part by other factors. One other factor is the degree of successional development or maturity (the gradual accrual of species into a plant community) which has been achieved over the lifetime of a particular lava flow. The ages of the reported flows in the region range from a little over 2000 years to 25,000 years. These ages are old enough for the flows to show a degree of vegetation maturity, while still reflecting some differences in composition among them due to age.

The array of lava flow ages is somewhat randomly superimposed over the moisture gradients. The flow surface ages and textures tend to enhance or exacerbate the moisture conditions locally, breaking up the evenness of the rainfall gradient. Other local conditions exert their influence on moisture as well. For example, in or next to open vegetation types having considerable exposed lava, the advective heat load from air passing over heated lava surfaces provides a considerable desiccating effect. Up slope, the daily accumulation of clouds reduces evapo-transpirational losses, and enhances the effect of mauka rainfall.

Combined effects of these moisture-controlling factors can be seen on both 'a'a and pahoehoe flows in the area of the five sites. The 2250 year old pahoehoe flow at Keahuolu supports GLS makai, OSL immediately above and the lower edge of the OFSL, all in a little

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over a half mile distance. The 'a'a flow at the top of site 4 is barren, but supports dense vegetation and rare species upslope only 1/2 to 3/4 of a mile away. Each flow has different vegetation flanking it on adjoining flow surfaces. Thus, small distances in site placement may make considerable difference in the likelihood of rare species being present.

#### INTRODUCED PLANTS AND ANIMALS

Considerable modification of the original native vegetation and its natural patterns have been effected by cumulative invasions of introduced plants and animals. Such alien plants have replaced many native species at the best growing sites in a harsh environment; they have usurped light and moisture; they have added considerable risk of wildfire; they have upset community balance; and they have spread diseases and pests. Introduced animals generally browse native plants preferentially over alien species or may parasitize native species which have not evolved natural defenses against these new traumas. The resulting attrition of native species varies from flow to flow, as does the degree of prominence of the alien plants in the modified plant communities.

Over time, additions and subtractions of species also adds considerable variety to the composition and appearance of the original communities. Lava flow segments with diverse assemblages of native trees and shrubs, including rare or endangered species, occur throughout the region from Kailua to Keahole. Each segment may have a different degree of depletion of native species and of invasion by introduced plants and animals. They may now appear as different vegetation types, but the imprint of the original native plant communities can still be recognized.

The elevation ranges of plant communities described from different ahupua'a from Ka'u in the north to Keahuolu suggest that the native communities which contain rare species originally occurred in bands arranged around the slopes of Hualalai, running at higher elevations to the north and lower elevations closer to Kailua, tracking moisture conditions. Other factors,

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such as lava flow surface texture and age act to complicate the pattern and to delineate or obscure expected boundaries. The result appears as a mosaic of vegetation types.

### PREDICTABILITY

Evaluation of the vegetation on the five candidate sites in the context of the vegetation bands described above allows a degree of predictability of the probability of the presence of rare or endangered species. Projections of possible presence can reasonably be made, but predictions of absence of rare species are far less certain. As long as a candidate site falls within the vicinity of a band containing rare species there exists a possibility that rare plants may be present on the candidate site.

In general, as the proportion of the woody shrubs and trees within the vegetation diminishes, so does the probability that rare native species occur at the site. Similarly, as the proportion of native species in the shrub and tree layers of the vegetation diminishes, so does the probability that rare native species occur at the site. However, even examples of open grassland with low shrubs have produced infrequent sightings of two or three rare species, especially in the areas of transition to open shrubland.

By far, the most rare species and their greatest frequencies of occurrence are in the OLDf and OMSL vegetation types (Table 1). In each, the imprint of the native plant community is prominent. However, the OLDf has only slight invasion from introduced plant species, while in the OMSL introduced species are prominent or even dominant in the reported examples. Thus, the relative prominence of introduced elements in an area's vegetation is not by itself a reliable index of the remaining rare native species. Neither the OLDf nor the OMSL occur on any of the 5 sites, but their occurrences within the band of woody vegetation which passes through sites 1 and 2 and upper site 3 present an array of species which might also occur in other woody vegetation types in the band.

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The just discussed points make the issuance of predictions about the probability of rare plants on little-surveyed sites risky. In this lower west Hualalai region, where vegetation succession is retarded by aridity, rare species have been found in nearly all reported examples of medium to tall woody vegetation in the region. Findings of rare plants in open and low stature vegetation are less frequent.

Consequently, it seems unwise to predict that rare species do not occur in any west Hualalai examples of medium to tall woody vegetation where an intensive search has not been undertaken. Searches of moderate intensity could yield a general assessment of the relative abundance of rare plants, but a thorough search is required to locate all rare plant populations to guide development around them.

As was experienced during earlier botanical work at Kealahou, the more the dense, woody vegetation was searched, the more rare species were found. The intensity of botanical survey needed to verify the presence (or absence) of the rare species in an area of woody vegetation, much less all their locations on site, is considerable.

Conversely, the probability of rare or endangered species occurring in the open and low stature vegetation types is much lower and these sites are relatively easy to survey. An efficient approach might be to avoid medium to tall woody vegetation if there is sufficient choice and flexibility in siting a development, and instead look for barren 'a' flows or arid, smooth textured pahoehoe flows supporting GLS or OSL vegetation. The probability of rare plants occurring in these types is much lower and they would be easy to search.

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### RECOMMENDATIONS

The five candidate sites were not searched for rare and endangered species. A field survey for endangered plants is not the objective of the present study. Predictions of the probability of endangered plants on the candidate sites are based on a comparison of the vegetation types observed on the candidate sites with reports of endangered plants in various vegetation types in the Kailua to Keahole area.

The medium to tall woody vegetation types are most likely to contain rare species. The bands of such vegetation occur mauka of the two northern candidate sites (4 and 5), and in only the upper portion (a third or so) of site 3. Most of site 2 and all of site 1 support such medium to tall woody vegetation. Any planning for development upon sites 1, 2 and upper 3 should be preceded initially by a moderately intense botanical survey for rare species. The results of such a survey should provide indication of the need for more intensive search effort to guide site planning. More specific comments on the sites are given below.

Sites 1 & 2. Given the lower elevations of the medium to tall woody vegetation bands close to Kailua, both sites are within the range which could contain any of the rare species listed in this report. A finding of two or three rare species would not be surprising. To determine the numbers of each species by intensive searches would take considerable effort, and might possibly turn up more species, given the dense nature of the vegetation over much of the sites.

Site 3. The upper half to third should be treated as would sites 1 or 2. The remainder of the site is composed predominantly of relatively smooth-textured palaochoc on gentle slopes. The resulting vegetation is low in stature and open. The probability of rare or endangered plants in the lower portion of the site is much reduced. A thorough search could be undertaken with minimal effort to be certain of the absence of rare species in this lower portion. A suggested

## BOTANICAL REPORT

alternative would be to reorient the alignment of the site to be parallel with the highway and be totally within the low stature vegetation. This would have the additional advantage of being farther from the obtrusive Kealahou landfill, a huge heap which may stink long after it closes.

Sites 4 & 5. All of these sites lie makai of the vegetation bands likely to contain rare plants. A thorough search could be done with minimal effort.

Should alternative locations for the Kona Civic Center (or other development) be required, it would minimize both the botanical survey effort needed and the likelihood of encountering rare plants if sites were selected on barren lava flows or those containing open, low stature vegetation.

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## FIGURE CAPTIONS

Figure 1. The 5 candidate sites for the Kona Civic Center. Map provided by DPD, Inc.

Figure 2. The 5 candidate sites shown on geologic map (Moore and Clague 1991). All lava flow units referenced in the text are underlined.

