DRAFT ENVIRONMENTAL ASSESSMENT
FOR
KAPA'A LIGHT INDUSTRIAL PARK
KAILUA, HAWAII

Prepared For:
Kapa'a III, LLC
905 Kalanianaloe Hwy.
Kailua, HI 96734

Prepared By:
Marc M. Siah & Associates, Inc.

November 2008

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Consulting Civil • Structural • Environmental & Ocean Engineers
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DRAFT ENVIRONMENTAL ASSESSMENT
FOR
KAPA'A LIGHT INDUSTRIAL PARK

This environmental document is prepared pursuant to Chapter 200 of Title 11, Department of Health Administrative Rules, "Environmental Impact Statement Rules"

PROPOSING AGENCY

Kapa'a III, LLC
Kailua, Hawaii

ACCEPTING AUTHORITY

Department of Planning & Permitting
City and County of Honolulu

PREPARED BY:

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November 2008

PREFACE

This Draft Environmental Assessment is prepared pursuant to the requirements of Chapter 343, *Hawaii Revised Statutes*, Act 241, Session Laws of Hawaii 1992, and Chapter 200 of Title 11, Department of Health Hawaii Administrative Rules, "Environmental Impact Statement Rules".

This Environmental Assessment is prepared to be submitted, as part of Zone Change Application, to the City and County of Honolulu Department of Planning and Permitting. This assessment documents the technical characteristics and environmental impacts of the proposed Kapa'a Light Industrial Park project and presents the findings, determination, and reasons supporting the determination associated with the significance of the project.

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SUMMARY OF THE DRAFT ENVIRONMENTAL ASSESSMENT

FOR

KAPA'A LIGHT INDUSTRIAL PARK

A. Proposing Agency:

Kapa'a III, LLC
905 Kalanianaloe Hwy.
Kailua, HI 96734
Contact: Mr. John King

B. Approving Agency:

City and County of Honolulu
Department of Planning & Permitting
650 So. King St, Honolulu, HI 96813
Contact:

C. Consultant

Marc M. Siah & Associates, Inc.
820 S. Beretania Street Suite 201
Honolulu, Hawaii 96813
Contact: Manfred Zapka, Ph.D.

D. Name of Action

Environmental Assessment for the Proposed Kapa'a Light Industrial Park

E. Description of Proposed Action

Kapa'a III, LLC and John King propose to expand the existing commercial and light industrial warehouse park on three contiguous land parcels that are located in the Kapa'a valley, on the windward side of Oahu. There are already more than 195,000 square feet of warehouse space in the existing commercial warehouses, many of them Quonset structures, on one of the parcels. The proposed expansion would increase the available warehouse space by about 660,000 square feet and entails construction of 35 new steel framed with metal siding warehouse structures with floor areas ranging from 5,400 to 24,000 square feet. When fully developed, the industrial park would include 9,700- linear feet of paved roadways, three two-bay and one three-bay loading docks, 570 parking stalls, more than 9,100 feet of drainage infrastructure including concrete channels, pipes and grass swales and three detention ponds with total volume of 123,500 cubic feet for storm flows.

The proposed expansion of the commercial and light industrial park is in response to the growing demands for warehouse space in Windward Oahu, and will compensate for the loss of commercial warehouse space in downtown Kailua and other densely populated residential areas. The proposed development is consistent with existing city and county of Honolulu's policies and vision and will be developed over a span of eighteen years. The development would occur in four phases. First phase would include overall site work and infrastructure development. Subsequently, warehouse structures would be constructed gradually and at a somewhat constant rate to meet the demand.

The proposed commercial warehouse park would be built using sustainable technologies and approaches in order to reduce the ecological footprint and to mitigate impacts on the community. The expressed goal of the development is to acquire Silver level of the leadership in Energy and Environmental Design (LEED) for the proposed Kapa'a Light Industrial Park. It is intended to reduce and mitigate potential impacts of the proposed development by utilizing sustainable construction technologies and approaches, in terms of site development, water use efficiency, wastewater disposal options, energy demand, air quality, noise control and resource considerations.

The proposed expansion will encompass all or portions of three contiguous land parcels, two of which require zone change as a prerequisite to construction of the warehouse development. This draft Environment al Assessment is prepared as part of zone change application to be submitted to the City and County of Honolulu Department of Planning and Permitting to allow the proposed expansion. Since a small portion of the site is also located within the Special Management Area (SMA), an SMA permit would also be necessary for the project.

F. Project Setting

The proposed project site is located on the windward side of Oahu in the Kapa'a Valley. The valley is currently used for intensive and light industrial activities. The valley has been significantly altered over the past decades; primarily by quarry and land fill operations. The proposed site is comprised of all or portions of three contiguous land parcels, identified by their Tax Map Key numbers as TMK: 4-2-15:001; portion of TMK: 4-2-15:008 and TMK: 4-2-15:006, with a total land area of 78 acres, of which about 60% would be used to build warehouse building, roads, parking and other ancillary facilities and 40% to be left as open space.

Two of the three parcels, namely, TMK: 4-2-15:006, and portion of TMKs 4-2-15:001, would require a zone change from General Preservation (P-2) to Intensive Industrial (I-2) as a zoning requirement for the proposed warehouse expansion. A zone change to I-2 is therefore sought for these two parcels. The third parcel, TMK 4-2-15:008, is located at the center of the proposed site, and is already within the Intensive Industrial District and encompasses more than 30 existing commercial warehouses.

The site is located in a plateau at the foothills of Ko'olau and established by deposition of tailings and overburden materials and wastes from quarry operations, which occurred between the 1940s up to the early 1990s. The eastern portion of the property has a relatively flat topography established by deposition of quarry spoils and residential solid wastes in early 60s. A drainage canal, which runs along the Kapa'a Quarry Road, defines the eastern boundary of the site. The remainder of the site, which is located south of Kapa'a Stream, is also relatively flat and has higher elevations. This portion of the land is formed by deposition of tailing from quarry operation during the 60s. Access to the site is by the Kapa's Quarry Road, which runs between Mokapu Boulevard and Kalanianaole Highway.

The close proximity to the Kawainui Marsh and the already poor water quality of the Kapa'a Stream, which runs along the northern boundary of the proposed site, mandate the use and implementation of environmentally responsible development approach a prime responsibility. A large array of mitigation measures would be used to decrease any possible impacts on the environment and community.

As part of the environmental mitigation the developer has already commenced construction of a 15- acres wildlife sanctuary developed on restored wetland area within one of the parcels. The wildlife sanctuary will provide a habitat for endangered Hawaiian birds and other indigenous flora and fauna. The habitat restoration includes the construction of three cascading ponds and clearing of the thick vegetations of mainly invasive plant species. The wildlife sanctuary and wetland restoration will be secured by 6,000 linear feet of special wildlife fence to keep out predators, such as feral cats.

G. Project Funding

The development of the proposed Kapa'a Light Industrial Park project will be privately funded. Some federal funds will be available to the developer and selected environmental groups, who will maintain the wildlife sanctuary.

H. Relationship to Plans, Policies and Controls

Plans, policies and controls considered in the evaluation of the proposed action are as follows:

State Land Use Districts
Honolulu City and County Land Use Districts
Honolulu City and County Land Use Ordinance
Honolulu City and County General Plan
Koolaupoko Sustainable Communities Plan

I. Probable Impact

Impact associated with the proposed warehouse development can be classified in short-term and long-term effect. Short-term impacts are those related to construction activities. Long-term effects are those related to the operation of the warehouse. These include impacts on watershed, air, flora and fauna, resource utilization, infrastructure, traffic, public health and safety as well as socio-economic, and cultural and historic resources and impacts on the community in specific and the region in general.

The development of the proposed Kapa'a Light Industrial Park would occur incrementally over a span of 18 years. The short-term impacts will obviously occur during this span of time, whereas the long-term impacts occur during and after completion of the development.

Short-Term Impacts

The construction of the proposed warehouses development would include standard construction methods for site development, such as grading, installation of drainage and utilities infrastructure, roadway construction, as well as construction of warehouse structures. Using mitigating measures such as soil erosion control, Best Management Practices (BMPs) and noise and air control measures would keep impacts during construction within acceptable levels. In addition to mitigating measure used in conventional construction the proposed development concept for this project would entail methods of sustainable developments. This would further decrease impacts during construction. During construction there would be increase in vehicular traffic, which will require short-term traffic mitigation and coordination.

The short-term impacts from construction can be categorized into site development work and construction of individual warehouse buildings. Site development work would include earthmoving work and infrastructure and road construction, which would involve use of heavy machinery. During this period, environmental impacts from soil erosion and potential contaminated run-off discharges, as well as noise and air pollution would be mitigated with implementation of Best Management Practices such as dust control measures, using muffling measures for running equipment and other effective measures.

After the site has been developed the construction of individual warehouse structures would cause other short-term impacts, which would, however, be significantly less intrusive than those during site development. Main impacts from warehouse construction would be during building of the warehouse shell, with cranes, increased numbers of heavy trucks and the use of construction equipment. Once the building shell has been completed construction activities would be mainly inside the buildings, with significantly less impact to the surrounding.

Summarizing, short-term impact would occur only over short durations and could be effectively mitigated. Short-tem impacts are not expected to be significant; especially

since effective conventional and advanced construction impact mitigation measures would be employed.

Long- term Impacts

Long-term impacts would result from operation of the proposed warehouse park after construction is completed, which would also include the time period between various construction phases. Main long-term impacts include, vehicular traffic, potential water quality due to discharges of run-off and wastewater disposal, visual impact, noise and impacts on environment and resource utilization. The sustainable measures that would be used for the proposed warehouse park would be very effective to lower emissions from the site as well as lower the resource utilization due to energy and water savings and generation of renewable energy on the site.

In the long-term, the project would not have adverse environmental effect because of the comprehensive list of mitigation measures to minimize its ecological footprint. The project will improve the business infrastructure in the Koolaupoko region and will promote development of a more vibrant economy for windward Oahu and demonstrate effectiveness of green, responsible and sustainable development.

J. Alternatives Considered

No Action

The "No Action" alternative would mean that the land within the proposed site would essentially remain in its current state. There would be some, yet limited, additions to the warehouse space in on site. However, a planned commercial warehouse park with a sustainable framework would not be realized. As a result, there would be relatively little commercial space as necessary to sustain commercial basis for the vibrant windward community unity. This alternative is not realistic for the community and not acceptable to the owner for highest and best utilization of his property.

Alternative: Scaled Down Development - Warehouse development on only one Parcel

This alternative would limit the warehouse development to only parcel TMK 4-2-015:008. This parcel is already within the Intensive Industrial District (I-2) and no zone change would be required for the development of future warehouses. The two parcels, TMK 4-2-015:001 and 4-2-015:008 would not be rezoned and the current land use would basically remain as is. This alternative does not present the highest and best use for the land resources. Development using sustainable technologies requires a higher initial commitment of resources than conventional warehouse development. The extent of future

development of warehouses space would be limited which would reduce the viability of investment for a truncated project. This in turn would result in spread of warehouse development in other parts of the windward community and reducing the potential benefits for the community.

Leaving the two parcels TMK 4-2-015:001 and 4-2-015:006 out of the development, would result inefficient use of a resource (land) and limit the opportunity value of the land. It further limits the highest and best use for the land. In addition, the existing runoff patterns and surface flows to Kapa'a stream will continue to contribute to degradation of water quality in Kapa'a Stream. This alternative will also contribute to maintenance of unpleasant view plain for the area. Developing these two parcels would improve the hydrology and water quality of the Kapa'a Stream.

This alternative would not be desirable since it would curb the achievable benefits to the community and would not mitigate avoidable environmental impact.

Alternative: Full Scale Development - Warehouse Development on the entire proposed site, using conventional development technologies

This alternative would result in development of the entire proposed site, comprised of three contiguous parcels, thereby maximizing the commercial warehouse space. This alternative will achieve highest and best use of land resource. Under this alternative, the site and warehouse buildings would be developed using conventional technologies and approaches for the development of the warehouse park. This conventional development scheme would result in an attractive commercial park development and the community could reap the full ecological benefit. Impacts on resource utilization and emission from the warehouse park, however, would not be as low as using sustainable technologies and development approaches. The anticipated investment costs for this alternative would be lower than for a warehouse development using sustainable technologies.

K. Irreversible and Irretrievable Commitments of Resources

The construction of the proposed Kapa'a commercial and Light Industrial Park would involve irreversible and irretrievable uses of energy, materials, labor and private funds. The construction of the warehouse development would proceed in phases. In each phase the site infrastructure (e.g. grading, and landscaping of the area, roadways, parking spaces, underground utility infrastructure, drainage systems with conveyance and detention basins, etc.) has to be constructed first, followed by incremental construction of individual warehouses, at a pace that is dictated by economic conditions. Therefore, commitment of significant financial and other resources for construction of the project infrastructure renders the cash for the development less attractive and diminishes the rate of return on the investment.

The commitment in energy, material, labor and finances to build the proposed warehouse development using sustainable technologies requires a higher initial commitment of resources than conventional warehouse development. The sustainable warehouse park, however, will result in less resource utilization, e.g. energy and water, and long-term adverse environmental impacts.

SECTION ONE

INTRODUCTION

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SECTION ONE

INTRODUCTION

1.1 Study Purpose

The purpose of this Environmental Assessment is to evaluate and present the impacts of expansion of the existing commercial warehouse complex along Kapa'a Querry Road in Kailua. The proposed development will encompass all or portions of three contiguous land parcels owned by Kapa'a III, LLC, two of which would require land use zone changes as a prerequisite to construction of the warehouse development. Since the proposed development meets the criteria for a "significant" zone change, this Environmental Assessment is prepared to be submitted, as part of Zone Change Application, to the City and County of Honolulu Department of Planning and Permitting. This Environmental Assessment addresses the impacts of the proposed development on existing infrastructure, physical, natural and socio-economic conditions of the project site, while providing mitigation methods for enhancing or eliminating adverse impacts of the project.

1.2 Proposed Action

Kapa'a III, LLC, is the owner of three parcels of land encompassing more than 443 acres in the vicinity of Kapa'a Quarry Road in Kailua, Oahu. A vicinity map indicating the general location of the property is depicted in Figure-1-1. More specifically, the property is comprised of a 22.26-acre parcel identified by TMK: 4-2-015-008 with urban land use classification and industrial Intensive, I-2, zoning. The second parcel has an area of 43.78 acres and is identified by TMK: 4-2-015-006 classified as General Preservation District, P-2. The remaining of the property consists of an approximately 5-acres portion with TMK: 4-2-015-001 located west of the H-3 Freeway right-of-way. The latter parcel extends east of the freeway and has a total area of a little more than 378 acres with P-2 zone designation, or Special Preservation Districts. Aerial extent of the combined three parcels is shown in Figure 1-2.

The property is located in a plateau established by depositions of tailing and overburden materials from the Kapa'a Quarry operation in the early 60s. At present, a portion of the property, i.e., the parcel with TMK: 4-2-015-008 housing more than 29 warehouses and Quonset huts, is leased to various commercial entities. The eastern portion of property defined by TMK: 4-2-015-006 has a relatively level topography established by deposition of quarry spoils and residential solid wastes in the early 60s. At present time, parts of this area, is used for commercial green waste handling and processing operation. The eastern boundary of the property is defined by a canal, which runs parallel to the Kapa'a Quarry Road and drains into the Kapa'a Stream before flowing through an existing culvert beneath the Kapa'a Quarry Road and into the Kawainui Marsh. The remainder of the property is defined by a portion of TMK: 4-2-015-001, located east of Kapa'a Stream which is contiguous to TMK: 4-2-015-008 and is mostly made of deposition of tailings from Quarry operations. This portion, which is relatively flat, has a P-2 zoning.

In light of the ever increasing demand for commercial warehouse space in the area. Kapa'a III, LLC, intends to apply for a zone change for its property, namely, parcel with TMK:4-2-15:006, and a 5.6-acre portion of parcel with TMK:4-2-15:001 located entirely east of the H-3 Freeway Right-of-way, from P-2 District designation to I-2 District designation. The zone change is

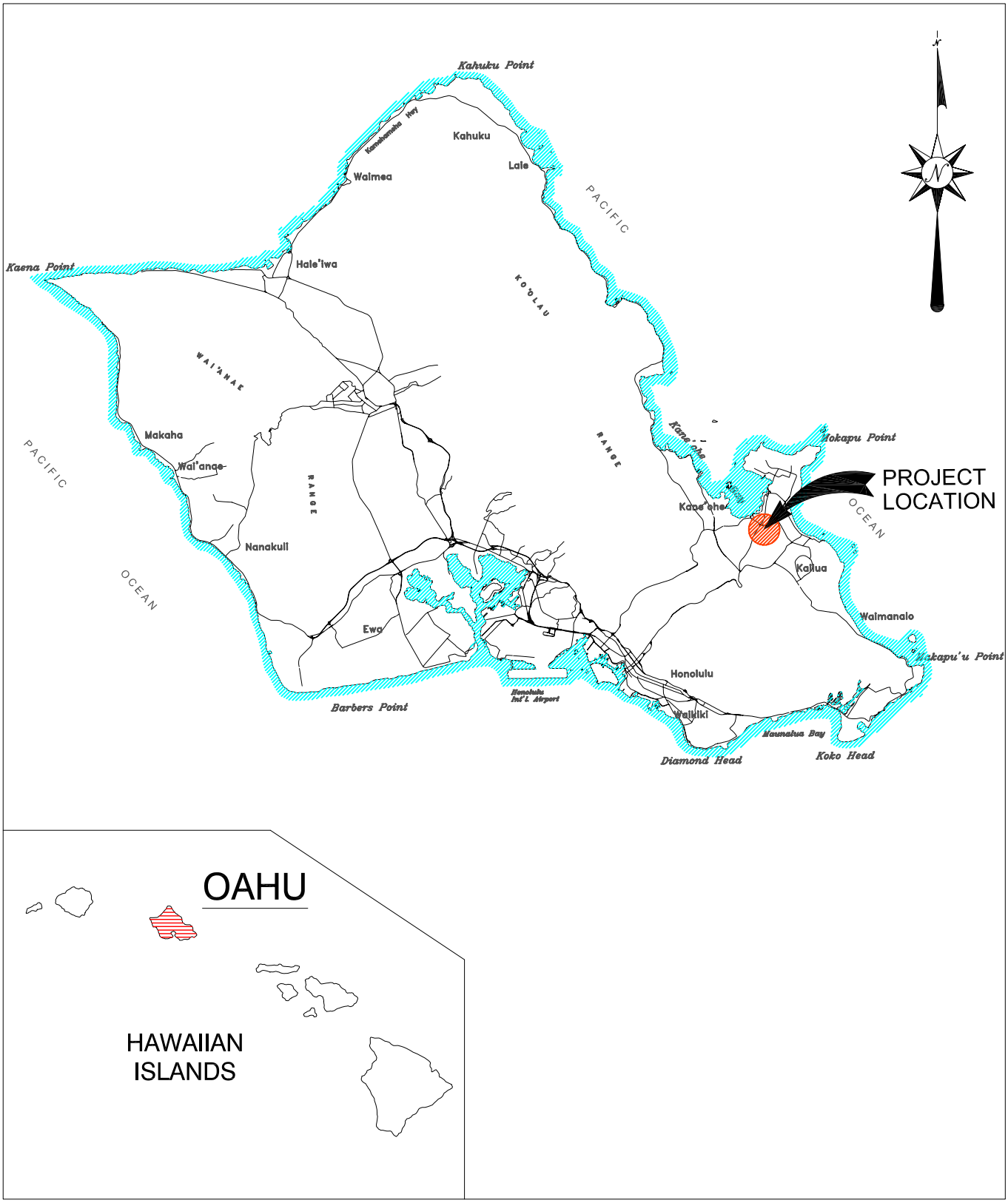

Figure 1-1 Vicinity Map

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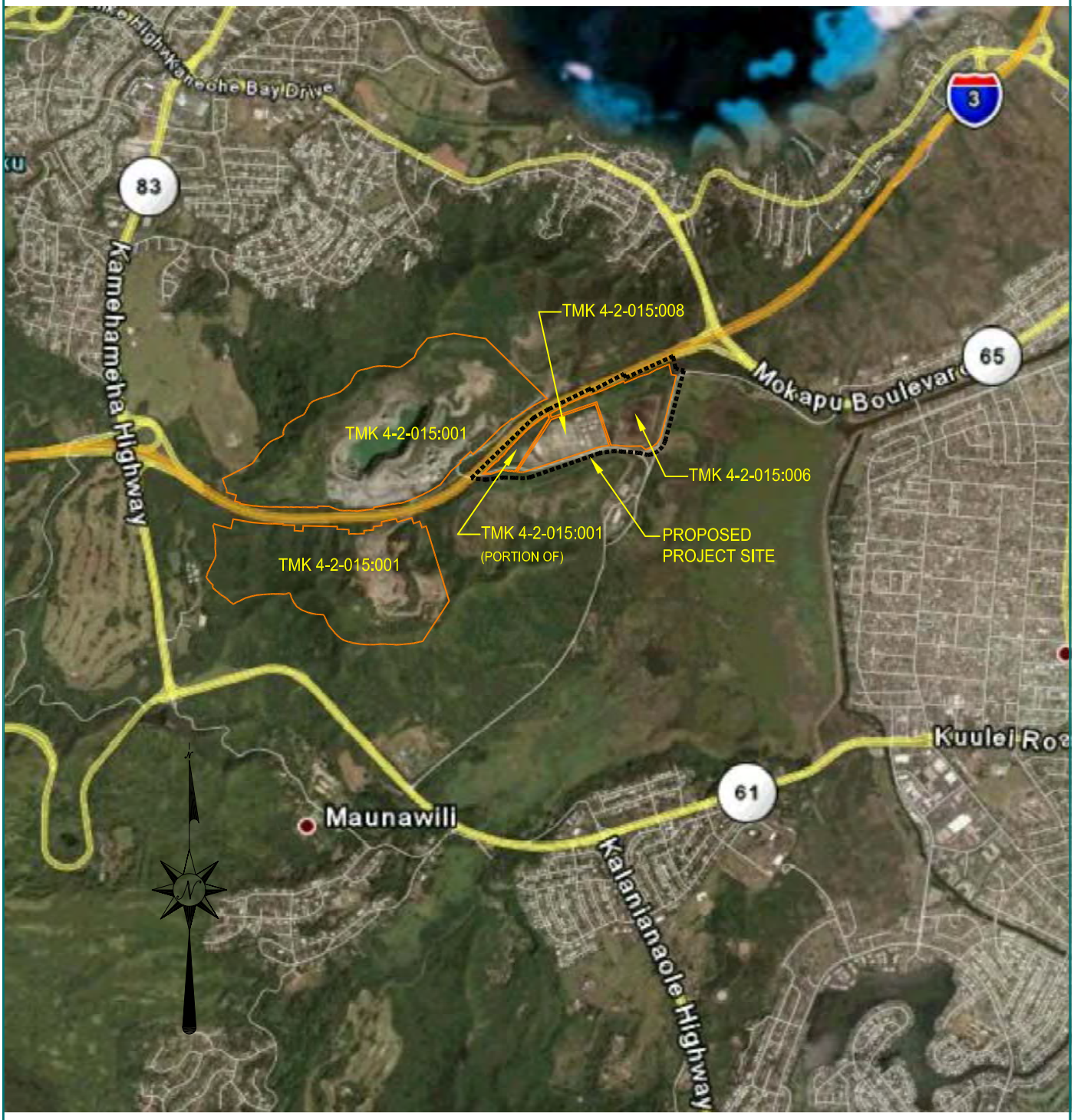

Figure 1-2 Aerial Vicinity Map

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necessary to allow expansion of the existing warehouse complex in accordance with a development master plan for the consolidated and re-zoned property which is briefly discussed in the following section. The City and County of Honolulu Land Use Ordinance describes permitted uses for different land use designations. Permitted uses for I-2 and P-2 zone designations are presented in Table 1-1.

Table 1-1 Permitted Land Uses in I-2 and P-2 Districts

Key of Land Use, as defied in Land Use Ordinance of the City and County of Honolulu, Chapter 21 of Revised Ordinances of Honolulu.

Land Use KEY:

Ac = Special accessory use subject to standards in Article 5
Cm = Conditional Use Permit-minor subject to standards in Article 5; no public hearing required (see Chapter 21, Article 2 for exceptions)
C = Conditional Use Permit-major subject to standards in see Chapter 21, Article 5; public hearing required
P = Permitted use
P/c = Permitted use subject to standards in Chapter 21, Article 5
PRU = Plan Review Use

Table 1-1 Permitted Land Uses in I-2 and P-2 Districts

Land Use Description	Land Use Key	
	P-2	I-2
Agriculture		
Agricultural products processing, minor		P/c
Agricultural products processing, major		P/c
Animal products processing		P
Aquaculture	P	
Centralized bulk collection, storage and distribution of agricultural products to wholesale and retail markets		P
Composting, major	C	P/c
Composting, minor	P/c	P/c
Crop production	P	
Forestry	P	
Sale and service of machinery used in agricultural production		P
Sawmills		P
Storage and sale of seed, feed, fertilizer and other products		P

Table 1-1 Permitted Land Uses in I-2 and P-2 Districts

Land Use Description	Land Use Key	
	P-2	I-2
essential to agricultural production		
Animals		
Game preserves	P	
Kennels, commercial		P
Livestock grazing	P	
Zoos	C	
Commercial and Business		
Amusement and recreation facilities, indoor	P/c	P
Automobile sales and rentals, including sales and distribution of automobile parts and supplies		P
Bars, nightclubs, taverns		P
Business services		P
Catering establishments		P
Convenience stores		P/c
Data processing facilities		P
Drive-thru facilities		P/c
Eating establishments		P
Financial institutions		P
Home improvement centers		P
Laboratories, medical		P
Laboratories, research		P
Neighborhood grocery stores		Cm
Offices, accessory		Ac
Photographic processing		P
Plant nurseries		P
Retail, accessory		Ac
Self-storage facilities		P
Trade or convention center	PRU	PRU
Veterinary establishments		P

Table 1-1 Permitted Land Uses in I-2 and P-2 Districts

Land Use Description	Land Use Key	
	P-2	I-2
Dwellings and Lodgings		
Dwellings, owner's or caretaker's, accessory		Ac
Dwellings for cemetery caretakers	Ac	
Hotels		Cm
Vacation cabins	Cm	
Industrial		
Base yards		P/c
Building or similar contracting and home improvement and furnishing services, and materials and equipment sales or distribution; provided incidental storage of materials or equipment is within fully enclosed buildings		P
Centralized mail and package handling facilities		P
Explosive and toxic chemical manufacturing, storage and distribution		C
Food manufacturing and processing		P
Freight movers		P
Heavy equipment sales and rentals		P
Linen suppliers		P
Manufacturing, processing and packaging, light		P
Manufacturing, processing and packaging, general		P
Maritime-related vocational training, sales, construction, maintenance and repairing		P
Motion picture and television production studios		P
Petroleum processing		C
Publishing plants for newspapers, books and magazines		P
Repair establishments, major		P
Repair establishments, minor		P
Resource extraction	C	P
Salvage, scrap and junk storage and processing		Cm
Storage yards		P/c
Warehousing		P
Waste disposal and processing	C	Cm
Wholesaling and distribution		P

Table 1-1 Permitted Land Uses in I-2 and P-2 Districts

Land Use Description	Land Use Key	
	P-2	I-2
Outdoor Recreation		
Amusement facilities, outdoor, not motorized		C
Amusement facilities, outdoor, motorized		C
Golf courses	PRU P/c	
Marina accessories	Cm	P
Recreation facilities, outdoor	Cm	
Social and Civil Service		
Cemeteries and columbaria	P	
Day-care facilities		P
Hospitals	PRU	PRU
Meeting facilities		P/c
Prisons	PRU	PRU
Public uses and structures	P	P
Schools, vocational, technical, industrial, trade		P
Universities, colleges	PRU	PRU
Transportation and Parking		
Airports	PRU	PRU
Automobile service stations		P
Car washing, mechanized		P/c
Commercial parking lots and garages		P
Heliports		P
Helistops		P
Joint use of parking facilities		Cm
Off-site parking facilities		Cm
Truck terminals		P
Utilities and Communication		
Antennas, broadcasting	Cm	C
Antennas, receive-only	Ac	Ac

Table 1-1 Permitted Land Uses in I-2 and P-2 Districts

Land Use Description	Land Use Key	
	P-2	I-2
Broadcasting stations		P
Utility installations, Type A	P/c	P/c
Utility installations, Type B	Cm	Cm
Wind machines		Cm
Miscellaneous		
Historic structures, use of	Cm	Cm
Joint development	Cm	Cm

Source: City and County of Honolulu Land Use Ordinance, May 1999, Table 21-3

1.3 Project Master Plan

The master plan for the proposed Kapa'a Light Industrial Park calls for expansion of commercial warehouse development and support facilities, loading docks, roadways, utilities and drainage infrastructure in accordance with a sustainable and sound development concept for the property. Elements of the project master plan are defined in the following paragraphs.

1.3.1 Conceptual Lay-out

The site of the proposed Kapa'a Light Industrial Park is comprised of all or portions of three contiguous land parcels with Tax map Key Numbers, TMK: 4-2-15:008, TMK: 4:2-15:001 and TMK: 4-2-15:006. As depicted in Figure 1-3, the central parcel, i.e. TMK: 4-2-15:008, contains twenty-nine warehouses consisting of steel framed and Quonset structures. In contrast, only a small portion of parcel within TMK: 4-2-15:001, is leased for commercial activities while the rest of the parcel including a southern slice indicated as (A) in Figure 1-3, and designated to be within the State Conservation District; is vacant and open space. Similarly, the extent of present land use in the northern parcel identified by TMK: 4-2-15:006, is limited to commercial green waste processing center and open space.

The proposed lay-out for the Kapa'a Light Industrial Park is shown in Figure 1-4. The development when fully completed will provide more than 662,000square feet of warehouse space, 9,690 linear feet of paved roadways, three two-bay and one three-bay loading docks, 570 parking stalls, more than 9,120 feet of drainage infrastructures including, concrete channels, pipes and grass swales, 123,500 cubic feet of detention volume for storm flows and

individual septic tanks for warehouse structures. The scope of the development shown in Figure 1-4, is summarized in Table 1-2.

Table 1-2 General Information about Three Contiguous Land Parcels Comprising the Site

Description		TMK parcels constituting proposed site		
		Upper portion of site		Lower portion of site
	unit	**4-2-15:001**	**4-2-15:008**	**4-2-15:006**
Size of land parcel	Acres	11.3 *(Note A)*	22.26	48.8
Existing State Land Use Designation	-	Urban *(Note B)*	Urban	Urban
Existing County Land Use Zoning (LUZ) District	-	P-2 General Preservation	I-2 Intensive Industrial	P-2 General Preservation
Proposed State Land Use Designation	-	Urban (unchanged)	Urban (unchanged)	Urban (unchanged)
Proposed County Land Use Zoning (LUZ) District	-	I-2 Intensive Industrial	I-2 Intensive Industrial	I-2 Intensive Industrial
Proposed developed area in parcel (incl. bldgs.+roadw.+open space)	acres	4.1	22.2	23.8
	sq.ft.	180,000	970,000	1,036,000
Existing building area in parcel	sq.ft.	None	197,000	None
Proposed building area in parcel with proposed LUZ	sq.ft.	**59,000**	**249,000**	**355,000**
Allowable building area with proposed LUZ; *using 80% max. building area criterion*	sq.ft.	144,000	776,000	829,000
Allowable Floor area with propose LUZ *using FAR - 2.5 (FAR = Floor Area Ratio)*	sq.ft.	451,000	2,424,000	2,590,000

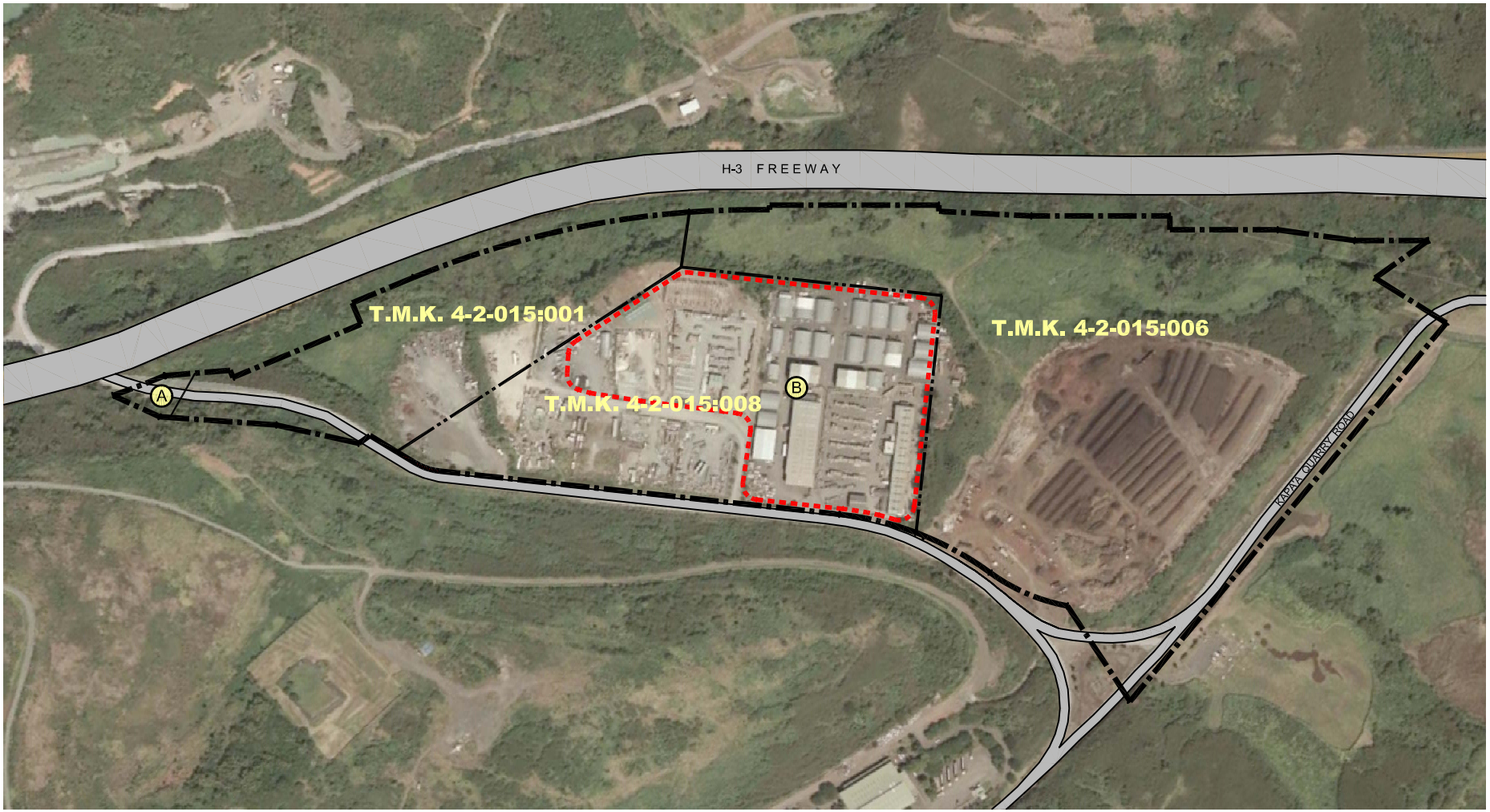

Figure 1-3
Existing Commercial Warehouses
on Project Site

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LEGEND:

Ⓐ — Portion of TMK 4-2-015:001 Designated "Conservation" State Land Use Zone
Ⓑ — (- - - - - - - - - -) Area Containing Present Warehouses and Commercial Development

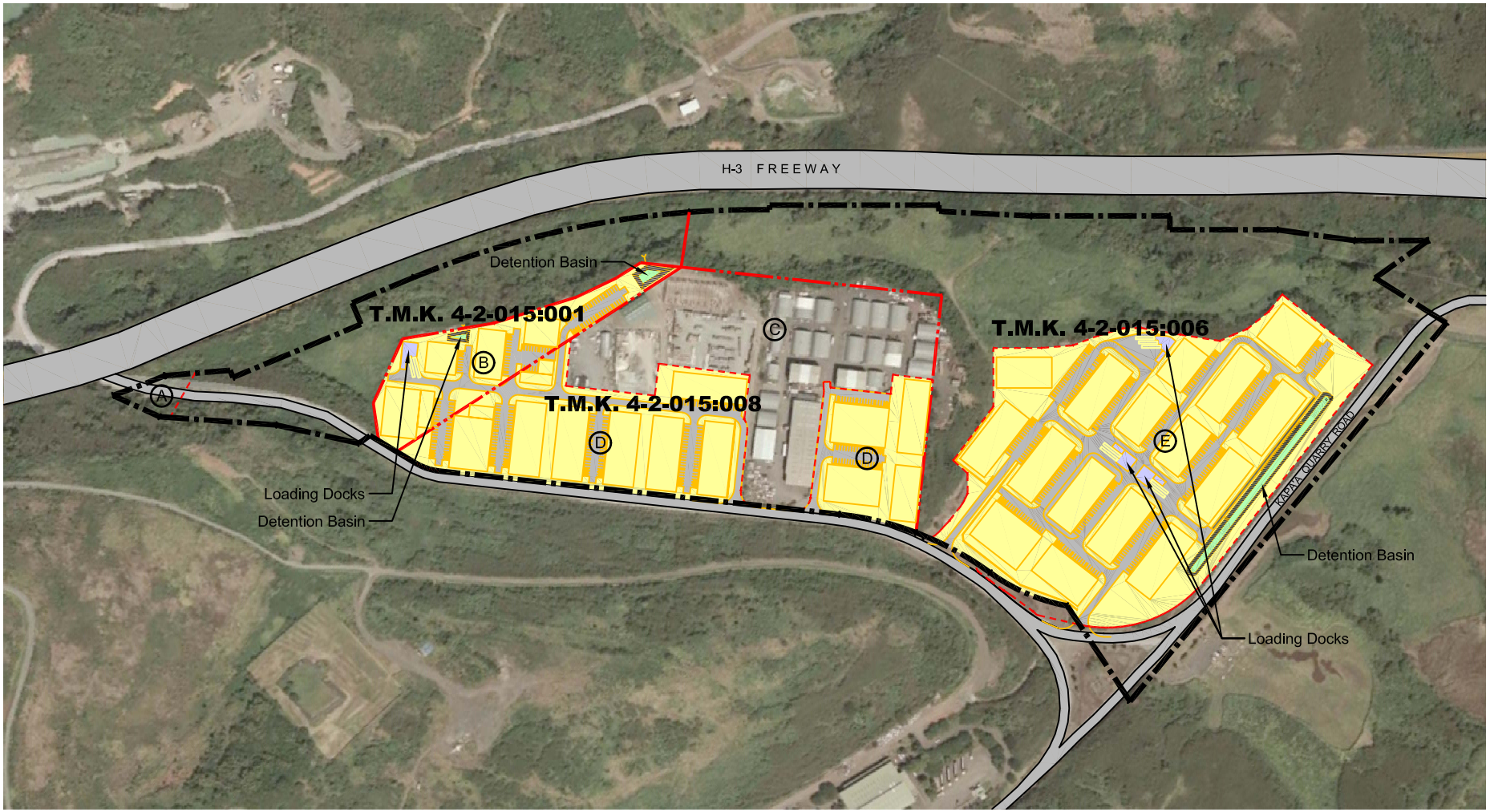

Figure 1-4
Proposed Development Layout

LEGEND:

- (A) — Portion of TMK 4-2-015:001 Designated "Conservation" State Land Use Zone
- (B) — Portion of TMK 4-2-015:001 with New Warehouses Development
- (C) — Portion of TMK 4-2-015:008 with Existing Warehouses
- (D) — Portion of TMK 4-2-015:008 with New Warehouses Development
- (E) — Portion of TMK 4-2-015:006 with New Warehouses Development
- External Property Boundary
- Internal Property Boundaries
- Boundary of Proposed Warehouse Development

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1.3.2 Key Components of the Proposed Warehouse Development

Warehouse Structures:

The development concept calls for blending of the new structures with the existing ones and the surrounding environment utilizing sustainable construction materials and methods. The structures will be designed for maximum energy efficiency, and based on green building concepts. The 35 new warehouse buildings will range in size from 5, 400 to 24,000 SF steel frame structures with metal sidings and will conform to the development standards for industrial districts, such as:

Maximum building area (percentage of zoning lot)	< 80%
Maximum density FAR (floor area ratio)	< 2.5
Maximum height	< 40 feet (as per zoning map)

Roadways:

The internal roadways will be constructed in conformance with standard details for public works with 11-feet wide paved traffic lane and 4-feet shoulder. A two-feet wide grated concrete channel along the centerline of the roadways will convey runoff to on-site detention basins. All paved surfaces shall use pervious pavement materials.

Parking Spaces:

The arrangements and dimensions of parking spaces would be in conformance with City and County of Honolulu Land Use Ordinance (LUO). The number of required parking spaces is a function of the size of warehouses, e.g. the floor area. One parking space must be provided for every 1,500 square feet of warehouse space. The total number of parking stalls for the entire development will be 569, which far exceeds the minimum requirement of 446 stalls. Parking spaces would have pervious gravel surfaces in order to reduce runoff. Handicap parking spaces would be furnished for all warehouses in accordance with ADA standards.

Loading spaces:

The arrangements and dimensions of loading spaces for warehouses would be in conformance with City and County of Honolulu Land Use Ordinance (LUO). The number of loading spaces per warehouse is a function floor area of the warehouse. The total number of loading spaces would be 94 stalls. Loading spaces would have gravel surfaces in order to reduce runoff.

Loading docks:

There are no strict requirements for the minimum number of loading docks (loading docks are different from loading spaces). Rather, the number and dimensions of loading docks would be

determined by the anticipated specific demand of each warehouse. Figure 1-5 shows a 3-D rendering of two detached loading docks, which would serve the warehouses in the lower portion of the proposed site. Large trucks could back-up against the loading dock platform, where forklifts would transfer cargo from holding areas to the trucks. The dimensions and arrangements of the external loading docks would conform to industry standards. Every external loading dock could accommodate between two and three large trucks. The detached loading docks in the lower portion of the proposed site could serve seven large trucks and docks in the upper portion of the proposed site could serve two.

Figure 1-5 Detached Loading Dock within New Warehouse Development

Wastewater Collection and treatment:

Due to the commercial nature of the development, wastewater generated on-site is not going to be significant. On-site wastewater treatment systems (septic tanks and leaching fields) will be used for collection and treatment of wastewater from the development. Use of water saving fixtures in construction would ensure reduction in wastewater flows in conformance with building codes and health standards. No other wastewater discharges will be anticipated from the development.

Strom Runoff Collection and Detention System:

A network of concrete channels and pipes will collect and convey storm runoff from impervious surfaces throughout the development into a series of on-site detention basins. In the upper section of the development, two detention ponds with total volume of 53,000 cubic feet will serve to detain storm flows prior to discharge into the Kapa'a Stream. Similarly,70,500 cubic feet of detention volume will be provided in the lower section of the development. Runoff collected in these ponds will be released into the Kapa'a Stream once the storm is subsided.

1.3.3 Project Development Milestones and Project Schedule

The proposed Kapa'a Light Industrial Park would be developed in four phases. Figure 1-6 shows the spatial arrangement and the extent of the warehouses development for each phase of the project.

Figure 1-6 Location and Extent of Development Phases A through D

The four development phases are as follows:

- Phase A entails construction of about 80,000 square feet of new warehouse space on the upper section of the development on parcel TMK 4-2-015:008. This parcel is already designated as Intensive Industrial District (I-2) and requires no zone change. The anticipated completion date for the site development work for Phase A (e.g. roadways, utilities, drainage infrastructure) is late 2009. Construction of warehouse structures for this phase of the project is anticipated to last for two years with a completion date of 2011.

- Phase B entails construction of approximately 147,000 square feet of new warehouse space on parcels TMK 4-2-015:008 and TMK 4-2-015:001. This phase also include construction of new roadways, utilities and a new detention pond with a volume of 40,000 cubic feet. The anticipated completion of site and infrastructure for Phase B would be in 2012. The proposed start of construction of warehouses would be in 2012 and all warehouse construction activities of Phase B are to be completed by late 2014.

- Phase C entails construction of about 81,000 square feet of new warehouse space on parcels TMK 4-2-015:008 and TMK 4-2-015:001. This phase also include construction of new roadways, utilities and a new detention pond with a volume of 13,000 cubic feet. The anticipated completion of the site development work for Phase C (e.g. roadways, utilities, drainage infrastructure) would be in 2014. The proposed start date for construction of new warehouses would be in 2014. Construction activities for this phase of development will be completed by 2016.

- Phase D entails the construction of more than 355, 000 square feet of new warehouses on parcel TMK 4-2-015:006. Infrastructure in this phase of project would include roadways, utilities and a 70,500 cubic feet detention pond. The anticipated completion of the site development work for Phase D (e.g. roadways, utilities, drainage infrastructure) would be late 2016. The proposed start of construction for new warehouses would be in 2016 with a target completion date 2026.

Since the construction of warehouses would be carried out sequentially in four development phases, the available warehouse space would grow over time. Figure 1-7 shows the anticipated growth of available warehouse space during each of the planned four phases. The curves indicate the anticipated timeframe for the warehouses to reach 100% of their total area; as an example, the construction of the total warehouse space of Phase D, about 355,000 square feet, would be accomplished over a time period of 10 years, from 2016 the 2026.

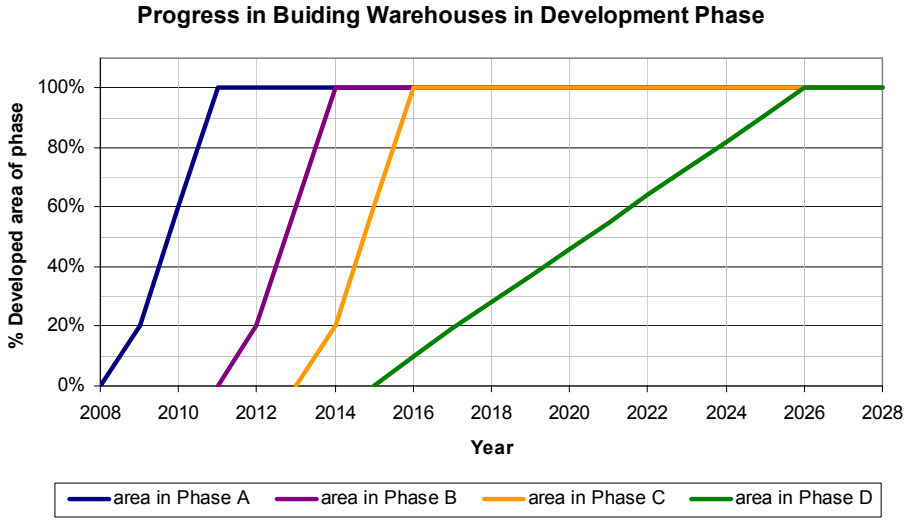


Figure 1-7 Rate of Warehouse Space Development in Phases A though D

Figure 1-8 shows the anticipated growth of overall warehouse space for the entire proposed Kapa'a Light Industrial Park. As Figure 1-8 suggests, the growth in warehouse space over time would follow an approximate linear function, indicating a near constant pace of addition of warehouse space. These drawn-out increments of warehouse space over time would represent a gradual rather than steep pace of development. The gradual development would minimize environmental impacts that might arise and would facilitate implementation of mitigating measures.

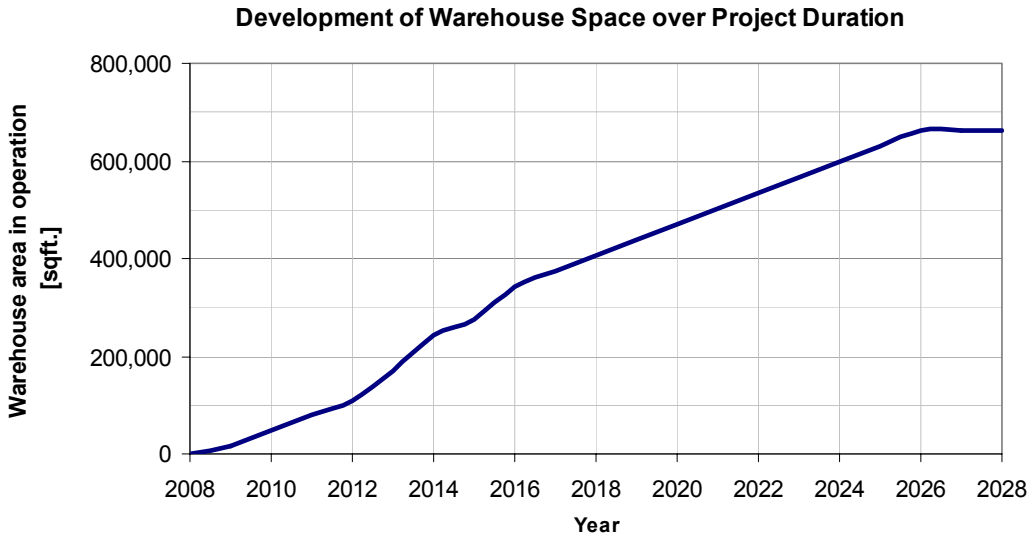


Figure 1-8 Growth of Total Available Warehouse Space over Time

1.3.4 Sustainable Development Strategies Considered

The proposed Kapa'a Light Industrial Park would utilize sustainable design and operational features in order to lower the ecological footprint and impacts on the community and the natural environment. The design goal for the proposed Kapa'a Light Industrial Park is to acquire certification under LEED concept (Leadership in Energy and Environmental Design).

