Kahului Airport Access Road, Phase I
Puunene Avenue to Hana Highway
Wailuku District, Maui, Hawaii

Environmental Assessment

Submitted Pursuant to the
National Environmental Policy Act, 42 U.S.C. 4332(2)(c)

U.S. Department of Transportation
Federal Highway Administration
and
State of Hawaii Department of Transportation
Highways Division

MAR 06 2012
Date of Approval

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This report documents the anticipated impacts of the construction approximately 4,700 lineal feet for the Kahului Airport Access Road, Phase I from the intersection of Puunene Avenue to the Hana Highway intersection. The project purpose is to provide additional capacity and alleviate traffic congestion from existing routes to the Kahului Airport (Keolani Place and Dairy Road) by providing an alternate route which would redistribute vehicles and provide a more direct route to the airport. The proposed road will also address existing service deficiencies on Keolani Place and Dairy Road. Three (3) alternatives (including the No-Build and road widening) are evaluated. Additionally three (3) alternatives are evaluated for the Hana Highway intersection. The Proposed Action (Alternative 2) and the Simple At-Grade Hana Highway intersection (Alternative 1) will not have significant impacts based on criteria specified in NEPA 42 U.S.C. 4332(2)(c).

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Executive Summary

This document has been prepared to address the National Environmental Policy Act (NEPA) requirement for the proposed Hawaii Department of Transportation (HDOT) project, Kahului Airport Access Road, Puunene Avenue to Hana Highway (Phase I) in Kahului, Maui, Hawaii. Phase II of the Kahului Airport Access Road encompasses the segment from Hana Highway to the Kahului Airport. Phase II is being separately designed and administered by the HDOT, Airports Division, and is not covered in the scope of this Environmental Assessment document.

The proposed action calls for a new four-lane arterial between Puunene Avenue and Hana Highway. New intersections with Dairy Road/Pakaula Street and Hana Highway are proposed for the new Kahului Access Road Phase I project. Three (3) alternatives were considered for the Hana Highway intersection to facilitate traffic movements at the intersection.

The road is considered a traffic mitigation measure to meet the continuing growth in use and demand at the Kahului Airport, and is intended to improve traffic circulation along nearby roadways such as Dairy Road and Keolani Place. The right-of-way has been secured by HDOT and lands abutting Phase I have been developed and zoned for future development of light industrial uses.

I. PROJECT OVERVIEW

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A. INTRODUCTION

The State of Hawaii, Department of Transportation (HDOT), Highways Division proposes the construction of the Kahului Airport Access Road Project, which will be located in Kahului, Maui, Hawaii on lands owned by the State of Hawaii. See **Figure 1**. There are two (2) components to the overall Kahului Airport Access Road. The component which is the subject of this environmental assessment document will span from the Puunene Avenue/Kuihelani Highway intersection to Hana Highway. See **Figure 2**. This segment of the roadway is also referred to as Kahului Airport Access Road Phase I.

The second component of the Kahului Airport Access Road encompasses that segment between Hana Highway and Kahului Airport. Also referred to as Kahului Airport Access Road Phase II, this segment of roadway is being designed and constructed by the HDOT, Airports Division. The scope of the proposed action addressed by this document does not include Kahului Airport Access Road Phase II.

Although both components of the Kahului Airport Access Road (Phase I and Phase II) are being administered separately by two (2) divisions of the HDOT, coordination between the Highways Division and Airports Division is ongoing to ensure that the basis of design and construction scheduling are aligned.

B. PROJECT PURPOSE AND NEED

Kahului Airport is the largest airport in Maui County and serves as the primary gateway to the island of Maui for air travel. Over the last few decades, Kahului Airport has undergone significant expansion to keep pace with the growth experienced on Maui. As a result, traffic volumes on the local roadway infrastructure system in the vicinity of Kahului Airport have steadily increased.