APPENDIX C





**APPENDIX D**

**ALTERNATE SITE ANALYSIS AND TRAFFIC STUDY FOR  
KAILUA-KONA CIVIC CENTER  
KAILUA-KONA, HAWAII**

Prepared For  
**DPD Associates, Inc.**

Prepared By  
**DARTON-ASCHIMAN ASSOCIATES, INC.  
HONOLULU, HAWAII**

July 1993

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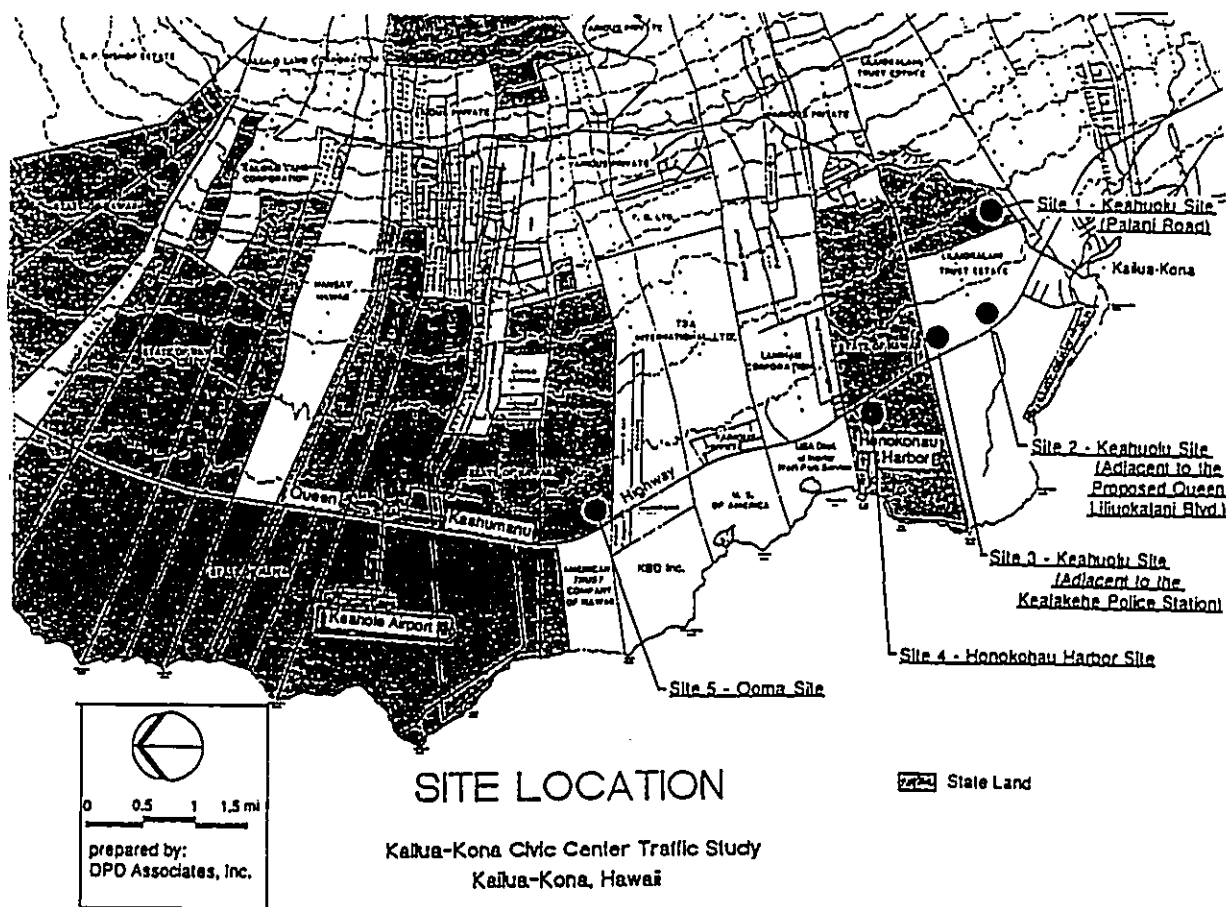
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## 1.

### INTRODUCTION

Barton-Aschman Associates Inc. has been retained by Design, Planning & Development, Inc. (DPD) to conduct a Traffic Impact Analysis Report (TIAR) of five potential sites for a Civic Center in Kailua-Kona, Hawaii. The purpose of this study is to evaluate the viability of the sites relative to traffic access and egress, determine traffic mitigation measures required in the immediate vicinity of the sites, and to determine the parking requirements of the civic center.

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



Barton-Aschman Associates, Inc.

1-3

Figure 1

**PROJECT LOCATION AND DESCRIPTION**

The alternative locations of the proposed project are shown schematically in Figure 1. Site 1 is on Palani Road approximately one-half mile mauka of Queen Kaahumanu Highway. This site is adjacent to the existing water tank.

Sites 2, 3, 4 and 5 are along Queen Kaahumanu Highway between Kailua-Kona and Keahole Airport. Therefore traffic assignments and characteristics are similar for all four locations.

Site 2 is approximately one mile north of Palani Road and is adjacent the intersection of Queen Liliuokalani Blvd. (proposed) at Queen Kaahumanu Highway. The site is currently vacant.

Site 3 is on the mauka side of Queen Kaahumanu approximately 1.5 miles north of Palani Road. There is currently light industrial uses and sewage treatment plant in the vicinity.

Site 4 is adjacent to the entrance to Honokohau Harbor, which is one-mile north of Site 3. The site is in the southeast quadrant. Access would be via the existing intersection.

The fifth site is one-half mile south of the entrance the HOST park. The site is on the mauka side of Queen Kaahumanu Highway. The site is currently vacant. Access would most likely be via a new intersection with Queen Kaahumanu Highway.

**STUDY METHODOLOGY**

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

1-2

#### 1. Data Collection

Traffic-related information was collected in order to analyze the existing traffic conditions and to estimate the future traffic volumes on the roadway adjacent to the study site without and with the project. The data collected included the following:

- development plan data;
- roadway network;
- existing morning (AM) and afternoon (PM) peak hour traffic volumes;
- traffic information for other planned projects; and
- previous traffic studies conducted for projects in the adjacent area.

Because Queen Kaahumanu Highway is generally a north-south route on the island of Hawaii, it serves as the north reference point for intersection calculations and discussions in this report.

#### 2. Analysis of Existing Traffic Conditions

Using the data collected, the existing traffic conditions in the vicinity of the project were determined. The planning method described in the 1985 Highway Capacity Manual (HCM) was used to determine the operating level or level-of-service at the study intersections. The level-of-service concept and the results of the analyses are presented in Chapter 2 of this report.

#### 3. Determination of Future Cumulative Traffic Projections

Future cumulative traffic without the project has two components. The first is background growth. The second is traffic generated by other planned projects in the vicinity and these volumes are referred to as "related project trips." The total future traffic without the project is the sum of existing plus background growth plus related project trips. These volumes are referred to as cumulative project trips. The assumptions used to estimate the cumulative trips and the resulting traffic projections are presented in Chapter 3 of this report.

#### 4. Analysis of Project-Related Traffic Impacts

The next step in the traffic analysis of the project was to estimate the AM and PM peak-hour traffic that would be generated by the proposed development. This was done using trip generation rates from Trip Generation (Fourth Edition, 1987), an informational report prepared by the Institute of Transportation Engineers (ITE).

These trips were distributed and assigned to the various traffic movements at the study intersections. The project-generated traffic was then superimposed on cumulative traffic volumes to obtain cumulative plus project conditions. The HCM method was then used again to conduct a level-of-service analysis for this condition which was compared to cumulative conditions in order to determine the impact of this project. The resulting traffic projections and the conclusions of the analyses are presented in Chapters 4 and 5, respectively.