The following sustainable design and construction technologies and approaches are considered for the proposed Kapa'a Light Industrial Park. The process of LEED certification is basically an accumulation of points, which are awarded for certain sustainable measures implemented in the design, to surpass the minimum point threshold to qualify for a certain certification level. The design goal is to acquire LEED Silver certification.

The following areas represent possible sustainable technologies or approaches that would be considered for the proposed Kapa'a Light Industrial Park. The final design will determine which of these sustainable technologies and approaches would be adopted.

Prevention of pollution during construction activity: During construction, loss of soil would be prevented by using Best Management Practices (BMPs) for water pollution. Topsoil would be stockpiled for reuse. Sedimentation in receiving streams would be prevented. Air pollution would be prevented by appropriate means.

Site selection: The proposed Kapa'a Light Industrial Park would be developed on an appropriate site and any environmental impact from the development would be reduced.

Development connectivity: The proposed development would be built in urban areas with existing infrastructure. Natural habitats and resources would be protected. The proposed commercial warehouse park would be an expansion of an existing commercial warehouse development, which has grown over the past decades into an important site of commercial activity within the Koolaupoko region. Therefore infrastructure is already in place. The proposed Kapa'a Light Industrial Park, as a multi-phased expansion project, would implement new or enlarged infrastructure, which would use sustainable design and construction methodologies. The developers of the Kapa'a Light Industrial Park have committed themselves to develop and maintain a wildlife sanctuary adjacent to the site of the new commercial development.

Brownfield Redevelopment: The proposed site would be built on deposits from previous quarry and landfill operations. The proposed development would therefore have to cope with construction methods that are more difficult than using land with undisturbed topography. Using and restoring the proposed site would mitigate current environmental impact on downstream wetlands that is resulting from erosion and runoff from landfill.

Alternative Transportation: The proposed development would actively support alternative modes of transportation.

- Since, at present, there is no public transportation connecting the proposed site with other urban centers, a public transportation service would be implemented, either by public transportation (e.g. TheBus) or by private shuttle buses.
- The use of bicycles would be promoted by installing secure bicycle racks and providing changing and shower facilities at appropriate locations within the development.
- The use of low-emitting and fuel-efficient vehicles would be promoted by providing preferred parking to such vehicles as well as for car-pools and van-pools.

Protection and restoration of habitats: The developers of the proposed Kapa'a Light Industrial Park have commenced the development of a 15 acre wildlife sanctuary adjacent to the site of then Kapa'a Light Industrial Park. The wildlife habitat will include the construction of three cascading ponds and the installation of 6,000 linear feet of 6-feet high wildlife security fence to keep feral cats and other predators of birds out of the sanctuary.

Maximizing Open Space: The proposed development would use open space design. 40% of the total area of the site would be kept or improved as open space. Half of the open space (15 acres) would be developed and maintained as a wildlife sanctuary.

Quantity and quality control of stormwater: The proposed site would de designed to improve water quality in the adjacent Kapa'a Stream. Pervious surfaces would be maximized, such as pervious paving, vegetated roofs and other construction methods, to enhance infiltration and recharging the water table in the ground. Harvested rainwater would be used for irrigation, toilet or urinal flushing as well as other custodial uses. Stromwater runoff would be treated using recognized Best Management Practices (BMPs). Infiltration would be promoted, wherever possible, thereby reducing pollution levels. Erosion would be diminished which would result in lower turbidity and suspended solids in the runoff water.

Heat island effects: Appropriate measures would be used to reduce heat islands in order to mitigate impact on microclimate. Heat islands are defined as man-made thermal gradient differences between developed and undeveloped areas. Mitigation measures could include selecting appropriate roofing material, using pavement material with low solar reflectance index, open grid pavement (where appropriate), using vegetated roofs, planting trees and other measures.

Light pollution reduction: Lighting schemes for the proposed development park would be used to minimize light pollution, e.g. reduce sky-glow to increase night sky access and improve nighttime visibility through glare reduction. Since the development is located next to the important Kawainui Marsh, special attention would be given to avoid light pollution to affect the adjacent wilderness areas.

Water Efficient Landscaping: The proposed development would limit or eliminate the use of potable water or other natural surface or subsurface water resources available on or near the project site, for landscape irrigation. This could be realized by selecting appropriate plants for landscaping, increase the irrigation effectiveness through appropriate irrigation measures and the use of harvested rainwater or recycled water.

Effective wastewater technologies: The proposed design would minimize the amount of wastewater generated in the proposed development. The wastewater would be treated on-site, preferably with septic tanks combined with leach fields. High-efficiency fixtures or waterless urinals would achieve wastewater reduction. The treatment of wastewater on-site would eliminate the need to convey the wastewater to treatment plants in the area, which are currently already close to design capacity. The proposed design would target a significant wastewater reduction of between 20 to 30%, relative to conventional warehouse designs.

Energy efficient buildings and refrigeration management: All building within the proposed development would be designed to achieve significant energy savings. The refrigeration systems would only use environmentally friendly and safe refrigeration fluids.

Optimization of energy performance: The overall usage of energy would be reduced significantly below the consumption rate of conventional warehouses, which are not or only limited energy-efficient. Energy savings would be achieved by passive and active measures. Passive measures would include insulation, heat reflective windows, light or reflective

building skin, natural lighting, shading to avoid heat buildup, avoidance of heat islands and other measures. Active energy savings measure would include smart building controls, high-efficiency air-conditioning or ventilation, advanced lighting, evaporative cooling and other measures.

Renewable energies on-site: Part of the electricity and heat demand of the proposed warehouse development would be generated by renewable energy applications on-site. This would lower the baseline and peak electricity demand and thus would mitigate possible capacity bottlenecks for utilities serving the proposed development.

Effective design, commissioning and process control: Effective design of sustainable systems of the development would be accomplished by implementing commissioning and process control as early in the realization as possible. Design parameters would be effectively measured and verified during the project in order to meet the design goals for energy savings and resource conservation.

Recycling: The proposed development would implement a structured plan for recycling of glass, plastic, office paper, newspaper, cardboard and organic wastes. The warehouse park management would make appropriate recycling bins available and would administer or oversee recycling operation.

Construction waste management and material reuse: A construction waste management program would be used that would recycle and reuse significant portions of construction waste.

Rapidly Renewable Materials: The proposed development would preferably use building material that are rapidly renewable, rather than using long-cycle renewable materials.

Safeguarding indoor air quality: The proposed Kapa'a Light Industrial Park would utilize measures to improve and safeguard air quality by using some or all of the following measures:

- The buildings would be controlled in regard to tobacco smoke, in accordance to strict Hawaii laws and regulations.
- Outdoor air delivery monitoring would be adopted to safeguard that no dangerous or unwanted built-up of indoor pollutants occurs, such as carbon dioxide (CO_2).
- Appropriate space ventilation would provide building occupants with sufficient air ventilation to maintain indoor air quality at a high level. The proposed development would use advanced HVAC technologies to provide sufficient ventilation without incurring high energy loads.

Low emitting building materials: The use of low emitting construction and outfitting, materials would be consequently promoted and implemented. Only low emitting adhesive, sealants, paints, coatings and carpets would be considered for the warehouses.

Effective lighting: The use of individually controllable lighting would be promoted as well as a significant portion of natural lighting through windows and sky-lights. This would increase occupants' well being and save energy and thus costs.

Controllability of thermal comfort: The use of advanced indoor climate control systems would increase occupant's comfort and would contribute to energy savings.

Innovation in design and operation: The proposed development would incorporate both innovative and proven technologies to achieve high resource conservation, energy savings and occupants satisfaction. Design, construction and operating professionals of the proposed Kapa'a Light Industrial Park would cooperate to achieve innovative and sound solutions to many energy and environmental challenges that will face any future commercial development.

1.3.5 Wildlife Sanctuary on Restored Wetland within the Proposed Site

The developer of the proposed Kapa'a Light Industrial Park has started construction of a wildlife sanctuary on a 15-acre restored wetland area within parcel TMK 4-2-015:006. The wetland restoration project seeks to create, restore or improve open space so that it can provide much needed nesting and living habitat for endangered indigenous birds and other animals. This conservation project is ongoing irrespectively on the outcome of the request for zone change for the subject land parcels.

The wetland conservation program commenced in August 2008 and is partially funded with federal funds. The objective of the wetland conservation project is the creation and restoration of a high-quality habitat for indigenous water birds and other indigenous animals in the vicinity of the Kawainui Marsh. Figure 1-9 illustrates the location and size of the wildlife sanctuary now under development. The main efforts of the wetland conservation program are comprised of the following:

- Construction of 6,000 linear feet of special wildlife and security fence to keep out feral cats, which are ferocious predators of the indigenous bird community. The special fence has a height of 6 feet and is equipped with a special fence top overhang at the outside to avoid cats from climbing up and over the fence. The fence will effectively protect an area of 15 acres for the protected bird and wildlife habitat.

- Construction of three cascading ponds. The wetland conservation and wildlife refuge area will create three cascading ponds, which will be fed by the Kapa'a Stream. The ponds will provide ecologically important water habitat for birds and indigenous aquatic life.

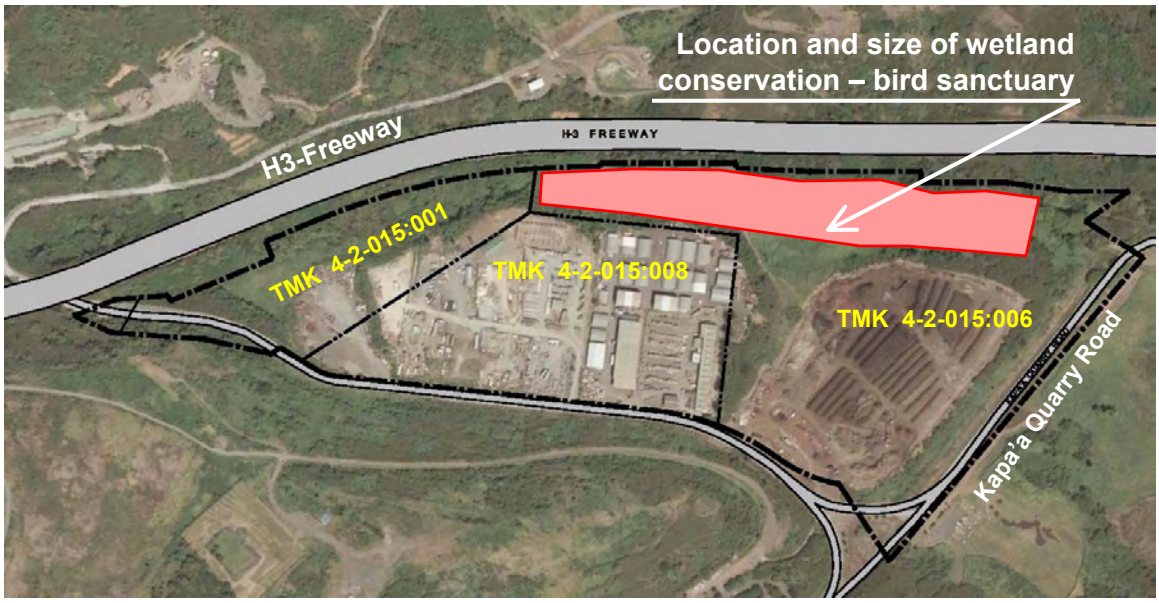
- The area will be scrubbed of the current dense vegetation that primarily consists of invasive species. The objective is to provide suitable vegetation for a secure habitat for indigenous birds.

- Trees and shrubs and vegetation will be planted that are compatible and conducive to an indigenous wetland environment.

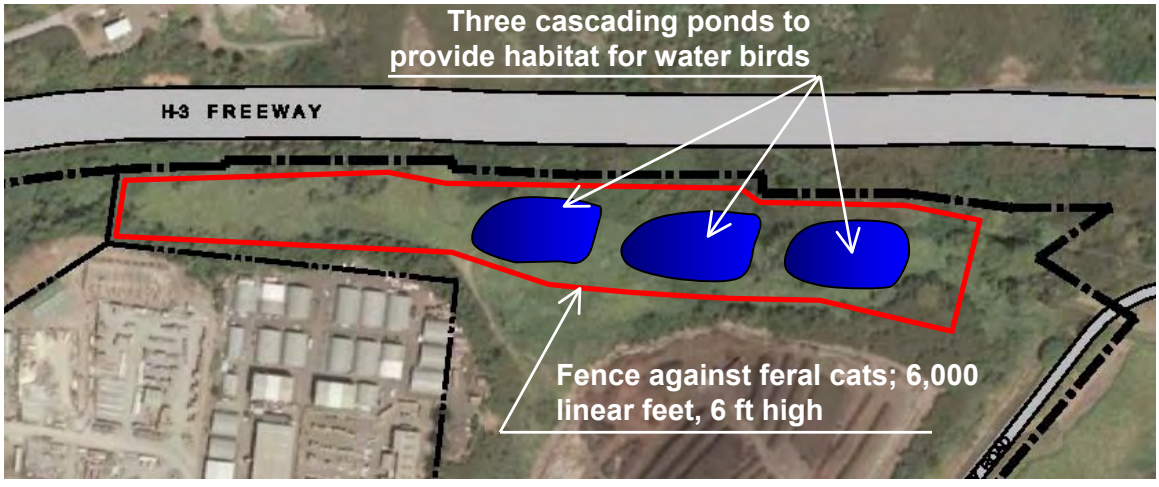
- On a continuous basis environmentally sensitive prevention, avoidance, monitoring and suppression strategies will be employed to manage weeds, insects, diseases, animals and other organisms that might directly or indirectly cause damage and disturbance to the habitat.

- The restored wildlife habitat will be administered by local environmental organization with close coordination with the developer.

In summery, the wetland conservation program will create a valuable improvement to the existing habitat in the vicinity of the Kawainui Marsh and will provide a secure environment for endangered species. These measures will be environmentally beneficial and will significantly improve the quality of open space in the vicinity of the proposed Kapa'a Light Industrial Park.



Overview



Detail

Figure 1-9 Wetland Conservation Area Built as a Bird Sanctuary by the Developer

SECTION TWO

DESCRIPTION OF EXISTING ENVIRONMENT

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SECTION TWO

DESCRIPTION OF EXISTING ENVIRONMENT

This section describes the physical, environmental and socio-economic settings at the proposed site for the Kapa'a Light Industrial Park.

2.1 Physical Setting

2.1.1 Climate

The proposed site for the Kapa'a Light Industrial Park, is located south of the H3-Highway Right-of-way and west of the Kapa'a Quarry Road, approximately one mile away from the ocean in windward Oahu. With the exception of few months in the winter, like most areas in the windward Oahu, the climate in the project area is characterized by its elevation above sea level, distance from the ocean and exposure to the prevailing trade winds. The general climate is sunny and relatively uniform year-round. Day time temperatures range between 73 to 80 F, whereas at night the temperatures dip into 60's.

The rainfall map of Oahu as shown in Figure 2-1, depicts the mean annual precipitation in windward Oahu to range from 60 to 120 inches, where higher rainfall occurs in higher elevations of the Ko'olau range due to orographic lift caused by the Koolau mountain ranges. The rainfall at the project site, however, is due mostly to non-thermally induced trade wind showers or large weather systems over the entire island. Mean annual Rainfall at the project site is about 50-60 inches. Most of this rainfall occurs during winter months from December through March.

2.1.2 Geology

The proposed industrial Park site situated in the Kapa'a valley, is flanked by the Ulumawao mountain ridge in the southeast and the Mahinui mountain ridge in the northwest. The geological formations of the hills surrounding the valley are mainly defined by very dense rock formations of volcanic origins. Geologic map of Oahu depicted in Figure 2-2 shows that at higher elevations, the geology is mostly defined by volcanic rocks of Kailua volcanic series characterized by massive basaltic flows which contain numerous dike structures filled with secondary minerals. In contrast, the proposed project site located in the lower reaches of Kapa'a Stream, the geology is defined by terrigenous alluvium and fine organic mud. In this lower part of the watershed much of the surface has been impacted by quarry and land filling operations, which have resulted in deposition of more than 20 feet of quarry tailings and municipal solid wastes.

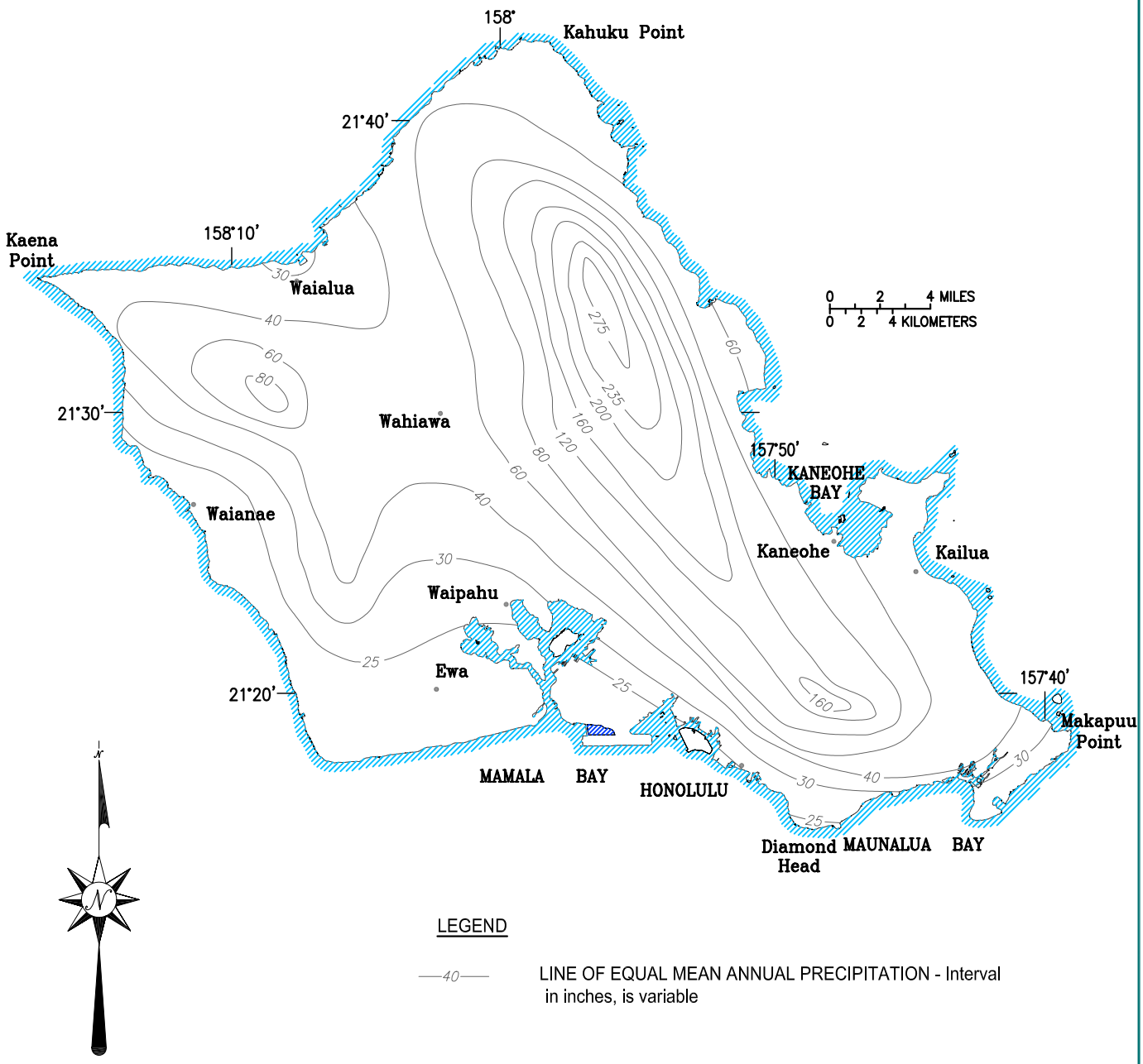

Figure 2-1 Mean Annual Precipatition for Oahu

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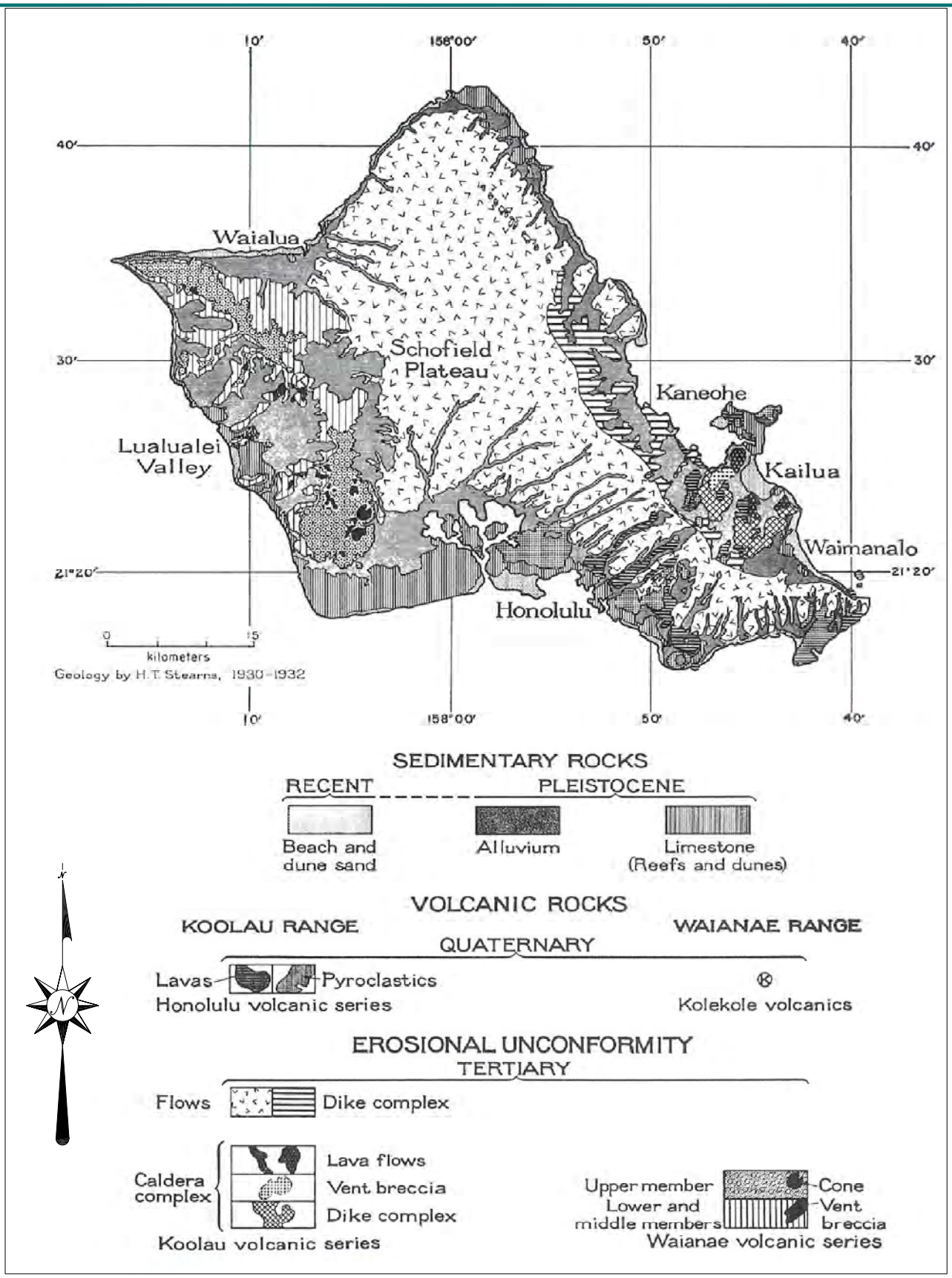

Figure 2-2 Geological Features of Oahu

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2.1.3 Topography

The existing topography at the proposed site is characterized by gently sloping terrain from southwest to the northeast and Kapa'a Stream. The natural topography at the site has historically been heavily impacted by quarry and landfill operations in the 1940s, 50s and 60s. The most recent topographic map of the proposed site depicted in Figure 2-3, shows that the relatively flat eastern section of the site is separated from the lower section by a narrow 25 to 30 feet drop line which meanders northward before ending at the right bank of the Kapa'a Stream. Ground elevations in the western section of the site, range from 80 to 95 feet above Mean Sea Level, MSL, and gently slope towards the Kapa'a Stream. The northern section of the site is formed by a relatively flat plateau bounded in the north by Kapa'a Stream and in the west by a drainage ditch which runs along Kapa'a Quarry Road and drains into the stream. Ground elevations in this section range between 20 and 50 feet above MSL with a gentle slope in easterly direction.

2.1.4 Soils

In reference to the U.S. Natural Resources Conservation Service (NRCS) soil classifications, originally and prior to quarry operations in the valley, two broad classes of soil types were found at the proposed project site. The soil in the upper portion of the site belongs to the Kawaihapai Soil Series. This series consists of well-drained soils in drainage ways and on alluvial fans. These soils formed as alluvium derived from igneous rock in humid areas and generally consist of an upper layer of dark brown stony clay loam underlain by stratified sandy loam. Runoff in this type of soil is slow, and erosion hazards are slight.
In the lower portion of the proposed site, the original soils belong to the Pearl Harbor Series. This series consist of poorly drained soils on nearly level coastal plains. This soil type has very low permeability, with slow runoff characteristics. However, due to intensive quarry and landfill operations in the area dating back to early 40s, the original soils at the site, have been drastically altered by excavation and deposition of quarry tailings and overburden materials as well as residential solid wastes.

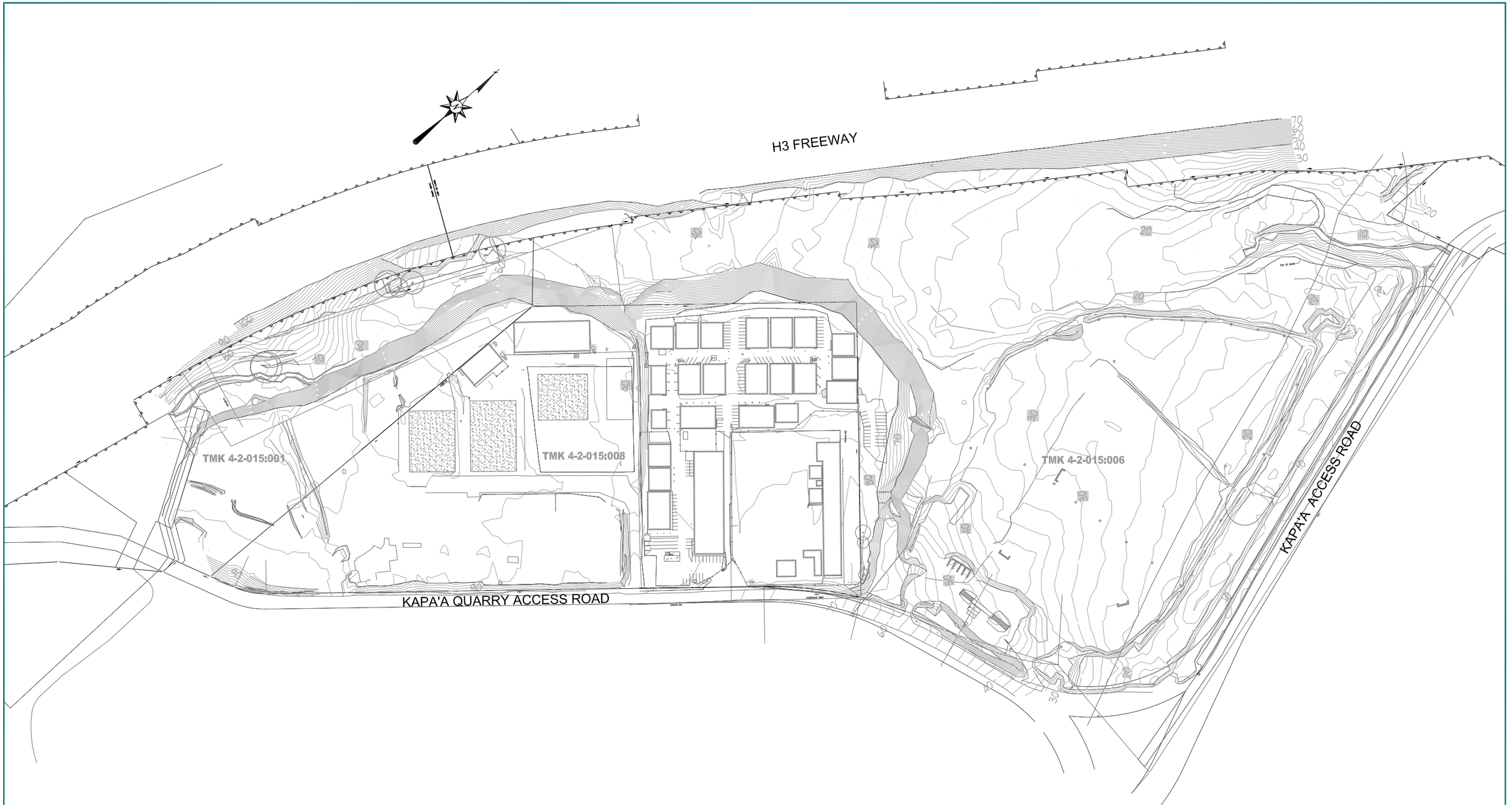

Figure 2-3 Topographic Map
of Proposed Site

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250' 0 250' 500' 1000'
SCALE: 1" = 250'-0"

2.1.5 Hydrological Characteristics

The proposed project site is located in the lower reaches of the Kapa'a valley and within the Kapa'a watershed. Figure 2-4 shows the Kapa'a watershed and the location of the proposed Kapa'a Light Industrial Park.

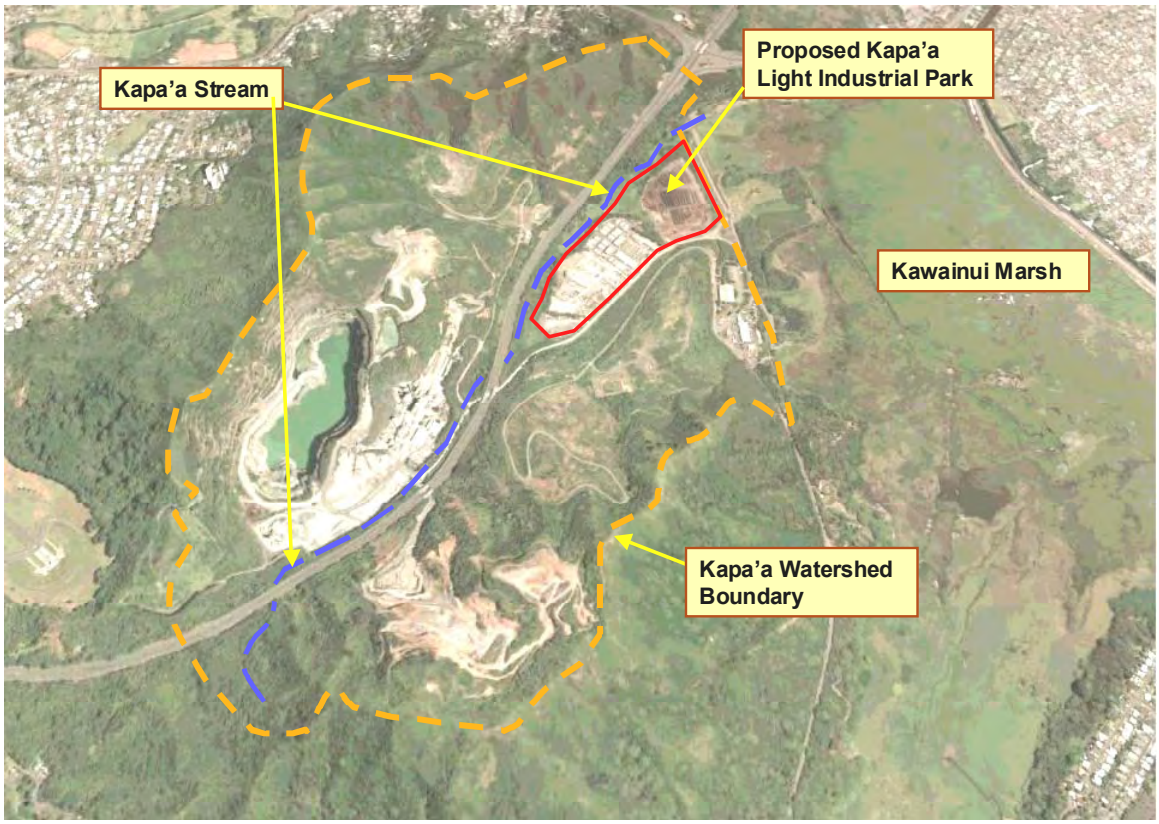


Figure 2-4 Kapa'a Watershed

The relatively short Kapa'a Stream is the main drainage way for the watershed, which drain into Kawainui Marsh and ultimately to the Pacific Ocean via Oneawa Canal and Kailua Beach. The stream which is a little over one mile long, has a very low base flow of about half a gallon per minute. During rainy season and after heavy storm, however, the base flow increases significantly.

2.1.5.1 Existing Drainage Conditions

The three parcels (TMK: 4-2-015:001; TMK: 4-2-015:008; TMK: 4-2-015:006), which comprise the site for the proposed Kapa'a Light Industrial Park are located in the lower reaches of the Kapa'a Stream . Figure 2-5, shows the existing drainage patterns on and in the vicinity of the proposed project site. As shown, all or most of the onsite storm run-off is directed and

conveyed by means of surface flow into existing detention ponds or directly into the Kapa'a stream. This discharge also include off-site flows that are directed into the property, namely, an existing 36-inch drainage pipe, which delivers runoff from up slope vacant land south of Kapa'a quarry access road into the lower tier portion of the project site.

Presently storm run-off on vacant land within the portions of the TMK 4-2-015:001 flows into the Kapa'a Stream either through direct surface flow or ground percolation, since the parcel is mostly composed of pervious surface.

The parcel in the center of the proposed site and identified by TMK 4-2-015:008 has an existing drainage infrastructure since it houses about thirty warehouses and paved roadways. In addition, this area also provides ample space for outdoor equipment and material storage area for various enterprises operating at the site. The existing drainage infrastructure includes grass channels, drain inlets with inlet skimmer boxes, two detention ponds and flow diversion berms. Existing drainage infrastructure components are placed throughout the area to intercept the storm runoff prior to discharge into Kapa'a Stream.

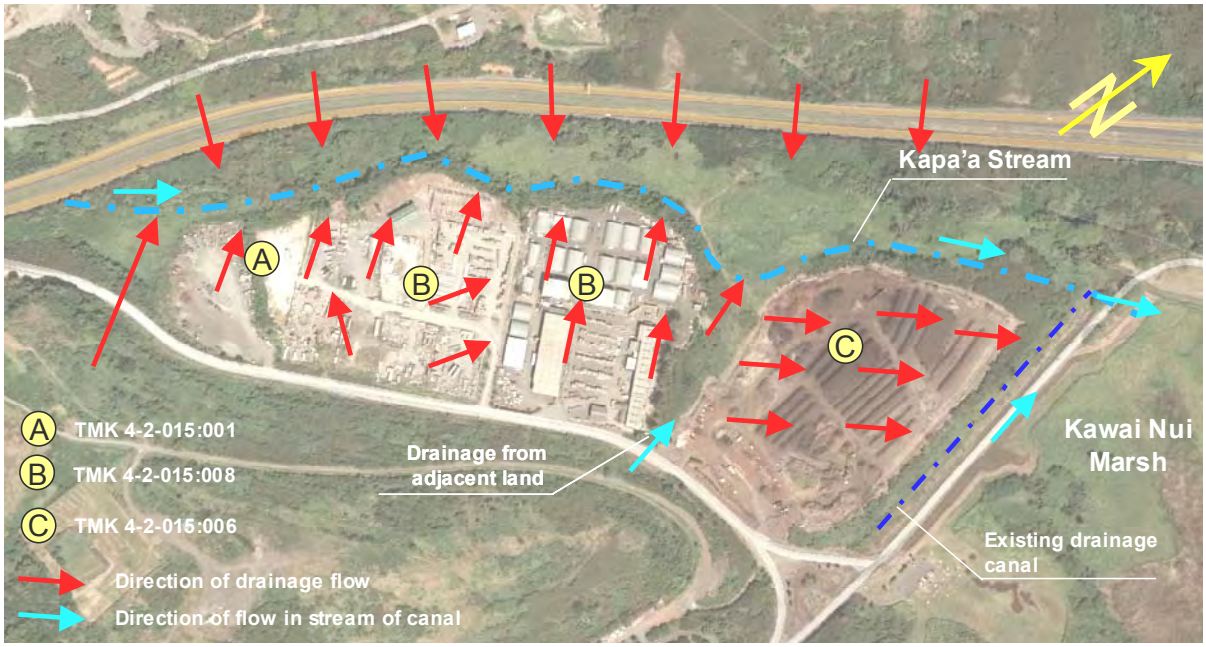


Figure 2-5 Existing Drainage Conditions

In the west and along the boundary with parcel TMK: 4-2-015:001, a 250 feet long grass swale conveys run-off to one of the two detention ponds on the property. Along the north-western property line and adjacent to the bank of Kapa'a Stream there are four drain inlets with skimmer boxes. A 6-inch concrete curb running parallel to the stream bank ensures that the storm runoff is contained on the property and directed to these four drain inlets for subsequent discharge into the Kapa'a Stream.

In the central part of parcel TMK: 4-2-015:008, a 500-feet long grassed swale collects run-off from the area before discharging it into a drain inlet or one of the two existing detention ponds before discharging into the stream. A portion of surface runoff from the eastern part of the parcel is also conveyed via this swale to the existing detention ponds for treatment prior to discharge into the stream.

The most northern portion of the three-parcel proposed for the project is designated as TMK 4-2-015:006. Except for an existing 36-inch drain pipe which delivers off-site storm water from upslope property south of the access road, there is no other drainage infrastructure in this parcel. All or most of the storm runoff in this area sheet flows into an existing drainage ditch along the eastern border of the property running parallel to the Kapa'a Quarry Road. Flows from this ditch enters the mouth of Kapa'a stream upstream of an existing culvert under the Kapa'a Quarry Road.

In summary, most of surface run-off on the proposed project site directly enters the Kapa'a Stream and ultimately the Kawainui Marsh. Observations suggest that during extreme rain events the water level in Kapa'a Stream rises to such extent as to inundate sections of the Kapa'a Quarry Road in proximity to the Kapa'a Stream culvert under Kapa'a Quarry Road. In these events the Kapa'a Quarry Road becomes impassable for traffic.

2.1.5.2 Water Quality in Kapa'a Stream

As previously mentioned, the Kapa'a Stream is the main drainage pathway for the Kapa'a watershed, which has a total area of about 800 acres. Some minor flows from the watershed into the Kawainui Marsh occur through several smaller direct outlets and through underground water movement. The Kapa'a Stream has a total length of about two miles. Along its way through the watershed, it meanders through different parts of the Kapa'a valley that been significantly altered by industrial and other developments in the past 60 years. From its source the stream flows through several permanent pools until the stream enters a permanent channel not far from where it flows into the Kawainui Marsh.

Industrial developments in the valley, such as quarry and landfill operations, depositions of quarry tailings and overburden on previous wetland areas and other industrial activities have had significant effects on the Kapa'a Stream. The streambed has undergone changes and the water quality has deteriorated. The State of Hawaii Department of Health identified the water quality in Kapa'a Stream as impaired by elevated turbidity, total suspended solids (TSS), nutrients (TN, TP), and metals (DOH,2007).

The Department of Health performed an evaluation of the water quality in the Kapa'a Stream (DOH,2007). The evaluation involved a comprehensive model of the water discharge and pollutant loads of the stream, for both typical wet and dry seasons. The hydraulic model comprised 13 sub-basins, which were characterized by different hydrographical properties, drainage characteristics and land uses. The sub-basins had various sizes. With the applied assumptions of rainfall, infilrtration rates, runoff rates and stream morphology assimilation rates, the sub-basins produced different flow rates and loads of various pollutants in the Kapa'a Stream.

Figure 2-6 shows the extent the Kapa'a watershed and location and size of the 13 sub-basins used in DoH model. Table 2-1 describes the sub-basins used in the DoH hydraulic model. It should be noted that in the model all sub-basins, with the exception of sub-basin L, drain into the Kapa'a Stream. Runoff from Sub-basin L drains directly into the Kawainui Marsh through an outlet under the Kapa'a Quarry Road. In addition to surface drainage through the Kapa'a Streama and the different direct outlets into the Kawainui Marsh, underground flow contributes to the total drainage of the watershed.

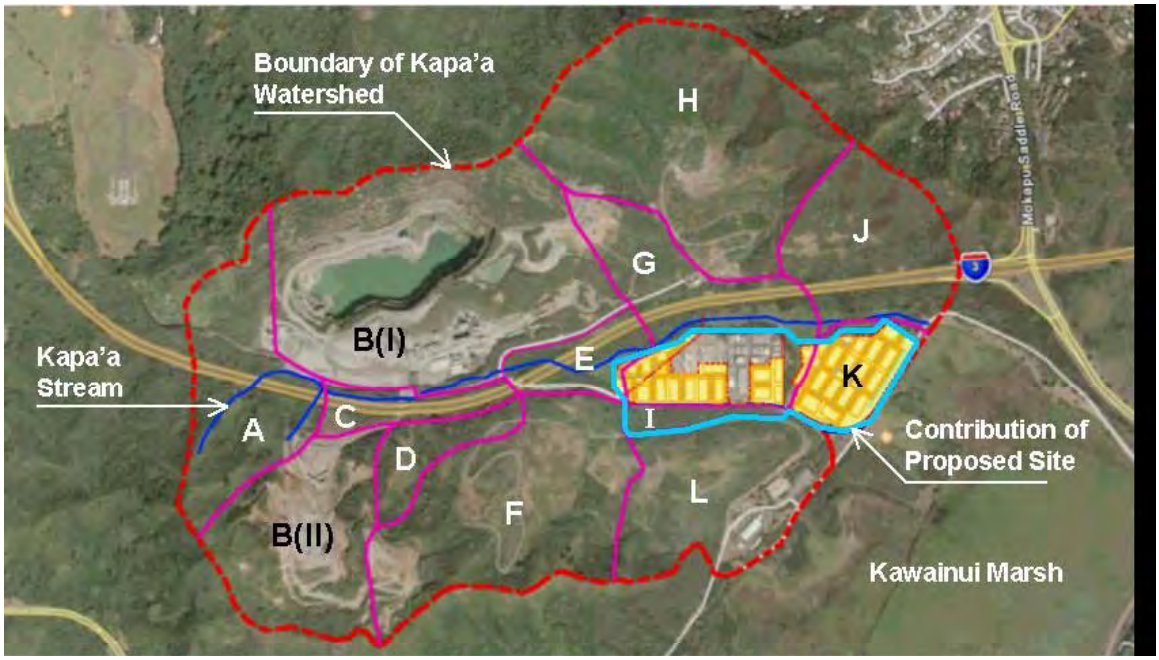


Figure 2-6 Location and Size of Sub-basins as Defined in DoH Kapa'a Watershed Model

Table 2-1 Description of Sub-basins Used in DoH Kapa'a Watershed Model

Sub-basin ID	Area (acre)	Description of Sub-basin
A	96	Sub-basin A is the headwater tributary drainage area for Kapa'a Stream.
B (I) and B(II)	150 35	Sub-basin B is divided into sub-basin B(I) and B(II). The sub-basins B(I) and B(II) represent the Ameron Phase I and Phase II quarry operations. The two sub-basins are divided by the H3-Freeway. The run-off from Sub-basin B(II) is conveyed to the sub-basin B(I). Sub-basin B(I) has a retention pond that accommodates a 10 inch, 24 hour rain event.
C	17	Sub-basin C consists of the right-of-way for the H-3 highway and is located between the sub-basins B(I) and B(II).

Table 2-1 Description of Sub-basins Used in DoH Kapa'a Watershed Model (cont.)

Sub-basin ID	Area (acre)	Description of Sub-basin
D	29	Sub-basin D is a steeply sloped area that drains toward the H-3 highway. Runoff from this area is collected and point-discharged into the Kapa'a Stream through a culvert.
E	24	Sub-basin E is an immediate tributary drainage area for the Kapa'a Stream. The sub-basin is divided by the H3 Freeway. This sub-basin is directly to the south of the Kapa'a Light Industrial Park.
F	98	Sub-basin F drains the City & County of Honolulu Kapa'a Landfill (Phase II) and relatively undisturbed slopes up to the ridgeline. Drainage is collected in a circumferential drainage swale constructed around the inner landfill. Drainage is conveyed to discharge point of sub-basin E.
G	60	Sub-basin G is an immediate tributary drainage area for Kapa'a Stream. The sub-basin encompasses area to both sides of the H3-Freeway and the Kapa'a Stream. Sub-basin FG is divided into an eastern and western part. The western parts drains through several culverts under the freeway. The eastern part includes a part of the proposed Kapa'a Light Industrial Park.
H	126	Sub-basin H includes the Kalaheo Landfill, which is surrounded by larger sloped scrub-covered areas. The municipal landfill is no longer in operation. The sub-basin drains into the Kapa Stream through a large culvert under the H3-Freeway. The sub-basin has a retention pond to control the drainage and sedimentation discharge.
I	8	Sub-basin I is a small area that drains into the Kapa's Stream through a pipe that passes under the Kapa'a Quarry Access Road and teminatesin Sub-basin K
J	59	Sub-basin J drains slopes to the west of the H3-freeway and the stream valley adjacent to sub-basin K. The area west of the H3-Freeway is drained into the Kapa'a Stream through several culverts under the freeway.
K	28	Sub-basin K is a landfill area that consists of quarry deposits. The sub-basin drains into a drainage canal that separates Sub-basin K from the Kapa'a Quarry Road. Sub-basin K is the area that will be used for the lower portion of the Kapa'a Light Industrial Park.
L	62	Sub-basin L contains the lower Phase I part of the Kapa`a landfill, which is also the site of the old first Ameron quarry. A drainage swale collects the runoff and conveys it to a retention pond. The Sub-basin L is the only sub-basin of the Kapa'a watershed that drains directly into the Kawainui Marsh and not into the Kapa'a Stream.
Sum	792	Total area of Kapa'a watershed; with 730 acres draining into the Kapa'a Stream and 62 acres draining directly into the Kawainui Marsh.

Using wet season flow rates and pollutant loads in the Kapa'a Stream, provides an assessment of the contribution of the proposed Kapa'a Light Industrial Park to the overall water quality of the Kapa'a Stream.

The assessment considered a wet season baseline scenario and a 2% flow event scenario of and the resulting flow rates and pollutant load levels in the Kapa'a Stream. The baseline case refers to drainage conditions, where the flow rate and resulting pollutant load level in the stream is causes by release of groundwater from the watershed. The 2% event refers to the highest 2% of the average rainfall events in the watershed; it is a statistical means to express high flow rates and resulting high loads of pollutants discharged into the Kapa'a Stream. The 2% event, thus, reflects flow rates and pollutant loads resulting from baseline plus high runoff.

The resulting flow rates and pollutant load rates for the wet season baseline and 2% event are presented for the existing conditions at the proposed site. Only 12 of the 13 sub-basins contribute to the water quality of the Kapa'a Stream; Sub-basin L does not drain into the Kapa'a Stream, but drains directly into the Kawainui Marsh.

Table 2-2 and Figure 2-7 indicates estimated average flow rates and Total Suspended Solids (TSS) loads for the wet season baseline case as percentages of total flow and loading. Under baseline conditions, Sub-basin B (sum of B(I) and B(II)) is the largest contributor to both the water flow rate and the pollutant loading in the Kapa'a Stream. Other large contributors are sub-basins A,F, G and H, whereby sub-basin A contributes less TSS as the other three sub-basin in this group of four. The sub basins E, G, I and K, which include the flows and pollutant loads under existing conditions at the proposed site, contribute more TSS than water flow. This is due to the high TSS contributions of the industrial part of sub-basin G, which represents the existing warehouse development on parcel TMK 4-2-015:008, and the sub-basin K, which is the landfill area with Green Waste processing.