Currently, the primary roadway providing access to the airport is Keolani Place, a four-lane, undivided roadway. Dairy Road, which is a four-lane, undivided roadway, feeds into Keolani Place. Dairy Road is heavily traveled throughout the day as it is not only the primary access to Keolani Place, but it also serves a number of commercial and light-

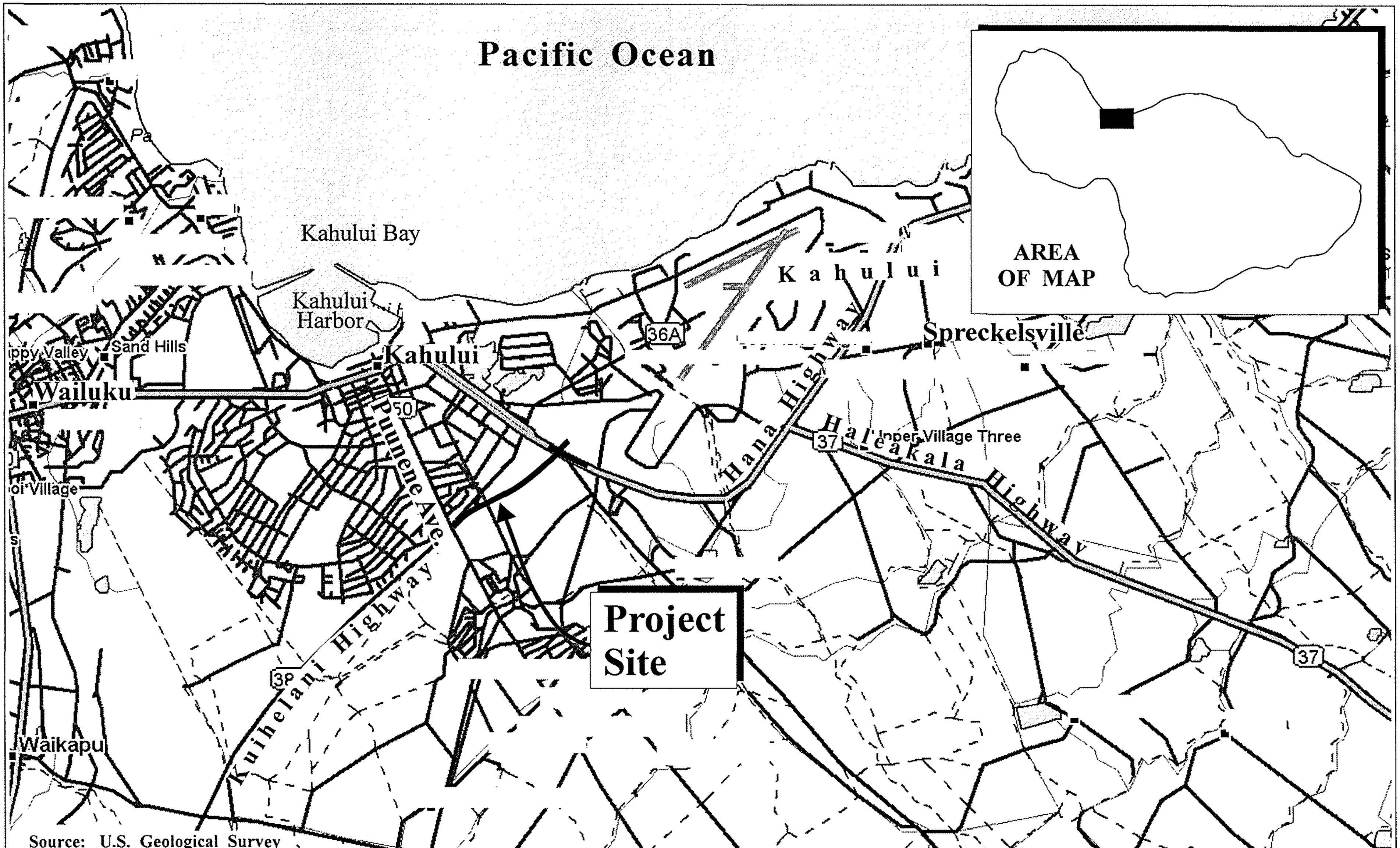

Figure 1

Kahului Airport Access Road
Puunene Avenue to Hana Highway
Regional Location Map

NOT TO SCALE

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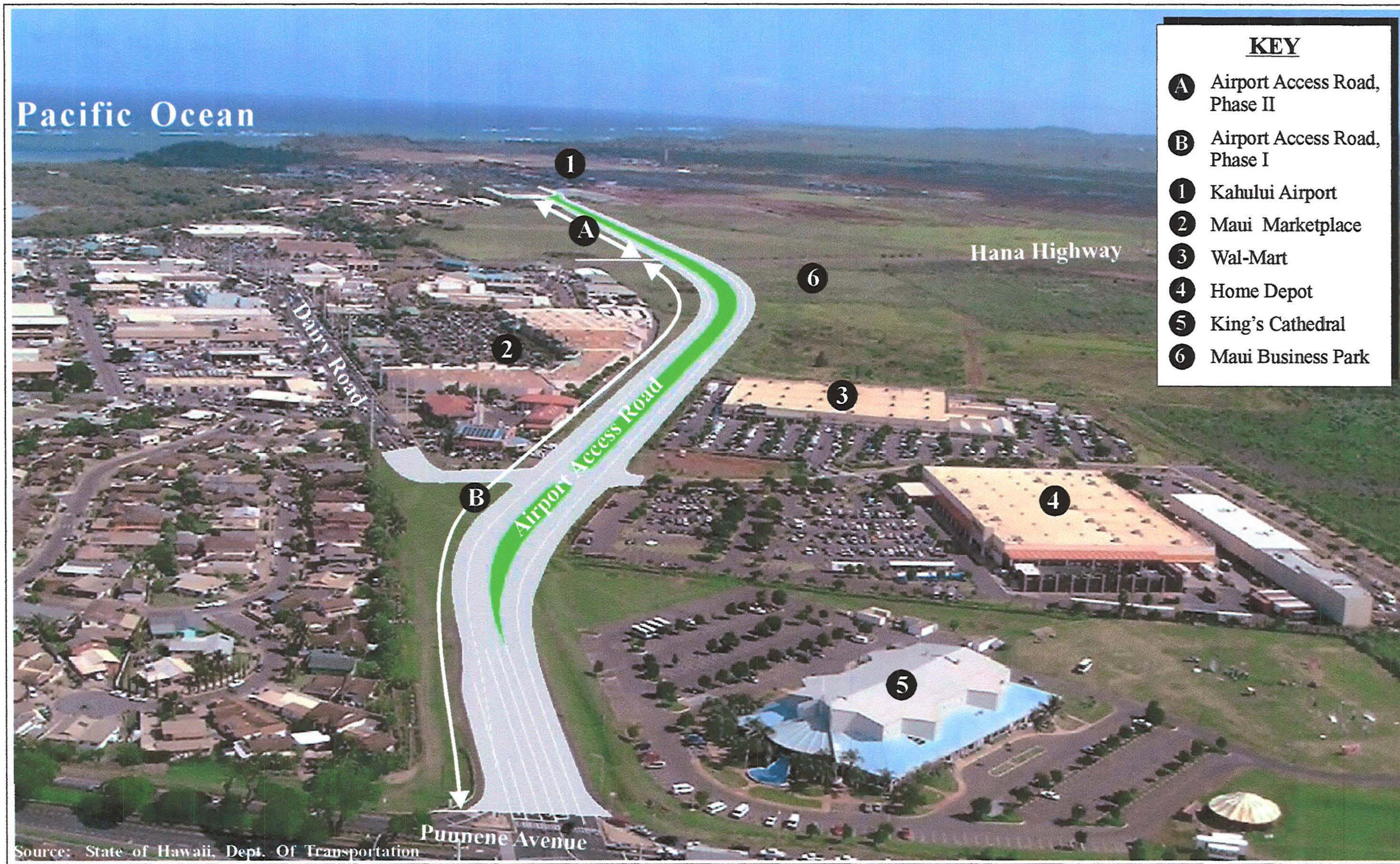