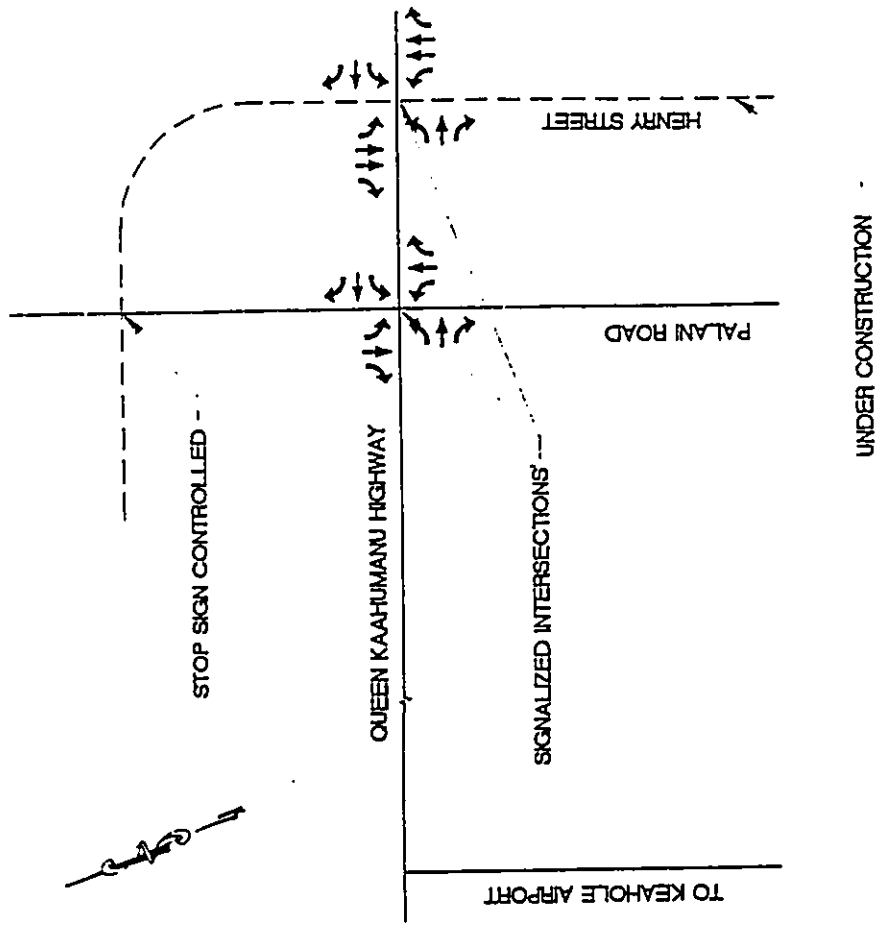
2.

ANALYSIS OF EXISTING CONDITIONS

This chapter presents and discusses the existing traffic conditions and volumes on the roadways adjacent to the proposed project sites. 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 discussed in a subsequent chapter.

The study intersections were selected based upon the access routes to and from the project location and BA's understanding of traffic conditions in the area. The intersections analyzed and existing lane configurations on the accompanying street network are shown on Figure 2.

2-1



## EXISTING LANE CONFIGURATIONS

Kaūlua-Kona Civic Center Traffic Study  
Kaūlua-Kona, Hawaii

Barton-Aschman Associates, Inc.

2-2

Figure 2



### EXISTING INTERSECTION CONTROLS

The type of right-of-way control (stop sign or traffic signal) is also indicated on Figure 2. The intersection of Palani Road at Queen Kaahumanu and Henry Street at Queen Kaahumanu Highway are signalized and channelized for right turns. The intersection of Queen Kaahumanu at Henry Street and traffic signals are currently under construction and are considered to be completed in the following analyses. The intersection of Palani Road at Henry Street will be stop sign controlled.

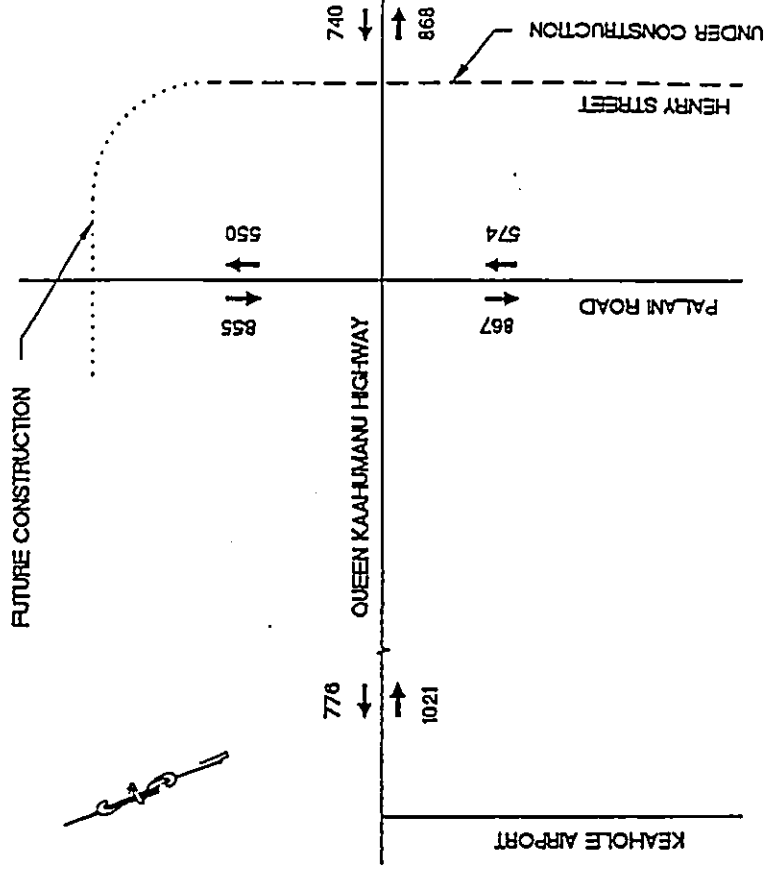
### EXISTING PEAK HOUR TRAFFIC VOLUMES

The existing 1992 AM and PM peak hour traffic volumes at the intersections of Palani Road at Queen Kaahumanu Highway were obtained from field counts conducted during March 1992. Volumes along Queen Kaahumanu Highway between Keahole Airport and Palani Road were obtained from HDOT annual traffic count summaries. These counts are shown in Figures 3 and 4 for the AM and PM peak hours, respectively.

### LEVEL-OF-SERVICE CONCEPT

#### Signalized Intersections

The planning method described in the 1985 Highway Capacity Manual (HCM) was used to analyze the operating efficiency of the signalized intersections adjacent to the study site. This method involves the calculation of a volume-to-capacity (V/C) ratio which is related to a level-of-service. A maximum intersection capacity based on the number of traffic signal phases was used for the V/C calculations.



## EXISTING AM PEAK HOUR TRAFFIC VOLUMES

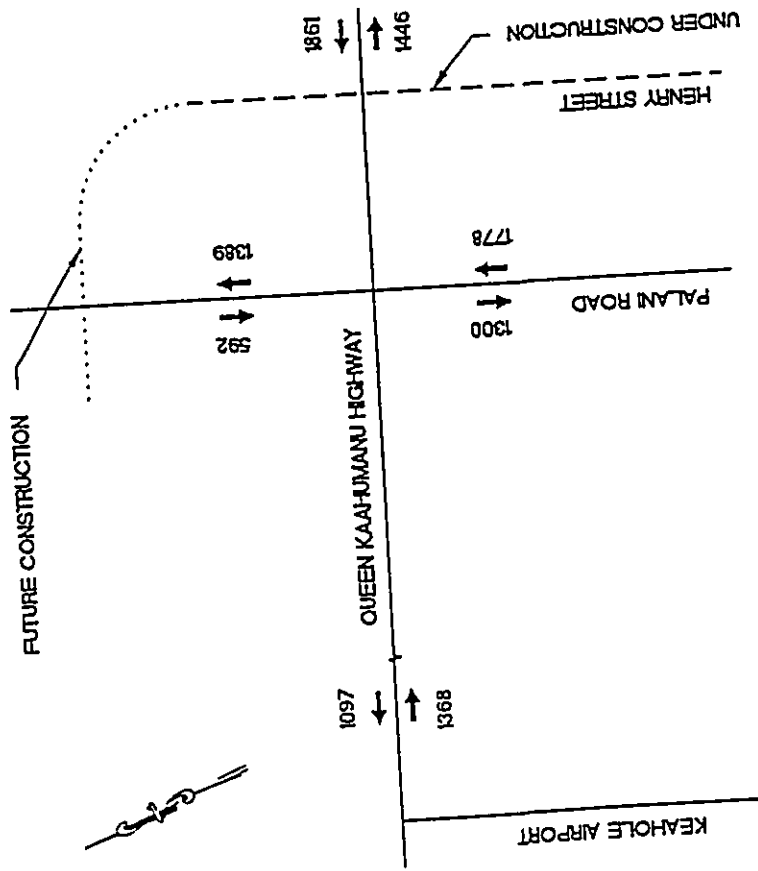
Kauiua-Kona Civic Center Traffic Study  
Kauiua-Kona, Hawaii

"Level-of-Service" is a term which denotes any of a number of combinations of traffic operating conditions that may occur on a given lane or roadway when it is subjected to various traffic volumes. Level-of-service (LOS) is a qualitative measure of the effect of a number of factors which include:

- Space,
- Speed,
- Travel Time,
- Traffic Interruptions,
- Freedom to Maneuver,
- Safety
- Driving Comfort, and
- Convenience

There are six (6) levels-of-service, "A" through "F", which relate to the driving conditions from best to worst, respectively. The characteristics of traffic operations for each level-of-service are summarized in Table 1. In general, LOS "A" represents free-flow conditions with no congestion. LOS "F", on the other hand, represents severe congestion with stop-and-go conditions.