Table 2-3 and Figure 2-8 indicate estimated average flow rates and Total Suspended Solids (TSS) loads for the wet season 2% event as percentages of total flow and loading. The contributions of sub-basins B and H are significantly reduced due to the effect of sedimentation ponds, which hold back TSS loads from these two sub-basins. In the DoH analysis the runoff from sub-basin B and H does not contribute to the water flow and TSS loading of the Kapa'a Stream or is greatly reduced, respectively. Sub-basin D is by far the biggest contributor in regard to TSS loading, followed by Sub-basin F. The proposed site, in the present condition, contributes more water flow than TSS. This is partly due to the fact that in the 2%-event the industrial part of sub-basin G discharges more flow than TSS. It can be seen that the TSS loading of the lower part of the proposed site, the landfill area of sub-basin K, contributes most of the TSS loading. This suggests that the landfill area in sub-basin K, which currently does not have sufficient measures against surface erosion, is the main contributor of TSS loading to the Kapa'a Stream from the land that would constitute the proposed site.

Table 2-2 Wet Season Baseflow and Pollutant Load; Present Contribution of Proposed Site

Subbasin	Flow (cfs)	TSS (kgd)	Flow % of total	TSS % of total
A	0.17	20	14%	8%
B	0.40	91	33%	34%
C	0.03	4	2%	2%
D	0.04	5	3%	2%
E	0.04	8	3%	3%
F	0.14	38	11%	14%
G	0.12	36	10%	14%
H	0.18	33	15%	12%
I	0.01	4	1%	2%
J	0.07	16	6%	6%
K	0.03	11	2%	4%
sum	1.23	266	100%	100%
Proposed site contribution from:				
subbasin E; Industrial	0.00	2	0%	1%
subbasin G; Industrial	0.08	30	7%	11%
subbasin I; Landfill	0.01	3	1%	1%
subbasin K; Landfill	0.03	10	2%	4%
sum	**0.12**	**45**	**10%**	**17%**

Note: Subbasin L does not contribute to flow and pollutant load of Kapa'a Stream

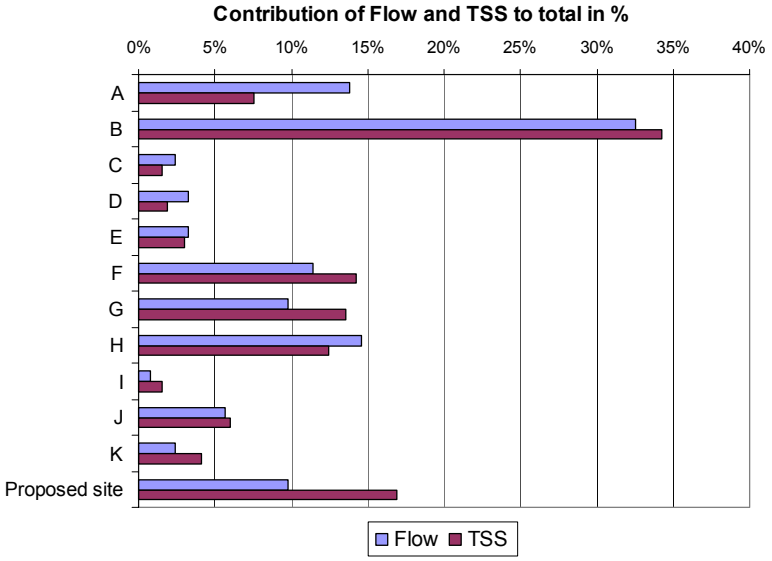


Figure 2-7 Wet Season Baseflow and Pollutant Load; Present Contribution of Proposed Site

Table 2-3 Wet Season 2% Event and Pollutant Load; Present Contribution of Proposed Site

Subbasin	Flow (mcf)	TSS (kgd)	Flow % of total	TSS % of total
A	0.03	140	3%	0%
B	0	0	0%	0%
C	0.02	61	2%	0%
D	0.11	27,031	13%	42%
E	0.05	344	6%	1%
F	0.21	16,212	24%	25%
G	0.17	1,538	20%	2%
H	0.06	3,155	7%	5%
I	0.03	1,659	3%	3%
J	0.1	7,044	12%	11%
K	0.08	6,779	9%	11%
sum	0.86	63,963	100%	100%
Proposed site contribution from:				
subbasin E; Industrial	0.01	60	1%	0%
subbasin G; Industrial	0.1	1179	12%	2%
subbasin I; Landfill	0.02	1527	2%	2%
subbasin K; Landfill	0.08	6728	9%	11%
sum	**0.21**	**9494**	**24%**	**15%**

Note: Subbasin L does not contribute to flow and pollutant load of Kapa'a Stream
mcf = million cubic feet

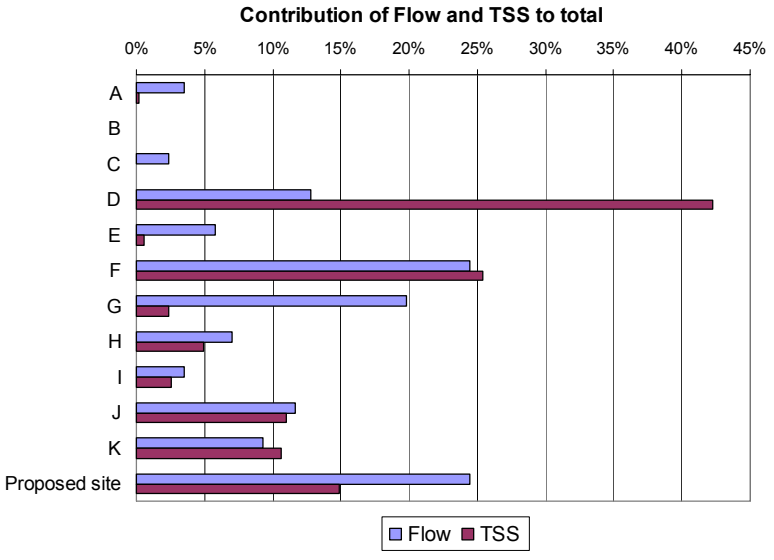


Figure 2-8 Wet Season 2% Event and Pollutant Load; Present Contribution of Proposed Site

When assessing the contribution of different sub-basins to the total flow and pollutant loading in the Kapa'a Stream it is helpful to compare the relative size of the sub-basin, e.g. its percentage of the total size of the watershed, to the relative flow and pollutant loading which originates from that sub-basin. If all conditions, such as amount of impervious area, erodable surfaces and ratio of infiltration to runoff, were the same in all sub-basins, the relative runoff volume and generated pollutant loads would be a function of the relative size of sub-basin. As can be seen from the data, this is not the case and different subbasins contribute more than would be expected from the relative size only.

Figure 2-9 depicts a correlation of the percentage contributions of size of sub-basins and TSS loadings for the wet season baseline and 2%-event sceanrios. It can be seen that the DoH study concluded sub-basin D as being the biggest contributor of TSS loading in the 2%-event case. The relative small size and high TSS loading of sub-basin D is striking. Sub-basin B, while being the largest sub-basin in the watershed does not have any TSS loading in the model, due to its sedimentation pond. Furthermore, the relative size and TSS loading in the 2%-event deviates significantly for sub-basin F. The existing conditions of the proposed site suggest that the relative baseline and 2%-event TSS loading is larger than its relative size, suggesting that current conditions of the proposed site could be improved to lower the impact of peak run-off and associated pollutant loading.

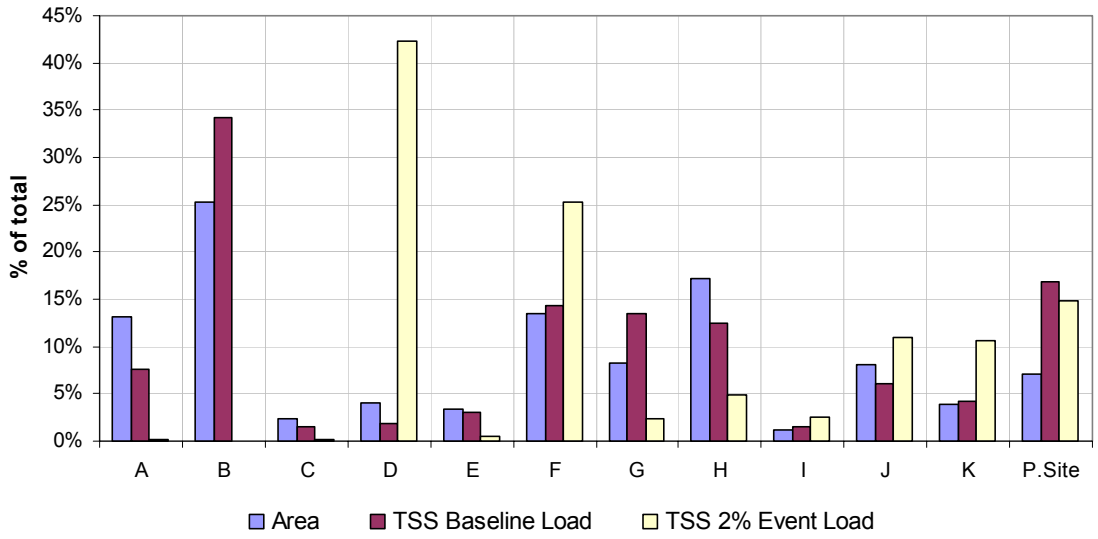


Figure 2-9 Comparison of Size and TSS Loading for Baseline and 2%-Event Contributions

2.1.6 Flood and Tsunami Hazards

The project site is located outside of any potential tsunami inundation area. In contrast to it, as shown in Figure 2-10, the Flood Insurance Rate Maps (FIRM), which are used to determine the vulnerability of land to flooding, depict the designated flood zones in the vicinity of the proposed site. It has been observed that sections of the Kapa'a Quarry Road adjacent to the mouth of the Kapa'a stream and the existing culvert under the Quarry Road are intermittently inundated at

times of heavy rainfall. During such periods of flooding the Kapa'a Quarry road has to be closed for traffic.

Most of the land within the proposed site is in FEMA Flood Zone D, which indicates areas with possible but undetermined flood hazards. Some low-lying areas of parcel TMK 4-2-015:006 adjacent to the Kapa'a Quarry Road are within the flood zones X and A. The Flood Zone A refers to land which is likely to be inundated by the flood event having a one-percent chance of being equaled or exceeded in any given year. The one-percent annual chance flood is also referred to as the base flood or 100-year flood. Flood Zone A is limited to the existing drainage channel adjacent to the Kapa'a Quarry Road and to the mouth and the lower sections of the Kapa'a Stream, which are located within parcel 4-2-015:006. Land that is within the Flood Zone X represents moderate to minimal flood hazards. Land designated as Flood Zone X has flood vulnerability of equal or lower than the 0.2-percent-annual-chance or 500-year flood.

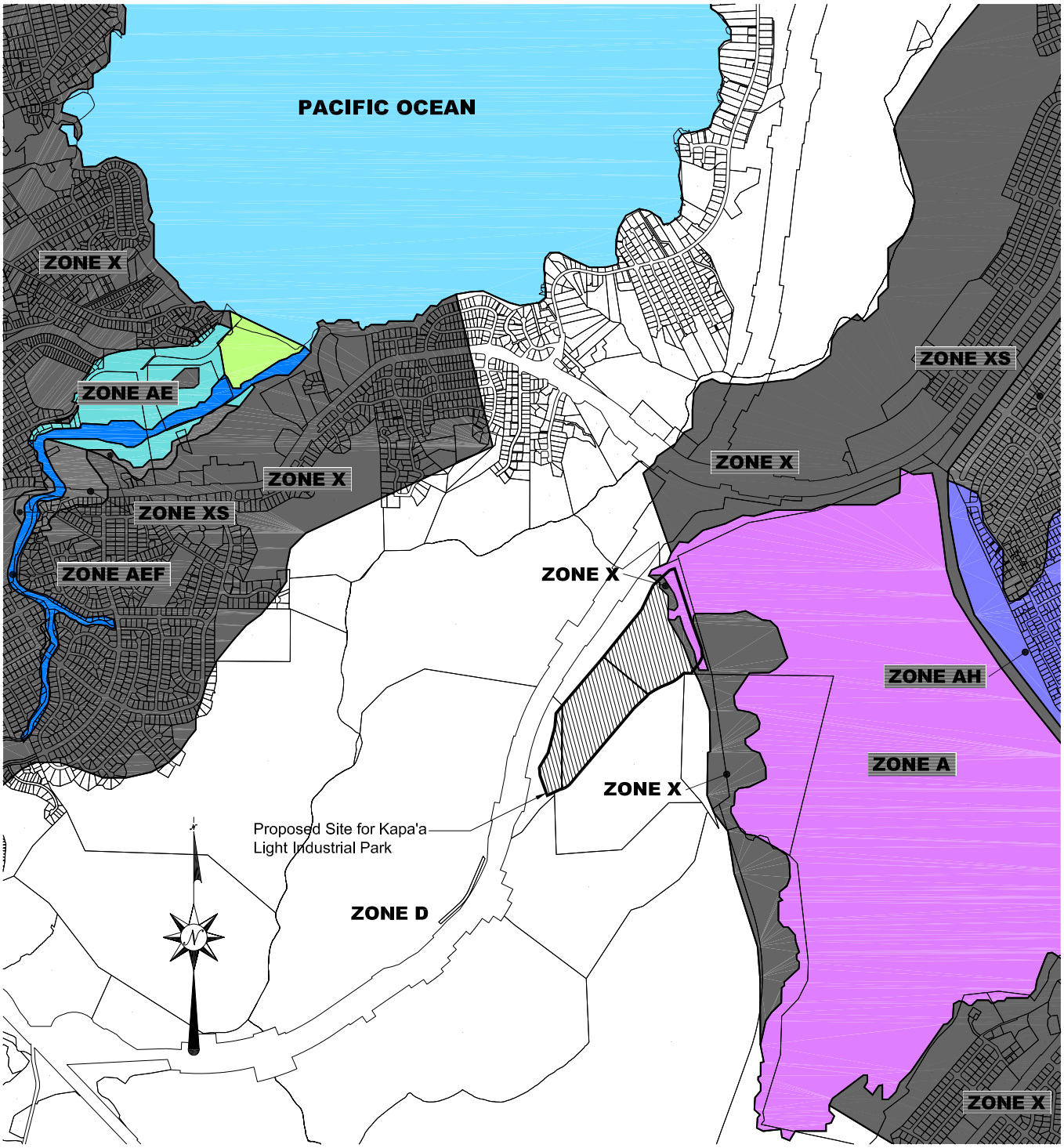
2.1.7 Wetlands

Wetlands are defined by the United States Army Corps of Engineers and the United States Environmental Protection Agency as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetations typically adapted for life in saturated soils. Wetlands generally include swamps, marshes, bogs, and similar areas." While in the past wetlands have been frequently filled or drained to make room for agriculture or other land uses, the considerable ecological value of wetland are now recognized. This has resulted in comprehensive efforts to secure and restore wetlands.

The Kawainui Marsh is adjacent to the proposed site and represents one of the most important wetlands in the State of Hawaii. Some wetland areas are present within the proposed site in the lower reaches of the Kapa'a stream corridor in the vicinity of the confluence of the Kapa'a Stream and the drainage canal adjacent to the Kapa'a Quarry Road. Since the Kapa'a Stream drains into the Kawanui Marsh, the stream's flow conditions and water quality directly affect the marsh.

2.1.8 Flora and Fauna

The proposed project site is located at the mouth of Kapa'a Stream in the lower reaches of the Kapa'a watershed. The site is laid out in two tiers, separated by a sharp 25 to 30 feet drop in elevations, which bisects the site. The drop line starts midway of the southern boundary and meanders northerly to the right bank of the Kapa'a stream. Kawainui Marsh borders the northeastern corner of the site, whereas Kapa'a stream runs along the north and north western boundary of the project site. A drainage ditch running along the Kapa'a Quarry Road forms the southern and eastern boundary of the property.



Scale: 1 inch = 2000 feet

ZONE DESCRIPTION

A	- 100 YEAR FLOOD ZONE; NO BASE FLOOD ELEVATIONS DETERMINED
AE	- 100 YEAR FLOOD ZONE; BASE FLOOD ELEVATIONS DETERMINED
AEF	- 100 YEAR FLOOD ZONE; FLOOD WAY AREA WITH AE
AH	- 100 YEAR FLOOD ZONE; WITH 1-3 FT PONDING
D	- POSSIBLE BUT UNDETERMINED FLOOD HAZARDS
X	- BEYOND 500 YEAR FLOOD PLAIN
XS	- 500 YEAR FLOOD PLAIN

LEGEND:

PROPOSED SITE OF KAPA'A LIGHT INDUSTRIAL PARK

Figure 2-10 Flood Zone Map

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The lower- tiered land has been mostly cleared and the area is used for commercial green wastes processing. Relatively heavy vegetation occurs along the banks of Kapa'a stream, the drop line separating the toe tiers of the property, and the drainage ditch along Kapa'a Quarry Road.

The existing vegetation in these areas include overgrown vegetations and shrubberies and sometimes dense growth of:

- Koa haole (Leucaena leucocephala)
- Guava (Psidium guajava)
- Chinese banyan (Ficus microcarpa)
- Monkeypod (Samanea).
- Hau (Hibiscus tiliaceus)
- Overgrown umbrella sedge (Cyperus alternifolius)
- Elephant grass (Pennisetum purpureum)
- California grass (Brachiaria multica)

The land in the upper tier of the property is heavily impacted by industrial and operations and is currently devoid of any vegetation, except along the banks of the Kpa'a stream where some or all of the previously mentioned species of vegetation and growth are observed. There are areas of slow moving or stagnant water bodies in the lower parts of the Kapa'a watershed, including the lower reaches of the Kapa'a Stream and the existing drainage ditch along Kapa'a Quuarry Road. These areas are often infected with intense growth of Salvinia Molesta. Invasive species, such as Salvinia Molesta, have become a major problem for the Kawainui Marsh, by severely choking off marsh drainage passageways and deteriorating the streams natural capacity to flow into the Kawainui Marsh. Figures 2-11 and 2-12 show typical occurrences of Salvinia growth in the waterway.

Due to historic use of the property for various industrial activities in the past 50 years, the upper tier of the site is devoid of any avifaunal (bird) habitat mostly because of removal of natural vegetation cover and ongoing human activities. The open space within the lower tier and at the mouth of Kapa'a stream, however, provides habitat for a range of birds, mammals and aquatic species. Observations suggest that the feral cat population in the area has been a main predator for the bird population. Birds and mammals sighted or observed around and within the proposed project site include:

Birds:

Common name	**Scientific name**
Cardial	Cardinalis cardinalis
Cattle egret	Bubulcus ibis
Barred dove	Geopedia striata
Mynah	Acridothera tristis
Lace-necked dove	Streptopedia chinensis
Sparrow	Passer domesticus
Japanese white-eye	Zosterops jaonica
Shama thrush	Copsychus malalaricus

Mammals:

Common name	Scientific name
Mongoose	Herpestes auropunctatus
Mice	Mus musculus
Rat	Rattus rattis, norvegicus
Feral Cat	

Figure 2-11 Lower Reach of Kapa'a Stream (Picture Taken from Existing Culvert under Kapa'a Quarry Road) Covered with Salvinia Molesta

The adjacent Kawainui Marsh is an important habitat for birds and other wildlife. The number and variety of birds observed in the Kawainui Marsh has varied over time. When the Kawainui Marsh was an open lake, before vegetation overgrowth and sedimentation had reduced the habitat area, a large number of endemic birds made their habitat there. Over time the number and variety of birds have decreased. The following birds have been sighted by different investigators in and around the Kawainui Marsh:

Figure 2-12 Water surface in Existing Drainage Canal Alongside Kapa'a Quarry Road Covered with Salvinia Molesta

Common name	**Scientific name**
Cardial	Cardinalis cardinalis
Pintail	Anas acuta
Mynah	Acridothera tristis
Pacific Golden Plover	Pluvialis dominica fulva
Japanese White-eye	Zosterops jaonica
Black-crowned Night Heron	Nycticorax nycticorax hoactli
Hawaiian Duck (*)	Ana wyvillienu
Hawaiian Coot (*)	Fulica americana alai
Hawaiian Stilt (*)	Himantopus himantopus knudseni
Hawaiian Gallinule (*)	Gallinula chloropus sandvicensis
Shoveler	Anas clypeata
Frigate Bird	Fregata minor

(*) = endangered birds

The following aquatic fauna has been sighted by different investigators in waters in and around the Kawainui Marsh:

Common name	Scientific name
Pelagic milkfish or awa	Chanos chanos
Aholehole	Kuhlia sandvicensis
Mullet	Mugil cephalus
Papio	Caranx sp.
Barracuda	Sphyraena
Nehu	Encrasicholina purpurea
O'opu	Eleotris sandwicensis
Rice eels	Monopterus sp.
Hawaiian river shrimp	Macrobrachium grandimanus
Crenate swimming crab	Thalamita crenata
Worm	Tendipes

In order to enhance and restore the natural habitat and encourage remigration and nesting indigenous fauna to the area, lately there have been initiatives to reintroduce some of the species of bird and restore appropriate habitats within the Kawainui Marsh or on adjacent land. One of these initiatives is the development of a 15 acre wildlife sanctuary, which the developers of the proposed Kapa'a Light Industrial Park are presently creating within the parcel TMK 4-2-015:006. This wildlife habitat will be home to endangered birds and other wildlife. The protected wildlife habitat will be developed on restored wetland and will include a number of cascading ponds and a wildlife fence that keeps out feral cats.

2.1.9 Historic and Archaeological Features

As it has been mentioned in the preceding sections, the proposed site for the project has been heavily impacted by industrial activities in the last fifty years. The site is devoid of any archaeological or historic resources. A comprehensive archaeological survey conducted by Cultural Surveys Hawaii, Inc. (CSH) (Cultural Survey Hawaii, 2000) indicates that most of the historical or culturally significant sites in the vicinity of the proposed development are found around the southern perimeter of Kawainui Marsh. Figure 2-13 shows the locations of significant historical finds close to the Kawainui Marsh, as presented in the CSH study. The Pahukini Heiau is a major historical site that is closest to the proposed site for the Kapa'a Light Industrial Park. The Pahukini Heiau is a 120 by 180 feet stone structure and is on the site of a landfill within TMK 4-2-15:003. According to the website of the Office of Hawaiian Affairs the heiau was built by the wealthy Chief Olopana and was used in important state functions. The heiau is completely surrounded by Kapa'a landfill and has been badly neglected for many years, until it was restored and rededicated in the late 1980s.

Other historical sites close to the Kawainui Marsh are shown on Figure 2-13 and are briefly described in Table 2-4. The "State Site #" in Table 2-4 and Figure 2-13 refer to the Hawaii State Register for Historic Places.

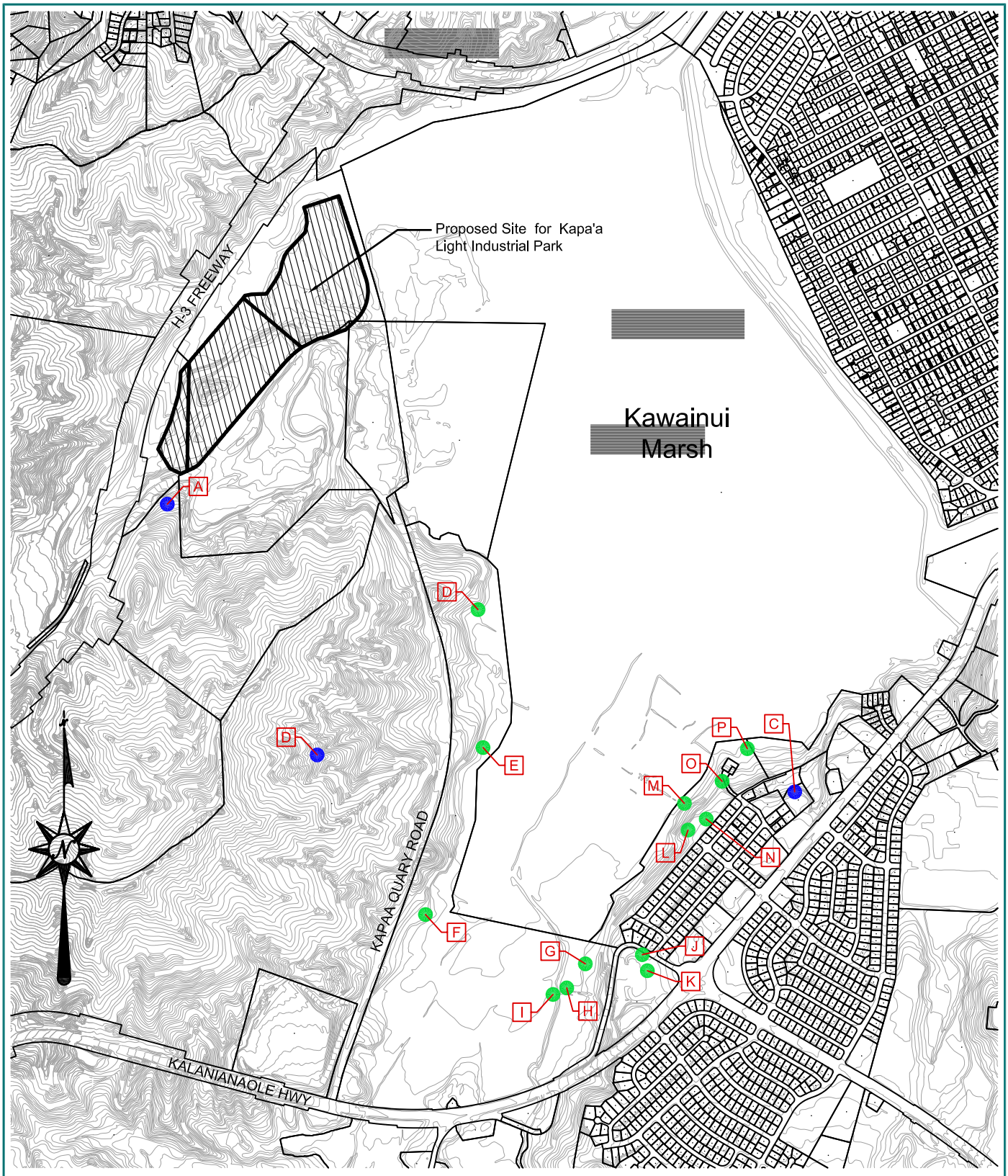

Figure 2-13
Archaeological Historic Sites in the
Proximity of the Proposed Development

LEGEND:

- HEIAU
- OTHER HISTORICAL SITES
- D DESIGNATED IN TABLE 2-4

1400' 0 1400' 2800'

SCALE: 1" = 1400'-0"

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Table 2-4 Historical Sites Around the Kawainui Marsh

ID in Figure 2-13	State Site #	Site Description
A	50-80-11-359	Pahukini Heiau; in the middle of landfill in Kapa'a Quarry. Heiau alos called Mo'okini Heiau; said to be built by High Chief Olopana in the 12th century; heiau is a Luakini or state-class heiau , where important state matters, including preparation for war were conducted.
B	50-80-11-360	Holomakini Heiau; supposedly built by high chief Olopana in the 12th century; the heiau was long thought to be destroyed when the land it occupied was cleared for agriculture; the indicated location is the presumed location of the Holomakini Heiau.
C	50-80-11-371	Ulupo Heiau; heiau was thought to be built mystically in one night by the Menehune; heiau had significance in preparing animal sacrifice; the site is a State park.
D	50-80-11-2023	Remnants with retaining walls, alignments of rocks, terraces and platforms
E	50-80-11-3865	Low stone wall and terrace
F	50-80-11-2026	A large agricultural terrace
G	50-80-11-2024	Mounds, wall remnants, a terrace
H	50-80-11-3962	Three historical building
I	50-80-11-3962	Earthen mounds
J	50-80-11-3960	A large lo'i, stone and earthen platform, stone lined channel, mound
K	50-80-11-2028	Wall remnants
L	50-80-11-2029	Large agricultural complex with rectangular fields
M	50-80-11-3959	Large number of mounds, agricultural terraces, walls, historical house foundation, etc.
N	50-80-11-2031	Several surface artifacts, evidence of prehistoric occupation
O	50-80-11-3961	Stone mounds, stone-edged canal, terraces, retaining walls
P	50-80-11-3957	Agricultural terraces, mounds, walls, remains of historical structure
Q	50-80-11-2022	Series of terraces, long retaining wall, remnants of historical house, a spring
R	50-80-11-3958	Terrace, walls
S	50-80-11-2027	Stone-walled enclosure, piles of rock, terrace

2.1.10 Air Quality

Air pollution in the vicinity of the proposed site can be attributed to anthropogenic and natural sources. Air quality impacts due to human activities mainly result from various commercial and industrial activities and from traffic. Relevant anthropogenic sources are:

- Motor vehicles, cars and trucks, around the proposed site. There is a considerable portion of heavy vehicles that serve the quarry and landfill operations, the refuse transfer station, the existing warehouse development and other industrial activities in the area. Commuters from Kailua and Kaneohe use the Kapa'a Quarry Road to travel to and from the central part of Oahu. The H3-Freeway directly passes the proposed site on its northern boundary and represents a significant contributor for release of air pollutants from motor vehicles.
- Dust from quarry, landfill and Green Waste operations, which represent earth moving activities
- Dust set free by the outdoor equipment storage and building material processing activities
- Waste deposition in landfills, which generate methane.
- Fumes from paint, varnish, aerosol sprays and other solvents used in industrial and commercial activities in the Kapa'a valley

Relevant natural sources for air pollution in the area is dust emitted from areas of land with little or no vegetation cover due to the fact that the past activities in the area has resulted in denuding of the site from natural vegetative cover facilitating erosion and soil loss.

In addition to release of airborne pollutants directly to the atmosphere, indoor air pollution is an increasingly important aspect to characterize the impact of air pollutants to occupants of buildings. Low Indoor Air Quality (IAQ) is generally attested in cases of poor ventilation and the elevated internal release of pollutants such as building materials emitting gaseous ingredients, paints and solvents emitting volatile organic compounds (VOCs), particulates and carbon monoxide. In addition, biological agents, either produced in the buildings or introduced by the ventilation system of imported materials, can accumulate in buildings and can cause significant health risks for the occupants.

Possible problems with indoor air quality in existing warehouses at the propose site of the Kapa'a Light Industrial Park could result from old warehouse technology and inappropriate handling of materials. Indoor air pollution is an important consideration for new warehouses development.

2.1.11 Noise Characteristics

Noise pollution by definition is displeasing human- or machine-created sound that has negative effects on human beings or animal life. The main sources of noise at the proposed site are vehicular traffic, industrial and commercial activities and noise generated by recreational activities, mainly from model airplanes operated from the Kawainui Model Airplane Field.

The sources of noise in the vicinity of the proposed sites are augmented by distant noises, such as traffic noises from the H3-Freeway, noise from aircraft passing the site and noise from the urban developments in the north, west and south of the Kawainui Marsh.

Current noise levels are not high enough to cause direct damage to human physiological and psychological health. But the current noise level can have an effect on how the natural beauty of the marsh and the surrounding areas is perceived. The main recreational activities in the vicinity of the propose site is associated with operating model airplane, an activity that inherently produces a certain level of noise since small, high-pitched engines are used in the model planes. With the planned expansion of recreational and nature education activities in the Kawainui Marsh, such as the envisioned perimeter path around the marsh, noise pollution could become a more influential factor for human activities in the vicinity of the site.

With the current and anticipated future noise levels the impact on the animal world might be more acute than on humans. Noise can have negative effects on animals through interference with their use of sounds in communication and by causing stress. The main result of elevated and anthropogenic noise on the animal world is the reduction of usable habitat that noisy areas may cause. Elevated noise levels would cause migration of animals away from the source of noise. It is evident that this would cause an effective reduction of available habitat.

2.1.12 Aesthetic and Visual Consideration

The Kapa'a Valley is characterized by diverse industrial and commercial activities, which have significantly affected the appearance of the valley where agriculture was once thriving. The proposed site has been drastically altered by land filling and quarry operations. It has witnessed major changes to the topography and appearance including large quantities of earth moving, exposed rock formations, large quarry or landfill equipment and groups of commercial warehouse structures, all of which have had a profound effect on the aesthetic appearance in the valley. Construction of the H3-Freeway has also resulted in major changes in the topography and appearance.

The dominating views at the site are the majestic Koolau Mountainrange in the west and Kawainui Marsh in the east. Various views of the site from different vantage points are presented in the following Figures. The views are categorized as follows:

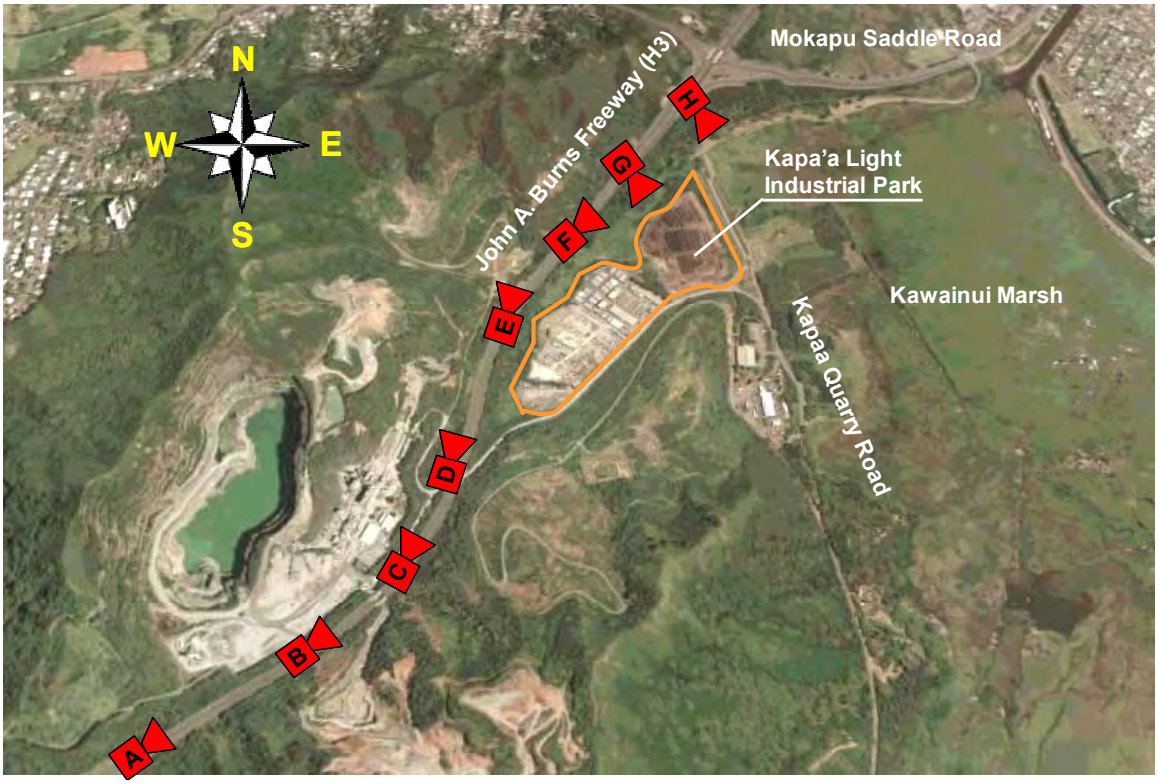
Views from the H3-Freeway Northbound: Figure 2-33 is an overview map that shows the vantage points for the set of photos depicted in Figures 2-34 through 2-41. These views portray existing visual impressions of the proposed site experienced by an observer traveling northbound on H3-Freeway.

Views from the Mokapu Boulevard: Figure 2-42 is an overview map that shows the vantage points for the set of photos depicted in Figures 2-43 through 2-50. These views portray existing visual impression of the proposed site experienced by an observer traveling eastbound on Mokapu Boulevard.

Views from Kapa'a Quarry Road: Figure 2-51 is an overview map that shows the vantage points for the set of photos depicted in Figures 2-52 through 2-59. These views portray existing visual impression of the proposed site experienced by an observer travelling southbound on Kapa'a Quarry Road.

Views from the H3-Freeway Southbound: Figure 2-60 is an overview map that shows the vantage points for the set of photos depicted in Figures 2-61 through 2-68. These views portray existing visual impression of the proposed site experienced by an observer travelling southbound on the H3-Freeway.

Views from Kapa'a Quarry Access Road while Passing the Site: Figure 2-69 is an overview map that shows the vantage points for the set of photos depicted in Figures 2-70 through 2-77. These views portray existing visual impression of the proposed site experienced by an observer while travelling along the Kapa'a Quarry Road and Kapa'a Quarry Access Road.



Site views from the H3-Freeway traveling northbound

Above indicated Views represent the following Figures:

A Figure 2-15	D Figure 2-18	G Figure 2-21
B Figure 2-16	E Figure 2-19	H Figure 2-22
C Figure 2-17	F Figure 2-20	

X Direction of view

Figure 2-14 Definition of Vantage Points for Views in Figures 2-15 through 2-22

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Figure 2-15: View from H3-Freeway traveling northbound, site is beyond the saddle in the road.

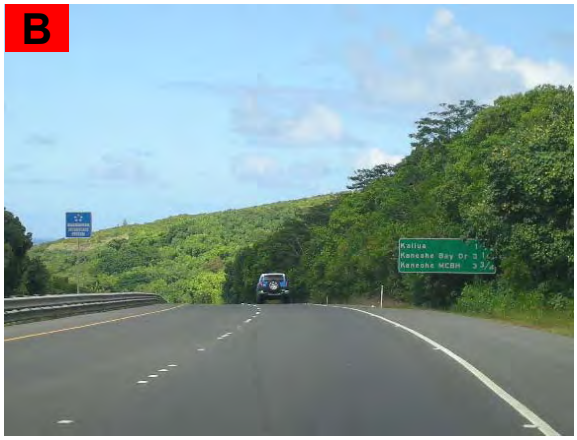

Figure 2-16: View from H3-Freeway traveling northbound at the saddle in the road.

Figure 2-17: View from H3-Freeway traveling northbound from some distance past the Saddle. The proposed site is on the right, obstructed by thick vegetation.

Figure 2-18: View from H3-Freeway traveling northbound at the overpass over the Kapa'a Quarry Access Road. The proposed site, is obstructed by thick vegetation on the Right side of the H3-Freeway.

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Figure 2-19: View from H3-Freeway traveling northbound while passing along the proposed site; thick vegetation on the right side of the H3-Freeway obstructs the proposed site.

Figure 2-20: View from H3-Freeway traveling northbound while passing along the proposed site; thick vegetation on the right side of the H3-Freeway conceals the proposed Site.

Figure 2-21: View from H3-Freeway traveling northbound. The lower portion of the site is visible in the background.

Figure 2-22: View from H3-Freeway traveling northbound. Kawainui Marsh and the Kawainui Model Airplane Park; are visible in the background

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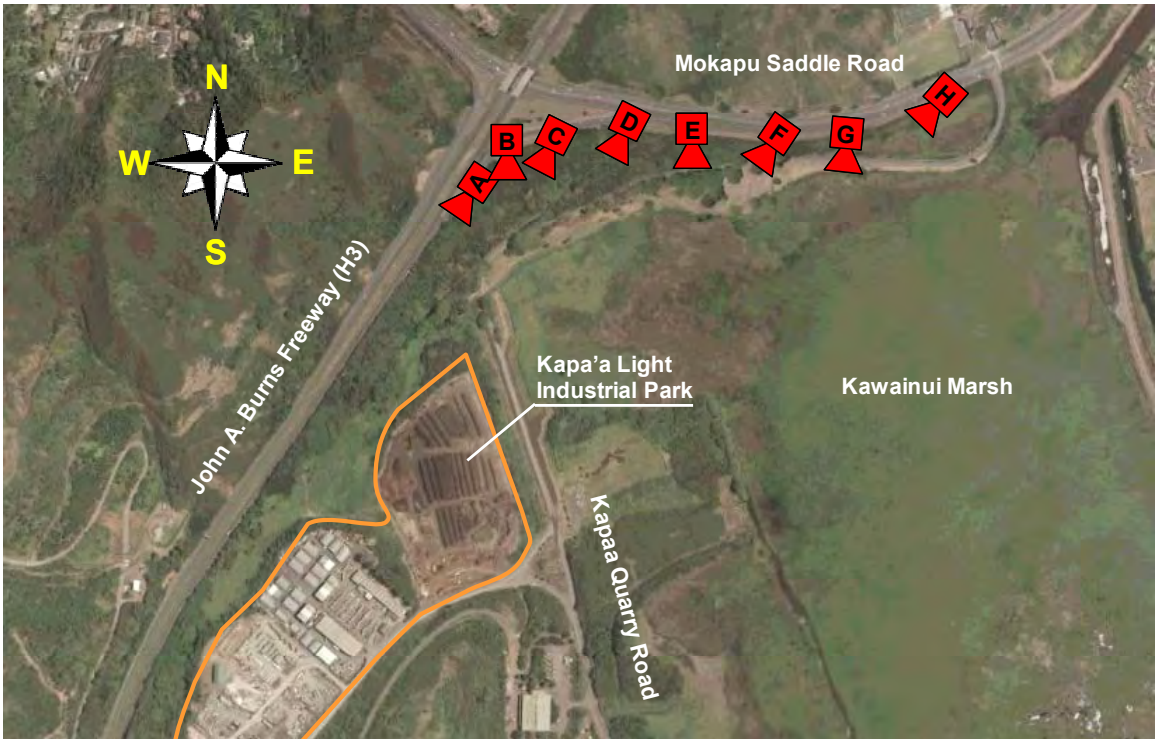

Site Views from Mokapu Boulevard

Above indicated Views represent the following Figures:

A Figure 2-24
B Figure 2-25
C Figure 2-26
D Figure 2-27
E Figure 2-28
F Figure 2-29
G Figure 2-30
H Figure 2-31

X Direction of view

Figure 2-23 Definition of Vantage Points for Views in Figures 2-24 through 2-31

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Figure 2-24: View from the H3-Freeway traveling southbound at the exit to Mokapu Saddle Road. Existing warehouses in the upper portion of the site can be seen above the road barrier on the right side of the photo.

Figure 2-25: View from H3-Freeway traveling southbound from the H3-Freeway Exit Ramp, towards the center of Kapa'a Valley. The existing warehouses are seen in the center of the photo.

Figure 2-26: View from H3-Freeway traveling southbound from the H3-Freeway exit ramp towards the center of Kapa'a Valley. The existing warehouses are in the center of the photo; quarry operations are in the background in the Right side.

Figure 2-27: View from H3-Freeway traveling southbound from the H3-Freeway exit ramp towards the center of Kapa'a Valley; the existing warehouses are on the right and in the foreground the lower portion of the proposed site shows the existing green waste operations.

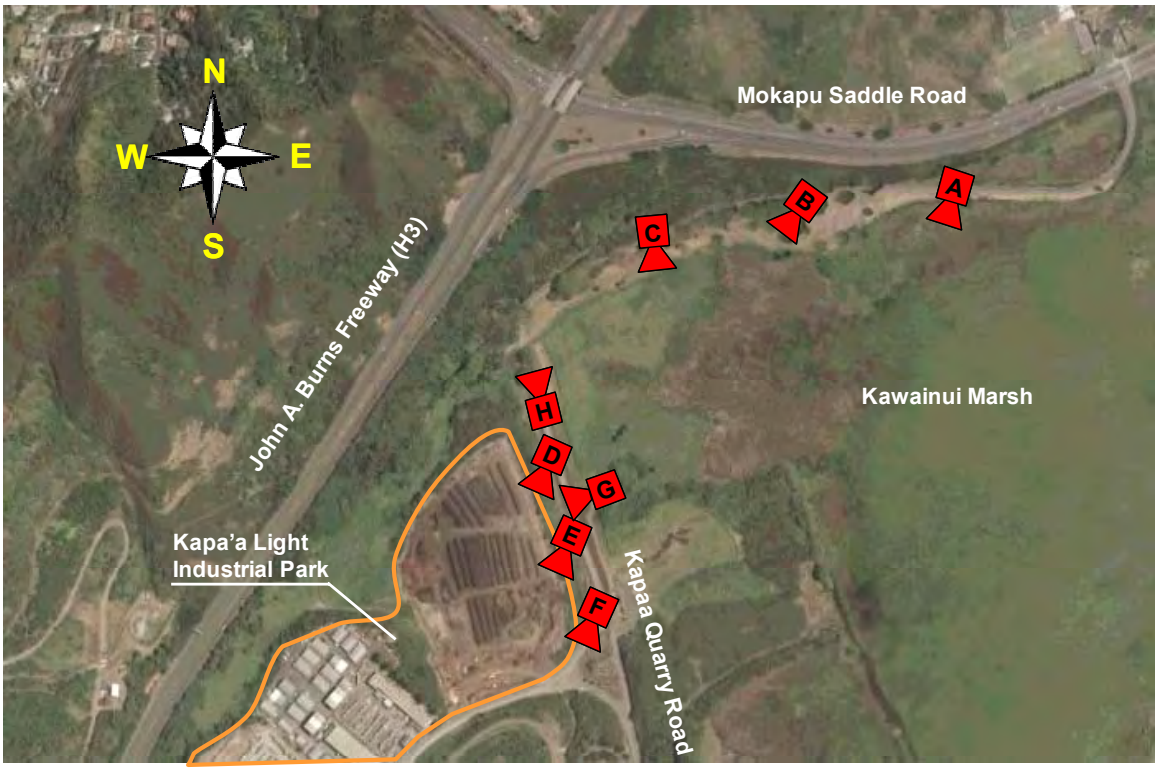
Figures 2-24 through 2-27

Figure 2-28: View from Mokapu Blvd. towards the proposed site; the lower portion of the proposed site is in center right.

Figure 2-29: View from Mokapu Blvd. traveling southbound, the existing warehouses are at the center right.

Figure 2-30: View from Mokapu Blvd. traveling southward, the Kawainui Marsh, which is seen in the foreground.

Figure 2-31: View from Mokapu Blvd. traveling southward, the lower portion of the proposed site is seen in the center of the photo; the existing warehouses are shown in center right.



Site views from Kapa'a Quarry Road

Above indicated Views represent the following Figures:

A Figure 2-33	D Figure 2-36	G Figure 2-39
B Figure 2-34	E Figure 2-37	H Figure 2-40
C Figure 2-35	F Figure 2-38	

X Direction of view

Figure 2-32 Definition of Vantage Points for Views in Figures 2-30 through 2-40

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Figure 2-33: View from the Kapa'a Quarry Road traveling southbound. The exiting warehouses in are seen in the foreground and quarry facilities in background.

Figure 2-34: View from the Kapa'a Quarry Road travelling southbound. The exiting warehouses in are seen in the foreground and quarry facilities in background.

Figure 2-35: View from the Kapa'a Quarry Road traveling southbound, thick vegetation on the right obstructs the site.

Figure 2-36: View from the Kapa'a Quarry Road southbound passing the site shown beyond the existing drainage canal along the road.

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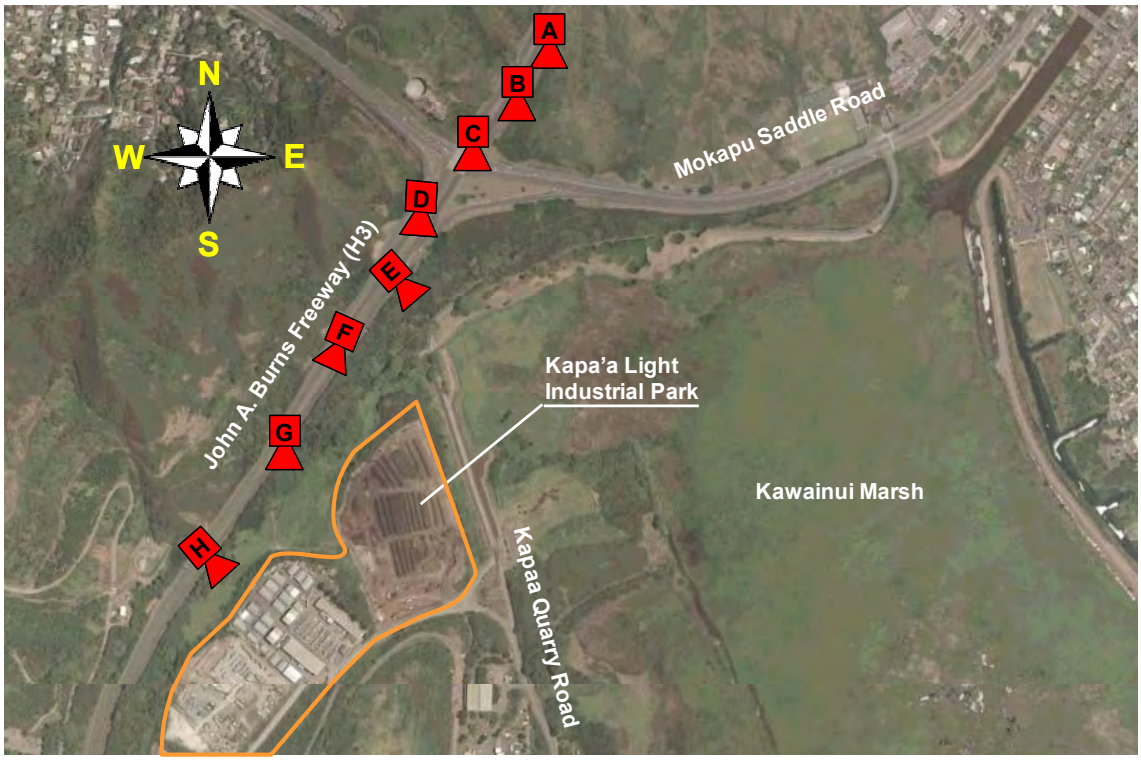
Figure 2-37: View from the Kapa'a Quarry Road southbound passing the beyond the existing drainage canal along the road.