Figure 2

NOT TO SCALE

Kahului Airport Access Road
Puunene Avenue to Hana Highway
Airport Access Road Rendering, Puunene Avenue to Airport

Prepared for: State of Hawaii, Dept. Of Transportation

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industrial businesses. The proposed airport access roadway will parallel Dairy Road over most of its length.

In the 1990's, the HDOT developed a master plan for the airport. The plan noted the future development of this new access road to alleviate congestion on Dairy Road. The purpose of this project is to execute the portion of the Kahului Airport master plan access roadway from Puunene Avenue to Hana Highway.

The proposed Kahului Airport Access Road is intended to provide additional roadway capacity and alleviate traffic congestion on the previously mentioned area roadways (Dairy Road and Keolani Place) by providing an alternative route which would allow for the redistribution of vehicles and provide a more direct access to and from the Kahului Airport to other parts of the island. Currently, visitors who are staying in South or West Maui will exit the Kahului Airport and will travel on Keolani Place and Dairy Road to access either the State-owned Mokulele Highway for South Maui destinations or the State-owned Kuihelani Highway and Honoapiilani Highway for West Maui destinations. Aside from persons traveling to and from the Kahului Airport, traffic on Dairy Road also includes persons accessing the various businesses and services located along Dairy Road, such as the Maui Market place, Wal-Mart, the Maui Business Park light industrial area and the Kahului Industrial Park.

The proposed road will also address existing roadway service deficiencies on Dairy Road and Keolani Place. Traffic count data from 2003 at the Dairy Road, Keolani Place, Haleakala Highway intersection indicated that a total of 16,691 vehicles traveled through Keolani Place in a 24 hour period, with the highest volume of vehicles between the hours of 2:30 p.m. to 3:30 p.m. (1,377 vehicles). See **Appendix "A"**, Traffic Analysis Report. Traffic in the area is projected to increase over the next 32 years due to the increase in the number of passengers utilizing the Kahului Airport, as well as the planned development of vacant lands adjacent to the proposed Airport Access Road.

The proposed Kahului Airport Access Road was identified as Item No. 55 in the 1997 Maui Long Range Transportation Plan produced by the HDOT. Additionally, the Maui County Council adopted the Countywide Policy Plan in March 2010.

With regard to the Countywide Policy Plan, Section 2.80B.030 of the Maui County Code states the following.

The countywide policy plan shall provide broad policies and objectives which portray the desired direction of the County's future. The countywide policy plan shall include:

1. *A vision for the County;*
2. *A statement of core themes or principles for the County; and*
3. *A list of countywide objectives and policies for population, land use, the environment, the economy, and housing.*

The Countywide Policy Plan sets forth core principles and identifies goals, objectives, policies and implementing actions for pertinent functional planning categories, including transportation options:

With respect to the proposed Kahului Airport Access Road the following goals, objectives, policies and implementing actions are illustrative of the project's compliance with the Countywide Policy Plan.

DIVERSIFY TRANSPORTATION OPTIONS:

Goal: Maui County will have an efficient, economical, and environmentally sensitive means of moving people and goods.

Objective:

Provide an effective, affordable and convenient ground transportation system that is environmentally sustainable.

Policies:

a. Execute planning strategies to reduce traffic congestion.

b. Plan for the efficient relocation of roadways for the public benefit.

Objective:

Improve and expand the planning and management of transportation systems.

Policy:

Accommodate the planting of street trees and other appropriate landscaping in all public rights-of-way.

In summary, the Kahului Airport Access Road is consistent with the themes and principles of the Countywide Policy Plan.