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.), and the type of traffic using the roadway (trucks, buses, etc.) and turning movements.



## EXISTING PM PEAK HOUR TRAFFIC VOLUMES

Kauiua-Kona Civic Center Traffic Study  
Kauiua-Kona, Hawaii



#### Unsignalized Intersections

Like signalized intersections, the operating conditions of intersections controlled by stop signs can be classified by a level-of-service from "A" to "F." However, the method for determining level-of-service for unsignalized intersections is based on the use of gaps in traffic on the major street by vehicles crossing or turning through that stream. Specifically, the capacity of the controlled legs of an intersection is based on two factors: 1) the distribution of gaps in the major street traffic stream, and 2) driver judgement in selecting gaps through which to execute a desired maneuver.

The criteria for level-of-service at an unsignalized intersection is therefore based on delay and the potential, or reserve capacity, of each turning movement. Table 2 summarizes the definitions for level-of-service and the corresponding reserve capacity. A subsequent calculation to determine an overall LOS was made, and these results are presented in tables to summarize traffic conditions using parameters similar to those used for signalized intersections.

#### EXISTING LEVEL-OF-SERVICE ANALYSIS

The intersections of Queen Kaahumanu Highway at Palani Road and Queen Kaahumanu Highway at Henry Street were analyzed using the signalized level-of-service (LOS) planning method. Results of these analyses are shown in Table 3.

All intersections operate at an acceptable level-of-services (A) during the AM peak hour. During the PM peak hour Palani Road at Queen Kaahumanu operates at LOS D; Queen Kaahumanu at Henry Street operates at LOS A. Both of these conditions are acceptable.

TABLE 1  
LEVEL-OF-SERVICE DEFINITIONS FOR  
SIGNALIZED INTERSECTIONS

| Level-of-Service | Capacity Interpretation  | Volume-to-Per Vehicle Ratio (1) | Stopped Delay (Seconds) |
|------------------|--|---------------------------------|-------------------------|
| A, B             | Uncongested operations; all vehicles clear in a single cycle.  | 0.000-0.700                     | < 15.0                  |
| C                | Light congestion; occasional backups on critical approaches.   | 0.701-0.800                     | 15.1-25.0               |
| D                | Congestion on critical approaches but intersection functional. Vehicles must wait through more than one cycle during short peaks. No long standing lines formed. | 0.801-0.900                     | 25.1-40.0               |
| E                | Severe congestion with some standing lines on critical approaches. Blockage of intersection may occur if signal does not provide protected turning movements.    | 0.901-1.000                     | 40.1-60.0               |
| F                | Total breakdown with stop-and-go operation.  | > 1.001                         | > 60.0                  |

NOTES: (1): Source: Highway Capacity Manual, 1985.  
(2): This is the ratio of the calculated critical volume to Level of Service E Capacity.

TABLE 2  
LEVEL-OF-SERVICE DEFINITIONS FOR  
UNSIGNALIZED INTERSECTIONS<sup>1)</sup>

| Level of Service | Expected Delay to Minor Street Traffic | Reserve <sup>(2)</sup> Capacity |
|------------------|--|---------------------------------|
| A                | Little or no delay                     | > 400                           |
| B                | Short Traffic delays                   | 300 - 399                       |
| C                | Average traffic delays                 | 200 - 299                       |
| D                | Long traffic delays                    | 100 - 199                       |
| E                | Very long traffic delays               | 0 - 99                          |
| F                | See Note (2) below                     | -----                           |

- NOTES: (1): Source: Highway Capacity Manual, 1985.  
 (2): When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection. This condition usually warrants improvement to the intersection.  
 (3): Reserve capacity is defined as "the capacity of a lane at an unsignalized intersection minus the demand for that lane."

TABLE 3  
RESULTS OF EXISTING LEVEL-OF-SERVICE ANALYSIS

| Intersection                               | AM Peak Hour<br>$v/c$ | AM Peak Hour<br>LOS | PM Peak Hour<br>$v/c$ | PM Peak Hour<br>LOS |
|--|-----------------------|---------------------|-----------------------|---------------------|
| Queen Kaahumanu Highway<br>At Palani Road  | 0.550                 | A                   | 0.816                 | D                   |
| Queen Kaahumanu Highway<br>At Henry Street | 0.370                 | A                   | 0.580                 | A                   |

Notes:  $v/c$  = volume-to-capacity ratio  
 LOS = Level-of-Service

Traffic along Queen Kaahumanu Highway between Keahole Airport and Kaiwi Street has grown at a much faster rate. HDOT historical counts indicate an average annual growth of 8.4 per cent per year. Therefore, for this section of roadway and average annual growth rate of 8.4 per cent per year was used.

It is important to note that this growth represents ambient background growth not associated with any particular project. Comparison of this growth rate with historical traffic counts in the area would be misleading as the counts include ambient growth in addition to traffic from specific related projects.

#### RELATED PROJECTS

The second component in estimating future traffic conditions without the project is the traffic generated by related projects in the vicinity. Related projects are defined as those projects that are approved, planned or could be constructed during the time frame of this study which would significantly impact traffic at the intersections being analyzed.

3.

#### PROJECTED CUMULATIVE TRAFFIC CONDITIONS

The purpose of this chapter is to discuss the assumptions and data used to estimate 1997 cumulative traffic conditions. Cumulative traffic conditions are defined as the traffic conditions resulting from background growth and related projects.

#### BACKGROUND TRAFFIC GROWTH RATE

The first component of cumulative trips is background growth. Peak hour traffic counts conducted at the intersection of Queen Kaahumanu Highway and Palani Road in 1990 and 1992, indicated the background growth rate to be approximately 4 per cent per year in the study area. Therefore, a noncompounded growth rate of 4.0 percent per year was used for the intersection at The Town Center. This is equivalent to a 20.0 percent growth over the next five years (1992 through 1997).

Based upon the information obtained from the County and discussions with local developers, thirteen projects have been identified. Each project is discussed separately.

- (A) The Kailua Park expansion is presently in the review process. Traffic information regarding this project is taken from the Traffic Impact Analysis Report (TIAR) prepared by Barton-Aschman in January 1990.
- (B) A 3.3 acre parcel west of Kuukini Highway and south of Kaiwi Road is currently zoned for residential development. Based on this zoning, approximately 100 condominium units could be constructed. Traffic characteristics of the project are provided in the TIAR for Kailua Park.

(C) A 9-acre area immediately south of the Henry Street alignment between Queen Kaahumanu Highway and Kuakini Highway is zoned for a commercial development of approximately 90,000 s.f. Traffic for this development was based on trip rates extracted from Trip Generation (Fourth Edition, 1987), an informational report prepared by the Institute of Transportation Engineers (ITE). This report includes peak hour and daily trip generation rates and inbound and outbound directional distribution.

(D) An expansion of the existing Lanihau Center has been proposed. The center is located west of Queen Kaahumanu Highway between Palani Road and Henry Street. The expansion includes 260,075 s.f. of retail space and four separate building pads with a combined total of 14,500 s.f. Construction of Henry Street is part of the Lanihau Center project. The traffic related information for this project was taken from the TIAR for Henry Street and Lanihau Center II, prepared by Barton-Aschman in May 1990.