Figure 2-38: View from the Kapa'a Quarry Road southbound passing the site beyond the existing drainage canal along the road.

Figure 2-39: View from the Kapa'a Quarry Road northbound passing the site beyond the existing drainage canal along the road; the existing earth berm obstructs the lower parts of the site.

Figure 2-40: View from the Kapa'a Quarry Road northbound passing the site beyond the existing drainage canal along the road. The Kapa'a Stream Flows into the Kawainui Marsh at this location.



Site views from the H3-Freeway traveling southbound

Above indicated Views represent the following Figures:

A Figure 2-42
B Figure 2-43
C Figure 2-44
D Figure 2-45
E Figure 2-46
F Figure 2-47
G Figure 2-48
H Figure 2-49

X Direction of view

Figure 2-41 Definition of Vantage Points for Views in Figures 2-42 through 2-49

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Figure 2-42: View from H3-Freeway traveling southbound at the saddle of the freeway; existing warehouses appear just above the H3-Pavement, some quarry facilities are visible

Figure 2-43: View from H3-Freeway driving south, after passing the saddle of the freeway; existing warehouses are center of picture are seen at a distance.

Figure 2-44: View from H3-Freeway traveling southbound at Mokapu Blvd. Overpass; existing warehouses are at the Center of Photo.

Figure 2-45: View from H3-Freeway traveling southbound at Exit to Mokapu Blvd.; existing warehouses are seen at center of photo.

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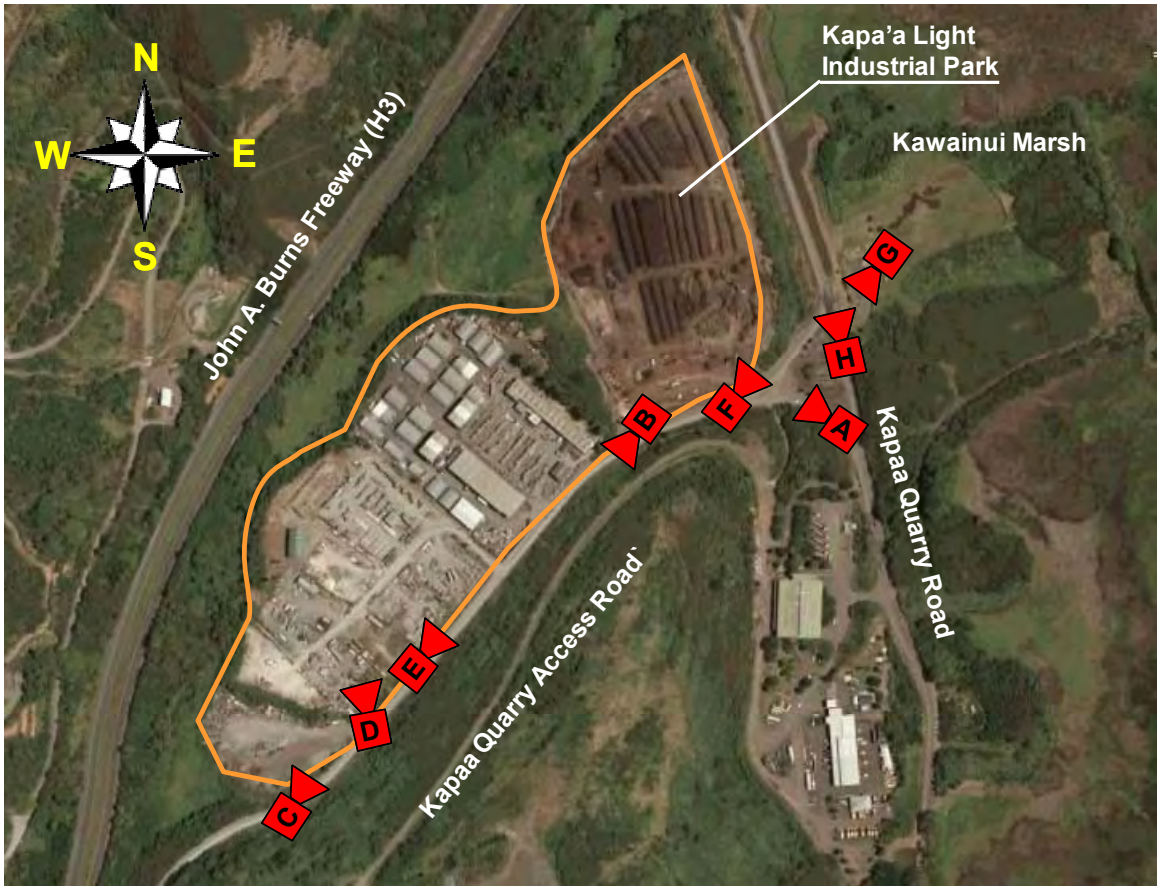
Figure 2-46: View from H3-Freeway traveling southbound at Exit to Mokapu Blvd.; existing warehouses are seen at center of photo.

Figure 2-47: View from H3-Freeway traveling southbound beyond the exit to Mokapu Blvd.; existing warehouses are seen at the center of photo.

Figure 2-48: View from H3-Freeway traveling southbound beyond the exit to Mokapu Blvd.; existing warehouses are partially obstructed by thick vegetation on the left.

Figure 2-49: View from H3-Freeway traveling southbound while passing existing warehouses. The H3-Freeway is at its lowest elevation and thick vegetation partially obstructs the view of the site on the left



Site Views from Kapa'a Quarry Access Road

Above indicated Views represent the following Figures:

A Figure 2-51	D Figure 2-54	G Figure 2-57
B Figure 2-52	E Figure 2-55	H Figure 2-58
C Figure 2-53	F Figure 2-56	

X Direction of view

Figure 2-50 Definition of Vantage Points for Views in Figures 2-51 through 2-58

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Figure 2-51: View from Kapa'a Quarry Access Road at the entrance to the lower portion of the proposed site.

Figure 2-52: View from Kapa'a Quarry Access Road traveling westbound. The lower portion of the proposed site is obstructed by the berm on the right.

Figure 2-53: View from Kapa'a Quarry Access Road traveling eastbound. The upper portion of the proposed site, is beyond the trees on the left

Figure 2-54: View from Kapa'a Quarry Access Road traveling eastbound, existing warehouses are seen in the photo.

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Figure 2-55: View from Kapa'a Quarry Access Road traveling eastbound, the upper portion of the proposed Site, is beyond the trees on the left.

Figure 2-56: View from Kapa'a Quarry Access Road traveling eastbound, at intersection with the Kapa'a Quarry Road.

Figure 2-57: View from the Kawainui Model Airplane Park towards the lower portion of the proposed site, the Kapa'a Quarry Access Road in seen on the left.

Figure 2-58: View Along the Kapa'a Quarry Road traveling northbound at the intersection with the Kapa'a Quarry Access Road. The lower portion of the proposed site is seen on the left.

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2.2 Community Setting

2.2.1 Land Use and Ownership

The proposed location for the Kapa'a Light Industrial Park in the Kapa'a Valley has been subject to significant commercial and industrial use during the last fifty years. Generally, agriculture was the prime land use in the Kapa'a Valley from the time of early settlement of the Hawaiian Islands through the mid 1900s. Cattle raising for example, was an important economic feature in the valley until the 1940s.

Quarry operations started in the valley in the early 1950s. This significantly changed the primary land use of the valley and the general appearance of the valley. The lower plateaus of the valley changed appearance as the quarry operations expanded; what was an agricultural landscape became a more industrial landscape. Significant deposits of quarry tailings and overburden altered the topography of the valley. Part of the overall changes of the valley was a raised roadway that became the Kapa'a Quarry Road. The roadway ran across the valley mouth and segregated the Kapa'a watershed from the Kawainui Marsh. While the Kapa'a watershed previously drained into the marsh through numerous water conveyances, the drainage of the watershed became concentrated to a limited number of openings through the raised roadway. The Kapa'a Stream subsequently acquired the present streambed, which is located between the plateau created by the deposits and the H3-Freeway raised roadway.

The 1960s and 1970s brought about an increase in quarry related activities to the area. As quarry operations ceased in different locations, due to the end of cost effective processing, municipal solid waste landfill operations followed in its place. A large municipal landfill was operated through 1990. Today, there are still municipal waste related activities going on in the valley with the Kapa'a Refuse Transfer Station being an integral part of the valley. Construction of the H3-Freeway and the associated earth moving and mass grading introduced another significant change to the Kapa'a Valley starting in the 1970s.

The construction of commercial warehouses in the valley started in the mid-1970s on deposits of tailings from quarry operations. The warehouses are located on a near-level plateau. The number of warehouses has continuously increased over the years in response to a strong demand for commercial warehouse space in the area.
In summary, the Kapa'a valley has seen intensive industrial activities over the past decades, which have caused significant impact on the environment. Earth moving and deposition activities have changed the original natural topography and visual vistas. Noise and air pollution have been introduced to the area due to land filling and other commercial activities. And finally, surface run off and erosion have contributed to degradation of water quality in Kapa'a stream.

Although the proposed Kapa'a Light Industrial Park would introduce a significant number of new warehouse structures in the lower parts of the Kapa'a valley, which would probably have impact on a local scale, the proposed warehouse park would not significantly change the industrial characteristics of the entire Kapa'a valley.

2.2.1.1 City and County of Honolulu Land Use Zone Designation

All land within the City and County of Honolulu are classified into specific zoning districts. The site of the proposed Kapa'a Light Industrial Park encompasses all or portions of three land parcels. Two of which, TMK 4-2-015:001 (portion of) and 4-2-015:006 are classified as General Preservation District (P-2). The third parcel, TMK 4-2-015:008 is classified as Intensive Industrial District (I-2). Figure 2-59 shows the General Location Map of the proposed site.

Most of the land parcels in the vicinity of proposed project site are classified as either Restricted Preservation District (P-1) or General Preservation District (P-2). Figure 2-60 illustrates the land use zoning districts in the vicinity of the proposed site.

2.2.1.2 State Land Use Classification of Proposed Site

All lands in the State of Hawaii are classified into one of four land use districts; Conservation, Agricultural, Rural and Urban Districts. Urban districts include lands that are now urban land use or represent a sufficient reserve area for foreseeable urban growth. Urban districts include land use activities that are regulated by ordinances of the counties within which the urban districts are situated.

The proposed Kapa'a Light Industrial Park would be within the State Urban district. Figure 2-61 shows the State Land Use Districts in the vicinity of the proposed site. A small portion in the southwest of parcel TMK 4-2-015:001 (about 1 acre) is within the State "Conservation" District. This small portion of parcel TMK 4-2-015:001 would not be used for the warehouse development and would remain open space. The requested zone change for the parcel TMK 4-2-015:001 would not include this land small portion and therefore the requested zone change would not require a State land use zone change from Conservation to Urban district.

2.2.1.3 Special Management Area

According to Hawaii Revised Statutes (HRS) Chapter 205-A the City and County of Honolulu has the authority to regulate land use in Special Management Areas (SMA). As depicted in Figure 2-62, parts of the proposed site of the Kapa'a Light Industrial Park are within the SMA District. Therefore the proposed development will be subject to regulatory procedures, permit requirements, and review under the City's SMA regulations.

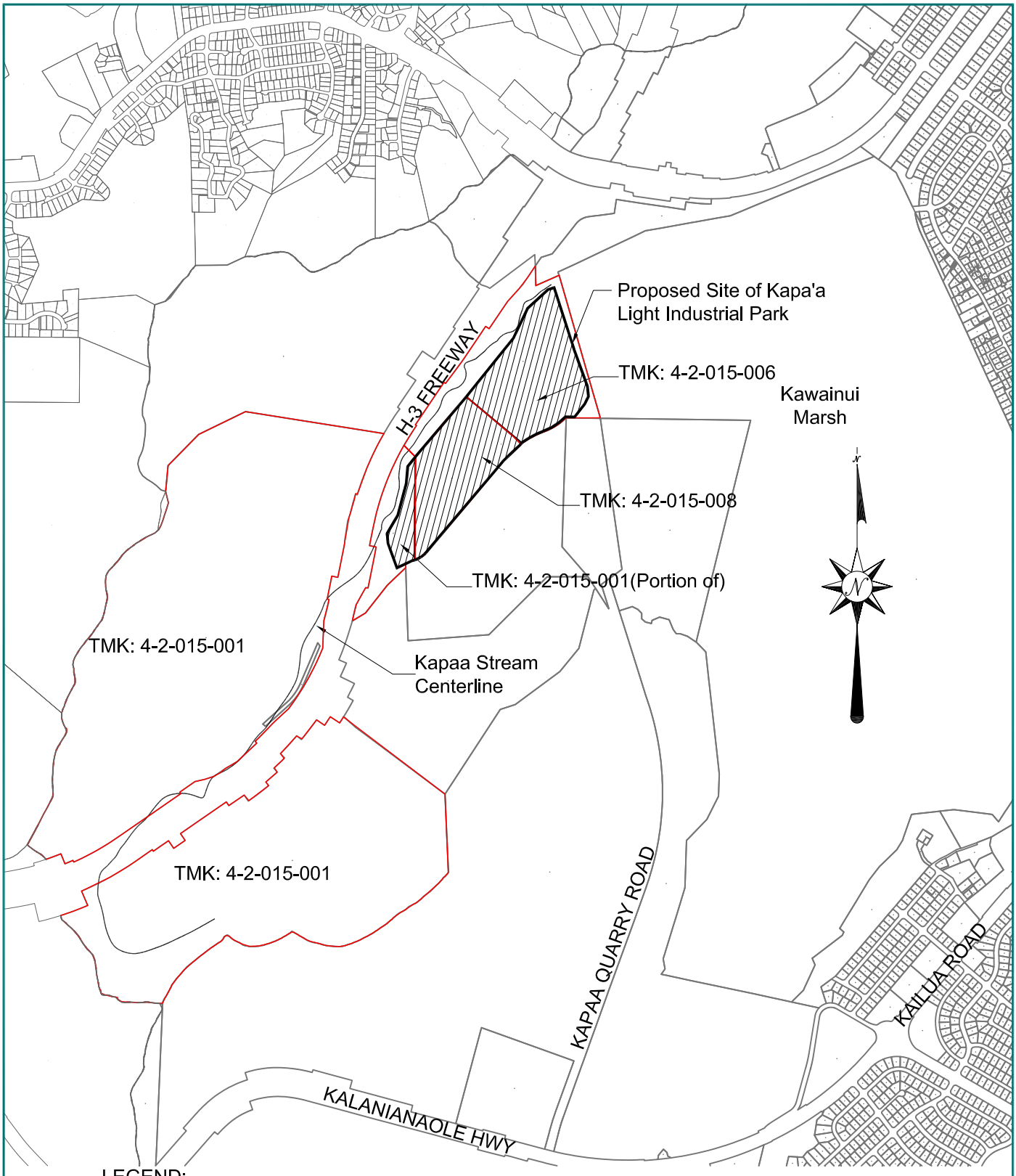

Figure 2-59 General Location Map

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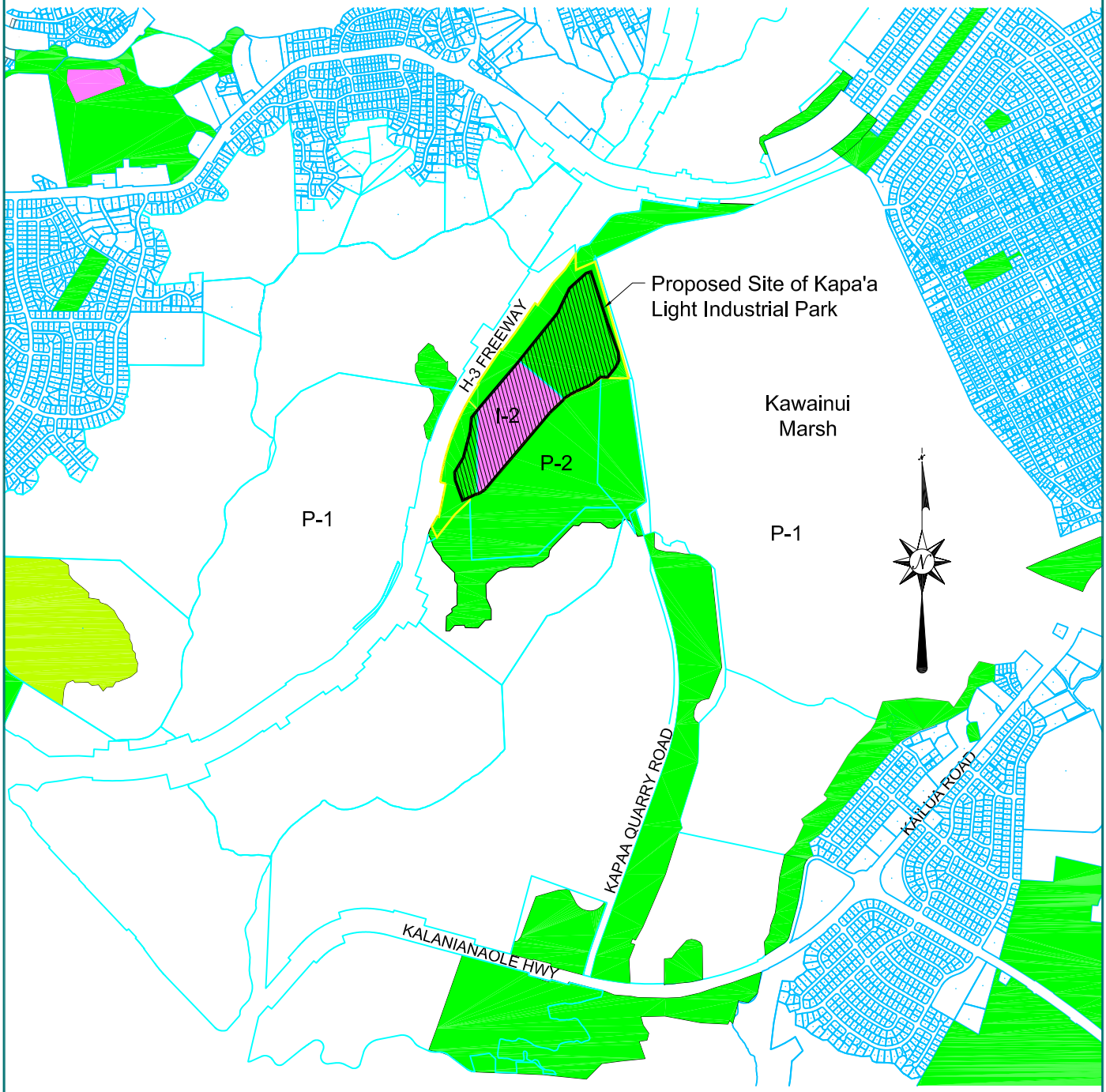
1500' 0 1500' 3000'

SCALE: 1" = 1500'-0"



LEGEND:

- P-1 RESTRICTED PRESERVATION DISTRICT
- P-2 GENERAL PRESERVATION DISTRICT
- I-2 INTENSIVE INDUSTRIAL DISTRICT
- AG-1 RESTRICTED AGRICULTURAL DISTRICT
- R-5 RESIDENTIAL DISTRICT
- PROPOSED SITE OF KAPA'A LIGHT INDUSTRIAL PARK

Figure 2-60 City & County Zone Map

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2000' 0 2000' 4000'

SCALE: 1" = 2000'-0"

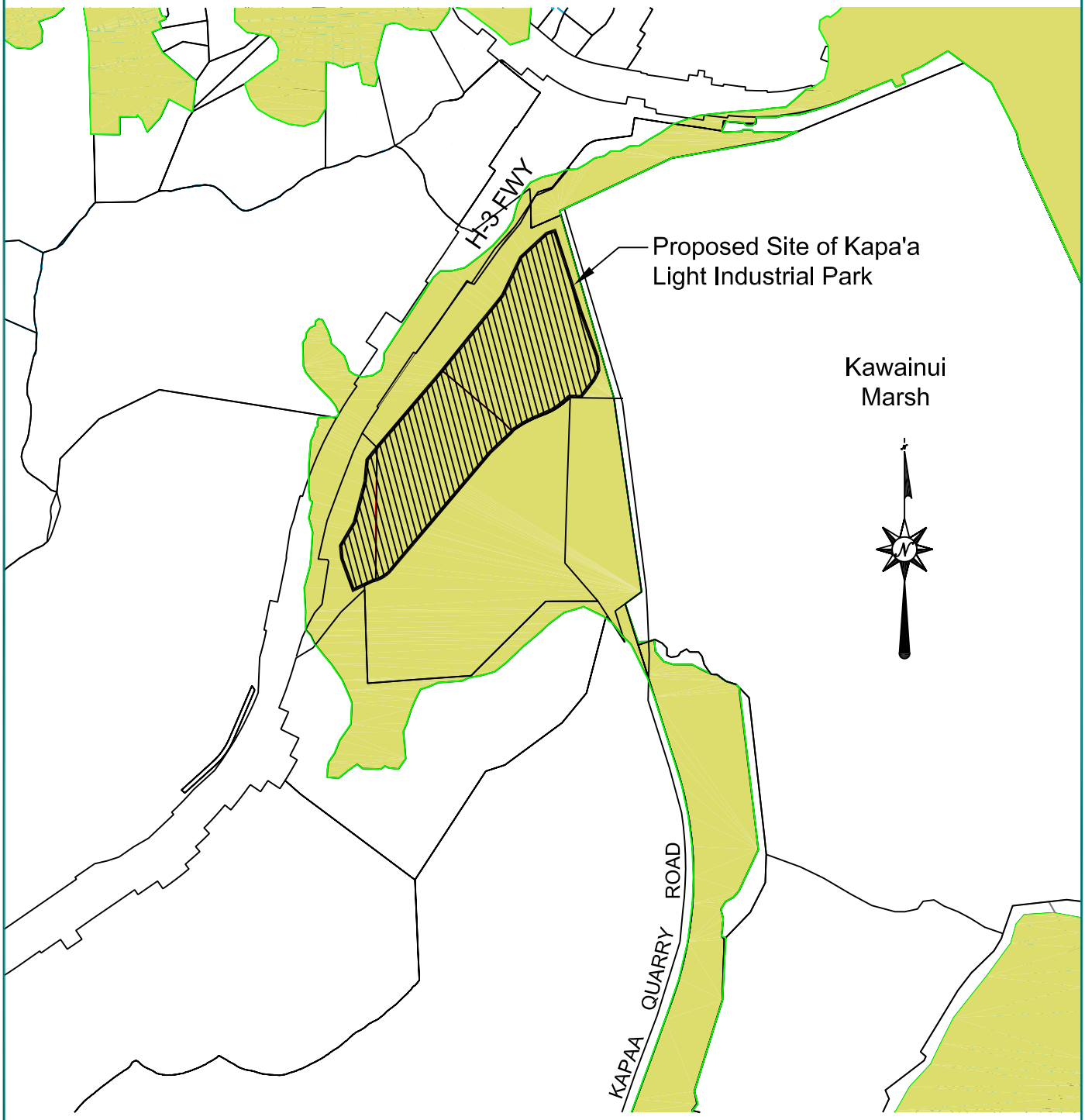

Figure 2-61 State District Map

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1250' 0 1250' 2500'

SCALE: 1" = 1250'-0"

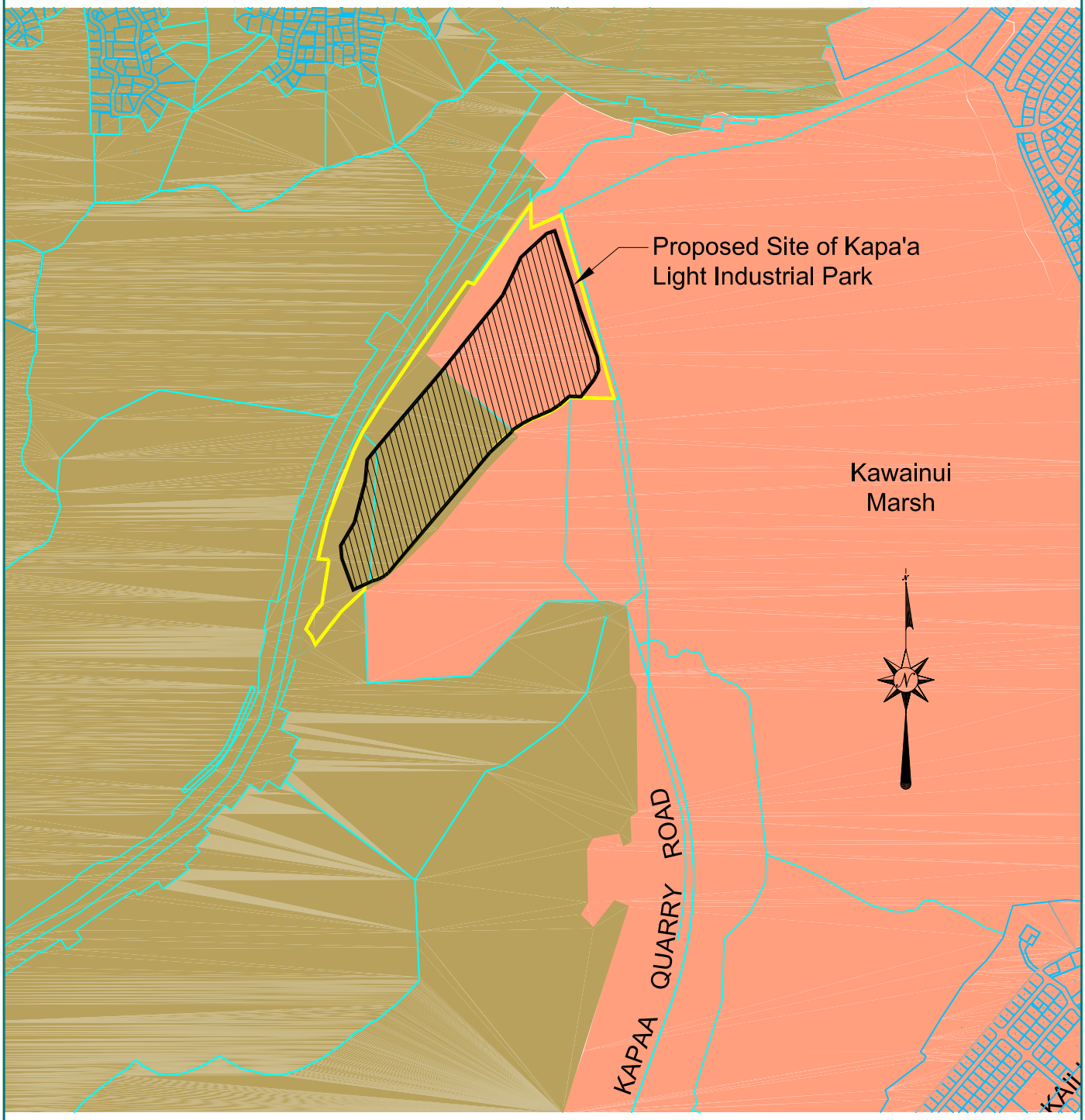

Figure 2-62 Special Management Area

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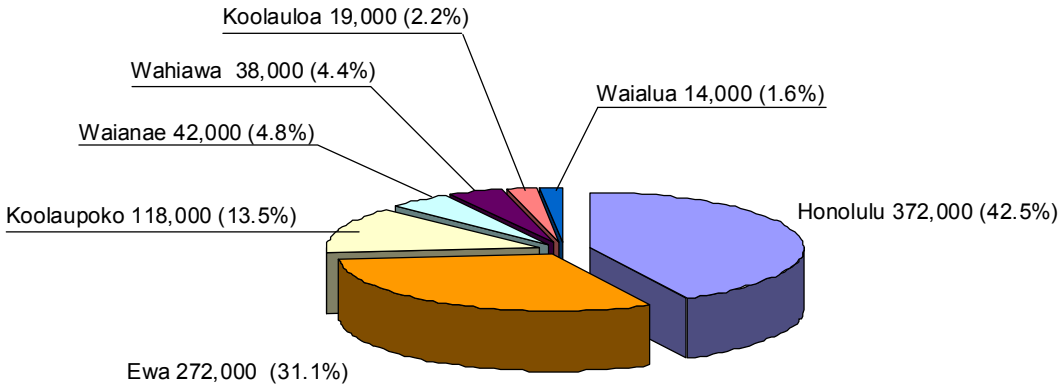
1250' 0 1250' 2500'

SCALE: 1" = 1250'-0"

2.2.2 Population and Economy in the Koolaupoko Region

The Koolaupoko region has the third largest population among the seven main districts of the City & County of Honolulu. Figure 2-63 indicates the distribution of population on Oahu. As indicated about 13.5% of the Oahu population lives in the Koolaupoko region. Figure 2-64 indicates that the main population centers in the Koolaupoko region are Kailua and Kaneohe neighborhoods, which together account for approximately 70% of the population in the Koolaupoko region.



Note: District xxx,xxx = absolute population ; (xx.x%)= present of C&C of HNL

Figure 2-63 Population Distribution in the City & County of Honolulu (data from DBEDT 2007 State Data Book)

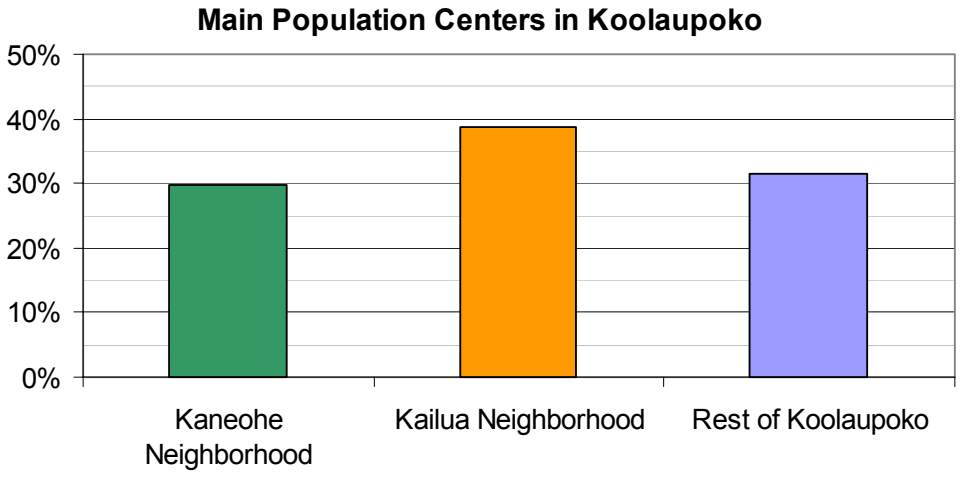


Figure 2-64 Main Population Centers in Koolaupoko Region (data from DBEDT 2007 State Data Book)

Existing policies and future visions call for measures that retain a constant population density in the Koolaupoko region and discourage significant population growth in the region over the next decades.

For the period from 1980 through 2000, Figure 2-65 indicates that the Koolaupoko region has shown little growth. While the total population within the City & County of Honolulu has been growing, the population in the Koolaupoko regions has remained essential constant. For the year 2030 it is predicted (DBEDT, 2006) that the population in the Koolaupoko region will decrease about 3% relative to its current number, while Oahu's total population is expected to increase by 22% over its current number. The Koolaupoko region is the only region on Oahu, which is predicted to have a negative population growth in the years to come.

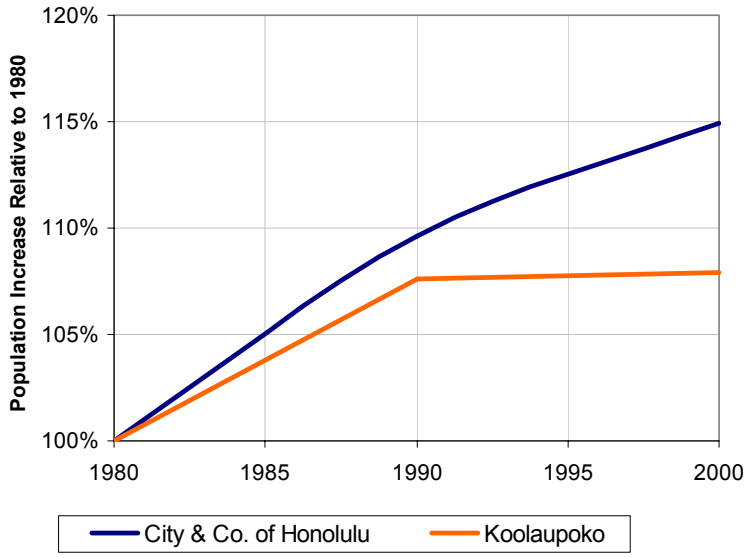


Figure 2-65 Comparison of Population in the City & County of Honolulu and the Koolaupoko Region (data from DBEDT 2007 State Data Book)

The urban areas of Kailua and Kaneohe are generally categorized as "bedroom" communities. The bulk of the population in these two regions commutes everyday to employment centers in the central part of Oahu. The development of the labor force on Oahu shows that it has been growing at a faster rate than the population over the past years, suggesting that Oahu provides a favorable employment environment. Figure 2-66 indicates the development of the labor force and population relative to the year 2002.

According to State Department of Business and Economic Development, 2007 Data Book, the median income per house hold in the area, which is primarily affected by the proposed development, is $66,000 to &72,800. The median income per household for the county of Honolulu, in comparison is $51,900.

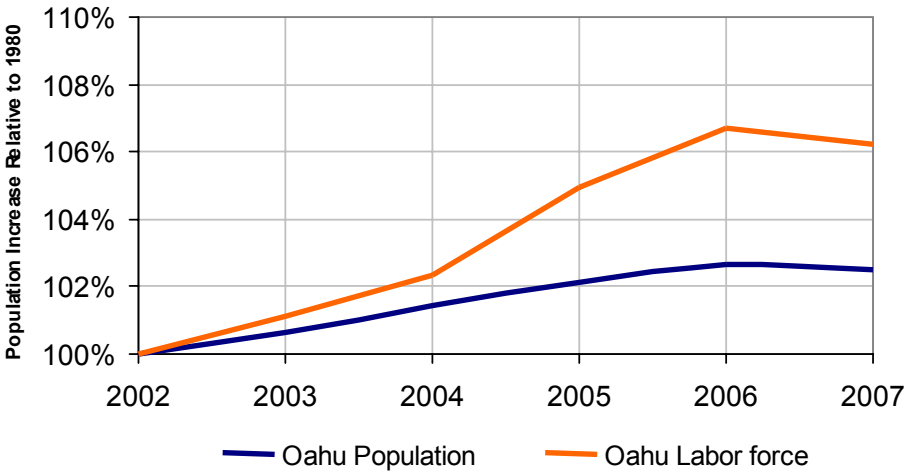


Figure 2-66 Development of Labor Force and Population on Oahu
(data from DBEDT 2007 State Data Book)

2.2.3 Police and Fire Department

Fire stations: There are three fire stations that serve the Kailua area and would also serve the proposed Kapa'a Light Industrial Park. These fire stations and the approximate distances to the proposed site are as follows:

(1) Main Kailua fire station on Kuulei Road, at a three mile distance,
(2) Fire station on Kaneohe Bay Drive at the Aikahi Park Shopping Center, at a two mile distance,
(3) Olomana fire station on Kalanianaole Hwy., at a two mile distance.

Police Stations: The police station that would serve the proposed Kapa'a Light Industrial Park is located next to the Kailua main fire station on Kuulei Road, at a three mile distance.

2.2.4 Medical Facilities

There are two major medical facilities within five miles of the proposed site:

- Castle Medical Center - 2.5 miles distance from proposed site
  640 Ulukahiki Street, Kailua, HI
  Castle Medical Center is a non-profit medical facility owned by the Seventh-day Adventist Church and operated by Adventist Health. This 157-bed primary health care facility is located next Kawainui Marsh on the Windward side of Oahu. The clinic serves the entire island of Oahu. The medical facility provides a wide range of inpatient and outpatient services. The clinic has a 24-hour emergency department.

- Hawaii State Hospital - 5.0 miles distance from proposed site
  45-710 Keaahala Rd., Kaneohe, HI
  Hawaii State Hospitak is a 194-bed hospital located in Kaneohe on the windward side of Oahu. The hsopital provides integrated and evidence-based psychiatric treatment and rehabilitation to individuals suffering from mental illness and co-occurring disorders. It is the only hospital in Hawaii which is dedicated to serving adults with serious mental illnesses.

2.2.5 Recreational Facilities

There are two community parks within a one-mile distance from the proposed site.
Kawainui Model Airplane Park is located on the western edge of the Kawaiinui Marsh and would be directly adjacent to the proposed site. The Kapa'a Quarry Road would separate the "airplane" park from the proposed Kapa'a Light Industrial Park.

The future Kawainui Gateway Park will be located east of the intersection of Mokapu Boulevard and Kapa'a Quarry Road and will be located within one mile from the proposed site.

In addition, the future Kawainui Marsh Trail will provide a perimeter trail around the 830 acre wetland. The trail would pass the proposed site of the Kapa'a Light Industrial Park and would run in south-north direction along the eastern side of the Kapa'a Quarry Road.

2.2.6 Schools

There are several public and private schools within a two mile distance from the proposed site. The closest school campus is the Kalaheo High School & Windward Community School, which is less than one mile from the proposed site. This school is the only educational institution within walking distance to the proposed site. The Kapa'a Quarry Road does not serve any residential areas between the proposed site and the school and student would not normally walk past the proposed site.
Other schools that are within a two mile distance from the proposed site are Le Jardin (private School), Kailua High School, Maunawili Elementary School, Kailua Elementary School, Aikahi Elementary School and Kainalu Elementary School.

2.2.7 Refuse Collection and Disposal

There is presently no municipal refuse collection at the proposed site. Refuse is collected and disposed of by private waste management companies. City and County solid wastes transfer station is less than a quarter of miles from the proposed development site.

2.2.8 Public Transportation

At present there is no public transportation service to the proposed site. The two nearest bus stops are on Kalanianaole Hwy. and Mokapu Blvd.

The bus stop on Kalanianaole is at the intersection with Auloa Street, for both west and east bound buses. This bus stop is at a distance of 1.3 miles from the proposed site. This bus stop is served by five bus lines.

The bus stop on Mokapu Blvd. is at the intersection with Oneawa St., for both west and east bound buses. This bus stop is at a distance of 1.9 miles from the proposed site. This bus stop is served by one bus line.

2.3 Existing Infrastructure

2.3.1 Roadways and Traffic

The existing traffic conditions at the proposed site consist of traffic on the Kapa'a Quarry Road and the Kapa'a Quarry Access Road. Figure 2-67 depicts the existing network of roadways in the vicinity of the proposed site.

The Kapa'a Quarry Road connects the proposed site and other facilities in the Kapa'a Valley to main roads south and north of the Kawainui Marsh. The Kapa'a Quarry Road runs along the western boundary of the Kawainui Marsh. Beside providing access to the commercial and industrial facilities in the Kapa'a Valley the road is also a popular shortcut, connecting the two major roads, the Kalanianaole Highway, in the south and the Mokapu Boulevard, in the north. Vehicles traveling on the Kapa'a Quarry Road that travel between Kalanianaole Highway and Mokapu Boulevard can bypass heavier traveled roads in Kailua and Kaneohe. The Kapa'a Quarry Access Road intersects with the Kapa'a Quarry Road and connects the installations in the Kapa'a Valley with the Kapa'a Quarry Road.

The main commercial, industrial and recreational activities that generate current traffic volumes on the Kapa'a Quarry Road are as follows:

- Ongoing quarry and landfill operations (heavy truck traffic)
- Kapa'a Refuse Transfer Station (heavy truck traffic)
- Existing warehouses on parcel TMK 4-2-015:001
- Equipment storage and processing of construction material on parcel TMK 4-2-015:008
- Existing green wastes operations on parcel TMK 4-2-015:006 (heavy truck traffic)
- Model Plane Recreational Park (opposite the intersection of Kpa'a Quarry Road and Kapa'a Quarry Access Road

Figure 2-67 Existing Traffic Situation

A recent 2007 Traffic count compiled by the Honolulu City and County Department of Transportation is used to assess the current traffic conditions around the proposed site. The traffic count was recorded at three locations in the vicinity of the intersection of the Kapa'a Quarry Road and the Kapa'a Quarry Access Road, so that actual traffic volume into the Kapa'a valley could be estimated. The traffic count was recorded within one week at three locations, which are identified in Figure 2-68.

- Location 1 of the traffic count is on the Kapa'a Quarry Road north of the entrance to the Kawainui Model Airplane Park. This count represents the traffic on the northern leg of the Kapa'a Quarry Road, between the intersection with the Kapa'a Quarry Access Road and Mokapu Blvd.
- Location 2 is on the Kapa'a Quarry Road south of the Kapa'a Refuse Transfer Station. This traffic count represents the traffic on the southern leg of the Kapa'a Quarry Road, between the intersection with the Kapa'a Quarry Access Road and Kalanianaole Highway.
- Location 3 is on the Kapa'a Quarry Access Road west of the entrance to the Green Waste Processing facility. This traffic count represents the traffic to and from the industrial and commercial users in the Kapa'a Valley.

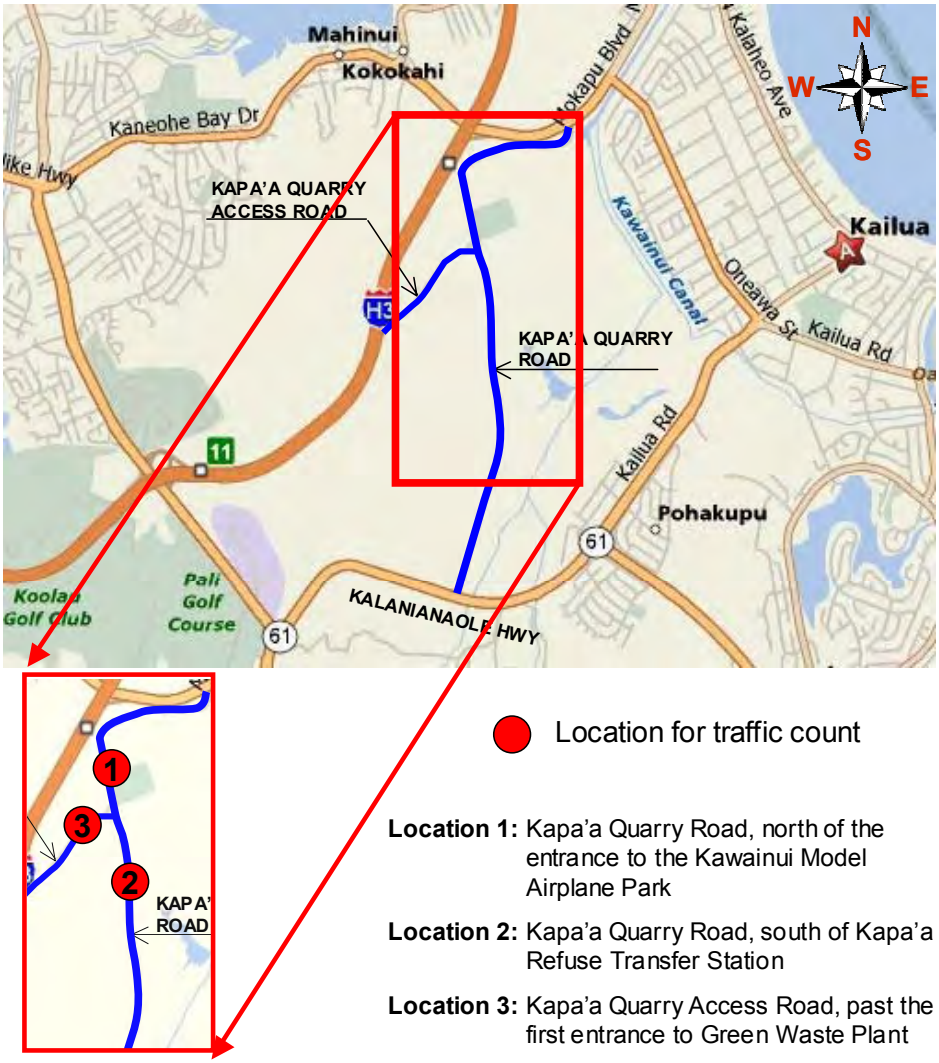


Figure 2-68 Three Locations of Traffic Counts

The traffic counts at the three locations during morning and afternoon hours are presented in the Table 2-5. The traffic counts reported in Table 2-5 are for to two-axes equivalent counts, i.e. the contribution of heavy trucks is not identified. Figures 2-69 through 2-71 show the recorded traffic count distribution over the length of the day at the three locations.