A second component to the General Plan update is the Maui Island Plan (MIP). The County Council is currently reviewing and revising a draft of the MIP. The MIP will also contain goals, policies and objectives related to the long range planning efforts for the future of the island. Lastly, the proposed project is located within the Wailuku-Kahului Community Plan region. Planning for each region is guided by the respective Community Plans, which are designed to implement the Maui County General Plan. The Wailuku-Kahului Community Plan was adopted by the County Council in 2002 and includes language supportive of the Kahului Airport Access Road.

INFRASTRUCTURE:

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

TRANSPORTATION:

Objectives and Policies:

Enhance circulation

Support the extension of the Kahului Airport runway, access road improvements, and other related facility improvements, including expansion of the adjacent shoreline area for public park uses.

C. PROJECT DETAILS

The project limits are defined by Puunene Avenue and Hana Highway, as identified in **Figure 2**. The total length of this Phase I segment of the Kahului Airport Access Road is approximately 4,700 lineal feet. The alignment, encompassing a minimum 180-ft. right-of-way, follows a route immediately east of the Maui Marketplace commercial complex and the Maui Business Park Phase I light industrial area. Near its Puunene Avenue terminus, the roadway is bordered by the King's Cathedral. The Home Depot and Wal-Mart stores are located along the route as well, with portions of the Maui Business Park Phase II project bordering the roadway alignment up to Hana Highway.

Functionally, the proposed roadway is intended to serve as an arterial roadway, providing the highest level of service at the greatest speed for the longest uninterrupted distance, with some degree of access control. The proposed posted speed for the road will be 45 miles per hour (mph), while the design speed is 55 mph. The proposed roadway consists of two (2) 12-ft. wide travel lanes in each direction, with 10-ft. wide shoulders in each direction. The four (4) lane typical section configuration was developed as part of the Kahului Airport master plan development process (WSA, June 1995). Separate turning lanes are provided at the proposed Airport Access Road's Puunene Avenue intersection and the Dairy Road/Pakaula Road intersection. A portion of Dairy Road will be realigned to meet the proposed roadway opposite of Pakaula Road in a new cross-intersection, replacing the existing T-intersection; the new intersection will be signalized.

At the Hana Highway terminus, three (3) alternatives were studied to accommodate anticipated traffic volumes through the intersection. The selected intersection configuration will be included following analysis by HDOT. Additional information on alternatives for this intersection are provided in Chapter II of this report.

Currently, in the vicinity of the Hana Highway intersection with the proposed Airport Access Road, the Highway is a four-lane, two-way roadway. HDOT has future plans to expand Hana Highway to a six-lane roadway in the project corridor, however, that action is not included in the scope of this EA. The future Hana Highway expansion project will undergo a separate environmental review.

The proposed project will be landscaped in accordance with plans approved by the Maui Urban Design Review Board. In particular, Ordinance No. 3559, approving the change in zoning for Alexander & Baldwin's (A&B) Maui Business Park Phase II project incorporates a condition which requires participation by A&B in the landscaping of the Kahului Airport Access Road corridor.

While the landscape plans prepared by A&B are applicable to those sections of the Kahului Airport Access Road Phase I which are adjacent to the Maui Business Park Phase II project, the landscaping theme will be carried forth in a consistent manner along the entire project limits.

D. REGIONAL CONTEXT FOR PROPOSED ACTION

1. Overview

As noted previously, the Kahului Airport Access Road project is divided into two (2) components, with Hana Highway defining segment responsibilities of the Department of Transportation's Airports Division and Highways Division. To summarize, the Airport Access Road Phase II, covering that segment of the roadway from Hana Highway to Kahului Airport, will be implemented by the Airports Division. A County of Maui Special Management Area Permit for the Phase II project was granted by the Maui Planning Commission on February 24, 2009. Construction on Phase II is anticipated to begin in Fall 2012. Additionally, the Airports Division has secured funding approval through the Federal Aviation Administration (FAA) for the construction of the Airport Access Road Phase II. A commitment from the Airports Division to pursue construction of Phase II is contained in **Appendix "B"**. The Phase I component, which is the subject of this environmental assessment, is under the administrative auspices of the Highways Division. Coordination between the Highways Division and Airports Division is ongoing to ensure that construction schedules are aligned to provide for the coordinated implementation of the entire roadway.