(E) The proposed Keahuolu Land Development project, an 1,135-acre portion of the Queen Liliuokalani Trust property, is the major contributor of related project traffic. The project is primarily located mauka Queen Kaahumanu Highway and north of Palani Road. Proposed land developments include a 500,000 square foot regional shopping center, four office developments, 360 residential dwelling units, 30 acres of civic/cultural facilities and a 150 bed hospital by the horizon year of 2010. The trips generated by this project for the year 2010 were adjusted to reflect trips that would be generated by this project in 1995. The traffic study prepared by Wilbur Smith and Associates was used to determine the traffic characteristics of the project and the roadway improvements identified as mitigation measures.

(F) Lanihau-Mauka is the proposed development of several parcels on the southside of Palani Road mauka of Queen Kaahumanu Highway. Proposed land uses include offices, restaurant and retail space. Included in the project is an extension of Henry Street from Queen Kaahumanu Highway to Palani Road. Trips related to this project have been extracted from the TIAR currently being prepared by Barton-Aschman.

(G) West Hawaii Today has proposed a new 10,000 square foot office building at the intersection of Kaiwi Street at Kuakini Highway. Traffic projections were taken from the traffic study prepared by Barton-Aschman in December 1990.

(H) O'oma II is a mixed use project to be located south of the NELHA project. The traffic assignments used to estimate background traffic were taken from the traffic study prepared for the O'oma project. The study was prepared by the Traffic Management Consultant and is dated July 29, 1991.

(I) Kohanaiki Mauka is also located south of the NELHA project. This project is to consist of 70 acres of light industrial development. This description is based on information contained in the June 8, 1991 OEQC Bulletin. Traffic assignments for the project were estimated by conducting a trip generation and assignment analysis used ITE trip generation from HDOT counts.

(J) Kohanaiki is a 470-acre development across Queen Kaahumanu Highway from Kohanaiki Mauka. Traffic projections are taken from the EIS provided by the developer.

(K) Manini'owai is located north of the airport. No traffic study was available so a trip generation and assignment analysis was conducted based on ITE trip generation rate. The directional distribution shown in the HDOT counts, and the

project description in the June 8, 1991 QEQC Bulletin, which indicated between 900 and 1100 single-family and multi-family residential units and golf course.

(L) NELHA anticipated that employment will increase from 100 to 300 employees by 1997. Trips generated by these employees were estimated using ITE trip generation rates. Since these employees are not part of the KAD Project, the trips are considered as background.

(M) Kealahoe Planned Community is a multi-use project located mauka of Queen Kaahumanu Highway approximately mid-way Kaahumanu Highway approximately mid-way between Palani Road and Keahole Airport. The project encompasses 960 acres and will eventually include 4,100 residential units. The project is to be developed in parcels over a period of years. This project is significant in that the Mid-Level Road is to be constructed north of Palani Road and Kealahoe. Parking is to be constructed between Queen Kaahumanu Highway and Palani Road.

Project-related peak hour traffic volumes for the subject intersection were derived from the traffic study for this project.

#### ROADWAY IMPROVEMENTS ASSOCIATED WITH RELATED PROJECTS

A number of roadway improvements are part of the related projects listed about. These roadway improvements are part of the project itself, such as the Mid-Level Road, or mitigation measures required as part of the project. Since the roadway improvements are committed for as part of the project or required to mitigate the project impacts, they are considered as part of the cumulative background conditions. Based on a review of the traffic studies for the related projects. The following roadway improvements are considered to be completed by the design year:

(1) Henry Street between Kuakini Highway and Palani Road, including signalization of Henry Street at Queen Kaahumanu Highway. Henry Street is to be constructed as a four-lane arterial with separate left-turn lanes and acceleration and deceleration lanes along Queen Kaahumanu Highway.

(2) Kealahoe Parkway between Queen Kaahumanu Highway and Palani Road. The EIS information obtained did not indicate type of roadway. However, it was assumed that Kealahoe Parkway would be a four-lane arterial based on the traffic volumes shown in the report.

(3) Mid-Level Road between Kealahoe Parkway and Palani Road. As with Kealahoe Parkway, the type of roadway was not indicated. A four-lane arterial was assumed, which is consistent with Henry Street south of Palani Road. It was also assumed that the Mid-Level Road would intersect Palani Road at Henry Street. Henry Street has been designed such that it will intersect Palani Road in the vicinity of the existing Ololi Road, 200 feet south of the water tank along Palani Road. The intersection of Palani Road at Mid-Level Road will be signalized.

(4) The intersection of Palani Road at Queen Kaahumanu Highway will be improved to provide an additional through lane into the town center. With signalization modifications, this lane may optionally be used as a left-turn lane.

(5) Queen Kaahumanu Highway will be improved to a four-lane divided arterial as an interim condition until a fully-access controlled facility is constructed. Review of the related projects indicate that Queen Kaahumanu Highway will have to be widened to accommodate traffic generated by projects already approved for development. Several of the traffic studies indicate that Queen Kaahumanu Highway will be a four-lane divided highway by the design year and have used this configuration as the background condition to estimate the study projects' traffic impacts. As part of this, the intersection of Queen Kaahumanu Highway at Palani Road is also improved to provide double-left turn lanes along Queen Kaahumanu and an additional through lane along Palani Road from the town

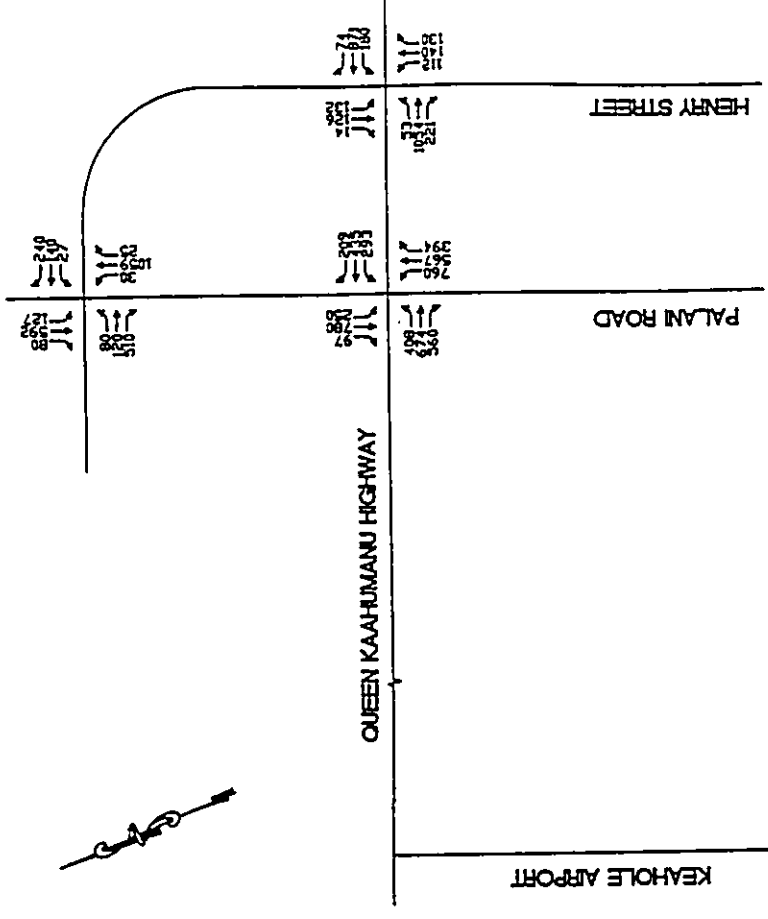
along Queen Kaahumanu and an additional through lane along Palani Road from the town center and along Queen Kaahumanu Highway.

**1997 CUMULATIVE TRAFFIC VOLUMES**

Cumulative traffic volumes for 1997 were calculated by superimposing background growth and related project trips onto existing traffic volumes. A factor of 1.20 was applied to existing traffic and the trips from the related projects described above were added to obtain the 1997 cumulative traffic volumes. Volumes were assigned to the roadway network for both peak hours as shown on Figures 5 and 6.