Table 2-5 Traffic Count on Kapa'a Quarry Road

Location (as defined in Figure 2-68)		**Direction of traffic flow**	**Direction of traffic flow**
Loaction 1: Kapa'a Quarry Road, North of Model Park		North-bound on Kapa'a Quarry Road	South-bound on Kapa'a Quarry Road
	12 h total AM	973	1,636
	12 h total PM	1,691	1,319
	24 h total	2,664	2,955
Loaction 2: Kapa'a Quarry Road, South of Transfer Station		North-bound on Kapa'a Quarry Road	South-bound on Kapa'a Quarry Road
	12 h total AM	739	1,195
	12 h total PM	1,196	1,150
	24 h total	1,935	2,345
Loaction 3: Kapa'a Quarry Access Road, past entrance to Green Waste Facility		West-bound on Kapa'a Quarry Access Road	East-bound on Kapa'a Quarry Access Road
	12 h total AM	626	605
	12 h total PM	425	767
	24 h total	1,051	1,372

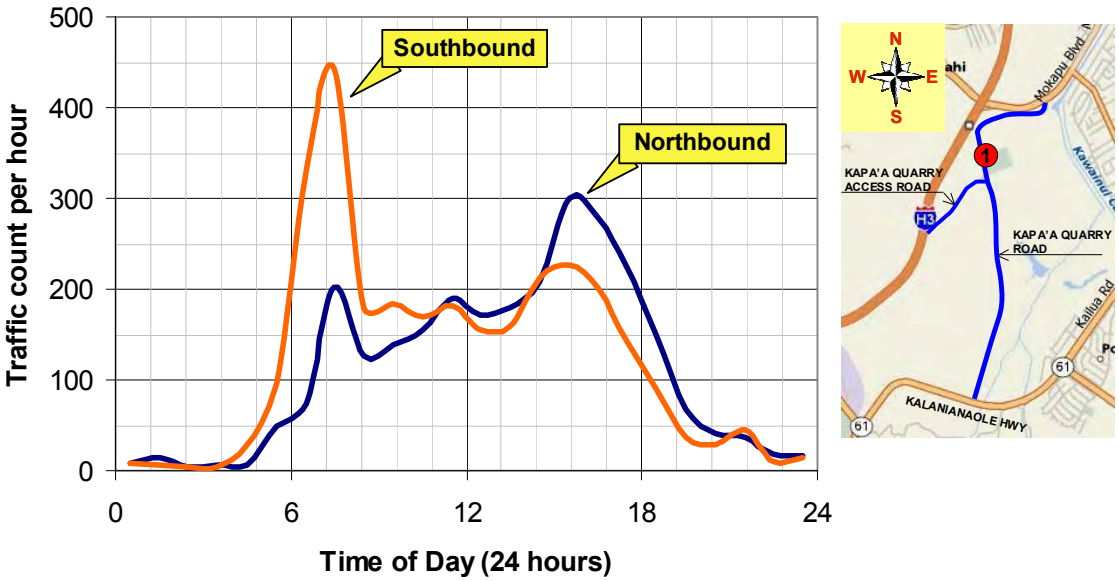


Figure 2-69 Traffic Count at Location 1

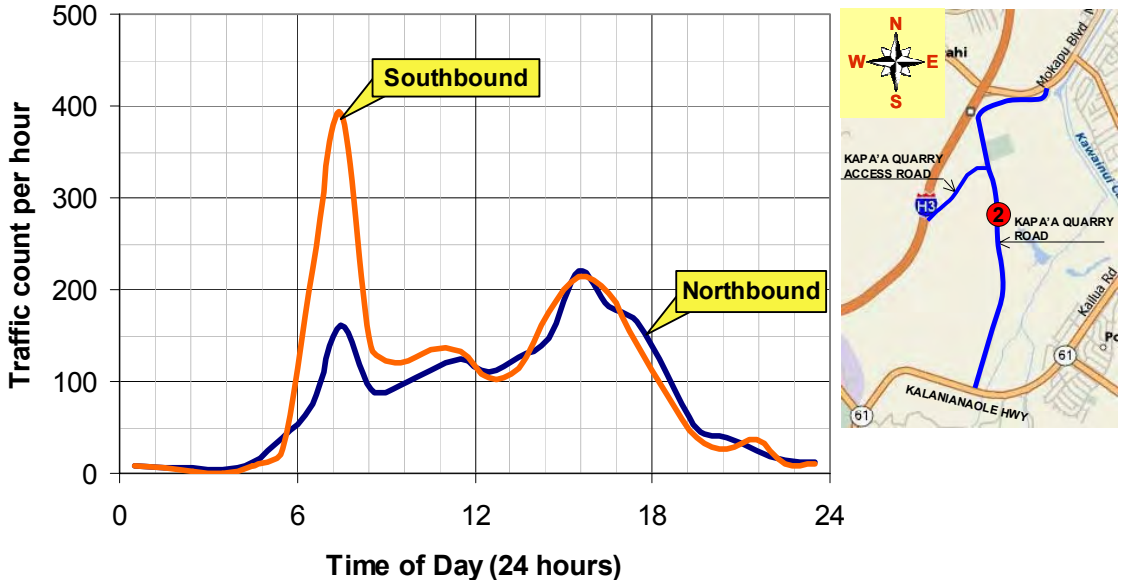


Figure 2-70 Traffic Count at Location 2

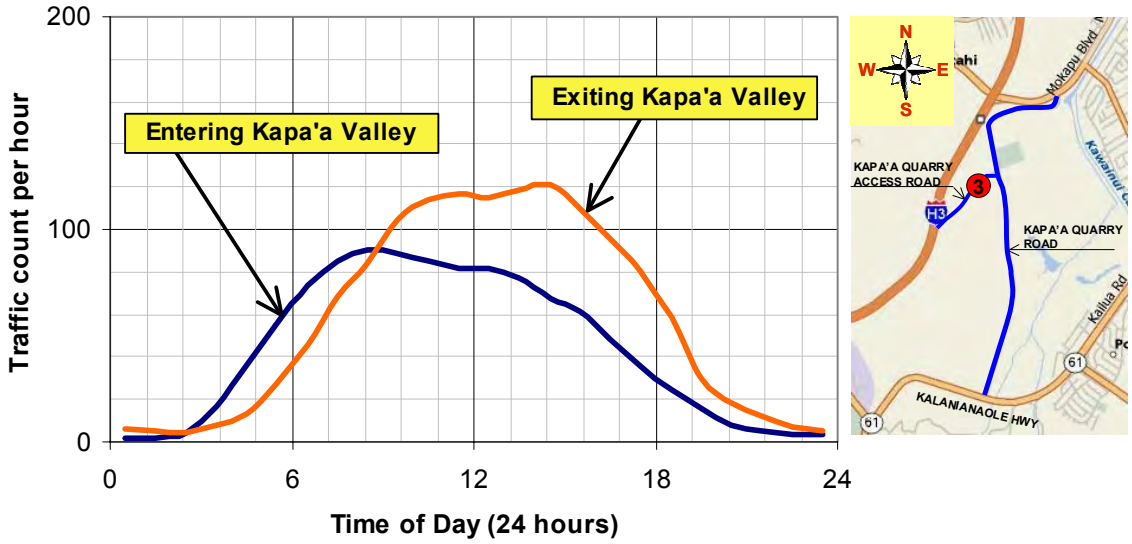


Figure 2-71 Traffic Count at Location 3

Figures 2-69 and 2-70 indicate two daily peaks in traffic volumes; the larger peak for the southbound traffic in the morning peak hours and a smaller peak for the northbound traffic in the afternoon peak hours. The results suggest that the main traffic peaks occur in the morning and afternoon rush hours, when commuter traffic uses the Kapa'a Quarry Road in southbound and northbound directions, respectively. Figure 2-71 indicates that the traffic on the Kapa'a Quarry Access Road, which basically serves all traffic going into the Kapa'a valley, including the proposed site, is more uniformly distributed over the entire length of the day.

Analysis of the traffic count indicates that the main traffic on the Kapa'a Quarry Road is generated by vehicles traveling between Mokaou Blvd. and Kalanianaole Highway. The traffic volume count distributions suggest that the traffic between Mokapu Blvd. and Kapa'a Quarry Access Road is heavier than between Kapa'a Quarry Access Road and Kalanianaole Hwy. Therefore, it can be concluded that the traffic into the Kapa'a Valley uses the northern leg of Kapa'a Quarry Road , to and from Mokapu Blvd. to a higher degree than the southern leg, to and from Kalanianaole Hwy. It should be noted that the Kapa'a Quarry Road between Mokapu Blvd. and the intersection with the Kapa'a Quarry Access Road, has sections with missing or narrow shoulders, which can impede traffic and reduce flow capacity. Such limitations are not as pronounced on the road section between the intersection with the Kapa'a Quarry Access Road and Kalanianaole Highway.

The existing traffic volume on Kapa'a Quarry Road suggest that the road has a medium traffic count and a high level of service. This would suggest that the existing traffic volume is below the roadway capacity and additional traffic could be accommodated. The morning rush hour peak is steep and short for the southbound (SB) traffic. The traffic bound for the Kapa'a Valley does not exhibit sharp morning and afternoon peaks and the traffic volume is more evenly distributed during the day.

At present the proposed site is accessed from Kapa'a Quarry Access Road. The three parcels that constitute the proposed site are accessed by five entrances, as shown in Figure 2-72.

Entrance No. 1 provides access from the Kapa'a Quarry Access Road to parcel TMK 4-2-015:001. This is an unpaved entrance.

Entrance No. 2 provides access from the Kapa'a Quarry Access Road to parcel TMK 4-2-015:008. This is a paved entrance.

Entrance No. 3 provides access from the Kapa'a Quarry Access Road to parcel TMK 4-2-015:008. This paved entrance, provides access to existing warehouses and outdoor equipment storage areas in the south-western part of parcel TMK 4-2-015:008.

Entrance No. 4 provides access from the Kapa'a Quarry Access Road to parcel TMK 4-2-015:006. This is an unpaved entrance.

Entrance No. 5 provides access from to the Kapa'a Quarry Access Road to parcel TMK 4-2-015:006. This is an unpaved entrance.

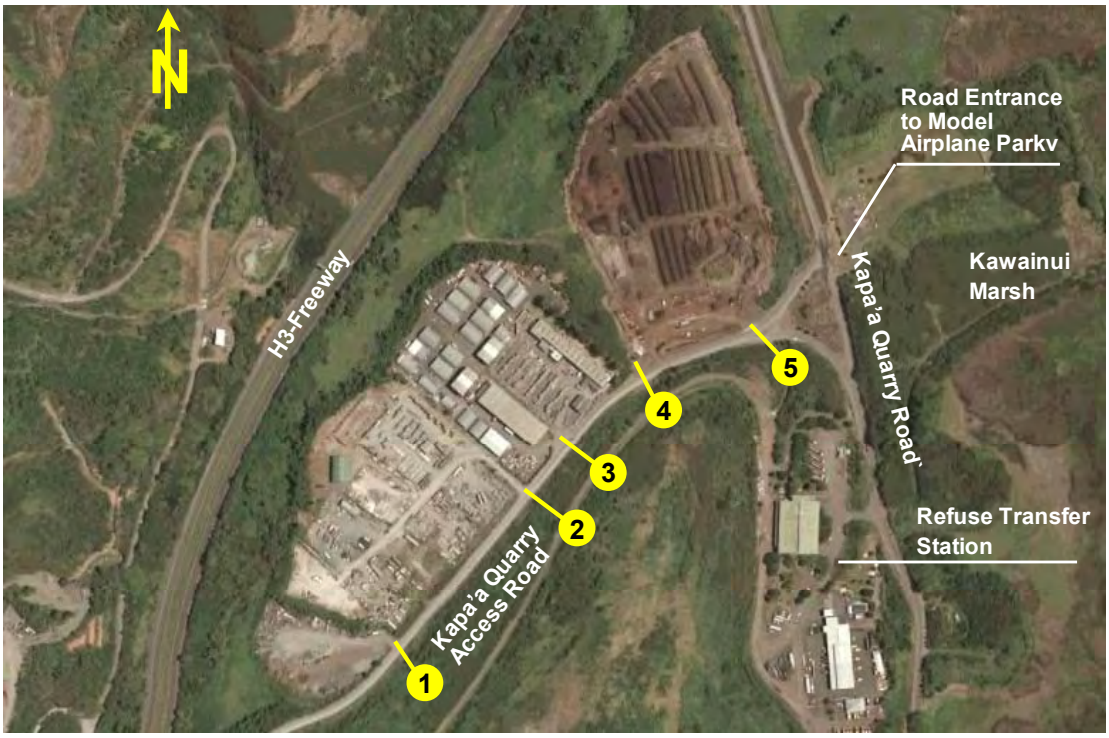


Figure 2-72 Existing Road Entrances to the Proposed Site

2.3.2 Water System

The existing potable water infrastructure supplying water for potable and fire fighting uses water is depicted in Figure 2-73. An existing 36-inch water main runs along Kapa'a Quarry Road and provides water service to the site. A 2-inch water line connects the existing users on the proposed site with the 36-inch water main. There is a 2-inch water meter on the property next to the Kapa'a Quarry Road. A 10-inch firewater line also connects the 36-inch water main to an existing fire pumping station on parcel TMK 4-2-015:008. The pump station boosts the water pressure for potential fire fighting. The current water demand at the existing warehouse development is estimated as about 20,000 gallons per day. The fire fighting water demand is 4,000 gallons per minute for a three hours fire.

2.3.3 Wastewater System

The proposed site is currently not connected to the municipal sewer system since there is no gravity sewer or force main serving the property or along the Kapa'a Quarry Road. Wastewater is treated on-site in five septic tanks with a capacity of 1,250 gallons each. Every septic tank is connected to its own leach field. The average dimensions for all five leach fields are 60 feet in

length, 18 feet width and 4 feet depth. The sludge, collected in the five septic tanks is removed by private operators every four to six weeks. Figure 2-73 shows the locations of the five septic tanks on the parcel TMK 4-2-015:008.

2.3.4 Electricity and Telephone

The existing users of electricity on the proposed site are supplied via a HECO 4.16 kV line that connects to one 4.16 kV circuit on Mokapu Blvd. Figure 2-73 shows the alignment of the 4.16 kV line. From Mokapu Blvd. the line runs first southwest parallel to the H3-Freeway and then changes direction to the southeast. The line crosses the parcel TMK 4-2-015:006 and then runs parallel to the Kapa'a Quarry Road to the intersection of Kapa'a Quarry Access Road and Kapa'a Quarry Road. From there the line again changes direction and runs westwards along the Kapa'a Quarry Access Road to the users in the Kapa'a Valley.

The existing 4.16 kV is the only electricity supply line to the Kapa'a Valley. According to HECO there is no more capacity on the circuit from Mokapu Blvd. to serve new loads. Therefore in order to serve new loads a new circuit would need to be installed from a 12.47 circuit along Kalanianaole Hwy. to the proposed site via Kapa'a Quarry Road.

Telephone service to the Kapa'a Valley is provided by an aboveground telephone line that runs along Kapa'a Quarry Road towards Mokapu Blvd., as illustrated in Figure 2-73.

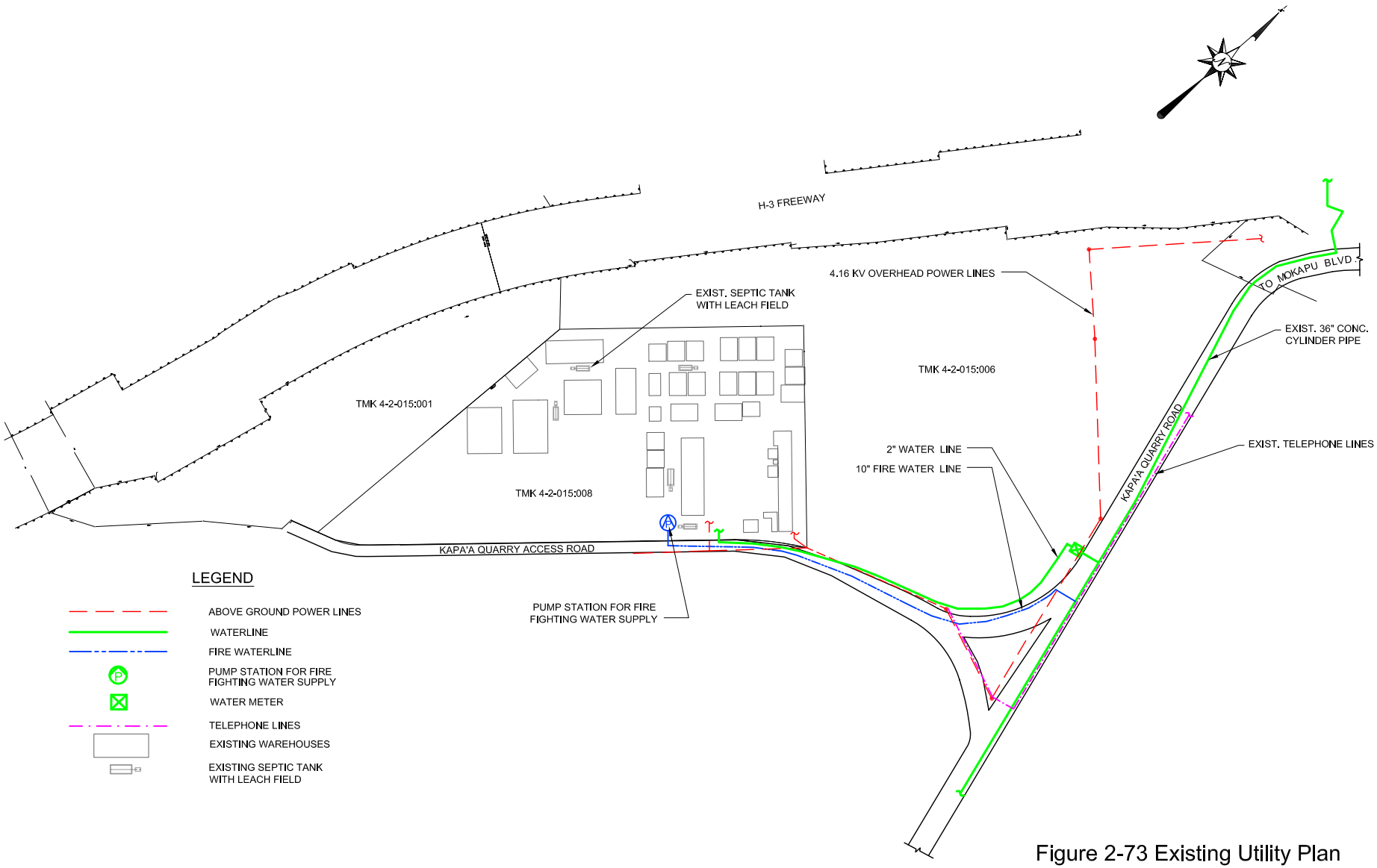


Figure 2-73 Existing Utility Plan

500' 0 500' 1000' 2000'

SCALE: 1" = 500'-0"

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SECTION THREE

ASSESSMENT OF IMPACTS OF THE PROJECT

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SECTION THREE

ASSESSMENT OF IMPACTS OF THE PROJECT

In this section, potential impacts of the proposed development on various components of the physical environment are discussed.

3.1 Impacts on Physical Environment

3.1.1 Climate

The proposed warehouse development will not have a noticeable impact on the climate in the immediate vicinity of the proposed site. There is, however, a possibility of slight changes to the micro climatic to occur within the warehouse development due to the presence of artificial heat islands caused by development of new warehouses and paved surfaces. Heat islands form as vegetation is replaced by asphalt and concrete used in roadways and warehouse structures. These surfaces can absorb - rather than reflect - the sun's heat, causing increase in surface temperatures and overall ambient temperatures. The impact of local heat islands in the proposed warehouse development could therefore be local increases in temperatures and reduction in evaporation. Another potential impact can be attributed to the blocking of wind, which would, in turn, inhibits cooling by convection. Waste heat from vehicles and machineries, air conditioning, industrial activities, and other miscellaneous sources could contribute to the heat island effects.

The heat island effect is pronounced in dense urban developments, which lack vegetation cover and feature a large area of paved surfaces and tall buildings. The effect of heat islands in the proposed warehouse development would be noticeable but would be much smaller than in other densely developed areas of Kailua. The adverse effects of heat islands could be effectively mitigated by appropriate mitigation measures to be discussed in the Section Four.

3.1.2 Erosion

Erosion is the displacement of solids from ground surface by wind or water. Erosion can be a problem when appropriate measures of surface stabilization, such as vegetation or pavement are missing and steep slope is high enough to induce runoff. If water can infiltrate into the ground the level of erosion diminishes.

Under the existing conditions at the site, erosion can be observed in areas that lack ground cover and where the slope is large enough so that rainwater runs off rather than infiltrates into the ground. The partly developed areas in TMK 4-2-015:001, which are used for outdoor equipment storage and construction material processing, show limited effects of surface erosion, due to the fact that the slope is mild and the surface is not paved. The area of TMK 4-2-015:008, which contains existing warehouses and outdoor storage has a sizable paved area but due to mild slope there is limited erosion. The area of TMK 4-2-015:006, has a large area of exposed soil with no to limited vegetative surface cover. Average ground slope in this area is

2.5% and 3.6 % in west-east and south-northerly directions, respectively. This area exhibits some level of surface erosion, mainly in small channels rills.

3.1.3 Flora and Fauna

The project site does not contain any habitat or sanctuary for rare, endangered and threatened species. The extent of flora and fauna found in the area is limited to the area close to the mouth of the Kapa'a and within its perimeter setback area. The master plan for the development includes restoration and expansion of 15 acre wildlife sanctuary at the mouth of Kapa'a Stream, which will greatly improve the existing habitat for several species and improve the aquatic habitat as well.

The site does not contain any significant indigenous plants, shrubs or large trees. The master plan for the proposed development calls for plating of shrubs, trees and grass areas between various structures. This action would balance removal of scant vegetation and wild shrubberies during grubbing of the property before mass grading. In short, the development does not significantly impact the flora or fauna at the site.

3.1.4 Noise Environment

The existing noise environment at the proposed site is mostly the noise originating from highway traffic on the adjacent roads the H3-Freeway which envelope the site.

Noise levels over a certain threshold can have negative health effects, such as hearing impairment, hypertension, ischemic heart disease, sleep disturbance, and decreased performance. Even lower noise levels can cause a high level of annoyance and stress. Different perception of the noise impact can be experienced by different observers, due to psychological and non-noise related factors, such as beliefs about noise prevention and the importance of the noise source, and annoyance at the cause of the noise.

Due to quarry and landfill operations as well as commercial operations at the existing warehouses on the proposed site, heavy truck traffic is prevalent on the Kapa'a Quarry Road and Kapa'a Quarry Access Road. Table 3-1, presents traffic factors, which contribute to increase in noise levels.

Generally, the existing average noise level at the proposed site, which is defined as the steady sound level that contains the same amount of acoustical energy as the corresponding time-varying sound sources, is not high enough to cause health effects. There are no residential areas in the vicinity of the proposed site. Existing noise impact is primarily perceived by people visiting sites of commercial and industrial activities in the Kapa'a Valley and people visiting the Kawainui Marsh, especially the Model Airplane Park, on the eastern side of Kapa'a Quarry Road in the vicinity of the proposed site. The Model Airplane park itself emits considerable

noise level during short periods of the week coming from the operation of smaller high-pitched model plane engines.

Table 3-1 Factors Contributing to Noise Level at Proposed Site

Typical Causes of Highway Noise	Expected Contribution to Noise Level at the Proposed Site
Volume of the traffic	Noise generated by larger traffic volume
Speed of the traffic	Traffic noise greatly reduced by slower traffic
Number of trucks in the traffic flow	Larger number of trucks increases the noise level
Noise emitted by the vehicle, as a combination of the noises produced by the engine, exhaust, and tires	Newer vehicles are subject to reduced operating noise
Defective mufflers or other faulty equipment on vehicles	Defective vehicles add to the generated noise
Steep inclines on roads adjacent to site	Causes heavy laboring of motor vehicle engines and greatly increases the noise level
Acceleration of vehicles	Unnecessary high acceleration increases the noise level
Idling of stationary or loading vehicles	Unnecessary idling increases the noise level

The wildlife in the Kawainui Marsh is exposed to the existing noise level originating from the traffic on Kapa'a Quarry Road and other sources of noises, as indicated above. The reaction of wildlife on noise is complex and depends on a range of factors, such as noise level, frequency distribution, duration, number of events, variation over time, noise type (e.g., white noise versus harmonic or pure tones), level of ambient (background) noise, time of day and other factors. Generally, speaking, the typical reaction of wildlife to noise is avoidance, meaning that wildlife density around the noise sources would diminish over time of exposure. With the existing level of noise it is anticipated that wildlife density around the primary sources of noise, e.g. Kapa'a Quarry Road, is lower than in more distant areas of the Kawainui Marsh.

The construction and operation of new warehouses at the proposed site will inevitably add new noise sources to the existing noise environment. The anticipated sources noise would originate from construction activities and from normal operations of the proposed warehouse development.

It is anticipated that the dominant noise sources during construction will be through heavy machinery used in earth moving and road construction. The duration of this noise intensive period of the site development work would be several months. Once the site development is completed individual warehouses would be added over approximately 15 years of development of the proposed Kapa'a Light Industrial park. Normal types of construction noise during completion of warehouse buildings is significantly less than
Sources of noise during operations rage from traffic noise to the operation of machinery inside the warehouses. Among the significant new noise sources originating from highway traffic is the increased traffic volume on the adjacent streets and traffic within the warehouse development.

By implementing more effective mitigation measures, to be discussed later in this environmental assessment, it is anticipated that the contribution of newly developed sources of noise from the construction and operation of the proposed warehouse development will not significantly increase the existing noise levels at or in the vicinity of the proposed site.

3.1.5 Air Quality

The main anthropogenic sources of impaired air quality around the proposed site are from vehicle exhaust and the dust and other agents that are released into the atmosphere during commercial or industrial activities. The existing level of air pollution at the proposed site is low and has not shown to cause any acute effects on people and wildlife.

The proposed warehouse development would increase the traffic level and would therefore contribute to an increase in air pollution. The level of increase of air pollution from the proposed warehouse development would, however, be relatively small when compared to the exhaust from traffic flow serving the entire Kapa'a Valley.

While the level of air pollution from traffic would increase, air quality impacts from dust emissions would be significantly reduced due to reduction of bare and unprotected ground surfaces.

Air quality impacts from the release of harmful agents during the commercial and industrial activities in the proposed warehouses could be effectively mitigated with appropriate measures.

It is anticipated that the proposed development will have no significant adverse impact on air quality in the area.

3.1.6 Artificial Light Environment – Light Pollution

The presence of a significant source of artificial light can result in a range of impacts. Relevant impacts at the proposed site could include the following effects:

Safety issues for traffic on the Kapa'a Quarry Road: The road is unlit at night and brighter light emitted by fixtures at the new warehouses could be a significant hazard to motorists due to their scattering of light and glare.

Disruption of ecosystems: The disruption of natural light and dark patterns can influence many aspects of animal behavior. Light pollution can confuse animal navigation, alter competitive interactions, change predator-prey relations, and influence animal physiology. Birds can be disoriented by lights.

Energy waste: Excessive lighting can result in high energy consumption, especially if energy in-efficient light sources are used for the external illumination.

Night glare: Excessive illumination can result in night glare that can be noticed over a significant distance, e.g. from Kailua across the Kawainui Marsh and from remote scenic vistas.

Effect on night sky and astrology: Excessive illumination can result in sky glow that in turn reduces the ability to see the stars. Urbanization around the proposed site causes a certain level of sky glow. The proposed site is close to important wildlife habitats and sky glow can have a negative effect on wildlife.

The master plan for the proposed warehouse development calls for an environmentally responsible illumination scheme to be implemented that would mitigate the impacts of fugitive light on safety, wildlife and night sky. It is anticipated that with effective mitigation the proposed warehouse development would have no significant impact due to light pollution.

3.1.7 Cultural Considerations

As discussed previously, the project site is located exclusively on landfill and previously disturbed land. There is no known cultural or historic resources, present at the site. Therefore, it is anticipated that the project will have no impact on cultural and archaeological resources and sites in the area.

3.1.8 Key Design Components

It is anticipated that the proposed key design components of the project to have the following impacts:

Roadways: Impacts from construction and maintenance of roadways are mainly due to storm run-off and the presence of associated pollutants in the run-off water. All roadways in the development will have pervious surfaces and a grated drainage trench along the centerline of the roadways will collect the surface sheet flows which will then be diverted

to one of the on-site detention ponds. The ponds will allow removal of all suspended solids and pollutants before storm flow is diverted into the Kapa'a Stream.

Parking Spaces: Similar to the roadways, potential impacts are mainly due to polluted storm run-off. All parking spaces will be paved with pervious surfaces that allow infiltration of rainwater into the ground.

Loading Docks: The main possible impacts from the proposed detached loading structures could be runoff from parked trucks and temporarily stored cargo, air pollution from idling trucks and noise pollution from loading operations. The run-off would be controlled similar to the roadways, with special emphasis on spilled fuel or chemical agents at the loading docks. Air pollution could be mitigated by avoiding unnecessary idling of truck engines and using propane powered fork lifts. Noise pollution could be mitigated by appropriately shielding the loading docks towards sensitive areas, such as the 15 acre wildlife sanctuary.

Warehouse Structures: Possible impacts from the warehouse structures could be visual, rainwater run-off related, energy consumption, air pollution and noise pollutions. The warehouse shells are typically lightly colored which result in lower accumulation of heat. Light colored building shell, however, is highly visual and adds to the visual impacts of the project. The development calls for a installation row of trees, such as Wiliwili trees, as a perimeter fence which will camouflage the site and will help to mitigate the adverse visual impacts, help to lower the noise and the ambient temperatures. The large roof surfaces of the proposed new structures will generate large quantities of runoff. The proposed mitigation to the run-off is the retention of the rainwater to be partially used for irrigation of grass areas and the shrubberies. The energy consumption in new warehouses would be mitigated by use of energy efficient fixtures and on-site photo-voltaic energy generation. The noise generated in the warehouses would be mitigated by appropriate noise abatement technologies discussed in details in Section Four. Release of the expected types of air pollutants from commercial and industrial activities in the proposed warehouses would be mitigated by appropriate ventilation and filtering.

Wastewater Treatment: Newly de constructed large capacity septic system with leaching field will be used to treat and dispose of wastewater generated on-site. Solids accumulated in the tanks will be routinely transported to island landfills for proper disposal. The effluent form the septic tanks infiltrating the ground will have no adverse significant impact on the watershed or sources of potable water.

Drainage Infrastructure and Detention Ponds: By means of a combination of concrete channels, grassed swales, and sheet flow, the runoff generated by the development will be collected and diverted into several detention ponds before it is finally released into the Kapa'a Stream. Grease and other pollutants will be removed from the run-off waters by means of a series of individual oil-water separators installed at various locations throughout the development for removal of grease and other hydrocarbons pollutants from the flow. The detention ponds will allow settling of the suspended solids and

floatables from the run-off before it is diverted into the Kapa'a stream. The detention basins do not cause any adverse impacts on safety or health of the occupants or customers of the proposed warehouse development.

3.1.9 Open Space Considerations

Open space considerations have become important design tools to decrease the ecological footprint of new developments. The term Open space as used in this Environmental Assessment, is defined as relatively undisturbed land that surrounds the areas developed for the warehouses and roadways and contains mainly drainage infrastructure, wetlands at the mouth of the Kapa'a Stream. Open space is important to a healthy wildlife and ecosystem. Open space surrounding the proposed site of the warehouse will be restored, preserved, and enhanced in order to maintain or improve the natural, scenic, ecological, cultural and hydrological values of the property.

The proposed Kapa'a Light Industrial Park would use sustainable design approaches to arrive at a low ecological footprint while achieving its business performance goals. The creation and/or conservation of open space within the proposed development would be an important aspect to create a low-impact environmental approach for the proposed Kapa'a Light Industrial Park.

In keeping with the environmental goals, the proposed Kapa'a Light industrial Park would employ an open space design by clustering the warehouses, instead of evenly spreading them over the available land within the three parcels that would make up the proposed site. The proposed development would restrict the construction of warehouses, roadways and other ancillary facilities to areas that are presently already developed.

No area that is presently open space would be used for the construction of warehouses and ancillary facilities. Therefore no environmentally significant vegetation, wetland and areas with large trees would be destroyed to make room for warehouses and road system. Rather than resulting in a deterioration of open space and associated environmental impact, the proposed Kapa'a Light Industrial, would improve and restore conditions of the present open spaces. Large trees, wetlands, streambeds or thick vegetation. Parts of this open space would be improved to include a restored wetland conservation area.

Figure 3-1 shows the three parcels TMK 4-2-015:001, 006 and 008, that comprise the proposed site for the Kapa's Light Industrial Park. Figure 5-6 indicates the percentages of open space, developed area (including buildings, roadways and support areas) and the building footprint. The parcel TMK 4-2-015:008, which is presently within the Intensive Industrial District (I-2) zone, has almost no open space. The other two parcels, for which a zone change is being sought, have a relatively high percentage of open space.

In keeping with the goal of these sustainable development objectives, open space is maximized in the design layout. Paved and impervious surfaces within the proposed site would be held to a minimum in order to promote infiltration of storm water and reduce runoff and pollutants. The

areas between the warehouse structures will be landscaped using grass and indigenous plants to enhance the appearance and promote infiltration. Parking areas would be paved by pervious asphalt. Pervious asphalt will be used for roadways and parking spaces. The large detention pond in the lower portion of the proposed development would create an effective open space vegetative buffer zone between the warehouse development and the adjacent Kawainui Marsh, thereby mitigating any possible negative environmental impact.

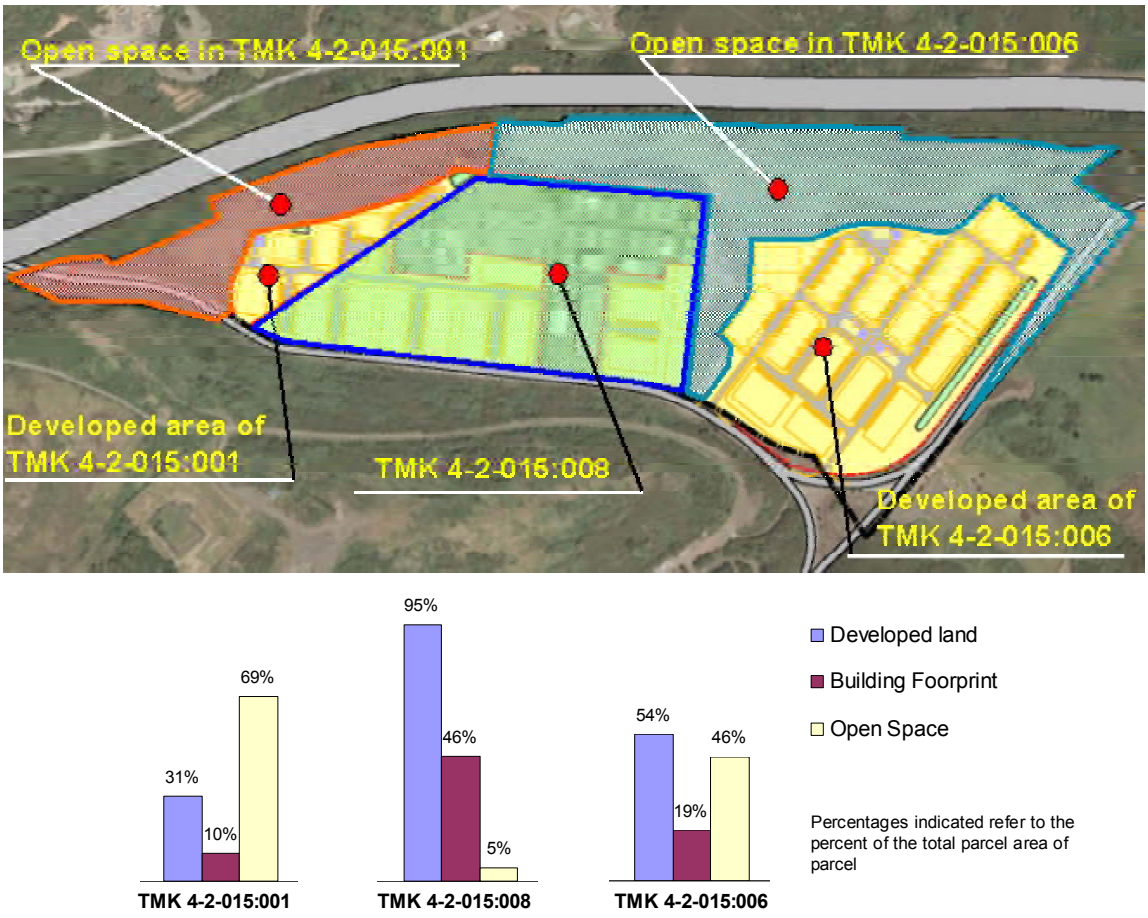


Figure 3-1 Open Space Considerations

Presently, the developer is engaged in the construction of a wildlife sanctuary on restored wetland at the mouth of the Kapa'a Stream. The restoration involves clearing of sections of the present open space from invasive weed while a series of cascading ponds would be installed to serve as habitat for water birds and aquatic fauna. In addition, a vegetated buffer zone will be

established adjacent to the Kawainui Marsh. Similarly, additional shrubberies and native species will be planted along the drop line separating the two tiers of land on the proposed side.

The proposed Kapa'a Light Industrial Park therefore, has not only no significant adverse impact on the open space, it further increases the ecological value of the open space on the property.

3.1.10 Visual Impacts of the Proposed Warehouse Park

The proposed Kapa'a Light Industrial Park is a relatively large development, which would have visual and aesthetic impacts. A series of mitigation measures ranging from utilizing soft color schemes for exterior of the warehouse building, to planting tall trees along the perimeter of the development and creation of buffer zones to dampen the adverse impacts of the proposed development on the view plain.

A 3D-visualization model, which serves as an intuitive spatial impression of the proposed development in contrast to the existing conditions is used to assess the impacts of the development on the view plain. The model provides a visual approximation of nearby and remote vistas of the project site, and depicts how the proposed development would fit into its immediate vicinity. The following assessment of visual impacts addresses overviews of the site, more detailed arrangements and views and the superposition of the virtual warehouses into the present view of the Kapa'a valley.

As it is demonstrated by means of a three-dimensional visual analysis, construction of the proposed development would have no adverse impacts on view plains from the adjacent roadways and public gathering places (e.g. the public park adjacent to the lower portion of the site). On the contrary, the planned vegetative buffer zone around the lower portions of the site would effectively shield the warehouse structures from observers passing the site on Kapa'a Quarry Road. In addition, by developing the site, the existing drainage ditch along Kapa'a Quarry Road which is frequently infested and covered with growth of Salvinia Molesta on the stagnant water surface would be eliminated. This would remove a visual eyesore from the view plain.

3.1.10.1 3D-Overview of the Proposed Site

Figures 3-2 through 3-4 show remote virtual overviews of the entire proposed warehouse development site.

Figure 3-2 shows the proposed warehouse development from a vantage point that is above the center of the Kawainui Marsh. The view is towards the west. The vantage point is purely virtual, since no actual vantage point is at such a high elevation in this view direction. The lower portion of the site, the parcel designated as TMK 4-2-015:006 is in the foreground. Trees represent the vegetative buffer between the proposed warehouses in the lower portion and

adjacent open space, the Kapa'a Quarry Road and the adjacent Kawainui Marsh. The upper portion of the proposed site, the parcels designated as TMK 4-2-015:001 and 4-2-015:008, is in the background. Existing warehouses in parcel TMKs 4-2-015:008 are shown in red color.

Figure 3-3 shows the proposed warehouse development from a vantage point that is above to the northern part of the Kawainui Marsh, close to the Mokapu Blvd. The view is towards the south. The vantage point is purely virtual, since the actual vantage point at the corresponding location has a lower elevation. Figure 3-3 shows the lower portion of the proposed site in more detail than Figure 3-3. The trees represent the vegetative buffer around the warehouses.

Figure 3-4 shows the proposed warehouse development from a vantage point that is above the saddle of the H3-Freeway. The view is towards the north. The vantage point is purely virtual, since no actual vantage point is at such a high elevation in this view direction. The upper portion of the proposed site, with warehouses in parcels with TMKs 4-2-015:001 and 4-2-015:008, is in the foreground. Existing warehouses in parcel TMKs 4-2-015:008 are shown in red color. The lower portion of the site, the parcel designated as TMK 4-2-015:006 is in the background.

3.1.10.2 Detailed 3D-Views of the Site.

This section provides more detailed 3D-views of the proposed site. The 3D-views are grouped in three categories:

3D-image category 1 depicts visualization of the upper portion of the proposed site in Figures 3-5 through 3-9. Figure 3-5 indicates the vantage point for views in Figures 3-6 through 3-9. The warehouses of the upper portion of the site are surrounded by roadways, parking spaces and grassy areas. One detached loading dock is shown that would allow large trucks to load and unload. There are no broad vegetated buffer zones surrounding the warehouses at the outer perimeter, as for the lower portion of the proposed site. The new warehouses would be clearly visible from the Kapa'a Quarry Access Road. The traffic on the Kapa'a Quarry Access Road, which would pass the new warehouses, would be essentially restricted to traffic bound for the industrial landfill and quarry activities in the upper portions of the Kapa'a Valley.

3D-image category 2 depicts visualization of the upper portion of the proposed site in Figures 3-5 through 3-9. Figure 3-10 indicates the vantage points for views in Figures 3-11 through 3-14. The lower portion of the proposed site has a larger visual impact than the upper portion of the site, since the upper portion of the site is further up in the Kapa'a Valley and is shielded by existing vegetation from observes traveling on the H3-Freeway and from observers in the Kawainui Mars. The warehouses in the lower portion of the proposed site are surrounded by roadways, parking spaces and grassy areas. The final lay-out of the lower portion of the site would most likely contain a significant number of trees, which would not only mitigate the visual impact but would also be mitigating noise, water and energy impacts. These trees are not shown in the virtual model. Three

detached loading docks are shown that would allow large trucks to load and unload. Two of which would be located in the interior of the warehouse development, in order to decrease the visual impact but also to mitigate noise and air impacts. The vegetative buffer zone is shown that would surround the lower portion on all sides. The large detention basin that would contain the run-off water from the lower portion of the proposed site is shown with the vegetated buffer zone separating the warehouse development from the Kapa'a Quarry Road and the Kawainui Marsh.

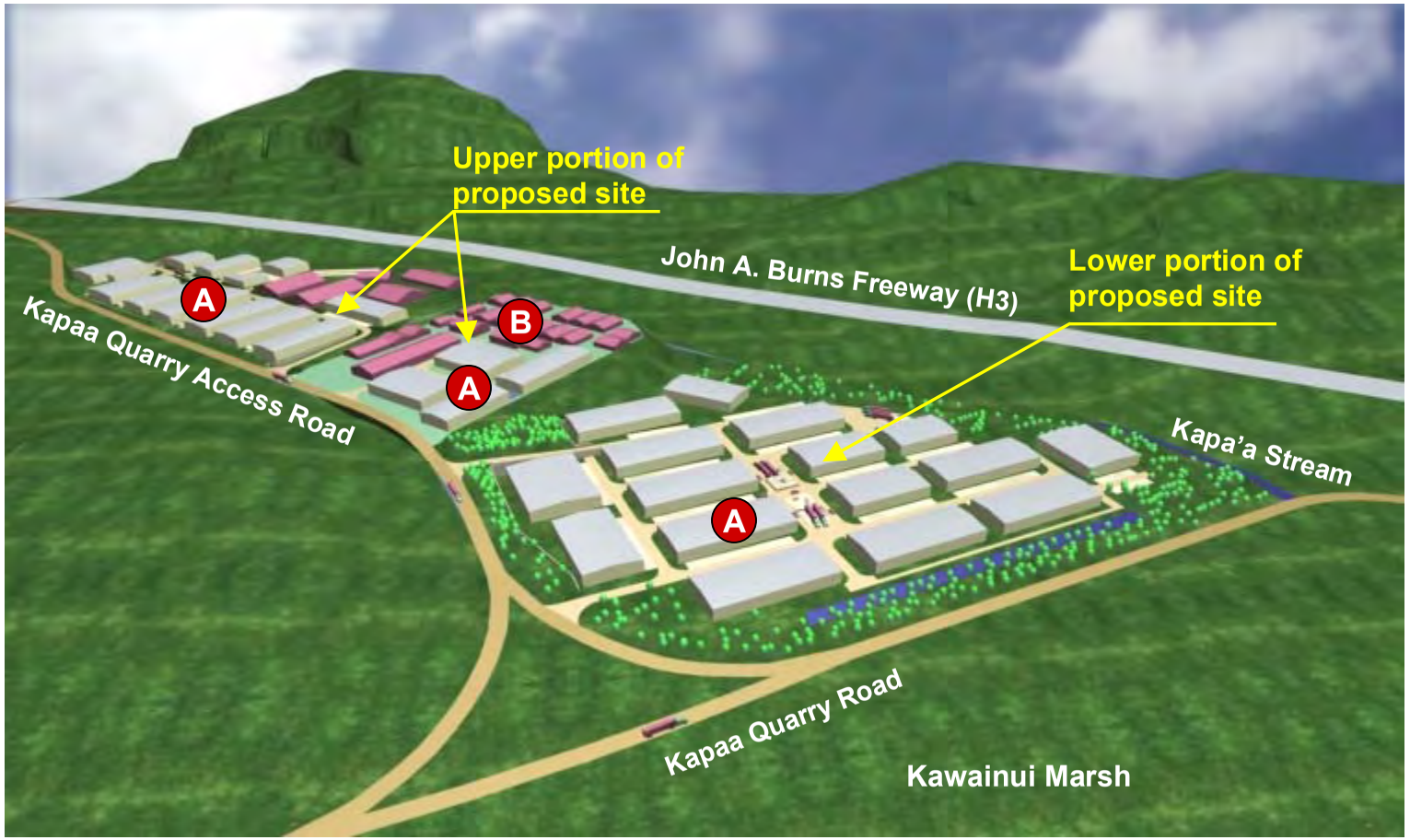
3D-image category 3 depicts views on the lower portion of the proposed site from adjacent roads. Figure 3-15 indicates the vantage points for views in Figures 3-16 through 3-21. This group of six 3D-views simulates views from traffic areas around the proposed site. Views from the Kapa'a Quarry Road on the lower portion of the proposed site are shown since the largest number of observers passing the proposed site would experience these views.

3.1.10.3 Synthesis of Virtual and Real-world Images

A synthesis of virtual image and real-world photographic image is presented in Figure 3-22, in order to assess how the warehouses of the proposed site would appear in relationship to the present surrounding to a northbound observer passing the site on the H3-Freeway. The panoramic view in Figure 3-22 focuses on the western portions of the Kawainui Marsh and the lower portion of the proposed site.

The image shows the future warehouses without the vegetative buffer, thus the actual visual impact would be somewhat less than it appears in the image. In its final configuration the visual impacts of the proposed warehouse park would be mitigated by a range of measures, such as the vegetated buffer zone, color scheme of the warehouse buildings, trees inside the warehouse development and vegetated roofs.

Summarizing, it is anticipated that the proposed warehouse development would not cause significant visual impacts to the scenic impression of the Kapa'a Valley, since the industrial appearance of Kapa'a Valley is established by existing industrial activities and installations that have been in place for many years.