The subject project (Phase I) is incorporated in the State of Hawaii's State Transportation Improvement Program (FY 2008 to 2011). This designation is consistent with the County of Maui's Wailuku-Kahului Community Plan (Ordinance No. 3061) which advances an implementing action for Kahului, stating "Construct the planned Airport Access Road" (Wailuku-Kahului Community Plan, page 37). In general, the Airport Access Road is viewed as a means to ensure the efficient movement of goods, services and people from Kahului Airport to key destinations on the island. Current access routes to the Kahului Airport consist of HDOT's Hana Highway and Dairy Road, with some northbound traffic utilizing Haleakala Highway.

2. **<u>Relationship to Other Roadways</u>**

The implementation of the Kahului Airport Access Road, Phase I and Phase II, will establish an integrated system of roadways in this vicinity of Kahului, to provide long-term connectivity and mobility. While the Kahului Airport Access Road will meet the needs of better serving the airport, Dairy Road will continue to serve the commercial corridor which includes the Maui Marketplace, Maui Business Park Phase I, Kahului light industrial area (north of Dairy Road) and the commercial areas of Triangle Square, K-Mart, and COSTCO stores.

Additionally, traffic circulation between HDOT's Puunene Avenue and Hana Highway will be facilitated by the proposed Hookele Street extension, which will be completed in connection with the Maui Business Park Phase II project. Hookele Street will be the primary collector serving the proposed Maui Business Park Phase II project. Given the Kahului Airport Access Road's arterial functional classification, the use of Hookele Street to serve Maui Business Park Phase II, and Dairy Road to serve the existing commercial and light industrial uses along this route is consistent with the need to maintain the Kahului Airport Access Road as a limited access roadway.

From a broader, regional standpoint, the Kahului Airport Access Road (Phase I and Phase II),will establish an integrated HDOT system in the vicinity, to include Hana Highway, Kaahumanu Avenue and Puunene Avenue. Such a roadway network results in well-connected hub transportation facilities (i.e., Kahului Airport and Kahului Harbor), as well as land use elements requiring efficient movement of goods and services.

3. **<u>Pedestrian and Bicycle Mobility</u>**

In light of its arterial functional classification, the Kahului Airport Access Road is consistent with the State's Complete Streets policy. The proposed road does not include sidewalks as speeds and access limitations are not conducive to mixing pedestrian and vehicular traffic. Bicycles may utilize the shoulder of the roadway. Separately, access for pedestrians and bicyclists to Kahului Airport and surrounding areas will continue to be provided via Dairy Road and Keolani Place. Dairy Road, between Hana Highway and Haleakala Highway, has sidewalks on both sides. West of Hana Highway, Dairy Road has sidewalks along the south side of the road, fronting the Maui Business Park Phase I and Maui Marketplace. Keolani Place has sidewalks along both sides, from Haleakala Highway to the Kahului Airport. Bike Plan Hawaii (2003) identifies both Dairy Road and Keolani Place as signed shared roadways for bicyclists. (A "signed shared roadway" is a street or highway designated by signs as a preferred route for bicycle use.)

The objective of maintaining adequate pedestrian and bicycle access and facilities for the Kahului Airport is addressed by Bike Plan Hawaii and existing improvements along Dairy Road and Keolani Place.

4. Mass Transit Usage

The County of Maui, Department of Transportation (MDOT) currently operates two (2) bus routes within its existing system which provide mass transit service to the Kahului Airport. Both routes (Upcountry Islander and Haiku Islander) utilize a limited portion of Dairy Road (from Dairy Road/Hana Highway intersection to Keolani Place) for access to the Kahului Airport, however, both routes utilize Hana Highway for access to and from the Airport. In discussions with the MDOT, there are no plans within the next five (5) to ten (10) years to expand County bus service to the Kahului Airport as the MDOT plans to expand service in the West Maui and South Maui areas to provide additional buses for the high level of visitor and resident usage (Phone conversation with County of Maui, Department of Transportation, March 14, 2011).