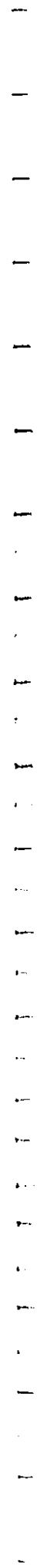
**1997 CUMULATIVE LEVEL-OF-SERVICE ANALYSIS**

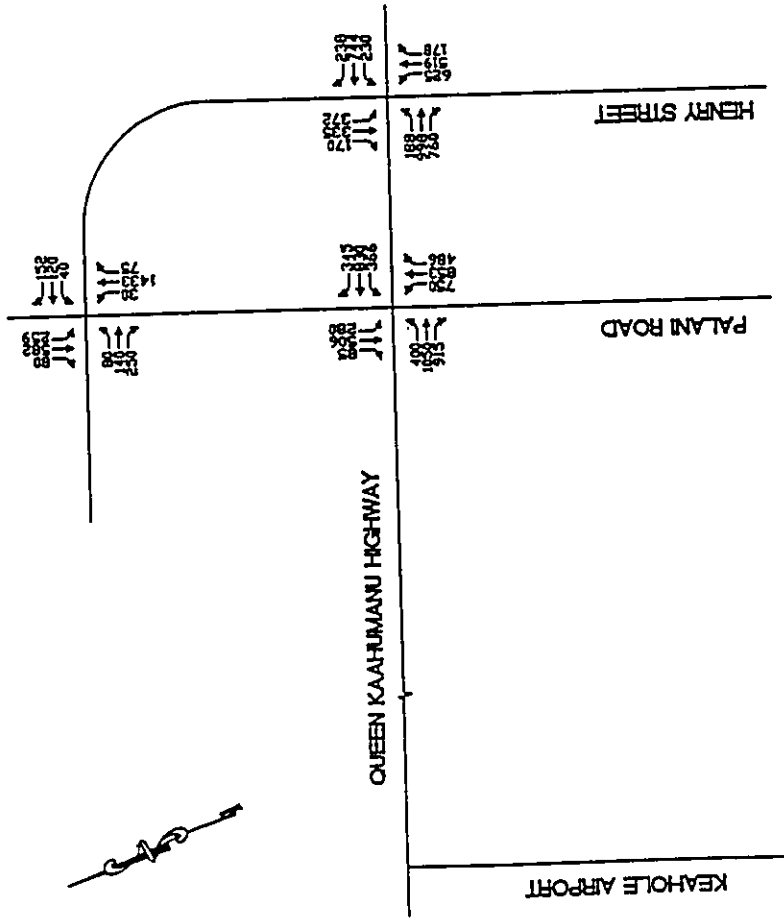
A level-of-service analysis for 1997 cumulative conditions was conducted to provide a basis for determining the projects impacts. The results are presented in the final chapter of this report to facilitate comparisons with cumulative plus project conditions.



**1997 CUMULATIVE AM PEAK HOUR TRAFFIC VOLUMES WITHOUT PROJECT**

Kauia-Kona Civic Center Traffic Study  
Kauia-Kona, Hawaii





## 1997 CUMULATIVE PM PEAK HOUR TRAFFIC VOLUMES WITHOUT PROJECT

Kailua-Kona Civic Center Traffic Study  
Kailua-Kona, Hawaii

Barton-Aachman Associates, Inc.

3-9

Figure 6

#### 4. CUMULATIVE PLUS PROJECT TRAFFIC CONDITIONS

This chapter discusses the methodology used to identify the traffic-related impacts of the proposed project. This methodology involves the three step process of trip generation, distribution and assignment. First, the number of weekday, AM and PM peak-hour trips that would be generated by the proposed project was determined. These trips were then distributed on the major approach and departure routes. Next, each trip was assigned a specific path to and from the sites based on ingress/egress locations and travel patterns. Typically each site would have a separate trip assignment. However, since sites 2, 3, 4, and 5 are all along Queen Kaahumanu Highway between Kailua-Kona and Keahole Airport one assignment is made that is applicable to all four. Finally, the level-of-service was calculated at each of the study intersections subsequent to the addition of project volumes to the roadway network.

**TRIP GENERATION**

Traffic volumes for the proposed project were determined using trip generation equations contained in Trip Generation (Fourth Edition, 1987), an informational report prepared by the ITE. The trip generation analysis and resulting peak hour volumes are summarized in Table 4. The PM peak hour is greater than the AM. Since the PM is greater and since the County and HDO have requested that the PM peak be analyzed, only the PM peak hour was further analyzed.

**TRIP DISTRIBUTION**

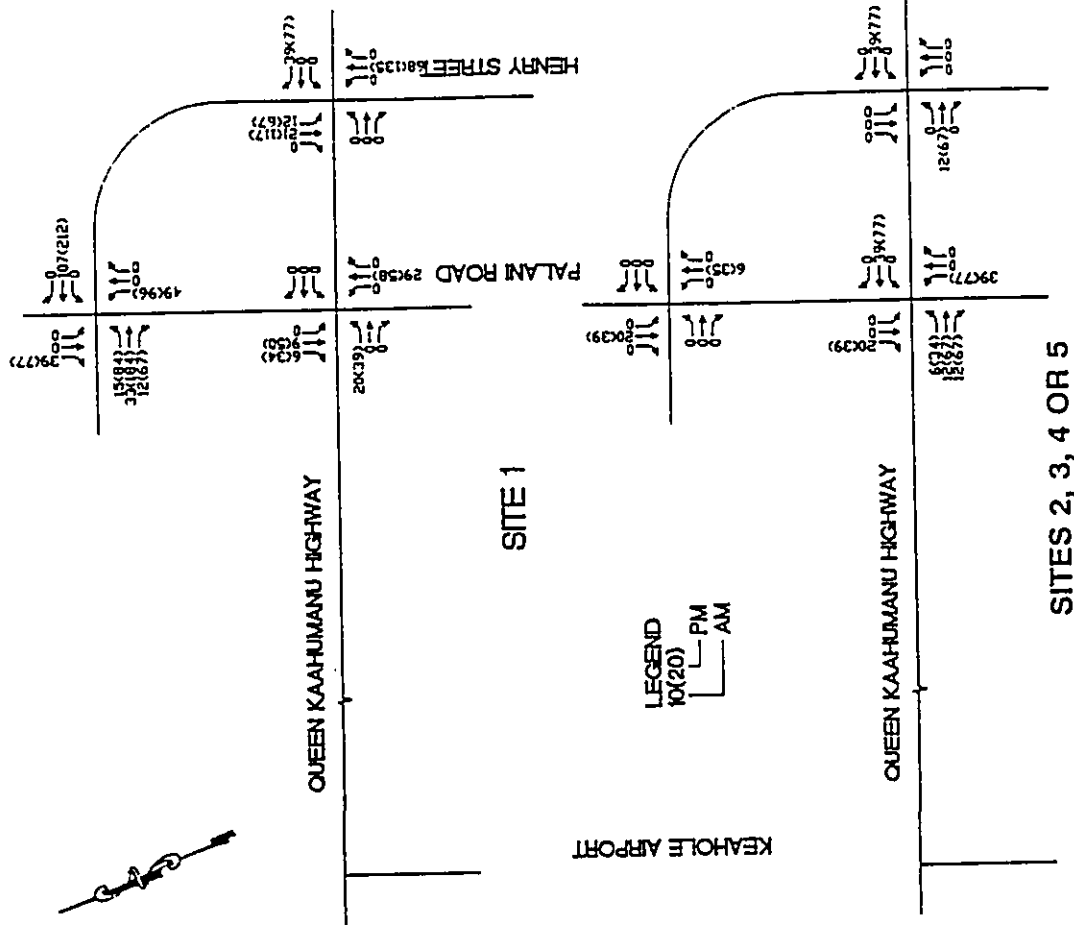
The project-related trips were distributed based on the future distribution of population and the anticipated approach and departure routes to the project site. This information was obtained from previously conducted traffic studies for the area. The directions of approach and departure are shown on Figure 7. Trip distributions for Site 1 assumes that Henry Street connects with the future Mid-Level Road at Palani Road adjacent to the site. Therefore, traffic would exit the site into Mid-Level Road and then through the Palani Road/Henry Street, Mid-Level Road intersection at a four-way intersection. For the remaining sites, the existing road net was used.