A New Warehouse (GREY image; typical)

B Existing Warehouse (RED image; typical)

Figure 3-2 3D-Overview of Proposed Site

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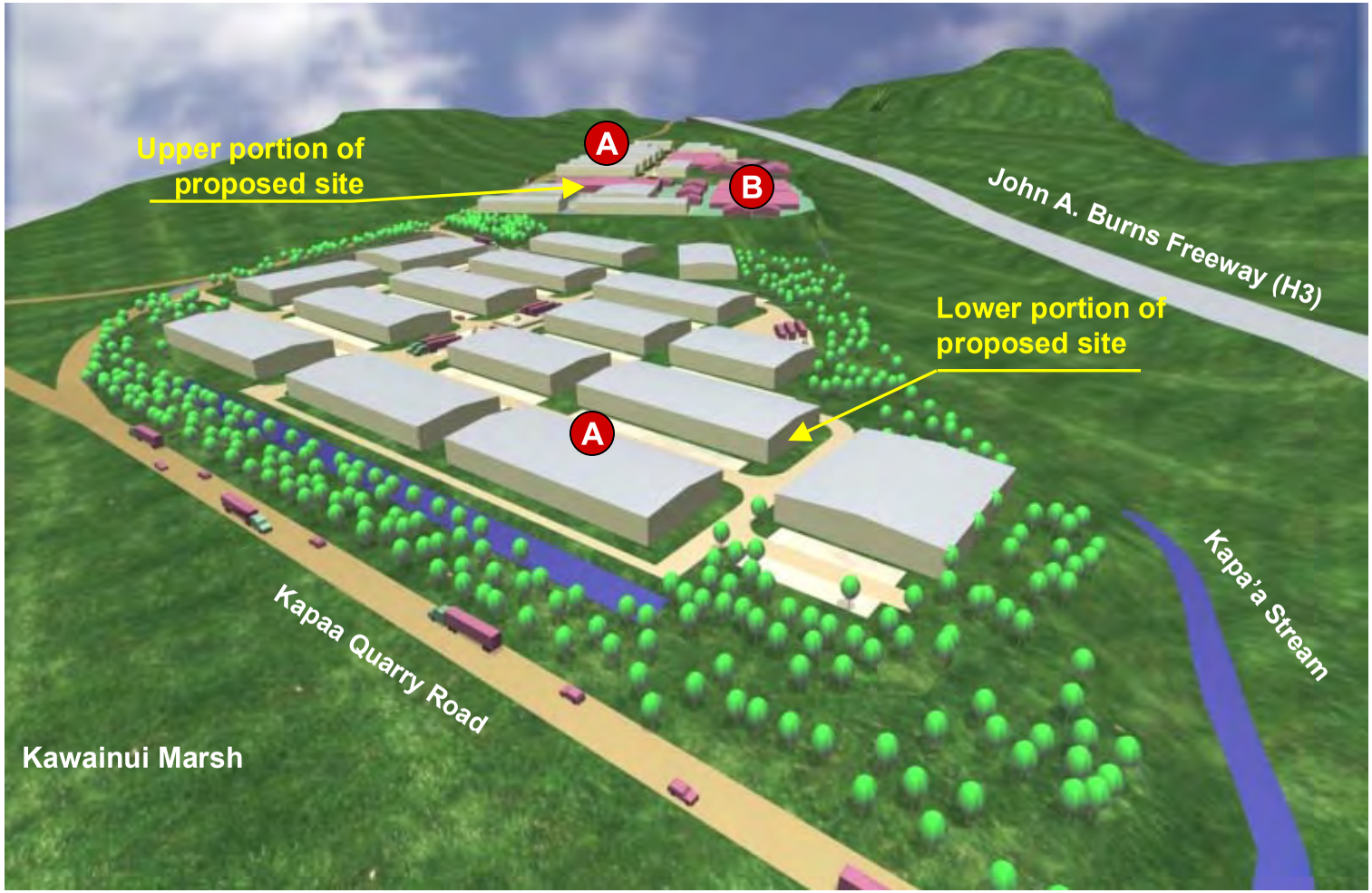

A New Warehouse (GREY image; typical)

B Existing Warehouse (RED image; typical)

Figure 3-3 3D-Overview of Proposed Site

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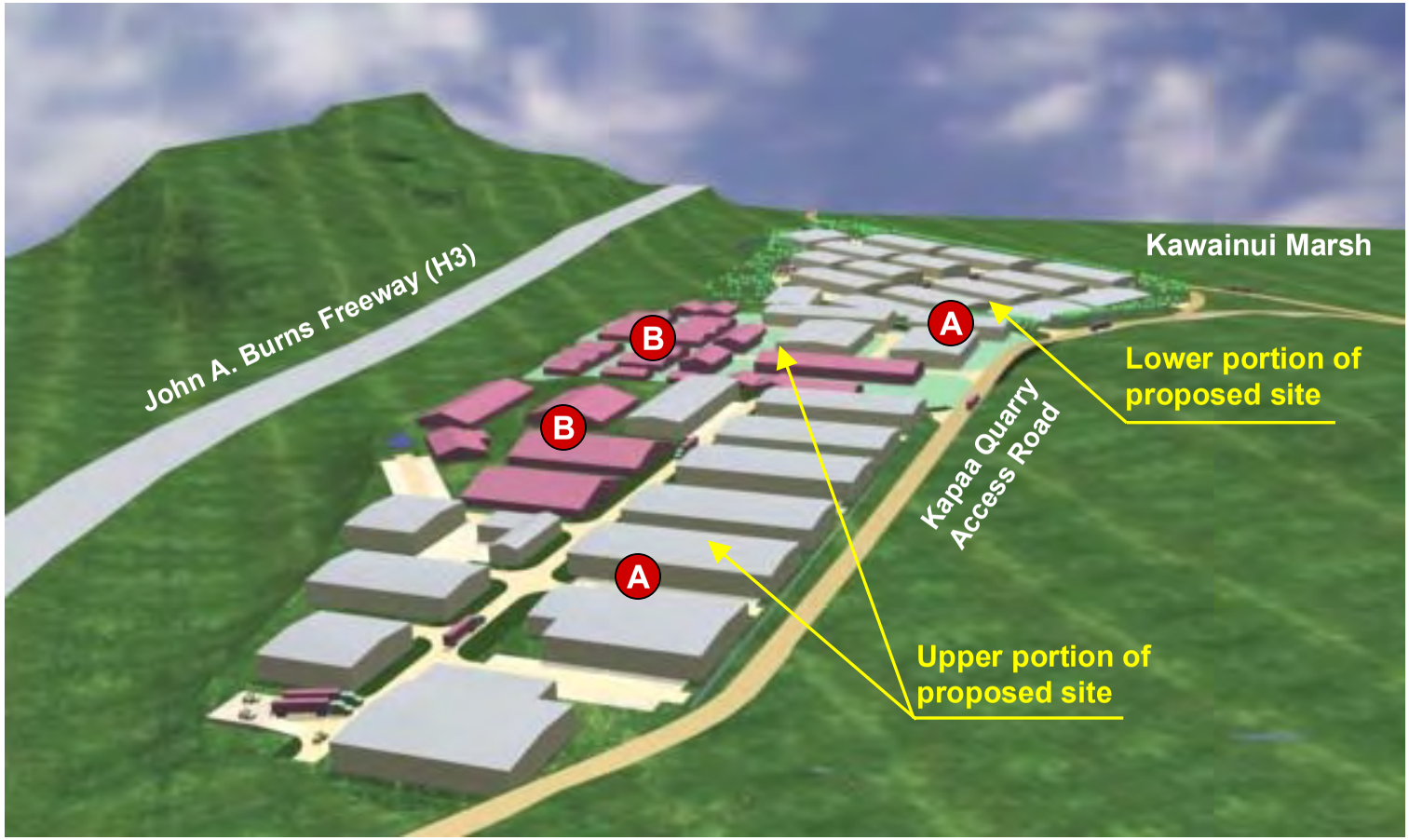

A New Warehouse (GREY image; typical)

B Existing Warehouse (RED image; typical)

Figure 3-4 3D-Overview of Proposed Site

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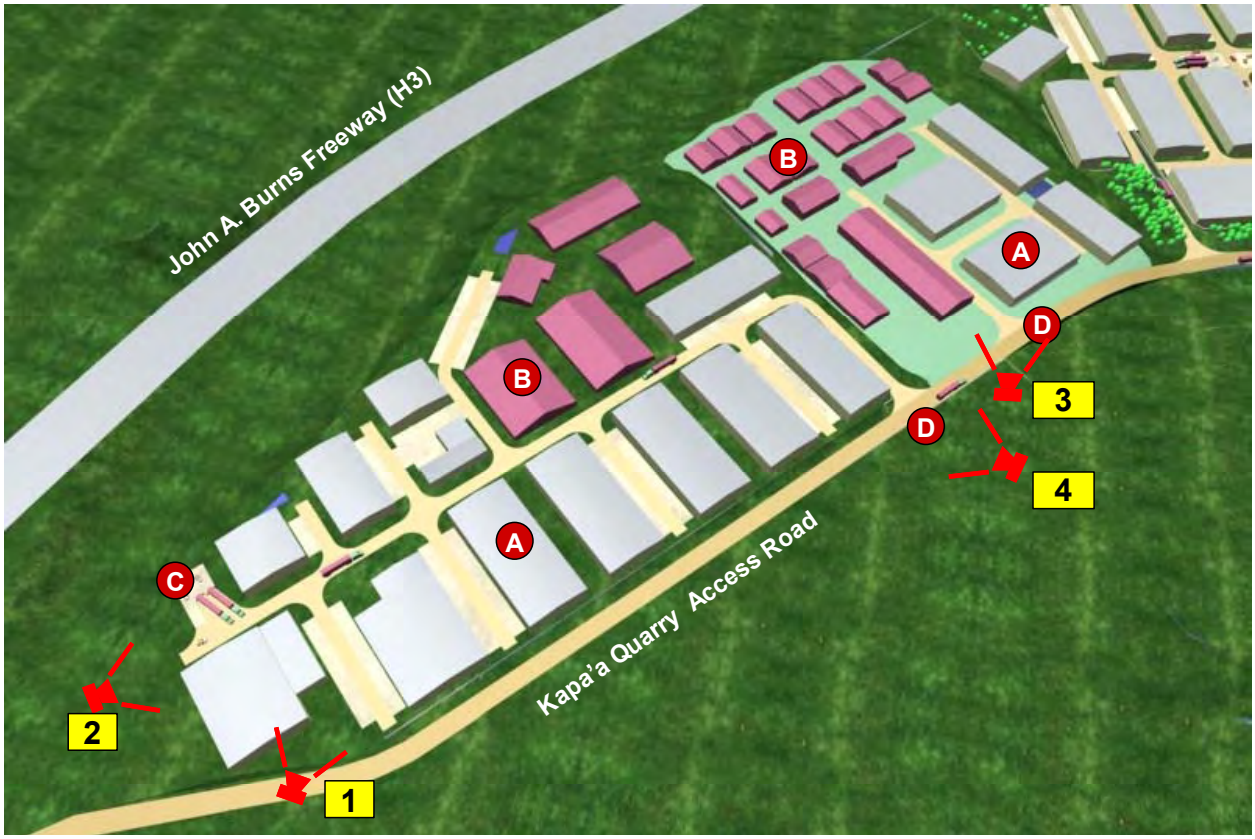

Views of Upper Portion of Proposed Site

A New Warehouse (GREY image; typical)

B Existing Warehouse (RED image; typical)

C Detached Loading Dock

D Road Entrance to Upper Portion of Site

Above indicated Views represent the following Figures:

1 Figure 3-6

2 Figure 3-7

3 Figure 3-8

4 Figure 3-9

Direction of view

Figure 3-5 Definition of Vantage Points for Views in Figures 3-6 through 3-9

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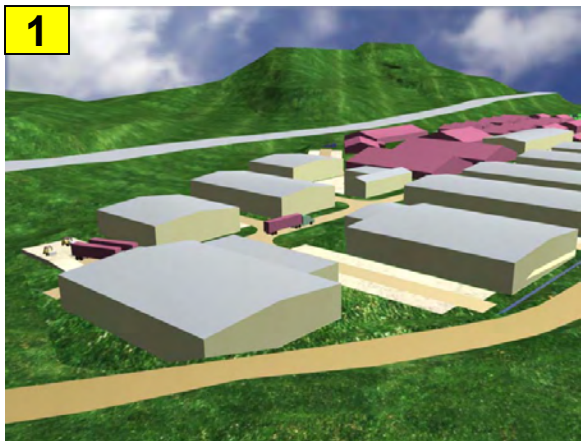

Figure 3-6: View on the upper portion of the proposed site. The Kapa'a Quarry Access Road is on the foreground. The red buildings in the background represent existing warehouses.

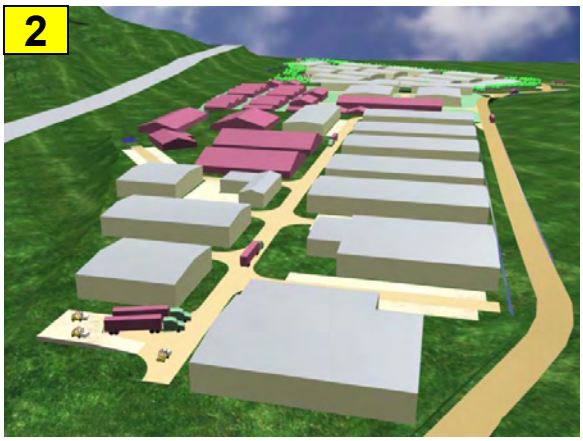

Figure 3-7: View on the upper portion of the proposed site. The detached loading dock, , which can accommodate two trucks, is in the foreground. The red buildings in the background represent existing warehouses.

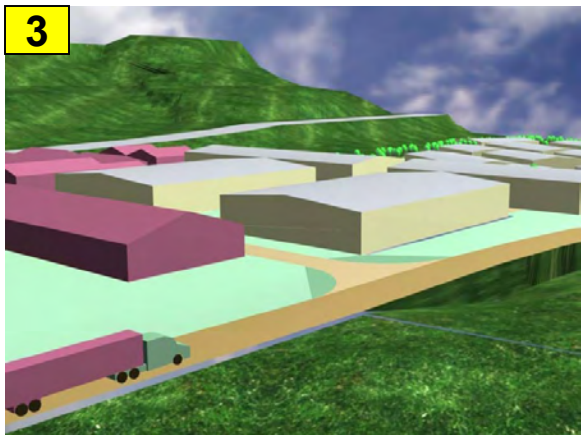

Figure 3-8: View on the upper portion of the proposed site. The Kapa'a Quarry Access Road is on the foreground with the existing paved road entrance.

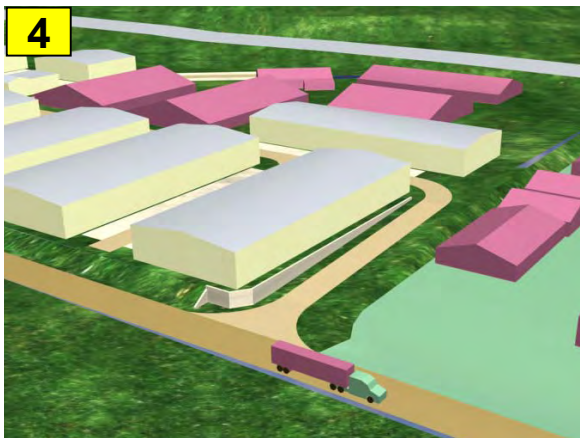

Figure 3-9: View on the upper portion of the proposed site; the Kapa'a Quarry Access Road is in the foreground, with the existing paved road entrance. A new retaining wall would surround the warehouse next to the road entrance.

Figures 3-6 through 3-9

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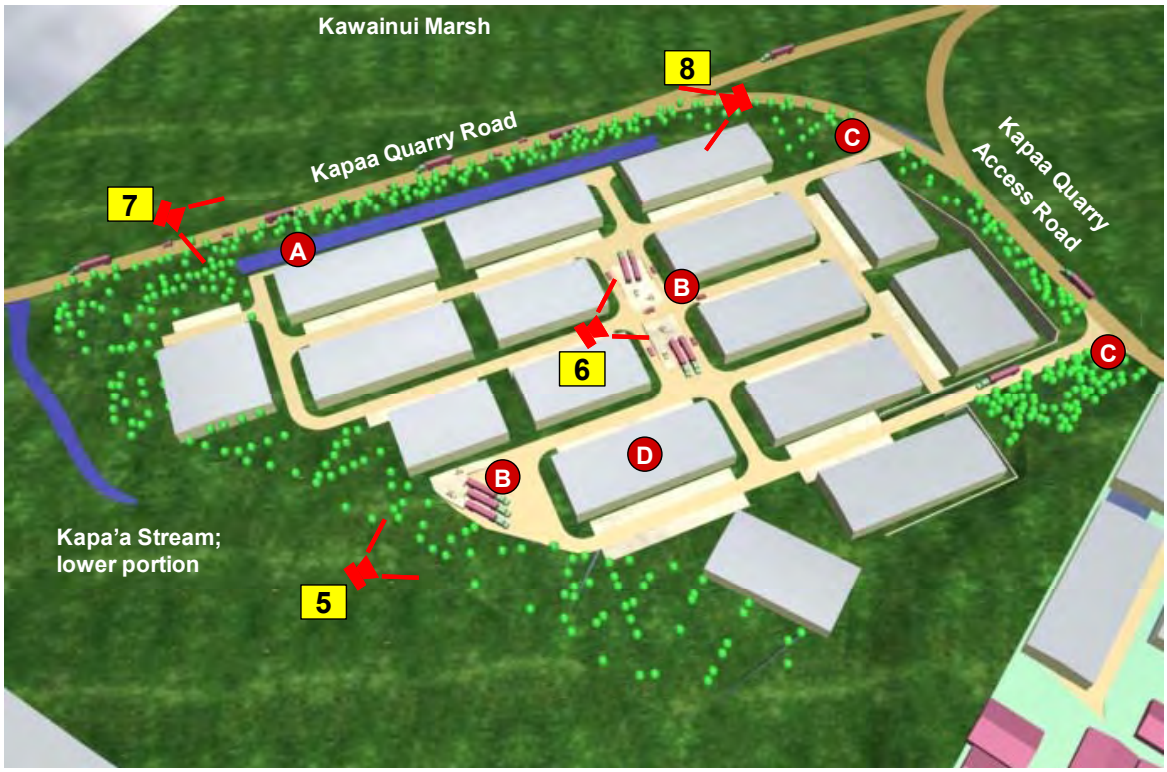

Views of Lower Portion of Proposed Site

- A Detention Pond
- B Detached Loading Dock
- C Road Entrance to Lower Portion of Site
- D New Warehouse (typical)

Above indicated Views represent the following Figures:

- 5 Figure 3-11
- 6 Figure 3-12
- 7 Figure 3-13
- 8 Figure 3-14

Direction of view

Figure 3-10 Definition of Vantage Points for Views in Figures 3-11 through 3-14

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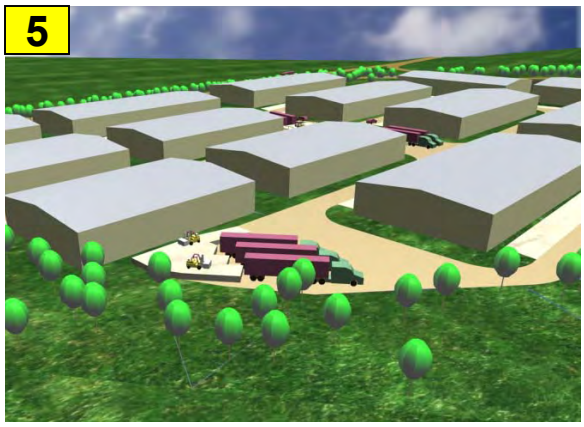

Figure 3-11: View from a vantage point above Kapa'a Stream. One detached loading dock for three trucks is in the foreground. The trees in the foreground represent a thick vegetative buffer zone between the Kapa'a Stream corridor and the warehouses.

Figure 3-12: View on the center of the warehouse development; two detached loading docks are shown, for two trucks each.

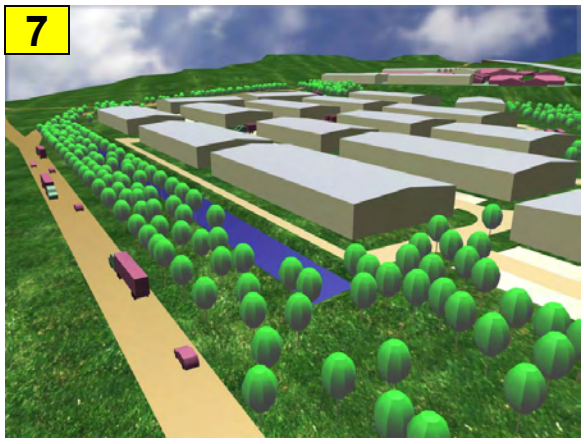

Figure 3-13: View on the large detention basin and the vegetative buffer zone of the lower portion of the proposed site. The Kapa'a Quarry Road is in the foreground.

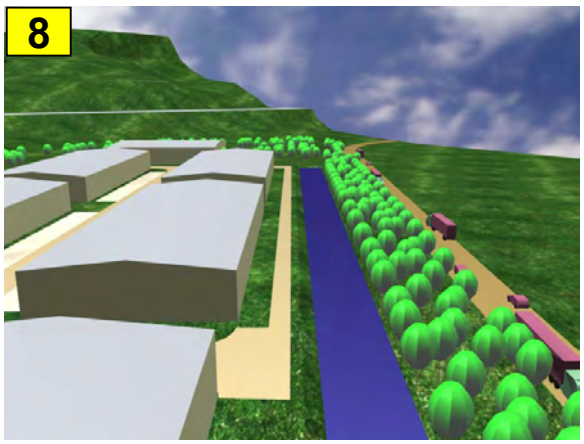

Figure 3-14: View on the large detention basin and the vegetative buffer zone of the lower portion of the site. The Kapa'a Quarry Road is on the right. The Kawainui Marsh is to the right of the road.

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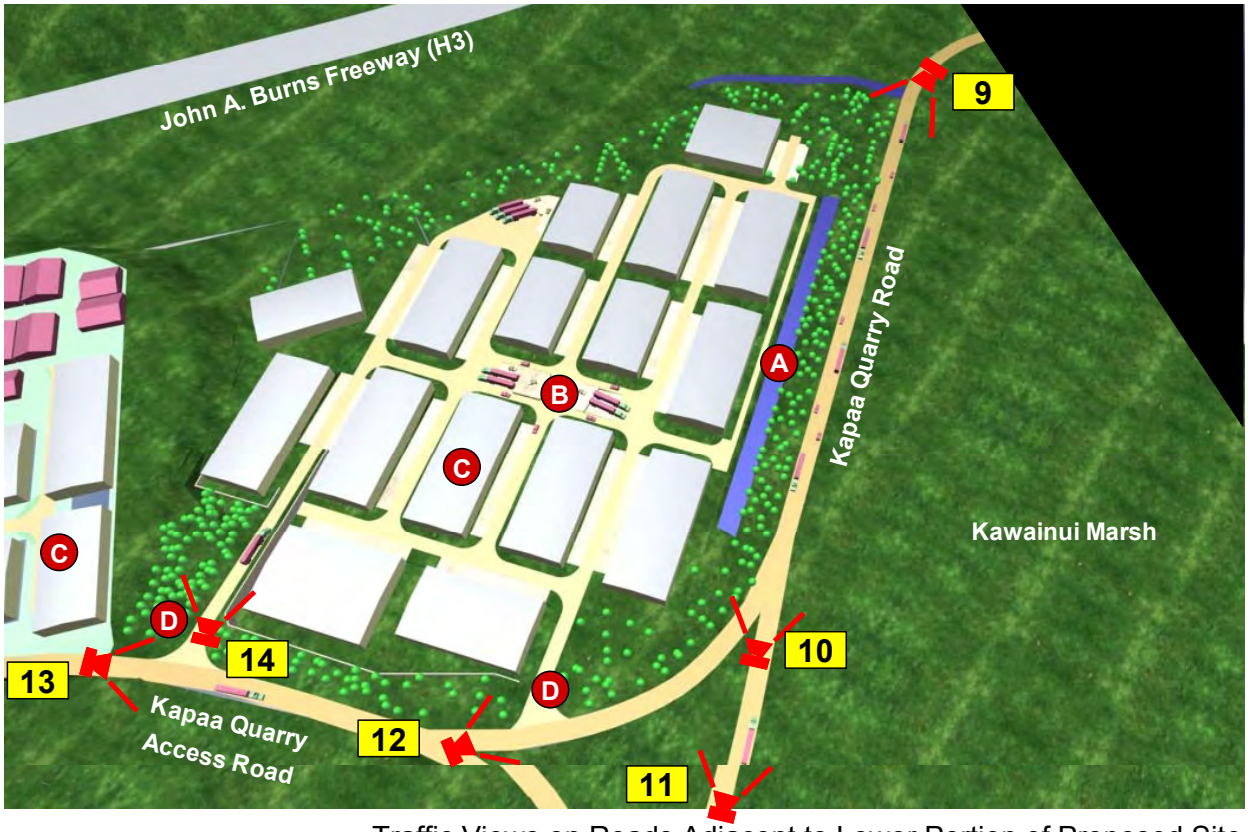

Traffic Views on Roads Adjacent to Lower Portion of Proposed Site

- A Detention Pond
- B Detached Loading Docks
- C New Warehouse (typical)
- D Road Entrance to Lower Portion of Site

Above indicated Views represent the following Figures:

- 9 Figure 3-16
- 10 Figure 3-17
- 11 Figure 3-18
- 12 Figure 3-19
- 13 Figure 3-20
- 14 Figure 3-21

Direction of view

Figure 3-15 Definition of Vantage Points for Views in Figures 3-16 through 3-21

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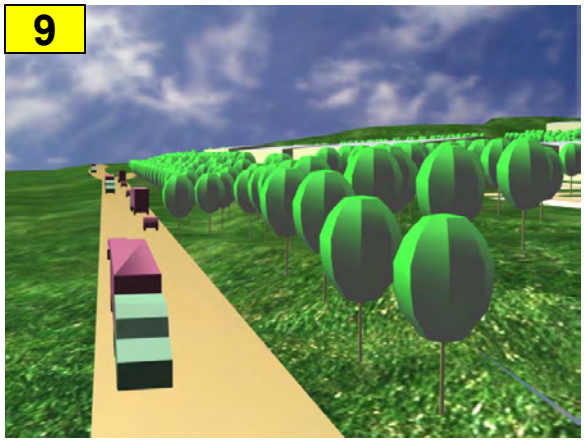

Figure 3-16: View from Kapa'a Quarry Road traveling southbound. The trees are the vegetative buffer that surrounds the lower portion of the proposed site

Figure 3-17: View from Kapa'a Quarry Road traveling northbound. The trees are the vegetative buffer that surrounds the lower portion of the proposed site. The road left is the intersecting Kapa'a Quarry Access Road.

Figure 3-18: View from Kapa'a Quarry Road, traveling northbound and approaching the intersection with the Kapa'a Quarry Access Road.

Figure 3-19: View from Kapa'a Quarry Access Road, traveling eastbound. The road entrance to the lower portion of the proposed site, which is furthest to the Kapa'a Quarry Road, is on the left. The truck in the background travels northbound on Kapa'a Quarry Road.

Figures 3-16 through 3-19

Figure 3-20: View from Kapa'a Quarry Access Road, traveling eastbound. The road entrance to the lower portion of the proposed site, which is away from the Kapa'a Quarry Road, is on the left. The upper part of the retaining wall is visible in the center. The roof of one warehouse can be seen protruding past the retaining wall.

Figure 3-21: View from Kapa'a Quarry Access Road into the lower portion of the proposed site. A retaining wall with warehouses behind it is on the right. The Trees on the left are part of the vegetative buffer that surrounds the lower portion of the proposed site.

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A **Proposed Warehouse Development; Lower Portion of the Site**
Trees and Vegetation buffer zone around lower portion of site not shown

B **Existing Warehouses on Upper Portion of Site**

C **Kawainui Marsh**

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Figure 3-22 Proposed Warehouse Development; placed in Current Site View

3.2 Impacts on Hydrology

The hydrological impacts of the project are attributed mainly to increase in run-off levels and impacts on water quality in the Kapa'a Streamand the Kawainui Marsh. The proposed development would change the existing drainage patterns on the property, while affecting the Kapa'a watershed and the flood inundation zones.

3.2.1 Impacts by the change in site drainage

At the present time, drainage infrastructure on the property is only limited to grass swales, concrete channels, drain intakes and a single detention pond. This infrastructure is limited only to portions of parcel TMK 4-2-015:008 where all existing warehouses are located. The rest of the property lacks any drainage means and all storm runoff sheet flows over barren or scantly vegetated ground surface before draining into the Kapa'a stream.

The proposed drainage system will allow collection, conveyance and diversion of all storm run-off from the site into detention ponds before discharging into the Kapa'a Stream. Even though the overall run-off volume generated in the proposed development will be higher than current rates, the nature of conveyance, detention and timed release of the flood waters would result in better effluent quality and would directly impact the quality of the receiving water. The detention and timed release of floodwaters would allow settlement of suspended solids and ensures that the release to occur after the passage of storm's peak. In addition, by installing oil water separators at strategic locations within the development, oil and other petroleum hydrocarbons are separated from the storm flow before entering the detention ponds.

In short, the proposed development would improve run-off quality and reduce storm discharge into the receiving waters.

3.2.2 Impact on the Kapa'a Watershed

The water quality in the Kapa'a Stream is identified by the State of Hawaii Department of Health as impaired by elevated levels of turbidity, total suspended solids (TSS), nutrients and metals. The impaired water quality is mainly caused by surface run-off from quarry and landfill areas upstream of the project site.

The proposed site has a minor but nevertheless noticeable effect on the water quality and run-off flow volumes into the Kapa'a Stream. During wet season, the proposed site contributes about 10% of flow rate and 17% of total suspended solids loading to the Kapa'a Stream. In contrast, during a 50-year storm event, the corresponding contributions are 24% and 15%, respectively. This is due to fact that during severe storm events, the storm peak flow and the associated suspended solids loading, from quarry areas, where large tracts of land have no or minimal ground cover, are retained in existing retention ponds and therefore, contribute less to deterioration of water quality in Kapa'a Stream than during normal wet season events.

The planned drainage system for the proposed warehouse development, with the range of mitigation technologies, would effectively lower the run-off volumes and the pollutant loads that enter into the Kapa'a Stream. The run-off would be held back in detention ponds and released in a time-delayed and controlled manner, so that both the run-off peak volumes and the pollutant loading to the stream would be reduced.

Therefore, the proposed drainage infrastructure and the mitigation measures would enhance rather than adversely impacting the water quality in the Kapa'a Stream.

3.2.3 Impact on the Flood Zones

The proposed development has little to no impacts on the flood zones on and around the proposed site, since the extent of earth work within the 100-year and 500-year flood inundation zones would be minimal. There would be a limited amount of grading within the 100-year flood zone, which would be mitigated by construction of large retention basin which will help to reduce discharges into the Kapa'a stream and improve its water quality. Apart from this minor alterations the current flood zone designation at the site, would remain the same. The proposed warehouse development would, therefore, have no significant adverse impact on the flood hazards in the area.

3.3 Impacts on Utility Infrastructure

The proposed Kapa'a Light Industrial Park would generate additional demand on the existing utilities infrastructure. The following sections evaluate and assess the impacts of increased demands for basic utilities on the existing infrastructure.

3.3.1 Electricity

The proposed warehouse development would create additional demand for electric power from the existing Hawaii Electric Company (HECO) grid. In order to assess the impacts of the project on the existing power grid serving the area, two demand scenarios are discussed and compared in the following paragraphs.

Baseline case: Under the assumption of conventional use of electricity in the proposed development, where only 10% of warehouse space is air conditioned, the projected baseline and peak daily demands for electricity for the proposed development is shown in Figure 3-23. The demand figures are projected based on 0.0178 and 0.0547 kWh per day per square feet of warehouse space for air-conditioned and non-air conditioned warehouses.

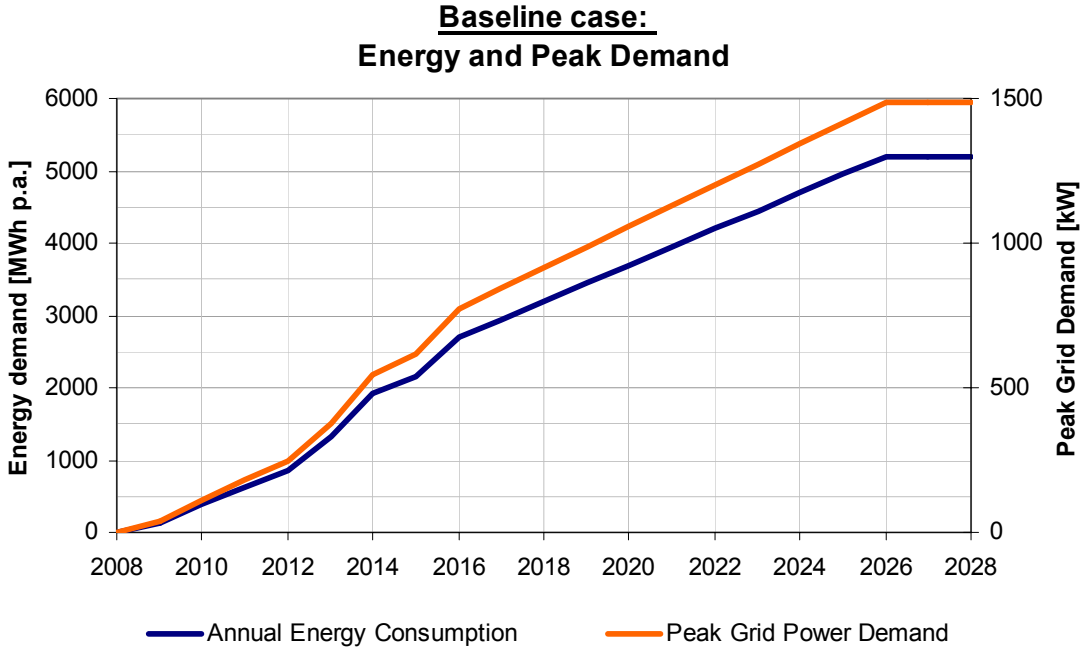

Figure 3-23 Anticipated Annual Energy and Peak Power Demands for Warehouses with Conventional Energy Systems (Baseline Case)

Improved electrical efficiency case: This demand scenario considers 35 percent energy savings for areas without air-conditioning (AC) and in for areas with air conditioning (AC) a 28 percent savings in daily energy demand by employment of passive means for energy savings such as improved insulation, elimination of heat islands, use of reflective building coats, promoting natural lighting and natural ventilation along with active means for energy savings such as use of energy efficient fixtures and technologies for lighting, ventilation, cooling and air-conditioning.

In addition to making the future warehouses energy efficient, the developer of the proposed warehouse development, has concrete plans to install a significant photovoltaic capacity on roofs of warehouses or on other areas. Installing Photo Voltaic Solar panels on all or some of the proposed warehouse could realistically reduce electrical demand by an additional 10 percent. Since the photovoltaic panels are intermittent electricity generation assets their main contribution to the electricity supply would be generated during bright daytime hours, a time period when peak power demand has to be drawn from the public electricity grid. Thus the photovoltaic panels installed in the warehouse park would significantly reduce the peak load demand. Mitigating peak load on the island of Oahu is a major concern for the electric utility.

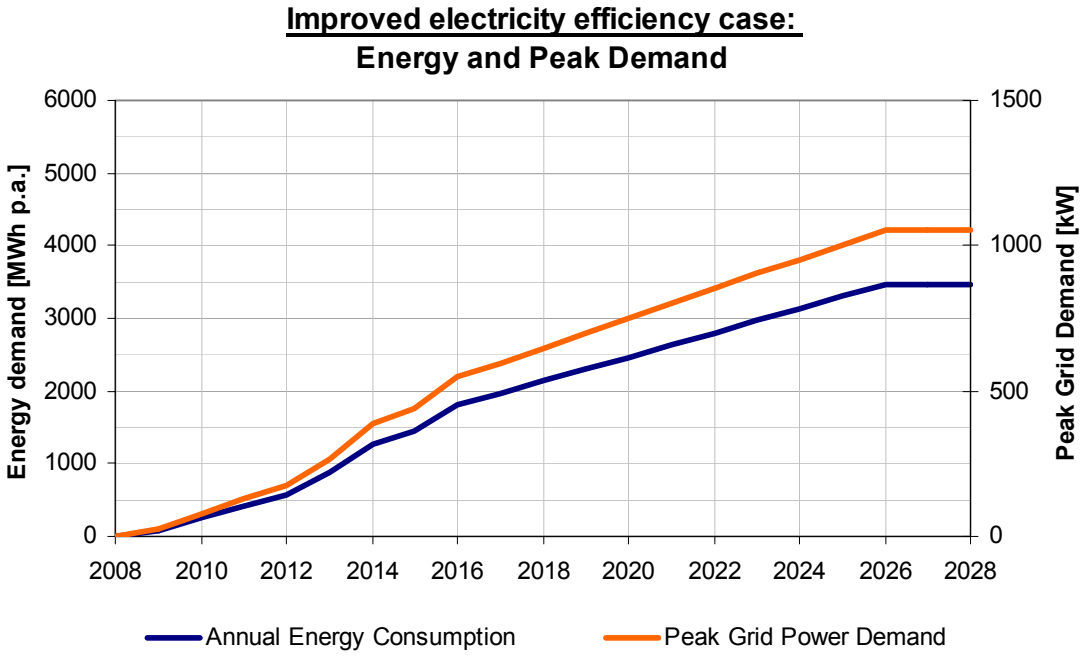

Figure 3-24 Anticipated Annual Energy and Peak Power Demands for Proposed Energy Efficient Warehouses (Improved electrical efficiency case)

In short, by utilizing a comprehensive energy efficiency approach for the proposed warehouse development, its impact on the electrical system is ameliorated. Initial communication with HECO suggests that anticipated load demand for the proposed warehouse development may exceed the capacity of the existing 4.16 kV circuit in Mokapu Blvd. Should this demand not be met by the existing circuit, a new power line would be necessary the existing 12.47kV circuit along Kalanianaole Hwy. At present there are no existing HECO utilities along Kapa'a Quarry Rd. south of the Kapa'a Valley and therefore approximately 10,000 linear feet of power line and associates appurtenances would need to be installed along Kapa'a Quarry Rad from Kalanianaole Hwy. to the proposed site.

Impacts of the new power line would be mainly due to construction activities during installation of new power poles which may be limited to excavation, erosion and traffic obstructions.

3.3.2 Water Supply

Estimates of the anticipated daily water demand in the proposed warehouse development is presented in Table 3-2. These estimates can further be reduced by implementing stringent water conservation measures, such as low-flow fixtures, water recycling, and rainwater

harvesting and reuse for on-site irrigation. Figure 3-25 shows the projected average daily and peak water demands for the proposed warehouse development. Figure 3-25 includes the present daily water and peak flow demand for the existing warehouses on parcel TMK 4-2-015:008. As discussed in the Section Two, the proposed site is served by an existing 2-inch water line that connects to the 36-inch water main along the Kapa'a Quarry Road. Communications with the Board of Water Supply indicate that the existing infrastructure can accommodate the projected daily demands with adequate pressures for firefighting emergencies.

Table 3-2 Estimated Additional Water Demand for the New Warehouses

Development Phases	Total Area of Phase square feet	Daily Water Demand gpd	Design Water Flow gpm	Design Peak Water Flow gpm
A	80,000	8,000	15	38
B	147,000	14,700	27	68
C	81,000	8,100	15	38
D	355,000	35,500	66	165
sums >>	663,000	66,300	**123**	**309**

The proposed development has no adverse impacts on the existing water supply infrastructure in the area.

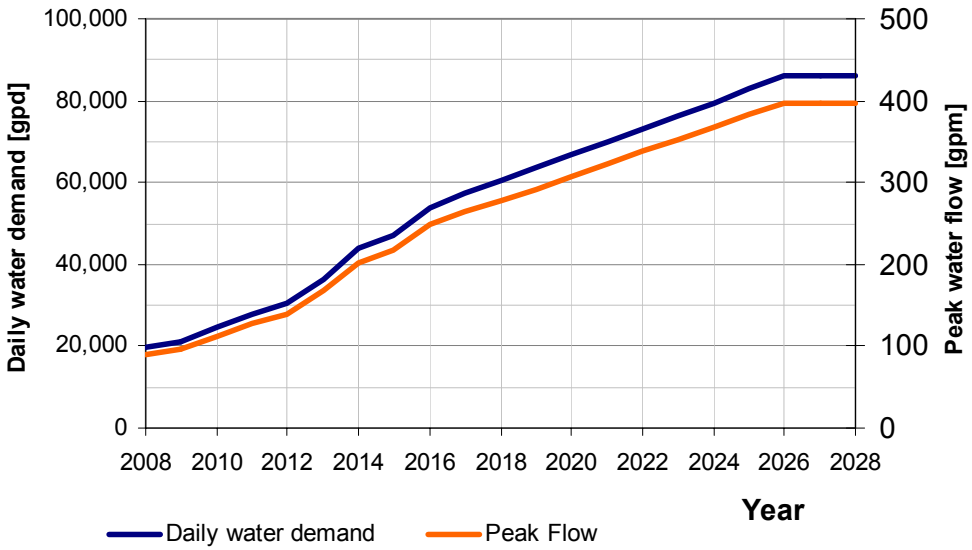

Figure 3-25 Projected Average Daily and Peak Water Demand
(Includes demand for existing warehouses)

3.3.3 Wastewater Treatment

The Kapa'a Valley is presently is not served by the municipal sewer collection system. The closest distance to the existing sewer main along Mokapu Boulevard is a little more than 1.3 miles. Despite the fact that Kailua wastewater treatment plant does not have adequate capacity to accommodate additional flow from the proposed development, the construction costs for installing a new sewer force main and pumping station to transport the wastewater to Kailua treatment plant is prohibitively expensive and not feasible.

Wastewater treatment and disposal at the proposed site will be accomplished by expansion of the existing septic tanks and leach field system. The estimated volume of wastewater that would be generated by the 663,000 square feet of new warehouse space is 14,000 gallons per day. The anticipated wastewater treatment for the new warehouses would consist of a series of septic systems, where, on average, each septic system would serve two new warehouses. Each septic system would consist of a 1,250- gallons septic tank and a 1100-square feet leach field would for disposal of the wastewater effluent. A total of 18 septic systems would be installed to serve the new warehouses.

No adverse environmental impacts are anticipated from installation and operation new septic tanks and leaching fields in the proposed development

3.3.4 Telecommunication

Presently, the commercial and industrial warehouses at the project site are served by existing telephone and cable network. Based on communications with telephone and cable companies, the existing communication networks have the capacity and the bandwidths to accommodate the anticipated demand for the proposed warehouse development. The development therefore, has no adverse impacts on the telecommunication infrastructure in the area.

3.3.5 Solid Waste Collection and Recycling

All solid wastes generated at the existing commercial warehouses are collected by commercial waste companies. This trend is expected to continue for the proposed development as well. It is not anticipated that future solid waste collection and disposal to adversely affect the level of service. There is limited recycling in the present warehouses complex. Under the anticipated operation scheme of the sustainable warehouse development more comprehensive recycling operations would be offered and the occupants of the warehouses would be encouraged to actively recycle a wide range of materials. All required infrastructure measures would be provided by the developer and there would be no additional demand on public waste collection services.

3.4 Considerations on Traffic Impacts

Undoubtedly, the proposed Kapa'a Light Industrial park would generate additional traffic on the roadways serving and adjacent to the site. This section assesses the anticipated impact of the increase in future traffic in the area. The estimated additional trips generated by the proposed Kapa'a Light Industrial Park are estimated using trip generation rates published by the Institute of Transportation Engineers (ITE). Accordingly, the ITE suggests an increase of 4.5 daily trips per 1,000 square feet of new warehouse space. While this trip generation rate is based on older traffic counts, a review of recent studies suggest, that 4.5 trips per 1,000 sq ft. might be significantly higher than the actual counts.

In consideration of sustainable transportation approaches for the development, such as use of public transportation, bicycle, car pooling and fostering alternative modes of transportation, estimates of future trips are shown in Figure 2-26. This graphs assumes trip generation in the next 10 years will decrease from 4.5 to 3.0 trips per 1,000 square feet of new warehouse space.

Obviously, the trips generated by the proposed warehouse development would result in an increase in traffic volume on the Kapa'a Quarry Access Road and the Kapa'a Quarry Road. Figure 3-27 identifies three locations of interest for assessment of future traffic conditions and its impacts in the vicinity of the proposed Kapa'a Light Industrial Park.

Location 1 is on the Kapa'a Quarry Road north of the entrance to the Kawainui Model Airplane Park. This count represents two-way traffic from and towards Mokapu Blvd.

Location 2 is on the Kapa'a Quarry Road south of the Kapa'a Refuse Transfer Station. This traffic count represents two-way traffic from and towards Kalanianaole Highway.

Location 3 is on the Kapa'a Quarry Access Road west of the entrance to the Green Waste Processing facility. This traffic count represents two-way traffic to and from the industrial and commercial users in the Kapa,a Valley.

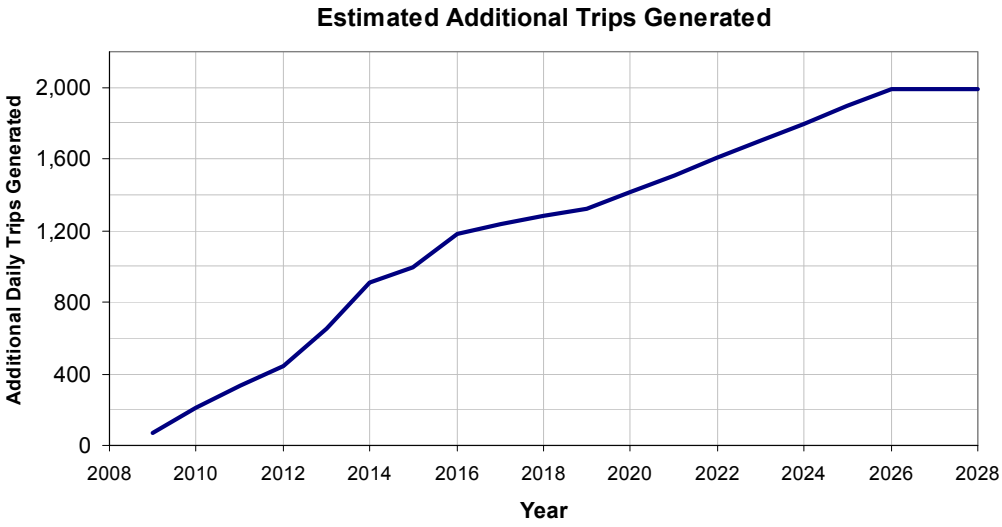

Figure 3-26 Estimated Trips Generated

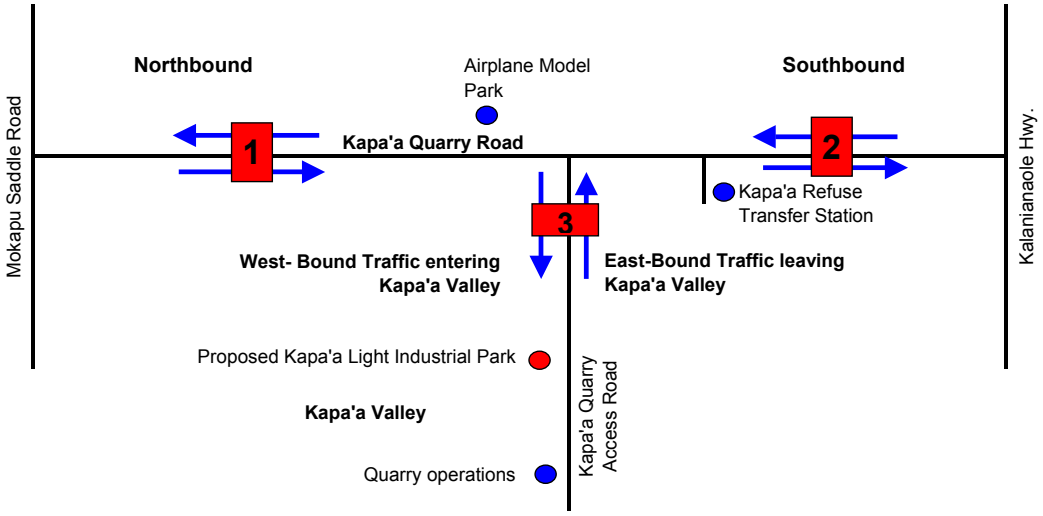

Figure 3-27 Locations of Interest for Traffic Impact Assessment

The projected traffic volumes at location 3, which represents the entrance to the Kapa'a Access Road, in 2018 and 2026 are depicted in Figures 3-28 and 3-29, respectively. The projected traffic volume shown in these figures assume the traffic volume for each direction. Under this assumption the traffic volume into and leaving the Kapa'a Valley is the same. The directional traffic volumes are then distributed to the north and southbound traffic on Kapa'a Quarry Road

in a 60% and 40% ratio, following the same traffic volume ratio that exists at the present time. Figure 3-29 indicates that the proposed development will cause to increase the peak traffic rate in Kapa'a Quarry Access Road by almost 100 vehicles per hour by 2026, whereas, the increase in rate of traffic along this road will be a little more than 50 vehicles per hour, by 2018.

The projected future traffic volume generated by the proposed Kapa'a Light Industrial Park would affect the traffic rate on Kapa'a Quarry Road in either direction. Based on the existing traffic count data, the traffic rate in northern section of Kapa'a Quarry Road, contributes more to traffic in Kapa'a Quarry Access Road than the southern section, i.e. the section between the proposed site and Kalanianaole Highway. In other words the data indicate that most of the traffic entering into the Kapa'a Quarry Access Road originate from Mokapu and beyond. Consequently, the future traffic rates to the proposed development are also projected with the same bias.

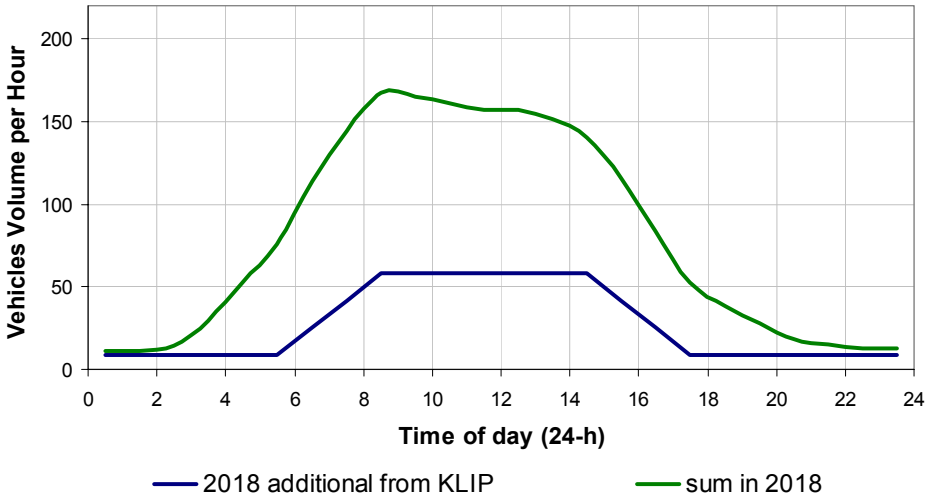

Figure 3-28 Projected Directional Traffic Volume on Kapa'a Quarry Access Road in 2018

The results of the projected traffic forecasts for locations of interests 1 and 2 along the Kapa'a Quarry Road are presented in Figures 3-30 though Figure 3-35. According to these figures, at location 1 along Kapa'a Quarry Road, northbound traffic will continue to have two daily peaks, where the highest peak occurs around 7 a.m. and the afternoon peak is between 3 and 4 p.m. In contrast, southbound traffic experiences the high peak in the afternoon rather than in the morning. The peak traffic rate in the southbound direction increases from 450 count per hour in 2008 to a little more than 520 count per hour in 2028 which translates in 13.5 percent increase in traffic in 20 years. Similarly, the northbound traffic will see a 20 percent increase in traffic in the same period.

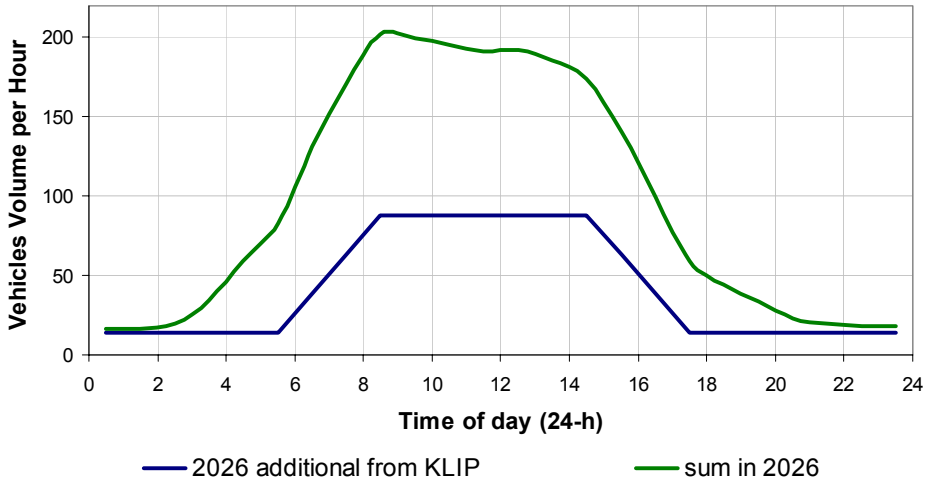

Figure 3-29 Projected Directional Traffic Volume on Kapa'a Quarry Access Road in 2026

In the same fashion, at location 2 along Kapa'a Quarry Road, northbound traffic shows the highest traffic peak to occur at 3 p.m and the morning peak at 7 a.m. The peak traffic rate in the southbound direction at point 2, increase from a little over 395 count per hour in 2008 to 450 count per hour in 2026 which is about 14 percent increase in 20 years. Similarly, northbound traffic at point 2, will see 15 percent increase in traffic volume over the same 20 year period.