**TRIP ASSIGNMENT**

Using the trip generation and trip distribution previously discussed, site-generated traffic was assigned to the various turning movements at the intersections studied. The trip assignments for the PM peak hour are shown on Figure 8.

**TOTAL PEAK HOUR TRAFFIC VOLUMES**

Future traffic volumes with the project were determined by superimposing the site-generated traffic on the cumulative traffic volumes presented in the previous chapter. Thus, operating conditions under this scenario include existing traffic, background growth, related projects



**DIRECTIONS OF APPROACH AND DEPARTURE**

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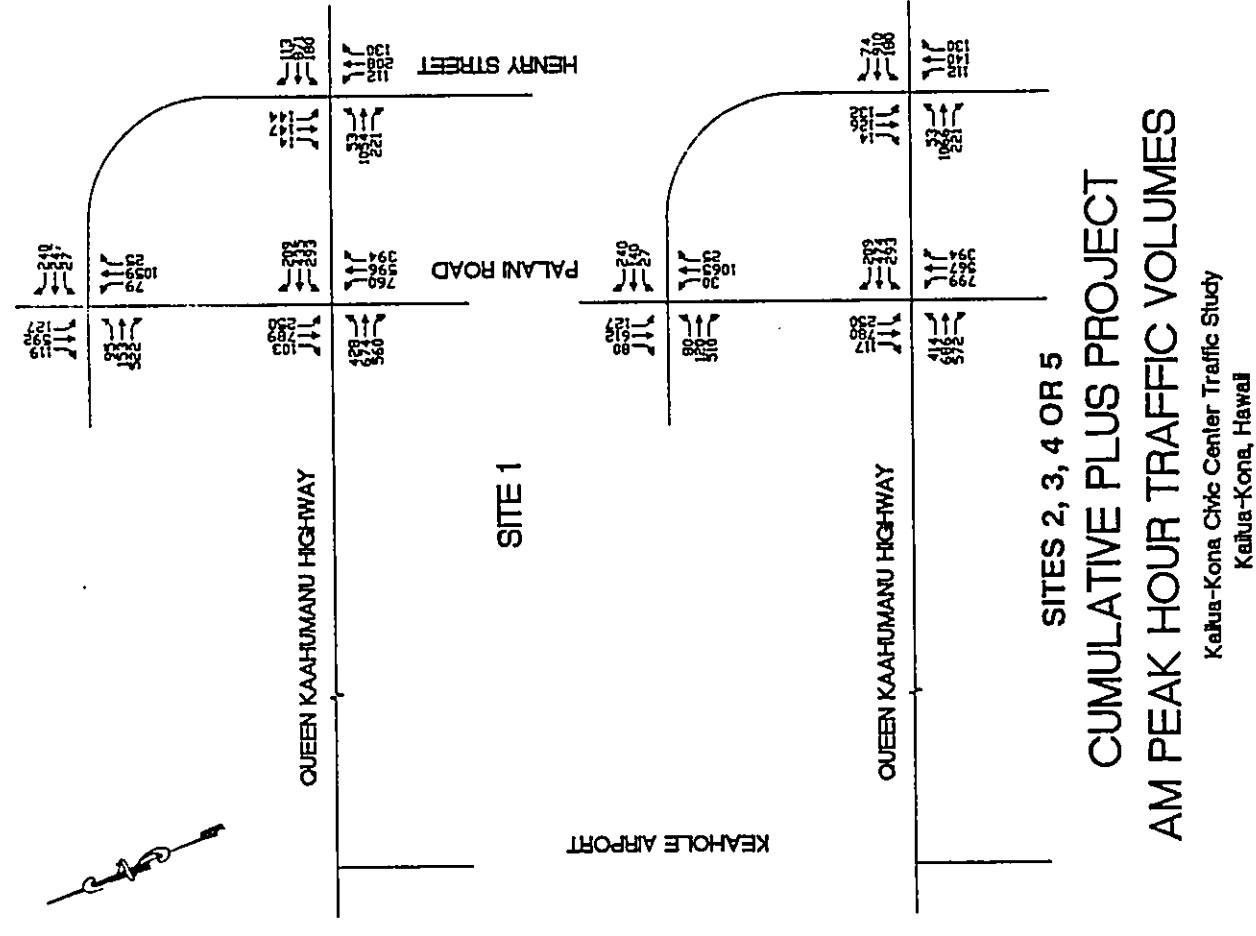


TABLE 4  
TRIP GENERATION ANALYSIS

| Use Component             | Weekday<br>Total | AM Peak Hour |      | PM Peak Hour |       |      |      |
|---------------------------|------------------|--------------|------|--------------|-------|------|------|
|                           |                  | Total        | In   | Out          | Total | In   | Out  |
| A. State Ofc Bldg         | 6,285            | 150          | 105  | 45           | 545   | 265  | 280  |
| B. Library                | 680              | 15           | 15   | 0            | 75    | 40   | 35   |
| C. Sr Citizens Center     | 80               | 5            | 5    | 0            | 5     | 0    | 5    |
| D. Corrections Center     | 350              | 35           | 25   | 10           | 20    | 5    | 15   |
| E. Judiciary Complex      | 960              | 80           | 65   | 15           | 155   | 115  | 40   |
| Subtotal                  | 8,355            | 285          | 215  | 70           | 800   | 425  | 375  |
| 10% Mixed Use<br>Discount | (840)            | (30)         | (20) | (10)         | (80)  | (40) | (40) |
| Total                     | 7,515            | 255          | 195  | 60           | 720   | 385  | 335  |

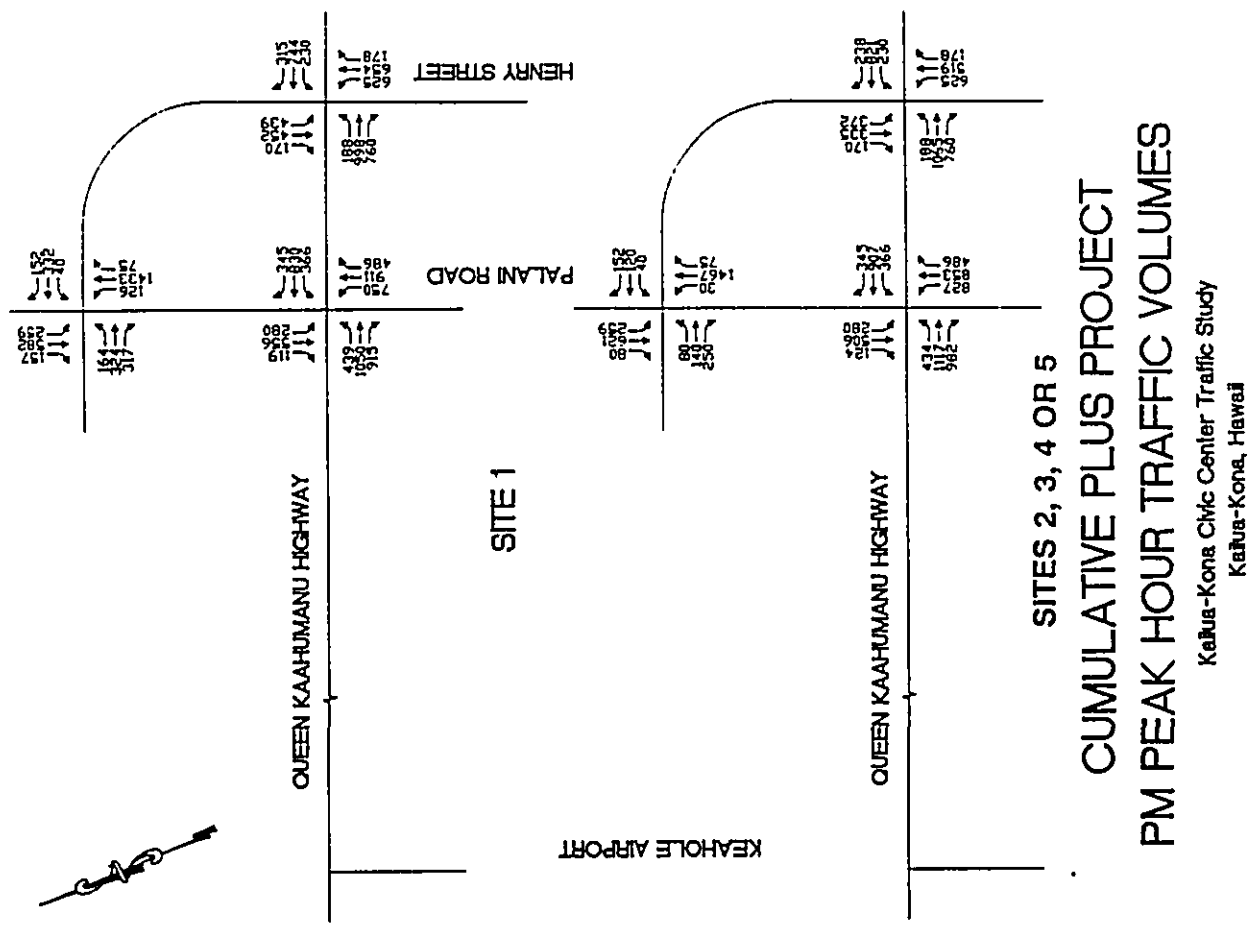
and proposed project trips on the future roadway network. The resulting 1997 cumulative plus project traffic volumes for the AM and PM peak hour are shown on Figure 8 and 9, respectively.

It should be noted that traffic characteristics and assignments are comparable for Sites 2, 3, 4 and 5, because the volume along Queen Kaahumanu Highway and the site generated traffic are the same for each site.



Barton-Aschman Associates, Inc. 4-6

Figure 8



Barton-Aschman Associates, Inc. 4-7

Figure 9



measures which will reduce the V/C ratio change to less than 0.030 must be identified. For this project, the 0.030 criterion has been used. If the LOS with project traffic is D or better, then no mitigation measures need to be identified.

#### PROJECT-RELATED TRAFFIC IMPACTS

A summary of the level-of-service analyses results for the key intersections under study is presented in Table 5.

The results of this analysis indicate that intersections along Queen Kaahumanu Highway will be over capacity as a result of background growth and the related projects assumed to be constructed over the next five years. The capacity constraint is a result of overall development and is not the result of traffic generated by any of the sites proposed as indicated by the small change in the v/c ratio.

The analysis is conducted assuming Queen Kaahumanu Highway is a four lane arterial which is a likely interim scenario as discussed in Chapter 3. The result is that a four-lane arterial will operate at capacity (v/c = 0.80 to 0.90) under 1997 conditions. A six-lane arterial, also a possibility, would operate a much better levels of service and would provide additional capacity.

#### FUTURE ROADWAY IMPROVEMENTS

The state currently has plans to improve Queen Kaahumanu Highway to an fully-access controlled facility. As yet, there is no indication that this will occur within the time frame used in this study (1992-1997). It is understood that when Queen Kaahumanu Highway is improved, access to the project sites along Queen Kaahumanu Highway would be via a frontage roadway. This scenario has not been studied as part of this study as plans for Queen Kaahumanu have not progressed to the point where access routes can be identified. Therefore, traffic from any of the proposed sites must be considered in the assessment and design of Queen Kaahumanu in the future.

#### 5.

##### SUMMARY OF IMPACTS AND MITIGATION MEASURES

The purpose of this chapter is to summarize results of the level-of-service analyses which identify the project-related impacts on the surrounding roadway network. In addition, any mitigation measures necessary and feasible are identified.

##### DEFINITION OF SIGNIFICANT IMPACTS

Criteria have been established in various cities to define a significant traffic impact requiring mitigation. Specific guidelines have not been established in Kailua-Kona. Generally, the criteria are as follows: if the level-of-service under cumulative conditions without the project is E or F, and the volume/capacity (V/C) ratio changes less than 0.030, the project's traffic impacts are considered insignificant. However, if the V/C ratio change is greater than 0.030, then mitigation

TABLE 5  
RESULTS OF CUMULATIVE LEVEL-OF-SERVICE ANALYSIS

| Intersection                            | Cumulative |     | Cumulative Plus Site 1            |     | Cumulative Plus Sites 2,3,4, or 5 |     |
|---|------------|-----|-----------------------------------|-----|-----------------------------------|-----|
|   | v/c        | LoS | v/c                               | LoS | v/c                               | LoS |
| Morning Peak Hour                       |            |     |                                   |     |                                   |     |
| Queen Kaahumanu Highway At Palani Road  | 0.754      | C   | 0.757                             | C   | 0.771                             | C   |
| Queen Kaahumanu Highway At Henry Street | 0.548      | A   | 0.569                             | A   | 0.552                             | A   |
| Palani Road At Henry Street             | 0.504      | A   | 0.548<br>(0.518 A) <sup>(1)</sup> | A   | 0.497                             | A   |
| Afternoon Peak Hour                     |            |     |                                   |     |                                   |     |
| Queen Kaahumanu Highway At Palani Road  | 0.873      | D   | 0.901                             | E   | 0.894                             | D   |
| Queen Kaahumanu Highway At Henry Street | 0.841      | D   | 0.907                             | E   | 0.862                             | D   |
| Palani Road At Henry Street             | 0.698      | B   | 0.816<br>(0.765 C) <sup>(1)</sup> | D   | 0.702                             | C   |

Notes: v/c = volume-to-capacity ratio  
LoS = Level-of-Service  
(1) = LoS resulting from mitigations discussed in report.

CONCLUSIONS AND RECOMMENDATIONS

In conclusion, the traffic from Site 1, the site on Palani Road, would generate the least traffic onto Queen Kaahumanu Highway, even though the level-of-service is lower ('E' versus 'D'). The traffic impacts at the intersections of Queen Kaahumanu Highway at Palani Road and Henry Street can be mitigated with relatively simple improvements. Therefore, Site 1 is the most acceptable relative to traffic. Widening to separate through and left-turn lanes rather than the optional through and left-turn lanes should also be considered at these intersections. These improvements would result in improving the level-of-service from 'E' to 'D' at both intersections.

The intersection of Palani Road at Mid-Level Road would have to be improved to provide a double-left turn from Mid-Level Road to Palani Road to mitigate the project impacts. This improvement would improve the level-of-service from 'D' to 'C.'

These conclusions are based on the assumption that Henry Street is extended from Queen Kaahumanu Highway to Palani Road. It is understood that both the County and HDOT support this extension and would assist in obtaining the necessary right-of-way.

PARKING

The number of parking spaces requested was estimated using parking demand ratios obtained from ITE or parking studies conducted in Southern California. The results of this analysis shown in Table 6 is that 400 spaces are required to accommodate peak parking demand.

It should be noted that shared parking is not applicable to this analysis as all the users have the same parking utilization and accumulation characteristics.

TABLE 6  
PARKING ANALYSIS

| Use                             | Parking Parameter | Parking Ratio | Size(2) | Spaces Required |
|---------------------------------|-------------------|---------------|---------|-----------------|
| State Office Bldg.<br>Library   | 1,000 SF          | 3             | 77,321  | 232             |
|                                 | 1,000 SF          | 3             | 15,000  | 45              |
| Sr. Citizens Center             | Employees         | 2             | 10,000  | 20              |
| Corrections Center<br>Judiciary | See Note(1)       | 5             | 3,915   | 80              |
|                                 | 1,000 SF          |               |         | 20              |
| Total                           | -----             | -----         | -----   | 397             |
|                                 |                   |               | Use     | 400             |

Notes: (1) Based on the Carter Goble Report.  
See memo for DMJM dated September 3, 1992.

(2) Areas shown are in thousands of square feet of floor area.