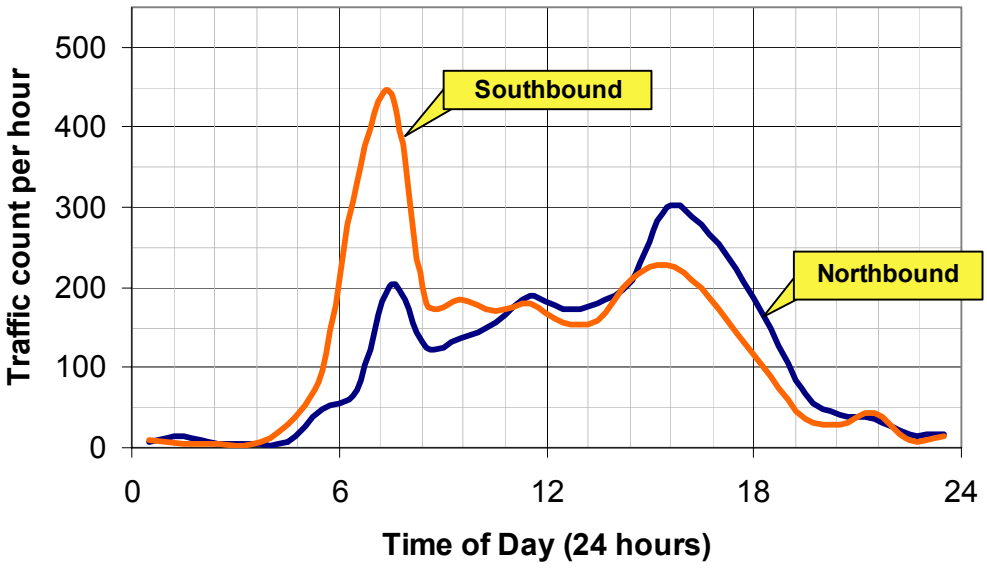

Figure 3-30 Present Traffic Volume at Location 1

Further analysis of traffic data suggests that the most critical traffic impact will occur in the southbound direction along the Kapa'a Quarry Road, the section between the proposed site and Mokapu Blvd., during morning peak traffic hour. Figure 3-38 shows that an 18-year forecast for traffic count at point 1 along the northern section of Kapa'a Quarry Road to be around 17 percent. In other words, the proposed Kapa'a Light Industrial Park would result in a 10 percent increase in the morning peak traffic count by year 2016 and 18 percent in crease by 2026. Based on this assessment a 10 to 18 percent increase in traffic volume is well within the capacity of the roadway and will not significantly impact the level of service in the Kapa'a Quarry Road. Anticipated future improvements to the Kapa'a Quarry Road would further dampen the impacts of projected traffic.

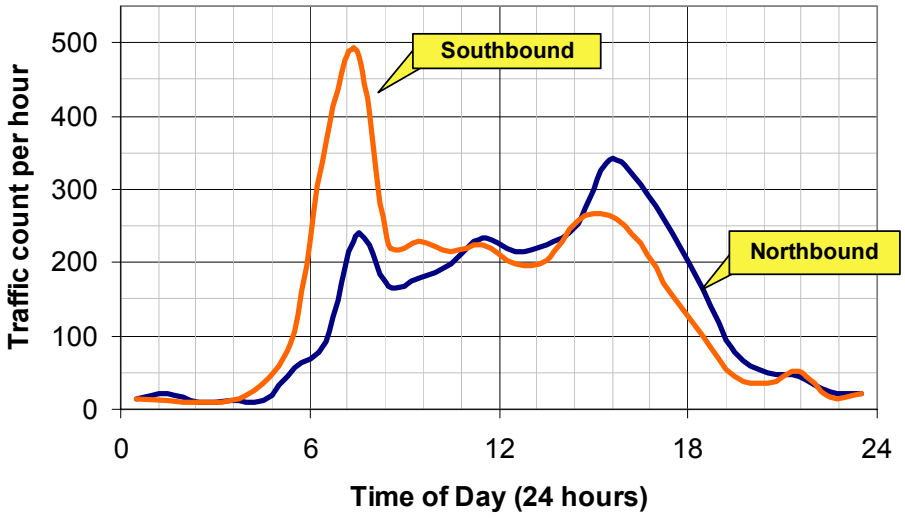

Figure 3-31 Predicted Traffic Volume at Location 1in Year 2018

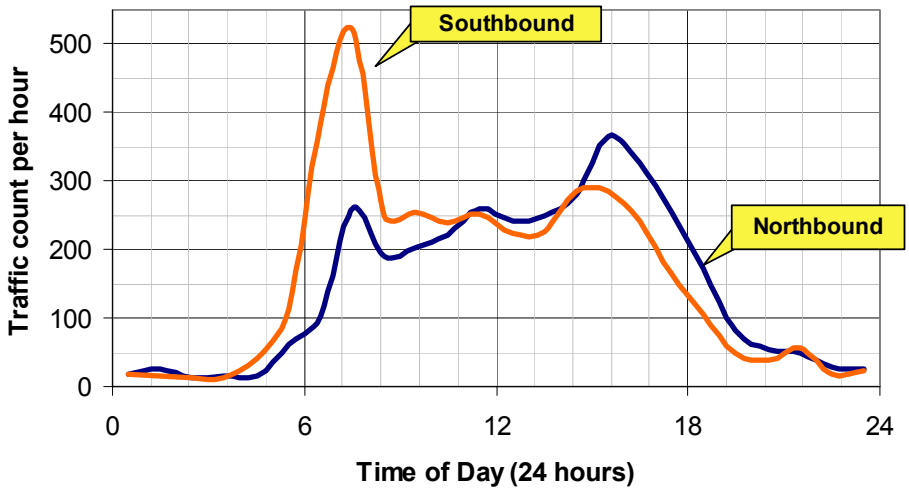

Figure 3-32 Predicted Traffic Volume at Location 1 in Year 2026

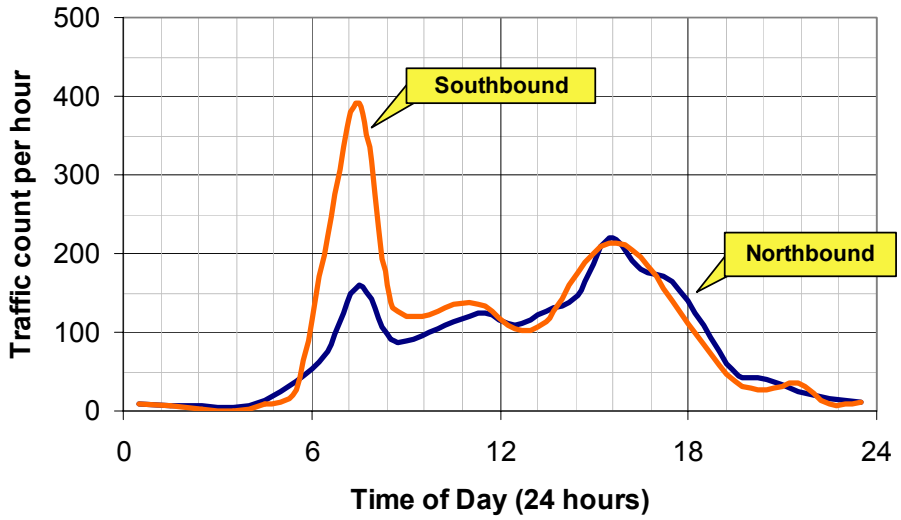

Figure 3-33 Present Traffic Volume at Location 2

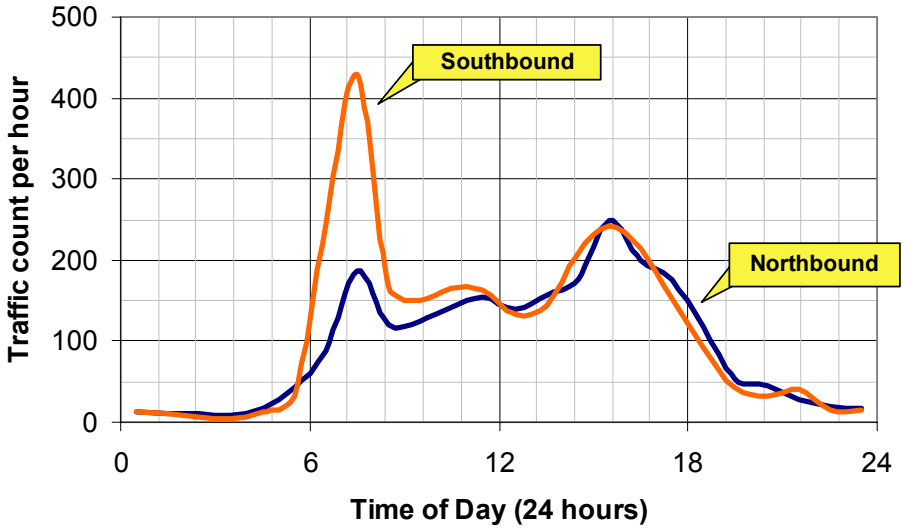

Figure 3-34 Predicted Traffic Volume at Location 2 in Year 2018

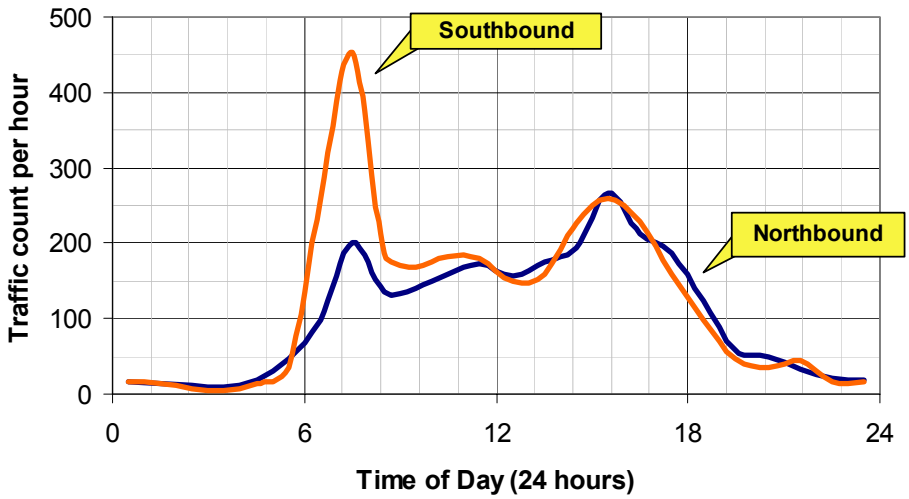

Figure 3-35 Predicted Traffic Volume at Location 2 in Year 2026

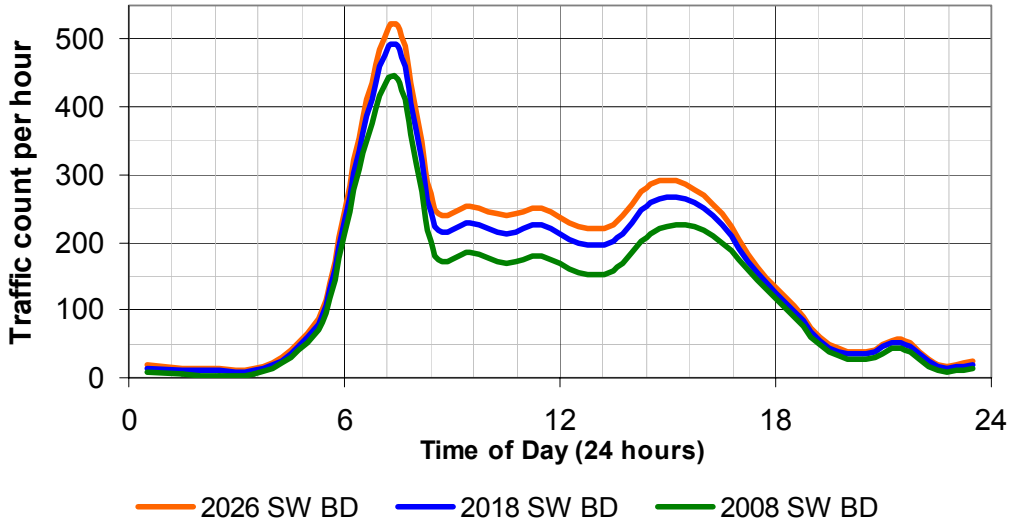

Figure 3-36 Comparison of Predicted Southbound Traffic Volume at Location 1

3.5 Impacts on Police and Firefighting

The proposed Kapa'a Light Industrial Park development would increase the level of business activities in Kapa'a Valley and would therefore increase the probabilities for emergencies situation or fire which would require emergency assistance and firefighting.

The closest police department to the development is approximately 3.1 miles away in Kailua. The response time is about 9 minutes. The closest fire station to the project is at 2.9 miles. The response time is about 7 minutes.

It is anticipated the proposed development would not pose a significant impact on police or firefighting resources in the area.

3.6 Surrounding Industrial Uses

The proposed warehouse development would represent a major addition to the industrial activities in the Kapa'a Valley. While the surrounding industrial activities required heavy machineries and relatively large process facilities, the proposed light industrial and commercial activities would be far less intrusive. It is therefore anticipated that there would be no negative impacts from the activities in the propose warehouses on the surrounding industrial activities in the Kapa'a valley

Possible impacts on the surrounding industrial uses would be from increased traffic and additional demands on water and electrical infrastructure in the area, which are addressed in the preceding sections.

3.7 Socio-Economic Impacts

The proposed development will introduce about 660,000 square feet of commercial warehouses space to market. It will offer office space for a verity of commercial activities ranging from wood working and cabinet making to commercial retail, storage space, and light manufacturing. This sizeable expansion of commercial warehouse space will shift the center of gravity of light industrial activity to the Kapa'a Quarry Road and away from already congested down-town Kaiula and Kaneohe. This relocation certainly is a welcome response to current tightening in commercial warehouse space market in Kailua and Kaneohe. With the gradual disappearance of warehouse space in down town Kailua to be replaced by residential developments, the proposed development offers a very exciting opportunity for local businesses to take advantage of a centralized location, where it is relatively far from residential communities and at the same time it is readily accessible by freeways and arterial roads.

The proposed Kapa'a Light Industrial Park would create new employment opportunities for residents of Kailua and Kaneohe regions. The additional 66,000 square feet of new office space will produce 500 to 700 potential new employment opportunities. Based on a conservative

estimate of one employee per 1,000 square feet of warehouse space, the estimated trend for new employment by the development over the next 20 years is depicted in Figure 3-37.

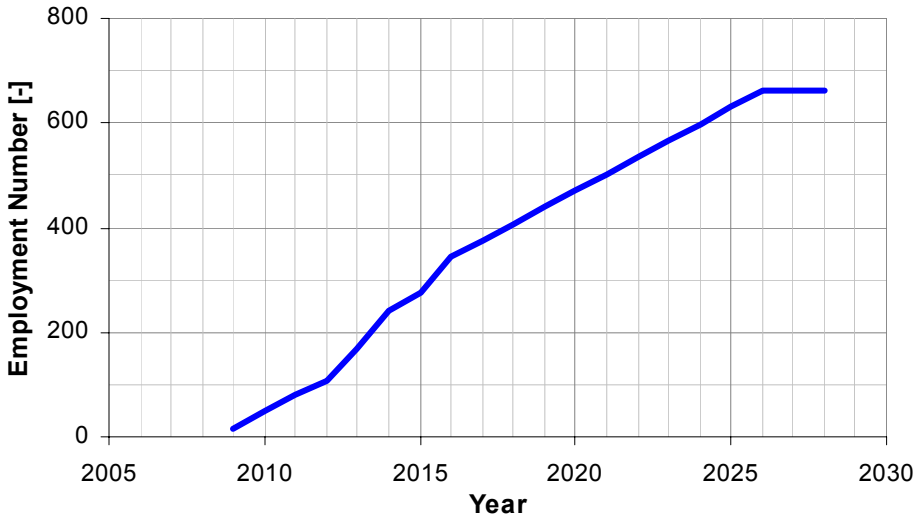

Figure 3-37 Estimated Employment Generated by Proposed Kapa'a Light Industrial Park

Figure 3-37 suggests that the increase in possible employment would be slow over time. Any impact from increased employment of the proposed Kapa'a Light Industrial Park would therefore be small and gradual. In fact, part of all of the work force employed by businesses which relocate from other parts of Kailua and Kaneohe to the new warehouse development, will not be new. Consequently, it is anticipated that the new warehouse development would have a very small and gradual impact on increasing the size of employment pool and the associated socio economic impacts.

For employees of companies, which relocate to the proposed park and who live in the Kailua and Kanehoe area, the daily commute will be longer and include traffic on the Kapa'a Quarry Road. Those employees, who presently use public transportation to get to their place of employment, would have to change from using public to private transportation, which would include driving themselves, car-pooling, bicycling or using company sponsored shuttles. Employees coming from the Central Oahu region would find the commute shortened, since they could use a shorter drive to their workplace and avoid driving through Kailua or Kanehoe areas. Employees from Central Oahu using public transportation would of course face the same challenges of no present bus service to the proposed site.

In addition to businesses relocating within the Koolaupoko region new business are expected to be formed and businesses from the Central Oahu region might find the proposed location and

the modern and environmentally friendly warehouses more attractive than other warehouse locations. In these cases additional employment would be created in the Koolaupoko region.

In summary, the proposed development does not significantly and adversely impact on the socio-economic conditions in area. This is mainly due to the fact that development does not create a very large pool of new employment converging to the windward areas and placing new and heavy burden on housing, day-care center, schools, hospitals and other social institutions in the area.

3.8 Considerations and Potential Impacts on the Kawainui Marsh

The Kawainui Marsh has witnessed significant changes over the past centuries. The Kawainui Marsh was once a large inland sea which evolved into a freshwater regime over a period of many centuries. The marsh was used as the largest cultivated freshwater pond in Hawaii. Today the Kawainui Marsh is the largest wetlands in the Hawaiian Islands and is home of several endangered indigenous water birds. The marsh also serves as an important nutrient sink and sedimentation trap for a large windward watershed and provides important flood control functions. The marsh is recognized for its environmental and historical importance to the region. There are plans to develop parts of the marsh for recreational and educational purposes.

The proximity of the proposed site of the Kapa'a Light Industrial Park to the environmentally important Kawainui Marsh places special responsibility for a respectful and environmentally responsible development approach. This makes it imperative that the proposed Kapa'a Light Industrial Park would be developed with a minimum potential ecological footprint. The major areas of potential impact to the Kawainui Marsh by the proposed action are as follows:

Kapa'a watershed considerations: The Kawainui Marsh receives water from the Kapa'a watershed. The watershed provided abundantly to early Hawaiians, who settled in the area. The land provided wood (for structures, canoes, fuel) and food (taro, fish). Agriculture was a prime land use from the start of settling of the Hawaiian Islands. Cattle raising was carried out in the Kapa'a Valley until the 1940s. Quarry operations started in the early 1950s. Later, landfilling of municipal solid wastes added to the range of terrain disturbing activity in the valley. These operations have since significantly altered the primary land use and appearance of the valley while impacting the ecology of the area. Initially, to access the landfill areas in the valley, a raised roadway was constructed that has segregated the watershed from the lower-lying Kawainui Marsh.

With the commencement of construction for the H3-Freeway in the early 1970s, the extent of man-made changes to the ecosystem of the valley drastically proliferated. In addition, around the same time, the quarry operations was relocated from the eastern to the western part in the valley, leaving the old quarry site for a new municipal solid waste landfill, which continued operation as late as early 1990s. Construction of commercial warehouses in the area started in the 1970s capped activities in the area to the present levels. In Summary,

quarry and land filling operations has resulted in massive earth moving, deforestation, reduction of vegetation and ground cover, and erosion of the watershed contributory to the Kapa'a Stream and Kawainui Marsh.

Water quality considerations: The Kapa'a Stream is the primary perennial stream, which delivers fresh inflow to the Kawainui Marsh. Analyses of Kapa'a stream flow shows elevated levels of turbidity and suspended solids, nutrients and metals. Presence of high levels of turbidity and pollutant loadings in the Kapa'a Stream, pose major concerns not only for the aquatic life in the stream, but also for the Kawainui Marsh and, eventually, the Kailua Bay.

Impact on wildlife: Wildlife in the Kawainui Marsh is affected by the encroachment of development and human activities to the marsh. The marsh is surrounded by a network of roadways that are sources of constant and unmitigated traffic noise levels in addition to being potential sources of air emissions. The natural response of the wildlife to this encroachment is migration to interior of the marsh or elsewhere.

Noise impact: Noise generated by industrial activities, such quarry operations, flow of commercial and private vehicular traffic, commercial activities in the existing warehouse complex, and recreational activities such the Kawainui Model Airplane Park, all contribute to noise pollution in the area.

Air pollution: The main contributor to air pollution in the area is the exhaust from traffic flow on the roads as well as fugitive dust emissions from bare ground surfaces and earthmoving activities. The impact of airborne pollution from activities in the western part of the marsh is mitigated by the simple fact that winds from the east dominate in the area.

Impact from Light Pollution: Impact from artificial light can have negative effect on the wildlife since it causes stress in animals and can distort their navigational capability. Artificial light deteriorates the enjoyment of the night sky and lessens the experience of open space.

Visual Impact: the Existing industrial developments in the Kapa'a Valley adjacent to the Kawainui Marsh have created distinct sights that portray the industrial character of the valley.

Traffic Impact: The Kapa'a Quarry Road serves as an important access road to the installations in the Kapa'a Valley and as an important transit road that bypasses larger roadways surrounding the Kawainui Marsh. The impact of the traffic on the Kawainui Marsh also includes noise and air pollution impacts.

3.9 Impacts during Construction:

According to initial development schedule, it will occur in four phases and will be completed in18 years. The first phase includes mass grading of the entire project site and construction of basic utilities infrastructure. This phase to be followed with phased construction of warehouse

structures. The progress of warehouse construction would advance in response to market demand. The potential impacts of the development during construction are therefore, twofold. First impacts are due to site preparation work and the second are those due to the construction of the warehouses.

As pointed out the phases would overlap at times as for instance installation of utilizes in one phase may occur while construction of some of the warehouse structures in another phase is in progress. Impacts of the proposed development during construction are generally associated with one of the following categories described below.

3.9.1 Erosion Control

The site preparation work would include a significant amount of earthwork, especially in the lower portion of the proposed site, designated with TMK 4-2-015:006. Construction activities would naturally cause elevated levels of erosion during site preparation. The proposed sequence of site preparation work would include implementation of Best Management Practices, BMPs such as installing silt fences and vegetated earth berms, and other measure discussed in more details in the next chapter

3.9.2 Water Quality

During site preparation work, there is ample opportunity for adverse impact on water quality due to occasional discharges from the construction area. Appropriate Best Management Practices (BMPs) would be used to contain and treat polluted water on site before discharging in surrounding bodies of water.

3.9.3 Flora and Fauna

As mentioned earlier, the areas designated for construction of roadways, warehouses and ancillary facilities for the development are devoid of any endangered flora or fauna. The only creatures that presently find habitat in the periphery of the proposed site are common rats, mice, mongoose and feral cats. During site preparation, the area would be cleared, grubbed, and stripped by using heavy construction equipment. There will be no clearing, grubbing or other construction related activities in the open areas close to mouth of the Kapa'a Stream and along its banks, as well as along the drop line bisecting the tow-tiered site. Due to the use of noisy construction equipment, the birds and other creatures in the open areas may temporarily avoid the area during the construction activities. Construction activities, therefore, will not have a significant impact on the flora and fauna in the area.

3.9.4 Traffic and Road Improvements

During construction there would be increased traffic on the two roads adjacent to the proposed site. Site grading and preparation would not require significant amounts cut and fill which could mean limited transport of materials to and from the site, the increase in traffic volume due to construction would not be excessive.

A limited amount of roadwork improvements may be required on the existing roads serving the project site. Anticipated roadwork may include improvement to the lower sections of the Kapa'a Quarry Access Road, improvement to the intersection of Kapa'a Quarry Riad and the Kapa'a Quarry Acess Road to allow smoother left-turn into Kapa'a Quarry Access Road for north-bound traffic on the Kapa'a Quarry Road, improving the shoulders on Kapa'a Quarry Road adjacent to the lower portion of the proposed site and improvements of the culvert under Kapa'a Quarry Road. During road construction, potential impacts will have to be mitigated by implementation of proper BMPs and traffic control measures.

During the construction of warehouse structures, there will be additional traffic along Kapa'a Quarry Road due to construction related traffic for delivery and transport of construction materials to the site. The impact will be mitigated by instituting proper BMPs.

3.9.5 Air Pollution

Impacts of the proposed project during construction, is limited to two categories. One category relates to impacts on the open ambient air and the other deals with in-door air quality during construction of each individual warehouse.

General impacts on outside air quality at the project site, are either due to operation of petroleum powered construction equipment and vehicles, particularity during the site preparation work or the fugitive emissions during grading and landscaping work. All such impacts during construction would be mitigated to a certain extent by institution of appropriate BMPs.

Interior air pollution is typically due to the release of a range of volatile agents, especially volatile organic compounds (VOC) as well as dusts and fibers during work in the interior of the warehouse structures. By using sustainable technologies such as using products with minimal harmful agents as in paints, coatings and carpets, as well as providing sufficient ventilation would mitigate indoor air pollution during construction.

3.9.6 Construction Waste

As mentioned earlier, site grading and installation of the infrastructure do not require excessive amount of fill or cut materials and would not produce significant wastes. Construction of the warehouse structures, however, is associated with generating wastes that will be hauled for

proper disposal at city and county landfills. It is anticipated that during construction, the solid waste stream from the proposed site will be significant. By using bio friendly construction materials and sustainable construction technologies, the developer intends to mitigate the anticipated volume of construction wastes.

3.9.7 Noise Climate

Construction activities would unavoidably increase the ambient noise levels. Sources of noises could be either air-borne or ground-borne. Heavy construction machinery and equipments such as backhoes, graders, power generators, compressors, earth-moving machinery, pile driving machinery, trucks and trailers would generate most of the noise impacts. While unavoidable construction related noise will be a nuisance, however, by using proper noise muffling and control devices the adverse impacts on ambient noise levels at the project site will be mitigated.

Due to the fact that the project site is relatively isolated from residential areas, it may be possible to shorten the construction period by considering night work and work during weekends without significant impact on the community.

3.9.8 Historical and Archeological Resources

As mentioned earlier, the site does not contain any archaeological or social resources. The site is heavily disturbed in the past 50-60 years by commercial quarry and land fill operations. The proposed site is comprised mainly of deposition of quarry tailings, overburden materials and solid wastes. No historic or archaeological findings, has been reported on or in close vicinity of the site. Should any archaeological or historic and culturally important artifact or resource be discovered during the construction, all construction activities will be suspended and the archeological experts and State Historical Preservation Division would be notified. The findings will then be verified by expert to assess the nature, extent, and methods of roper handling of the findings. It may be necessary to develop an archeological monitoring plan that would delineate the scheme for on-site monitoring during construction.

SECTION FOUR

PROPOSED MITIGATION METHODS

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SECTION FOUR

PROPOSED MITIGATION METHODS

In the preceding section, potential environmental impacts of the proposed development on the environment were assessed. This section, presents the mitigation and control measures to eliminate or reduce and dampen the impacts.

It should be noted that some mitigation measures can reduce multiples of impacts. Both conventional and advanced mitigation measures are discussed. The advanced mitigation measures utilize aspects of sustainable technologies to reduce the potential impact. The expressed goal of impact mitigation is to create a framework for an environmentally friendly and culturally respectful development.

The central concept for the proposed development is a balanced environmental framework, where unavoidable impacts are mitigated to the smallest realistic level, which then will be offset, by additional improvements or restoration of the environment.

While many mitigation measures proposed for the project would effectively decrease the ecological footprint of the proposed action, several proposed measures would essentially improve the natural resources at the site, such as improving the overall water quality in the Kapa'a Stream and establishing a 15 acres wildlife sanctuary on a restored wetland at the mouth of Kapa'a Stream. It should also be noted that the proposed warehouse park would implement sustainable technologies and would actively endeavor to acquire certification as a sustainable development under the Leadership in Energy and Environmental Design (LEED) certification program.

4.1 Short-Term Mitigation Measures for Impacts During Construction

As mentioned in previous sections, the proposed development will be constructed over a span of 18 years. It will be constructed in several phases and each phase may include all aspects of development from site work and installation of utilities, to construction of roadways and warehouse buildings. In other words, unlike most projects that have well defined construction period and operation period, in the proposed development operation period starts shortly after completion of the first phase of the project. The fact that the development of the park would stretch over such a long period may reduce the severity of impacts while extending its duration.

Short-term mitigation refers to measures to reduce or relieve environmental impacts during the construction phase of the project. Potential environmental impacts during construction may include, increase in rate and volume of run-off and pollution, soil erosion, airborne pollution, noise pollution, and increased traffic among others.

Proposed mitigation measures:
During construction of the developments one or many of the following Best Management Practices (BMPs) will be used to reduce or eliminate the potential adverse environmental impacts of the proposed development.

Table 4-1 Potential Impacts and Mitigation Measure during Construction

Potential Impact	Mitigation Measure during Construction
Erosion & Sediment Control	o Utilize silt fences o Utilize grass swales o For entry/exist use stabilization gravel o Utilize inlet protection o Utiize ponding basins o Use or conserve vegetation cover
Noise	o Build vegetative buffer zones with berms around the proposed site early in the site development. o Reduce noise pollution (e.g. careful handling of materials, quiet power tools, equipment and generators; low impact technologies; sound shields).
Traffic	o Schedule delivery or construction trucks to serve the site outside peak AM and PM hours o Schedule road construction in off peak hours
Air pollution	o Control dust (e.g. fine water sprays) o Place fine mesh screening close to the dust source o Continuously inspect for and decrease sources of dust (from exposed earth and building materials) o Cover trucks loaded with construction materials o Prevent spills of hazardous agents o Proactive measures to prevent site contamination. o Use of non-toxic paints, solvents and other hazardous materials wherever possible o Vegetative buffer zones with berms around the proposed site o Cover piles of building materials like cement, sand and other powders o Use low-emission diesel fuel and construction vehicles that incorporate particulate filters and catalytic converters. o No burning of any materials on site

Table 4-1 Potential Impacts and Mitigation Measure during Construction

Potential Impact	Mitigation Measure
Water Quality	o Utilize silt fences o Utilize storm inlet protections o Prevent spills of hazardous agents take Proactive measures to prevent site contamination. o Avoid building material being washed into the receiving stream or other drainage areas. o Cover piles of building materials like cement, sand and other powders o Use of non-toxic paints, solvents and other hazardous materials wherever possible o Collection of wastewater generated from site activities in settlement tanks, screen, discharge the clean water, and dispose of remaining sludge according to environmental regulations.
Socio-Economic	o Keep an open and proactive communication with the community; e.g. community meetings, newspaper, etc. o Informing the community that the construction of the Kapa'a Light Industrial Park will not reduce access to important natural resources nor would reduce employment. o Informing the community that proposed warehouse development would sustainable commercial development.Involving community groups to maintain the planned wildlife sanctuary.
Cultural and Historical	o During construction an archeological expert would be kept on call. o If cultural site or artifacts were found, construction work would be halted to inform the State Office of Historic Preservation. o An archaeologist preservation and monitoring plan to ensure no adverse impact on the cultural resources would be implemented.
Flora and Fauna	o Avoid the destruction of valuable large trees and other vegetation that would require a long time for replacement, especially during grading and the operation of heavy equipment.
Visual Impact	o Build the vegetative buffer zones with berms around the proposed site before grading and site development commenced.

4.2 Long Term Mitigation Measures for Impacts During Operation

In the following sections, potential mitigation measures that individually or in a combination would effectively reduce various impacts of the completed project are presented and discussed.

4.2.1 Mitigation of Impacts on the Kapa'a Watershed

Potential environmental impact:

The construction and operation of the proposed warehouse development could negatively affect the quantity and quality of storm water run-off from the project site. The addition of impervious and semi pervious surfaces such as roofs and roadways would higher volumes of peak run-off generated on-site. Erosion of bare ground surfaces can contribute to high turbidity and high concentration of suspended particles and associated pollutants in the receiving Kapa'a Stream.

Proposed mitigation measures:

The master plan for the proposed development calls for installation of the following measures to reduce storm discharge from the site and improve water quality in Kapa'a Stream:

- Maintain grassed and pervious surfaces in the project to the extent possible to promote infiltration and reduce surface run-off;
- Install detention ponds to collect and treat surface run-off from the developed areas. Subsequent to detention and settlement of suspended solids and subsiding of the storm event, flow will be discharged into the Kapa'a stream;
- Install BMPs to prohibit exposure of bare ground to reduce erosion. Exposed surfaces shall be landscaped or otherwise protected against surface erosion;
- Install sediment catchment devices, drain inlets with skimmers to stop discharge of floatable extraneous materials from entering the Kapa'a Stream;
- Install oil-water separators at strategic locations within the development to remove grease and hydrocarbon contaminants from the discharge.

4.2.2 Mitigation of Site Drainage Impacts

Potential environmental impact :

Potential impacts of site development on drainage can be due to increase of quantity and quality of run-off on generated on-site. Surface run-off discharges from the site may cause erosion and increase transport of silt and other pollutants into the receiving Kapa'a Stream.

Proposed mitigation measures:

The following proposed measures would reduce or eliminate adverse impacts from the drainage of the proposed site:

- Use semi-pervious pavements for all roadways in the development;

- Install Best Management Practices (BMPs) to increase environmental compliance and lower the impact to the receiving waters, such as detention ponds, catchment basin, sedimentation traps, oil-water separators, nutrient traps.
- Ensure that all exposed surfaces are protected against erosion, either by vegetation or other suitable cover material;
- Install grass swales to promote infiltration and reduce run-off and avoid erosion;
- Install oil water separators to remove grease and hydrocarbon from the runoff waters;
- Install detention ponds to store peak storm, until the water can be released into the stream in a controlled and environmentally safe way;
- Promote rainwater catchment to be used for irrigation of rainwater.

4.2.3 Mitigation of Impacts from Noise pollution

Potential environmental impact :

Noise emanating from the proposed warehouse park could be a nuisance to people and may be harmful to animals. The proximity of the proposed site to the Kawainui Marsh could exacerbate the impact of additional noise generated by the proposed development on the environment.

Proposed mitigation measures:

The following candidate noise abatement measures would lower or eliminate impacts from noise:

- Install buffer zones made of vegetated berms to reduce the noise that is a normal byproduct of industrial and commercial activities;
- Orient and construct warehouse structures that direct emission of indoor noise (e.g. through large rolled gates) away from the areas that are sensitive to noise;
- Promote the use of low noise emitting machinery (e.g. shielding noise sources);
- Ensure that all vehicles are in good operating condition (e.g. mufflers should work efficiently);
- Install insulation for machinery noise such as, acoustic barriers, noise dissipation walls and vegetative buffer zones in the proposed development;
- Mandate enforcement of guidelines and procedures to reduce noise levels such as guidelines against unnecessary idling engines over a long time;
- Locate noise generating commercial and light industrial activities to the interior of the development and away from sensitive areas;
- Prohibit noise generating activities at night or over the weekend;

4.2.4 Mitigation of Impacts from Increase Waste Occurrence

Potential environmental impact :

Waste, if not managed properly can create environmental hazard.

Proposed mitigation measures:

The following proposed measures would lower or eliminate impacts from generating on-site waste:

- Mandate institution of environmentally sensitive waste management procedures that includes, segregation and separation and handling of hazardous wastes from general solid wastes stream in accordance to EPA and OSHA regulations;
- Promote recycling of waste stream. Enforce segregation of waste into paper, plastics, glass, oil and grease, etc.;
- Provide easily accessible waste bins to facilitate waste disposal;
- Promote collection and recycling of green waste (e.g. organic waste, waste from landscaping) and preferably reuse as organic material in open spaces on the proposed site;
- Strictly enforce that no waste ends up in the open spaces;
- Enforce effective guidelines for handling of waste responsibly by the warehouse park operator.

4.2.5 Mitigation of Impacts from Increased Traffic

Potential environmental impact :

Increase of local traffic can impact the level of service on the adjacent roadways, which may cause higher risks of traffic accidents and result in traffic induced pollution (e.g. air and noise pollution)

Proposed mitigation measures:

The following proposed measures would lower or eliminate impacts from increased traffic generated by the proposed warehouse development:

- Plan improvements to the roads that serve the proposed warehouse park (e.g. improvements and widening of shoulders, plan new left turn lane on northbound Kapa'a Quarry Road, improve intersection of Kapa'a Quarry Access Road and Kapa'a Quarry Road);
- Plan large and accessible means of egress and ingress for the development;
- Encourage truck operators to schedule trips from and to the proposed warehouse park outside the Am and PM traffic peak hours;
- Implement public transport such as private shuttle to serve the proposed warehouse park;
- Encourage car-pooling for employees;
- Encourage bicycle use (e.g. implement bikeways, install bike racks, provide locker and shower facilities for bicycle users).

4.2.6 Mitigation of Impacts from Air Quality

Potential environmental impact :

Impact from impaired air quality can range from a nuisance to acute danger for the health of occupants as well as people and animals affected by air-borne pollution from the development. Besides outdoor impacts, in-door air pollution is an increasingly important safety and health consideration.

Proposed mitigation measures:

The following proposed measures would lower or eliminate impacts from poor external and indoor air quality:

Outdoor air quality:

- Reduce dust emissions from unpaved surfaces or from bare ground by promoting planting grass and ground cover;
- Reduce emission of airborne particles from light industrial and commercial activities (e.g. saw dust from wood working operations) by installing proper BMPs;
- Do not allow open fires or sources of fugitive emissions from combustive substances;
- Promote electric or battery powered utility vehicles (e.g. fork lifts) instead of diesel engines;
- Enforce operational guidelines to avoid unnecessary idling of engines;
- Enforce safeguards that no vehicles with noticeable exhaust emissions operate in the proposed park.

In-door air quality:

- Enforce a strict no-smoking rules;
- Insists on safeguarding adequate ventilation for enclosed spaces;
- Encourage dedicated outdoor air systems in lieu of conventional "all-air" air-conditioning;
- Promote safe handling of volatile organic compounds in enclosed spaces;
- Utilize advanced air-conditioning with dedicated outdoor air systems;
- Keep air pollutant sources away from intake air ducts;
- Dispose air pollutants in a safe manner (e.g. high air volume and exhaust ducts);
- Avoid use of harmful building material (e.g. paints, carpets, etc.)

4.2.7 Mitigation of Impacts from Increasing Electricity Demand

Potential environmental impact :

The projected electrical demand for the development will tax Oahu's energy supply that is highly dependent on fossil fuel.

Proposed mitigation measures:

The following proposed measures would lower or eliminate impacts of additional energy and peak power demand:

- Plan, construct and outfit the proposed warehouse park with effective passive energy savings (e.g. insulation, natural lighting, natural ventilation, avoidance of heat islands) as well as active energy savings (e.g. energy efficient lighting, energy efficient air-conditioning, appliances, etc.);
- Manage power requirements to reduce the peak power demand;
- Comply with LEED certification to ensure high energy savings;
- Install photovoltaic devices and solar panels to generate portion of electrical load.

4.2.8 Mitigation of Impacts from Increasing Water Demand

Potential environmental impact :

Potable water demand at the proposed development is very low and no adverse impacts on municipal water supply system, is anticipated.

Proposed mitigation measures:

The following proposed measures would mitigate any potential impacts from increase in water demand:

- Install water saving fixtures in buildings (e.g. waterless urinals, low-flush toilets, Energy Star appliances);
- Reduce water consumption in air-conditioning by using closed cycle systems;
- Harvest and store rainwater to be used for irrigation of grassed open areas;
- Maintain the water supply system to avoid leaks and unnecessary water consumption.

4.2.9 Mitigation of Impacts from Wastewater Disposal

Potential environmental impact :

The proposed on-site wastewater disposal method could cause exposure to untreated and raw sewage and could therefore be a health concern:

Proposed mitigation measures:

The following proposed measures would lower or eliminate impacts from wastewater disposal system:

- Install high performance wastewater treatment system comprising of septic tanks and leach fields, with adequate maintenance to safeguard continuous high level of treatment and reduction of organic wastes;
- Ensure no harmful discharge occurs into the septic tank, which could lower or compromise the performance of the septic tanks and leach fields;
- Safeguard that no untreated wastewater is released into the ground or the receiving waters;
- Ensure safe disposal of sludge from septic tanks;
- Collect and segregate harmful liquid waste from wastewater stream to avoid disposal into septic tank and possible deterioration of treatment performance by septic tank system.

4.2.10 Mitigation of Impacts from Encroachment on Open Space

Potential environmental impact :

The extent and environmental quality of open space at the proposed site could be deteriorated by the construction of warehouses.

Proposed mitigation measures:

The following proposed measures would reduce or eliminate impacts from encroachment on open space:

- Plan warehouses in dense clusters to ensure open space on the property;
- Plan vegetative buffer zones that surround the high-density warehouse development to shield open space from visual and noise impact.
- Conserve all large trees and important patches of other vegetation on-site;
- Restore the wetland areas on the proposed site (e.g. restoration and improvement of the drainage canal along the Kapa'a Quarry Road);
- Construct, maintain and operate a new 15-acre wildlife sanctuary on restored wetland adjacent to the proposed warehouse development. The wildlife sanctuary will feature three cascading ponds to create habitat for endangered water birds and other aquatic fauna. The wildlife sanctuary will be developed on restored wetland in the Kapa'a stream corridor. A 6,000 linear feet special wildlife fence will effectively keep out the considerable feral cats population at the site as well as other mammals that prey on birds.

4.2.11 Mitigation of Visual Impacts

Potential environmental impact :

The construction of the proposed warehouse development could negatively affect the existing vistas in the area.

Proposed mitigation measures:

The following proposed measures would reduce or eliminate the adverse visual impacts:

- Plan a vegetative buffer zone and tree fence around the warehouse development which would screen the facilities from the traffic flow on roadways, especially the Kapa'a Quarry Road, and from the Kawainui Marsh;
- Use tall trees in the vegetative buffer zone or "green belt" to increase the level of visual protection of the site;
- Plan grassed and shrubberies in the interior of the site to enhance visual environment;
- Use light color exterior paint to lessen the impacts of the development of the surrounding areas.

4.2.12 Mitigation of Light Pollution

Potential environmental impact :

The site lighting at the proposed warehouse development could negatively affect the safety on the adjacent Kapa'a Quarry Road, the human enjoyment of the night sky and the wildlife in the adjacent open spaces and the Kawainui Marsh.

Proposed mitigation measures:

The following proposed measures would reduce or eliminate impacts from light pollution:

- Utilize outdoor lighting with minimum intensity necessary to accomplish purpose;
- Use timers and, motion detector devises manage on and off operation of site lighting;
- Ensure lighting fixtures properly direct their light areas needed to be lighted; Ensure lights do not illuminate adjacent areas outside the proposed warehouse park;
- Use light sources that have a high Luminous Efficacy per watt; e.g. avoid Incandescent or Mercury-Vapor light sources in lieu of Low Pressure Sodium light fixtures;
- Avoid energy inefficient lighting;
- Avoid upward lighting and lighted bill boards.

4.2.13 Mitigation of Impacts from Increased Demand on Public Services

Potential environmental impact :

The commercial and industrial activity in the proposed warehouse park could burden the level of public service in the regions, especially be creating added demand on law enforcement and fire fighting services.

Proposed mitigation measures:

The following proposed measures would mitigate impacts on public service in the area:

- Use private security service on the site to reduce the risk of crime and necessary intervention or presence of police in the area;
- Use security fences and gates to lower criminal intention;
- Ensure constant surveillance of areas surrounding the proposed development;
- Improve traffic conditions in the vicinity of the proposed site to reduce the risk of traffic accidents and lower the need for police, fire and emergency medical services;
- Install adequate fire protection system in the warehouses (e.g. non-flammable building material, easily accessible portable fire fighting equipment, sprinkler systems) which would lower the risk of fire;
- Ensure an adequate fire fighting water system incorporating adequate quantity and pressures, a dedicated water supply main for fire fighting water, booster pumps, and fire hydrants.

4.2.14 Mitigation of Impacts from Increase Demand for Telecommunication

Potential environmental impact :

The increased demand for telecommunication could burden the existing bandwidth capacity of communication infrastructure in the area.

Proposed mitigation measures:

The following proposed measures would reduce or eliminate impacts on communication infrastructure:

- Since the communication technology is advancing faster that the demand for wire-based communication no substantial bandwidth problems are anticipated for the proposed site;
- High capacity wireless networks are available in the area to augment wire-based bandwidth and customer comfort in the area.

4.2.15 Mitigation of Impacts by Using Sustainable Building and Operating Technologies

Potential environmental impact :

The proposed warehouse development would cause considerable impacts if it were built as a conventional warehouse development. Since the developers would seek certification under Leadership in Energy and Environmental Design (LEED) the warehouse park would be built and operated using a wide array of environmentally friendly and energy efficient technologies.

Proposed mitigation measures:

The proposed Kapa'a Light Industrial Park would implement mitigation efforts that would preferably result in a Silver LEED certification. A list of suitable measures that would limit the ecological footprint of the proposed warehouse development is presented in Section One of this report.

4.2.16 Mitigation of Impacts on Kawainui Marsh

Potential environmental impact :

The proximity of the proposed site to the environmentally and culturally important Kawainui Marsh creates an important impact potential. Since the proposed warehouse development would be built and operated using sustainable technologies all impacts could be largely mitigated.

Proposed mitigation measures:

The following proposed measures would mitigate the main possible impacts on the Kawainui Marsh:

Water quality impacts: Use of BMPs (Best Management Practices) to significantly reduce peak run-off flow and run-off loading due to suspended solids, nutrients and other

pollutants (e.g. sediment catchment devices, oil and grease separators, nutrient elimination devices, detention basins, impervious areas)

Air pollution: The proposed Kapa'a Light Industrial Park would utilize passive and active measures to lower air pollution.

Noise pollution: Noise pollution that impact the Kawainui Marsh would be decreased by passive measures (e.g. orientation of warehouse openings away from the marsh) and active measures (sound insulation of noise equipment, acoustic barriers, noise dissipation walls and vegetative buffer zone).

Light Pollution: Excessive outdoor lighting would be avoided that could directly shine into the Kawainui Marsh or that could significantly contribute to strong glare to be seen from the marsh. External lighting will be directed on areas where light is needed and all excessive lights will be avoided or effectively shaded in regard to the wildlife sanctuary.

Visual Impact: The proposed development would use measures to hold the sight impact to a minimum. The exterior of the warehouses would be configured in such a way to lower the remote visual impact (e.g. light exterior paint, vegetated roofs). Vegetative buffer zone would be used to mitigate the close-up visual impact.

Traffic Impact: Following sustainable development approaches, the use of alternative transportation (e.g. public transportation, private shuttle, bicycles, carpools) will be encouraged. Portions of the roads that need upgrading due to high local traffic would be improved and increased for capacity.

4.2.17 Mitigation of Impacts from Flooding

Possible impact potential:

Some northern parts of the site around the mouth of the Kapa'a Stream are low lying and subject to perennial flooding.

Proposed mitigation measures:

The warehouses on the proposed site would be built outside flood zones designated with elevated flood occurrence.

4.2.18 Mitigation of Possible Growth Impacts in the Koolaupoko Region:

Potential impact:

The existing visions, policies and guidelines of the Koolaupoko region do discourage significant growth.

Proposed mitigation measures:

The proposed Kapa'a Light Industrial park would be developed over an extended period, spanning approximately 18 years from start of development to completion of construction of all warehouses. This moderate growth of the development would mitigate any social impacts that would be caused by the proposed warehouse development. If the consequences of the proposed warehouse development would require certain intervention, appropriate mitigation measures could be formulated and implemented at a later stage of the project.

4.2.19 Mitigation of Impacts on Cultural and Archeological Resources

Potential cultural Impact:

The presence of culturally important sites and gathering places would require respectful consideration for the design, construction and operation of the proposed warehouse development.

Proposed mitigation measures:

It was determined that the probability of existence of culturally important sites and gathering places on the proposed site is remote. The area that would serve as the site for the warehouses, roadways and ancillary facilities represent previously land that was heavily disturbed by quarry and landfill operations in the past fifty years. An official historical review of the site is ongoing. In the remote event that cultural sites or artifacts are discovered during the construction of the proposed warehouse park, the following mitigating measures would be used:

- During construction an archeological expert would be kept on call.
- In the event that a cultural site or artifacts would be found, construction work would be halted to inform the State Office of Historic Preservation. The archaeologist will close coordination with the agency and the community will compile a preservation and monitoring plan to ensure no adverse impact on the cultural resources.

SECTION FIVE

RELATIONSHIP TO LAND USE PLANS POLICIES AND CONTROLS

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SECTION FIVE

RELATIONSHIP TO LAND USE PLANS POLICIES AND CONTROLS

The proposed Kapa'a Light Industrial Park would need to be consistent with the main premises of existing land use visions, policies and guidelines for Oahu and the Kolaupoko region. This section discusses to what degree the proposed Kapa'a Light Industrial Park would be consistent with the City and County General Plan and the Koolaupoko Sustainable Communities Plan.

5.1 State Land Use Districts

The proposed Land Use Zone Change would not require a change of State land Use Districts. All land that would be used for the proposed warehouse development is located within the State Urban Land Use district.

5.2 Compliance with General Plan

The five following sub-sections of the General Plan apply to commercial and industrial developments, such as the proposed Kapa'a Light Industrial Park. These sections discuss how the proposed Kapa'a Light Industrial Park would be consistent with such policies, visions and guidelines of the General Plan.

5.2.1 Consistency with Views and Policies of Economic Activity

Objective A To promote employment opportunities that will enable all the people of Oahu to attain a decent standard of living.

Policy 1: Encourage the growth and diversification of Oahu's economic base.
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would provide important infrastructure prerequisites for the growth and diversification of Oahu's economic base.

Policy 2: Encourage the development of small businesses and larger industries, which will contribute to the economic and social well-being of Oahu residents.
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would provide ample opportunity specifically to small businesses and some larger businesses in the Koolaupoko area to develop and diversify.

Policy 3: Encourage the development in appropriate locations on Oahu of trade, communications, and other industries of a nonpolluting nature:
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would provide an appropriate non-polluting location for businesses and light industries. The proposed Kapa'a Light Industrial Park would be built utilizing sustainable design, construction and operational methods, thereby decreasing emission that typically accompany such industrial activities.

Policy 4: Encourage the development of local, national, and world markets for the products of Oahu-based industries.

The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would provide sufficient infrastructure and warehouse space for innovative businesses that can compete with products on the local, national and world market. The innovative nature of the development, using sustainable technologies and alternative energies promises to attract innovative thinking organizations.

Objective G: To bring about orderly economic growth on Oahu.

Policy 2: Permit the moderate growth of business centers in the urban-fringe areas:

The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would provide the means for existing and new businesses to grow or to provide a better long-term basis for their businesses. The capacity of the proposed Kapa'a Light Industrial Park would be able to accommodate moderate growth. More important yet, the Kapa'a Light Industrial Park would be geared to provide the framework for a sustainable infrastructure to engage in entrepreneurial activities.

Policy 3: Maintain sufficient land in appropriately located commercial and industrial areas to help ensure a favorable business climate on Oahu:

The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would provide space for commercial and light industrial activities to help ensure a favorable business climate on Oahu. There is an urgent and significant need for quality commercial warehouse space in the Koolaupoko region. Many commercial warehouse facilities in the urban Koolaupoko areas are limited to provide high quality warehouse spaces. Many commercial warehouses, now in use in the Koolaupoko region, are old and are not in tune with current demands for businesses or the need for adjacent residential areas. Relocation of businesses and establishing new businesses in the new Kapa'a Light Industrial Park would help to improve conditions and create opportunities for the community.

5.2.2 Consistency with Views and Policies of Natural Environment

Objective A: To protect and preserve the natural environment.

Policy 1: Protect Oahu's natural environment, especially the shoreline, valleys, and ridges, from incompatible development:

The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would provide important commercial and industrial infrastructure that is compatible with stringent environmental and social demands. The location of and manner of development of the proposed warehouse development would minimize incompatibilities with Oahu's natural environment and would reduce the ecological footprint of the proposed warehouse park.

Policy 2: Seek the restoration of environmentally damaged areas and natural resources:
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would be built on land that has been significantly impacted by industrial activities over the past decades. The proposed development would improve the area, decrease harmful runoff and would actively engage in restoring the natural resources. The owners of the proposed development have commenced the restoration of a 15 acre large wetland to serve as a wildlife sanctuary. This wetland is in the lower Kapa'a Stream corridor abd entirely within the property limits of the proposed site. This land was degraded by previous industrial activities. The wetland conservation program is committed to provide a safe habitat for native Hawaiian fauna and flora.

Policy 3: Retain the Island's streams as scenic, aquatic, and recreation resources:
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would improve the runoff conditions and water quality of the Kapa'a Stream and would create additional aquatic wildlife sanctuaries on lands adjacent to the future warehouse development.

Policy 4: Require development projects to give due consideration to natural features such as slope, flood and erosion hazards, water- recharge areas, distinctive land forms, and existing vegetation:
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would give due considerations to important natural features such as slope, flood and erosion hazards, water-recharge areas, distinctive land forms, and existing vegetation. In particular, the development would decrease the amount of erosion in the Kapa'a watershed and would provide water-recharging areas for the newly developed areas. The current site topography of the proposed development would be basically retained. Existing vegetation of the site would be improved and native Hawaiian plants would be reintroduced.

Policy 6: Design surface drainage and flood-control systems in a manner, which will help, preserve their natural settings.
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would use detention basins to promote infiltration and time-delayed and controlled discharge of the storm run-off rather than directly discharging run-off into the Kapa'a Stream. The detention basins would be replanted using native vegetation appropriate for the soil saturation conditions, thus promoting the natural settings.

Policy 7: Protect the natural environment from damaging levels of air, water, and noise pollution:
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would incorporate active and passive measures to limit air, water, and noise pollution, such as effective filter system, solid waste management, control of storm run-off, water reuse and vegetated buffer zones around the warehouse development.

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

The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since adjacent to the new development and within the land parcels, which would constitute the proposed site, a wildlife sanctuary is currently established that will give shelter to indigenous birds, aquatic life and plants.

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

The proposed Kapa'a Light Industrial Park development would consistent with this policy, since efforts would be made to preserve mature trees on the proposed site. Mature trees are mainly located in the area surrounding the Kapa'a Stream but not on the area where the warehouses would be built. The area containing mature trees would not be negatively impacted by the new development, thus most of the mature tress would be preserved. The development would embark on a program to plant trees in open areas.

Policy 10: Increase public awareness and appreciation of Oahu's land, air, and water resources.

The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since the proposed development would be designed and built based on sustainability concepts and since a wildlife sanctuary will be built and maintained adjacent to the new development. Volunteer groups will be tasked to operate the wildlife sanctuary and these groups will most likely offer nature education opportunities to the larger public.

Objective B: To preserve and enhance the natural monuments and scenic views of Oahu for the benefit of both residents and visitors.

Policy 1: Protect the Island's well-known resources: its mountains and craters; forests and watershed areas; marshes, rivers, and streams; shoreline, fishponds, and bays; and reefs and offshore islands.

The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would be developed using a wide range of mitigation measures to protect adjacent forests and watershed areas; marshes, rivers, and streams. The Kawainui Marsh, which is located adjacent to the proposed development would benefit from the new development through an improved upstream watershed and water quality of the Kapa'a Stream. Erosion control measures would decrease the amount of eroded material from the proposed site. The detention ponds of the proposed development would regulate the storm-water discharge by retaining water in the soil and in the ponds. The wildlife sanctuary on restored land upstream of the marsh would add to the bio diversity of the area.

Policy 2: Protect Oahu's scenic views, especially those seen from highly developed and heavily traveled areas:

The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would utilize measures to protect scenic views. The new warehouses would be built in an attractive style that blends into the surrounding area. Trees and an attractive landscaping would be planted in the open areas of the development. External lighting would be carried out in a way to minimize light pollution.

Policy 3: Locate roads, highways, and other public facilities and utilities in areas where they will least obstruct important views of the mountains and the sea:

The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would not impede important views of the mountains and the sea.

Policy 4: Provide opportunities for recreational and educational use and physical contact with Oahu's natural environmental.

The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would provide educational opportunities about environmentally friendly commercial and industrial developments. The wildlife sanctuary that will be developed on restored wetland within the property of the proposed site will provide educational opportunity to volunteer groups, which maintain the sanctuary, and to the general public.

5.2.3 Consistency with Views and Policies of Transportation & Utilities

Objective A: To create a transportation system which will enable people and goods to move safely, efficiently, and at a reasonable cost; serve all people, including the poor, the elderly, and the physically handicapped; and offer a variety of attractive and convenient modes of travel.

Policy 9: Promote programs to reduce dependence on the use of automobiles:

The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would promote the use of bicycles and car pools; e.g. preferred parking would be assigned for car pools and there would be bicycle racks and a locker-shower opportunity for bicycle users. The developers of the proposed warehouse park are in the process to organize public transportation to the proposed site, either by adding a route to the TheBus or by providing private shuttles.

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

Policy 3: Encourage the development of new technology, which will reduce the cost of providing water and the cost of waste disposal:

The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would actively engage in incorporating new technology the reduces the costs and the amount of water usage, as well as lowering the cost and amount of waste disposal through recycling measures.

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

The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would actively incorporate measures to lower the water consumption and would lower water consumption by recycling water and harvesting rain water that can be used for irrigation or other grey water applications.

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

The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would incorporate safe, efficient, and environmentally sensitive waste-collection and waste-disposal services. Any industrial waste would be collected and disposed off in such a way that it protects the environment.

Policy 6: Support programs to recover resources from solid-waste and recycle wastewater.

The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would implement and maintain comprehensive recycling programs.

Policy 7: Require the safe disposal of hazardous waste.

The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would safely collect and dispose of any hazardous waste.

Objective C: To maintain a high level of service for all utilities.

Policy 1: Maintain existing utility systems in order to avoid major breakdowns:

The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would implement and maintain, in good working order, all utilities in the proposed development. Implementation of energy savings and on-site photovoltaic electricity generation would reduce the baseline energy demand and in particular peak demand, thus mitigating system breakdown.

Policy 4: Increase the efficiency of public utilities by encouraging a mixture of uses with peak periods of demand occurring at different times of the day:

The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would incorporate load management technology to decrease peak electricity demand or to flatten out the peak demand curve over the day. In addition, the proposed development would incorporate renewable heat recovery or electricity generation by photovoltaic in order to lower peak demand.

Objective D: To maintain transportation and utility systems, which will help Oahu, continue to be a desirable place to live and visit.

Policy 5: Require the installation of underground utility lines wherever feasible:
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would place all utilities within the proposed site underground.

5.2.4 Consistency with Views and Policies of Energy

Objective A: To maintain an adequate, dependable, and economical supply of energy for Oahu residents.

Policy 1: Develop and maintain a comprehensive plan to guide and coordinate energy conservation and alternative energy development and utilization programs on Oahu:
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would support active and passive energy conservation. The proposed development would utilize state-of-the-art energy conservation technology and measures to low the baseline and peak demand in the proposed development. A portion of the electricity demand would be generated using on-site renewable energy systems.

Policy 2: Establish economic incentives and regulatory measures, which will reduce Oahu's dependence on petroleum as its primary source of energy:
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would utilize renewable energies and therefore help to reduce energy demand that is primarily based on petroleum fuel.

Policy 3: Support programs and projects, which contribute to the attainment of energy self-sufficiency on Oahu.
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would incorporate energy generation technology to provide electrify, heat and cooling from renewable sources.

Policy 5: Give adequate consideration to environmental, public health, and safety concerns, to resource limitations, and to relative costs when making decisions concerning alternatives for conserving energy and developing natural energy resources.
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would strive to make required capital investments to use energy efficiently and to supply the proposed development with energy derived from renewable energy sources.

Objective B: To conserve energy through the more efficient management of its use.

Policy 1: Ensure that the efficient use of energy is a primary factor in the preparation and administration of land use plans and regulations.
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would make energy efficiency and renewable energy important design and development goal needed to gain certification as a sustainable warehouse development.

Policy 2: Provide incentives and, where appropriate, mandatory controls to achieve energy efficient siting and design of new developments:
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would incorporate energy efficiency in the proposed development.

Policy 3: Carry out public, and promote private, programs to more efficiently use energy in existing buildings and outdoor facilities:
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would not only equip new warehouses with energy efficient technology, but would also convert existing buildings to be more energy efficient.

Policy 4: Promote the development of an energy-efficient transportation system:
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would encourage car-pooling and other means of transportation for the users and employees of the proposed warehouse development. Providing a bicycle friendly infrastructure with bike racks and locker & shower facilities would encourage bicycle usage. Securing some form of public transportation or private shuttle service that serve the proposed development would be another goal of the developers.

Objective C: To fully utilize proven alternative sources of energy.

Policy 1: Encourage the use of commercially available solar energy systems in public facilities, institutions, residences, and business developments.
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would actively promote and install commercially available solar energy systems. In addition to photovoltaic energy generation the proposed warehouses would preferably be equipped with solar hot water collectors for potable water and adsorption chillers.

Policy 2: Support the increased use of operational solid waste energy recovery and other biomass energy conversion systems.
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it could consider implementation of biogas energy conversion applications for the proposed development, in order to diversify the renewable energy generation technology options onsite.

Objective D: To develop and apply new, locally available energy resources.

Policy 1: Support and participate in research, development, demonstration, and commercialization programs aimed at producing new, economical, and environmentally sound energy supplies from:

a. *Solar insolation;*
b. *Biomass energy conversion;*
c. *Wind energy conversion;*
d. *Geothermal energy; and*
e. *Ocean thermal energy conversion.*

The proposed Kapa'a Light Industrial Park development would consistent with this policy, since it would seek to attract companies that develop, build and sell innovative energy technology. In addition, the proposed development would make efforts to attract pilot installation of innovative energy conversion technology.

Objective E: To establish a continuing energy information program.

Policy 1: Supply citizens with the information they need to fully understand the potential supply, cost, and other problems associated with Oahu's dependence on imported petroleum:
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would make efforts to engage the users of the park to increase the portion of renewable energy resources and save energy (thus avoiding the use of petroleum derived energy)

Policy 2: Foster the development of an energy conservation ethic among Oahu residents:
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would actively engage the users of the park to use energy efficiently. The proposed warehouse development would be a "living proof" that energy conservation and enhanced business activities are not exclusive propositions.

Policy 3: Keep consumers informed about available alternative energy sources and their costs and benefits:
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would engage users of the park about using renewable energy resources.

Policy 4: Provide information concerning the impact of public and private decisions on future energy use:
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would encourage participation in energy issues of users of the propose warehouse park, which are not only relevant to the warehouses but also a broader public interest.

5.2.5 Consistency with Views and Policies of Public Safety

Objective A: To prevent and control crime and maintain public order.

Policy 1: Provide a safe environment for residents and visitors on Oahu:
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would provide a safe environment for the users and visitors of the proposed warehouse development. It is anticipated that the constant presence of security measures and patrols would decrease any possible criminal activities in the areas adjacent to the proposed site.

Policy 5: Establish and maintain programs to encourage public cooperation in the prevention and solution of crimes:
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since it would actively work with users of the park in the prevention of crime. It is anticipated that the development of the proposed warehouse park would lower the incidence of crime in the area since improved security on the proposed site would also positively impact adjacent areas.

Objective B: To protect the people of Oahu and their property against natural disasters and other emergencies, traffic and fire hazards, and unsafe conditions.

Policy 1: Keep up-to-date and enforce all City and County safety regulations:
The proposed Kapa'a Light Industrial Park development would consistent with this policy, since it would enforce all City and County safety regulations as well as additional safety regulations implemented by the users.

Policy 2: Require all developments in areas subject to floods and tsunamis to be located and constructed in a manner that will not create any health or safety hazard:
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since all buildings would be located outside high-risk flood zones and the buildings would be constructed in such a manner to not create any health or safety hazards.

Policy 6: Reduce hazardous traffic conditions:
The proposed Kapa'a Light Industrial Park development would consistent with this policy, since all private roads and intersections with public would be constructed and maintained in such a manner to reduce hazardous traffic conditions.

Policy 7: Provide adequate fire protection and effective fire prevention programs:
The proposed Kapa'a Light Industrial Park development would be consistent with this policy, since effective fire prevention and protection would be implemented, such as adequate fire water supply, fire water booster pumps, preference to fire resistant

construction materials, dedicated fire accesses to the buildings and comprehensive fire prevention instructions.

5.3 Consistency with Koolaupoko Sustainable Communities Plan

This section discusses how the proposed Kapa'a Light Industrial Park would support the visions, guidelines and planning principles set forth in the Koolaupoko Sustainable Communities Plan.

5.3.1 Consistency with the Role of Koolaupoko on Oahu

The Koolaupoko Sustainable Community Plan calls for sustaining quality of life in the region by balancing and integrating environmental, economic, social and cultural objectives. The proposed Kapa'a Light Industrial Park would enrich economic and social aspects in the region, while providing an attract place of operation for commercial and light industrial businesses that would be environmentally friendly and respectful to cultural concerns and the natural surrounding.

Goals for the future land use the Koolaupoko region are shaped by the regions role to provide only minor population growth, while future significant residential growth is directed instead to Oahu's Primary Urban Center and Ewa Development Plan Areas in accordance the General Plan. The future role of the Kapa'a Light Industrial Park would be to attract significant new employment opportunities for residents in the Koolaupoko regions, while providing modern and environmentally friendly warehouse space for light industrial and commercial uses in the region, in order to mitigate a growing shortfall for warehouse space.

It would not be the goal of the proposed Kapa'a Light Industrial Park to attract significant growth of economic activity and employment. Rather, the primary business goal of the proposed Kapa'a Light Industrial Park would be contributing to the revitalization of the commercial base of the Koolaupoko region by providing much needed modern warehouse space that is built, equipped and operated in an environmentally friendly and energy efficient manner.

The proposed Kapa'a Light Industrial Park would be the expansion of an already existing industrial warehouse complex. The proposed expansion of the development is not a brainchild of "foreign" developers, who have identified the land adjacent to the Kauainui Marsh for a significant commercial project. The proposed development is a "local" initiative, initiated by "local" developers rooted in the community and directed to benefit the local community.

5.3.2 Consistency with the Visions of the Sustainable Community Plan

The vision of the Koolaupoko Sustainable Community Plan is the long-term protection of community resources and its residential character as well as the adoption of improvement and developments that reflect a stable population. The two cornerstones of the plan are protecting

community resources and providing improved infrastructure to serve changing needs of the population.

The first cornerstone of the plan requires the preservation, conservation, and enhancement of the region's resources, which are:

1. Natural and scenic resources
2. Cultural and historical resources
3. Agricultural resources
4. Residential environmental of neighborhoods

The proposed Kapa'a Light Industrial Park would engage the first two resource categories of the above list, namely natural and scenic resources and cultural and historical resources. The area in the Kapa'a Valley is not in agricultural use and is not adjacent to residential neighborhoods. Appropriate measures for the design, construction, outfitting and operation of the commercial warehouse development would be applied to effectively protect important community resources.

The second cornerstone of the plan, calls for improved infrastructure to serve the changing needs of the population in the region. The proposed Kapa'a Light Industrial Park would provide increasingly required space of modern warehouses, which are developed with environmental protection and efficient energy usage. Both environmental protection and an efficient and responsible use of energy are increasingly important and fundamental challenges for Hawaii.

Key elements of the vision, policies and guidelines for Koolaupoko futures, which are applicable to the proposed Kapa'a Light Industrial Plan, are as follows.

The concept of "ahupua'a" in land use and natural resource management: Ahupua'a refers to the old Hawaiian principle that the land provides abundantly only when revered as a unique entity stretching from the mountains to the ocean. All elements in the stream of natural abundance must contribute to the health of ahupua'a. Therefore any development in the ahupua'a will affect its viability. The proposed Kapa'a Light Industrial Park would therefore contribute by being developed in manner that is respectful to the land, limits its emissions to a minimum and consumes as little resources in a most responsible manner as possible. Being located adjacent and upstream of the important Kawainui Marsh, the proposed warehouse development would contribute by using and discharging water in a responsible way and by contributing to the restoration of important wetland areas.

Preserve and promote open space throughout the region: The proposed Kapa'a Light Industrial Park would be developed while leaving the large areas in the three land parcels, which would constitute the proposed site, as open spaces. The developers have made a commitment to create and maintain open space on the proposed site. A 15 acres large degraded wetland area that will be restored and maintained as a wildlife sanctuary for endangered birds.

Enhance existing commercial and civic districts; The proposed Kapa'a Light Industrial Park would be the expansion of an already existing warehouse development. While the present commercial warehouse development represents a historically growing group of individually designed and erected building, the future commercial warehouse development would be a consistently planned commercial district, that would feature modern warehouse developments built to mitigate noise and other emissions, use energy and resources effectively and control runoff and erosion from the site.

5.3.3 Consistency with Land Use Policies, Principles and Guidelines

The relevant commercial and industrial activities that would define the land use of the proposed warehouse park would include retail and service establishments, offices, light industrial activities and storage facilities. According to the Sustainable Communities Plan it is encouraged to satisfy evolving infrastructure needs for certain commercial and light industrial uses in the regions. The plan contends that the anticipated demand for commercial space in the region should be accommodated by existing industrial zones in the Kailua, Kaneohe and in the Kapa'a area, with the latter being a portion of the proposed Kapa'a Light Industrial Park that is already in operation at the present.

Recent significant increases in demand for commercial warehouse space and the limitation of expansion of existing, often old warehouse space in Kailua and Kaneohe make the proposed expansion of the commercial warehouse development in Kapa'a valley an urgent infrastructure need. The proposed Kapa'a Ligh Industrial Park would be consistent with land use policies and guidelines of the Koolaupoko Sustainable Communities Plan.

General Policies indicate that light and extractive industry activities in the Kapa'a Valley are accepted land uses. Therefore the proposed Kapa'a Light Industrial Park would be consistent with future land use plans in the region.

Applicable Planning Principles of the Sustainable Community Plan would be consistent with the proposed Kapa'a Light Industrial Park, such as:

- The proposed park would promote alternative modes of transportation, such as bicycles uses and car-pooling. Though at the moment the site is not served by public transportation, the developer of the proposed warehouse park would promote some form of public transportation or private shuttles to serve the expanded industrial development in the futures.
- The buildings in the proposed commercial warehouse development would be built in such a manner to respect the natural surroundings.
- Landscaping features would use open spaces between the buildings.
- The proposed commercial warehouse development would be consistent with the demand for energy efficiency and resource conservation by promoting the use of alternative energy as well as implementing comprehensive energy efficiency measures. Water conservation would be promoted by use of appropriate technology and

operational measures. Waste management would include comprehensive recycling programs.
- The site of the proposed Kapa'a Light Industrial Park would comprise large areas of fill material from former quarry operations. Plans for restoring these areas of the site are consistent with the planning principles of the Sustainable Communities Plan, which call for a suitable depth of topsoil to establish plant material similar to that in the surrounding area.

The following planned measures of the proposed Kapa'a Light Industrial Park would be consistent with the Implementation Guidelines for Light and Extractive Industry, set forth in the Koolaupoko Sustainable Community Plan, such as:

Visual Screening, Lighting and Signage:
- Noise and other adverse impacts from parking, loading and service areas would be buffered from adjacent wildlife preserves and public roads by an appropriate combination of vegetated earth berms and landscaped setbacks.
- Large buildings and solid walls would be visually screened by landscaping to soften the appearance of the buildings.

Drainage and Waste Material:
- Stormwater runoff would be managed through application of Best Management Practices (BMPs). Wherever possible (e.g. loading requirements for vehicles) surfaces, such as parking areas, would be created as pervious areas, rather than conventional impervious traffic areas. There would be no direct discharge of stormwater runoff into adjacent wildlife preserves, streams or sanitary sewage systems.
- Leachates from underground storage tanks, if any, would be avoided by appropriate measures. Leachate from fill material, as currently happens, would be avoided by collecting the stormwater runoff into suitable detention basins.
- Litter and other waste material would be prevented from encroaching into adjacent sites through the use of landscaping as well as proper maintenance of the site.

5.3.4 Consistency with Infrastructure Policies and Principles

The proposed Kapa'a Light Industrial Park would be consistent with the following policies and principles in regard to public infrastructure.

Water system development: The general policies on conserving precious water resources would be adopted through planned design and operational measures:
- Low-flush toilets, flow constrictors and other water conserving devices would be used as much as possible.
- Indigenous plant material would be used for landscaped areas; drip irrigation, where applicable, would be the preferred irrigation method.

- Recycled (R-1 or R-2) water would be used for the irrigation where this is technically feasible and where it would not adversely affect potable groundwater supply or other aspects relating to public health.
- Rain harvesting systems would be utilized for irrigation and other uses, in conjunction with applicable standards

Wastewater treatment systems: The proposed Kapa'a Light Industrial Park would endeavor to minimize wastewater discharge in order to conserve natural resources and to alleviate current capacity problems of public wastewater systems.

The proposed development would be consistent with the following General Policies:

- Within the newly developed area wastewater effluent would be treated and recycle, where feasible, as a water conservation measure. The extent of wastewater recycling would be contingent on technology and other regulator aspects.
- The proposed on-site treatment of wastewater would be consistent with the requested delay of further sewer connections in Kailua.

The proposed development is consistent with the following Planning Principles and Guidelines:

- The proposed development would use recycled wastewater for the purpose of irrigation, provided these uses conform with State's rules and guidelines for the treatment and use of recycled water.
- Berms or other suitable landscape elements would be used as a buffer between on-site wastewater treatment system and adjacent buildings on the property. The appropriate configuration of buffer zones would be determined in the phased design phases on the development.

Electrical and communication systems: The proposed development of the Kapa'a Light Industrial Park would be consistent with the applicable guidelines:

- Electrical and communication cables in the proposed development will be placed underground within the proposed site.
- The proposed development would encourage and implement stringent energy conservation measures and on-site electricity generation (by renewable means); therefore, additional electrical grid capacity required by the future development would be reduced.
- With innovations in the communication technology, no major additions of communication assets would be anticipated for the proposed development.

Solid Waste handling and Disposal: The anticipated waste management of the proposed Kapa'a Light Industrial Park would be consistent with the demanded general policies of the Koolaupoko Sustainable Communities Plan, regarding to waste reduction, re-use and recycling as well as the efficient disposal of waste.

- The proposed development would promote recycling of waste materials by providing comprehensive recycling facilities and services to the users of the proposed industrial park.
- The new development would actively engage in efforts to reduce solid waste.

Drainage systems: The design philosophy of the proposed Kapa'a Light Industrial Park would be consistent with drainage related policies of the Koolaupoko Sustainable Communities Plan. Due to the proximity and upstream location to important wetland area (e.g. Kawainui Marsh), the proposed development would create a suitable drainage system to mitigate all possible adverse drainage effects. In an effort to restore important wetland areas, which are contributors for an effective and environmentally friendly drainage system, the developers of the future Kapa'a Light Industrial Park are committed to create a wildlife sanctuary on open space within the proposed site.

The planned drainage system for the proposed Kapa'a Light Industrial Park is consistent with the following general policies and planning principles:

- The planned drainage system design would promote control and minimization of non-point source pollution and the retention of storm water on-site and in wetlands.
- A comprehensive drainage study of local flooding and drainage problems has been developed for the proposed site. All developed areas of the proposed commercial park would be outside the Kapa'a Stream set-back. This ensures that the natural drainage capacity of the Kapa'a Stream would be maintained.
- Storm water is recognized as a potential source of water that should be retained for recharge of the aquifer rather than quickly moved to coastal waters. The planned drainage strategy would collect storm water in detention ponds and releasing it in a controlled way. Storm water would also be harvested and subsequently used for irrigation and, if possible, other grey water applications.
- The proposed development would select natural and man-made vegetated drainage systems as the preferred solution to drainage problems wherever these structures and systems can be applied. The proposed development would implement structural and operation measures to control non-point source pollutants.
- The proposed development would utilize several storm water detention basins of different sizes for gradual release into the ground or stream.

Urban Design features:
It is recognized that the physical appearance, or "design" of appurtenances comprising the infrastructure, individually and collectively, impact and influence the physical appearance of the community where they are located. The proposed development would endeavor to use such design features, building materials, layouts and operational measures that would positively affect the appearance of proposed development. The proposed Kapa'a Light Industrial Park would therefore be consistent with the planning principles and guidelines for urban design of the Koolaupoko Sustainable Community Plan.

5.4 County Zoning

The development of the proposed Kapa'a Light Industrial Park would require a zone change for two of the three land parcels from General Preservation District (P-2) to Intensive Industrial District (I-2). The intended land use of the Kapa'a Light Industrial is warehousing, which would be a permitted land use within the Intensive Industrial District (I-2).

5.5 County Special Management Area

A portion the land parcel designated as TMK 4-2-015:006, which is part of the proposed site, is within the County Special Management Area. A Special Management Area permit must be obtained from the City and County of Honolulu in order to allow the development of the Kapa'a Light Industrial Park on that portion of the parcel TMK 4-2-015:006.

SECTION SIX

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES AND UNRESOLVED ISSUES

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SECTION SIX

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES AND UNRESOLVED ISSUES

The proposed Kapa'a Light Industrial Park would involve irreversible and irretrievable uses of material, labor, energy and capital funds of the developer, Kapa'a III, LLC.

Construction of the proposed warehouses would augment the economic and social viability of the Koolaupoko region and would provide a centralized location with ample space for commercial and light industrial activities, which are presently spread out in the residential areas of the windward district. The proposed site is relatively remote from residential area and within an area that is characterized by existing industrial uses.

The pending application for Zone Change and the Special Management Area permit are the unresolved issues for the proposed warehouse park at the present time.

SECTION SEVEN

LIST OF NECESSARY PERMITS AND APPROVALS

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SECTION SEVEN

LIST OF NECESSARY PERMITS AND APPROVALS

Permits required in order to develop the proposed warehouse park are listed as follows:

	Permit	Approving Agencies	Approximate Processing Time
1)	Stream Channel Alteration Permit	Department of Land and Natural Resources State of Hawaii	60 -90 days

The Commission on Water Resource Management requires this permit if any stream bed or stream bank is altered in any way. The need for this permit will be determined after the design is completed.

2)	Water Quality (401) Certification	Department of Health State of Hawaii Clean Water Branch	60 - 90 days

Title IV of the Clean Water Act of 1977 (Public Law 95-217) requires this certification if an applicant is seeking a Federal license or permit for activities involving the possibility of discharge into navigable waters.

3)	National Pollutant Discharge Elimination System (NPDES):	Department of Health State of Hawaii Clean Water Branch	60 - 90 days

Dewatering Permit

This permit is required for the discharge of dewatering effluent from construction activities.

4)	NPDES: Hydrotesting Permit	Department of Health State of Hawaii Clean Water Branch	60 - 90 days

This permit is required for the discharge of non-polluted hydrotesting water.

5)	NPDES: Storm Water Runoff	Department of Health State of Hawaii	60 - 90 days
	Permit	Clean Water Branch	

This permit is required for storm water discharges from construction activities including clearing, grading and excavation activities except for operations that result in the

disturbance of less than five acres of total land area which are not part of a larger common plan of development or sale.

6)	City and County Right-of-Way Permit	Department of Transportation Services City and County of Honolulu	30 - 60 days

This permit is required for any construction activities within the City and County of Honolulu right-of-way (i.e. Kapa'a Quarry Road and Kapa'a Quarry Access Road).

7)	Building Permit	Department of Planning and Permitting City and County of Honolulu	30 - 45 days

This permit is required for the construction of any building or structure.

8)	Grading Permit	Department of Planning and Permitting City and County of Honolulu	15 - 30 days

This permit is required for grading which changes drainage patterns with respect to properties abutting the construction site, exceeds 50 cubic yards of cut or fill or exceeds three feet in vertical height at its deepest point.

9)	City Trenching Permit	Department of Planning and Permitting City and County of Honolulu	15 - 30 days

This permit is required for trenching (i.e. digging, breaking, disturbing or undermining) any public City highway, street, thoroughfare, alley or sidewalk or any similar public place.

10)	Noise Variance Permit (as needed)	Department of Health State of Hawaii	7 - 14 days

This permit may be required for unusually loud construction activities or night work.

11)	City and County Traffic Control Plans	Department of Transportation Services City and County of Honolulu	15 - 30 days

These plans must be approved by the City for work within City and County roadways.

12)	City and County Street Usage Permit (as needed)	Department of Transportation Services City and County of Honolulu	15 - 30 days

This permit may be needed for work within City and County roadways.

13)	Construction Plans and Specifications	Department of Planning and Permitting City and County of Honolulu,	30 - 60 days
		Department of Transportation Services City and County of Honolulu	30 - 60 days
		Board of Water Supply City and County of Honolulu,	30 - 60 days

These plans must be approved by the City an before construction may begin.

SECTION EIGHT

ALTERNATIVES TO PROPOSED ACTION

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SECTION EIGHT

ALTERNATIVES TO PROPOSED ACTION

In this section three alternatives to the proposed action for the proposed Kapa'a Light Industrial Park are discussed. There are two key planning objectives for selection of alternatives, which indicate that alternatives must provide the much needed commercial warehouse space on a suitable land in order to serve the long-term socio-economic needs of the Koolaupoko regions and (2) to accomplish this objective in a way that effectively decreases the impacts of the proposed warehouse development on the environment and community. The three alternatives that were considered are discussed in the following sections.

8.1 No-Action Alternative – Alternative 1

Under the No-Action Alternative 1 the Kapa'a Light Industrial Park would not be developed. Although there might be some minor additions to warehouse space above the present level or substitution of warehouses to replace old structures, such warehouse development would not be based on a comprehensive development plan, as formulated for the Kapa'a Light Industrial Park. The resulting situation would therefore be close to that depicted in Figure 8-1, which portrays the present warehouse development on the proposed site.

Figure 8-1 Site Situation with Alternative No-Action – Alternative 1

The No-Action Alternative, does not satisfy the two key objectives of the proposed actions. First, there would be no long-term increase in warehouse space in Koolaupoko region, and second, the improvement of existing environmental impacts, which are planned under the proposed action, such as improvements of the water quality of the Kapa'a Stream and open space surrounding the present site, would not be realized. Many of the existing warehouses are old and therefore lack environmental friendliness and energy efficiency, feature that are planned for

the new warehouse development. The existing land use conditions and therefore the environmental impact on the two parcels designated as TMK 4-2-015:001 and 4-2-015:001 would remain unchanged.

In summary, Alternative 1, the No-Action Alternative, would not respond to the urgent need of the community for a centralized light industrial park away from residential centers in windward community and would not bring about the improvements in environmental conditions at the proposed site.

8.2 Alternative 2- Limited New Warehouse Development on one Parcel

Under this alternative, a limited number of warehouses would be developed on the central parcel, which already is the site for existing warehouses as depicted in Figure 8-2. This parcel is identified by TMK 4-2-015:008 and is presently located within the I-2, Intensive Industrial District. Since the intended land use is consistent with the Land Use ordinance, there is no need for any zone change. The new warehouses would be built using conventional building technology and the site would be developed to maximize the warehouse-building footprint.

Figure 8-2 Site Situation with Alternative 2 – Warehouse development on only One Parcel

Alternative 2 would provide only about 30% of the warehouse space, which would be provided by a full Kapa'a Light Industrial Park development under the proposed action. Therefore Alternative 2 would provide only a significantly smaller area of warehouse space that could be provided long-term to the Koolaupoko region, when the proposed action would be implemented.

Thus, this alternative would not contribute to one of the two key objectives of the Kapa'a Light Industrial Park, which is to provide a significant size of warehouse space and thus significantly enhance the business infrastructure in the Koolaupoko region.

Furthermore, Alternative 2 would not improve current environmental impacts on the two adjacent parcels TMK2 4-2-015:001 and 4-2-015:006. The existing conditions on these two parcels would be basically unchanged and would not be upgraded. Thus, the existing conditions in the Kapa'a watershed, which contribute to the poor water quality of the Kapa'a Stream, would remain unimproved. Furthermore, the water quality and the existing wetland habitat at the mouth of the Kapa'a Stream would not be improved.

By not utilizing the two parcels, which are adjacent to the parcel TMK 4-2-015:008, for the proposed Kapa'a Light Industrial Park, the potential benefits for highest and best use of the land parcels will not materialized. Alternative 2 does not contribute to the key objectives of the proposed Kapa'a Light Industrial Park to the extent possible under the proposed action and therefore, is not considered to be a viable alternative for the proposed action.

8.3 Alternative 3 - New Warehouse Development on the Entire Site using Conventional Building Technologies

Alternative 3, would involve construction of new warehouses on the entire proposed site, comprising of the three contiguous parcels TMK 4-2-015:001 (portion of), TMK 4-2-015:008 and TMK 4-2-015:006. The scope of new warehouse developments is shown in Figure 8-3. Since the warehouse development would cover the entire three parcels, zone changes would be required for the eastern and western parcels, parcels TMK 4-2-015:006 and 4-2-015:001, respectively.

Under Alternative 3 the warehouses would be built using conventional structures and roadways. The site would be basically divided into two sections, an upper and a lower portion of the proposed site.

The design of the warehouse development would endeavor to provide a large overall warehouse-building footprint, in order to maximize usable commercial space. The design of the warehouses and roadways would be within the design envelope of the County Land-Use Ordnances. This alternative would implement certain Best Management Practices (BMP) to control the environmental impacts of the project.

This alternative would be consistent with the key objective of the proposed Kapa'a Light Industrial Park of providing significant commercial space to the Koolaupoko region and therefore improving its infrastructure. While the design under this alternative would utilize conventional and not sustainable building technologies, the resulting warehouse park would not minimize the anticipated environmental and energy related impacts from the warehouse development to the same extent that would be achievable with sustainable technologies.

In an effort to implement the most effective mitigation of anticipated environmental impacts from the warehouse park, it is deemed that a warehouse development using sustainable design approaches would be more consistent with existing goals and policies for the region. Therefore Alternative 3 is not the preferred alternative, though it might be more cost effective and offer a better return of investment for the developer than the proposed action.

Figure 8-3 Site Situation with Alternative 3 – Warehouse Development on the Entire Proposed Site

SECTION NINE

FINDINGS AND NOTICE OF DETERMINATION

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SECTION NINE

FINDINGS AND NOTICE OF DETERMINATION

9.1 Significance Criteria

The proposed Kapa'a Light Industrial Park project, would increase the number of warehouses for commercial and light industrial uses in an area which has been used for industrial activities. The development would provide about 660,000 square feet of new commercial warehouse space that is in great demand in the Koolaupoko region and especially in the Kailua and Kaneohe. This, in turn, would result in relocation and abandonment of commercial spaces in densely populated residential areas of Kailua and Kaneohe area. The proposed warehouse development would comprise an environmentally friendly and energy efficient building development.

While providing much needed commercial warehouse space for the Koolaupoko region the warehouses would be developed using sustainable technologies, which would effectively lower any impacts on the environment and the community. The proposed project would not simply mitigate impacts but would effectively improve the environmental conditions at the site by improving the water quality and peak storm flows in the Kapa'a Stream. It would also include restoration and establishment of a 15-acre wildlife sanctuary and wetland adjacent to the park.

The development of the proposed Kapa'a Light Industrial Park would not have a significant impact on the environment. Therefore, an Environmental Impact Statement is not required for the project. Based on the "Significant Criteria" listed in Section 12 of the Hawaii Administrative Rules Title 11, Chapter 200, an applicant or agency must determine whether an action may have a significant impact on the environment, including all phases of the project in its short-term and long-term impacts. In making the determination, the Significant Criteria" Rules are established as the basis for identifying whether the proposed project has significant environmental impact.

Based on the analysis, the following conclusions are reached:

1. *The proposed Kapa'a Light Industrial park would not involve an irrevocable commitment to loss or destruction of any natural or cultural resource.* The proposed project would be contained on previously heavily disturbed land that was used for land filling and quarry operations. Significant quantities of landfill wastes and quarry tailings as well as overburden and solid wastes were deposited on the site in the last fifty years. Rather than deteriorating the site, the proposed development would result in objective improvements to the environment and would improve current land use that has contributed to deterioration of the impacted environmental conditions at the site. The project would utilize sustainable building technologies and would protect natural and cultural resources.

2. *The proposed project would not curtail the range of beneficial uses of the environment*. The present land use on the site of the proposed Kapa'a Light Industrial Park causes more environmental impact than the under the proposed project. The proposed project would not curtail the range of beneficial uses to the environment, rather, it would extend beneficial uses. The developers of the proposed Kapa'a Light Industrial Park are committed to

developing and operating a 15-acre wildlife sanctuary on restored wetland on the property. The open space surrounding the proposed site would be conserved and improved, resulting in extension rather than curtailment of beneficial uses.

3. *The proposed project would not conflict with the state's long term environmental policies and goals.* The proposed Kapa'a Light Industrial Park is consistent with applicable goals, visions and guidelines of the General Plan and the Koolaupoko Sustainable Communities Plan. By adopting an environmentally friendly design of the proposed warehouse development, the short- and long-term need for additional warehouse space in the Koolaupoko region can be satisfied in a fashion that causes a minimum ecological footprint, supports the wellbeing of the community, conserves important resources of the regions and is respectful to cultural resources.

4. *The economic and social welfare of the community or state would not be affected.* The proposed Kapa'a Light Industrial Park would not negatively affect the economic welfare, social welfare, and cultural practices of the community or State. On the contrary, the propose action would provide much needed long-term upgrades of economic infrastructure of the Koolaupoko regions and strengthen the employment situation in the region.

5. *The proposed project would not substantially affect public health.* There would be no significant emissions from the site. Wastewater would be treated on-site using reliable treatment options. Stormwater would be treated using Best Management Practices (BMP) that would remove potentially harmful substances and would release the runoff in a controlled and environmentally friendly way. There are no intended uses that would cause significant air and noise pollution. The sustainable design of the warehouses would avoid any harmful agents and would provide a superior indoor environmental climate, when compared to conventional warehouses.

6. *No substantial secondary impact, such as population change, or effects, on public facilities are anticipated.* The proposed project would not precipitate substantial population changes or effects on public facilities. The project would not entice significant population influx, nor would it negatively affect public facilities. The proposed warehouse would implement effective measures to lower the impact on public utilities. The sustainable building technologies would significantly lower demand for electricity and water; in fact, electricity would be generated on-site thereby lowering the energy and peak power demand. No substantial impact on law enforcement is anticipated, on the contrary, comprehensive security measures of the proposed warehouse development would help to lower criminal activities around the proposed site. No additional demand on fire fighting is anticipated since the warehouses would be built according to strict fire protection codes.

7. *No substantial degradation of environmental quality is anticipated.* The proposed warehouse development would not result in substantial degradation of environmental quality. Rather the proposed warehouse development would add to the environmental

quality by improving stormwater runoff quality, providing a significant area for wetland conservation and mitigate other potential environmental impacts from the warehouses.

8. *The proposed action does not involve a commitment to larger actions, not would its cumulative impacts result in considerable effect on the environment.* The proposed warehouse development, especially if seen in conjunction to the other industrial activities in the Kapa'a valley, does not significantly add to the cumulative effects upon the environment. In the contrary, the proposed warehouse development would employ means to improve the water quality and peak flow conditions in the Kapa'a Stream and would provide measures for a better groundwater situation, resulting from implementation of Best Management Practices (BMP).

9. *No rare, threatened or endangers species or their habitats would be affected.* The proposed warehouse development would not substantially affects a rare, threatened, or endangered species, or its habitat. The warehouses would be exclusively built on previously disturbed land that represents no habitat for rare, threatened or endangers species. Rather than endangering important habitats, the proposed action would restore habitats and add a 15-acre wildlife sanctuary on restored wetland within the property. The sanctuary will provide a secure habitat for endangered indigenous water birds by erecting wildlife fences to keep predators from the bird population.

10. *Air quality, water quality and ambient noise would not be detrimentally affected.* The proposed warehouse development would not detrimentally affects air quality, water quality or ambient noise levels. Air pollution would be secured by passive and active measures. Strict wastewater and stormwater management would be implemented to secure and improve water quality. Ambient noise levels would be limited by appropriate active and passive measures.

11. *The proposed project would not affect environmentally sensitive areas, such as flood plains, tsunami inundation zones, erosion prone areas, geologically hazradeous lands, fresh waters and coastal waters.* The proposed warehouse development would not affect flood plains. The proposed locations for the warehouses are outside areas designated as flood hazards. The proposed site would not impinge on natural flood plains since the warehouses would be built on elevated land. The proposed site would improve erosion conditions of the land fill areas on which the proposed warehouses would be built. The proposed project would improve rather deteriorate the water quality of the receiving Kapa'a Stream.

12. *The proposed project would not substantially affect scenic vistas and view planes identified in country and state plans and studies.* The proposed warehouse development would not substantially affect scenic vistas and view planes in the Kapa'a valley. The Kapa'a valley has an industrial appearance due to its extensive quarry and landfill operations. The proposed warehouse park would not provide a substantial impairment of the existing vistas in the valley. Vegetated buffer zones would be built around the warehouse park perimeter so that the development would be effectively shielded from people passing the park on the Kapa'a Quarry Road. The warehouses would be constructed so that the building shell and roof are concealed and screened to the extent possible. The external lighting of the

warehouses would be done in such a way as to effectively mitigate light pollution. Therefore the nightly appearance of the proposed warehouse would help to retain the night sky conditions in the region.

13. *The proposed project would not require substantial energy consumption.* The proposed warehouse development would utilize sustainable measures to significantly lower energy consumption. It is planned to generate a significant amount of electricity onsite with photovoltaic energy systems, thereby lowering the energy and peak electricity demand. Since the proposed warehouse development would mainly replace older warehouses on Oahu or in the Koolaupoko region rather than introduce in a significant new capacity of warehouse space, the proposed project would result in a net reduction of energy consumption on Oahu.

9.2 Notice of Determination

On the basis of the forgoing analysis of significance criteria the proposed Kapa'a Light Industrial Park would not have significant impacts on the environment. As such, a notice of determination of *Findings of No Significant Impact* for the proposed improvement is appropriate.

9.3 Reasons Supporting the Determination

The development of the proposed warehouses park would introduce physical structures and increased activities at the site. This inherently would cause interaction to increase in human activities and interactions with the environment, with potential impacts. The proposed warehouse park would be developed with the goal to acquire certification as a sustainable development, which requires implementation of a wide range of mitigation measures that far exceed comparable developments using conventional warehouse construction measures.

The proposed warehouse development would not only implement mitigation measures to lower environmental impacts of intrusive developments, it also would objectively improve environmental conditions presently found at the site. While the proposed warehouse park would provide warehouses, which are important and much needed places to serve the economic and social wellbeing of the Koolaupoko region, it would be accomplished in a way that drastically reduces the ecological footprint of such installations.

Any unavoidable impacts caused by the Kapa'a Light Industrial Park would be mitigated through a wide array of engineering design, implementation of careful construction methods and compliance with all governmental and institutional requirements, including those of the State Department of Health, the City and County of Honolulu's Department of Design and Construction and Department of Planning and Permitting, as well as those of the sustainable development certification agency.

SECTION TEN

AGENCIES, ORGANIZATIONS AND BOARDS CONTACTED

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SECTION TEN

AGENCIES, ORGANIZATIONS AND BOARDS CONTACTED

The following agencies, organizations and boards were contacted in course of the preparation of this Draft Environmental Assessment.

City and County of Honolulu
Department of Transportation Services
Transportation Planning Division
650 S. King Street 3rd Flr
Honolulu, Hawaii 96813

City and County of Honolulu
Kailua Neighborhood Board No. 31
Planning & Zoning Committee
P.O. Box 487
Kailua, Hawaii 96734

Hawaiian Electric Company (HECO)
820 Ward Avenue
Honolulu, Hawaii 96814

Honolulu Fire Department
Aikahi Fire Station
45 Kaneohe Bay Dr
Kailua, Hawaii 96734

Honolulu Police Department
Kailua City Police Station
219 Kuulei Road, Kailua, Hawaii 96734

Kailua Chamber of Commerce
600 Kailua Road, Suite 107
Post Office Box 1496
Kailua, Hawaii 96734

Oahu Transit Services Inc.
811 Middle Street
Honolulu, Hawaii 96819

AGENCIES, ORGANIZATIONS AND BOARDS CONTACTED

State of Hawaii
Department of Business, Economic Development & Tourism
Office of Planning
235 S. Beretania Street, Suite 600
Honolulu, Hawaii 96813

State of Hawaii
Department of Business, Economic Development & Tourism
235 S. Beretania Street, Suite 600
Honolulu, Hawaii 96813

State of Hawaii
Department of Land and Natural Resources
State Historic Preservation Division
601 Kamokila Blvd., Room 555
Kapolei, Hawaii 96707

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Board of Water Supply, City & County of Honolulu
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Institute of Transportation Engineers
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Kailua Bay Advisory Council
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U.S. Fish and Wildlife Service
http://www.fws.gov

U.S. Green Building Council
http://www.usgbc.org/ accessed June 2008

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