E. REGULATORY CONSIDERATIONS

The proposed project is an element of the Kahului Airport Master Plan Improvements. An Environmental Impact Statement (EIS), in accordance with Chapter 343, Hawaii Revised Statutes (HAR) and Chapter 11, Hawaii Administrative Rules (HAR), was prepared and published in 1997. The Chapter 343, HRS and Chapter 11, HAR requirements and NEPA Federal Aviation Administration requirements were satisfied for the proposed project in the 1997 EIS. This document has been prepared to satisfy the National Environmental Policy Act's (NEPA) requirement for the Federal Highways Administration (FHWA).

Section 4(f) (of the Department of Transportation Act) analysis is required when a project involves the use or taking of lands currently being used for park, recreation, wildlife, waterfowl, or historic purposes. Significant adverse effects may occur if the proposed improvements would result in conflicts or incompatible use with such properties. The

Section 4(f) criteria were addressed in the aforementioned 1997 EIS. The proposed project does not involve or impact Section 4(f) lands as lands surrounding the Kahului Airport Access Road Phase I have been since developed or rezoned for light industrial use.

Section 106 of the National Historic Preservation Act of 1966 requires that all Federal agencies, or State, County, and private organizations that are involved in Federal undertakings, identify and assess archeological sites that their planned actions might affect. As part of the 1997 EIS for the Kahului Airport Master Plan, Section 106 consultation was conducted. Further, based on the archaeological studies prepared for the 1997 EIS, a Programmatic Agreement (PA) was executed for the Kahului Airport Master Plan in December 1997. The proposed project was included as part of the project scope for the PA. Parties to the PA included the Advisory Council on Historic Preservation, the Federal Aviation Administration and the State Historic Preservation Officer, with concurrence by the HDOT, Maui/Lanai Islands Burial Council and the Office of Hawaiian Affairs. The PA remains in effect today, with the HDOT Airports Division charged with implementation. During the preparation of this NEPA EA document, consultation was sought with the State Historic Preservation Division (SHPD) for Section 106 concurrence on the proposed project. SHPD responded via letter dated September 27, 2011 that they believe "no historic properties affected" so long as archaeological monitoring occurs during ground altering work. See **Appendix "C"**.

II. ALTERNATIVES

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A. ROADWAY WIDENING ALTERNATIVES

An alternative to the construction of the Airport Access Road could be to widen Keolani Place and Dairy Road. In the 1990's, Keolani Place and portions of Dairy Road had been widened to accommodate existing traffic demands. However, over time, these widening efforts have proven inadequate to accommodate continuing growth in traffic demand in the absence of the Airport Access Road. To accommodate additional roadway widening of both Keolani Place and Dairy Road, the HDOT would need to acquire additional right-of-way from public/quasi-public and commercial areas along these roadways. In addition, major modifications would be needed at the Hana Highway/Dairy Road intersection to accommodate the existing and forecasted traffic volumes. It is noted that lands underlying Dairy Road are owned by Alexander & Baldwin, Inc., with an easement granted to the HDOT for use and maintenance of Dairy Road. This landownership-easement arrangement poses further limitation to the road widening alternative. Therefore, this alternative is not considered feasible nor reasonable for further consideration.

Alternatives northwest of Dairy Road would involve either the widening of existing roadways in the vicinity or the acquisition of developed residential and commercial lands for new roadway development. The existing roadways northwest of Dairy Road cannot be widened without additional right-of-way acquisition, which would result in hardships to existing residential and commercial owners. Similarly, the acquisition of already developed lands would result in displacement of these owners. Consequently, alternatives situated to the northwest of Dairy Road are not deemed economically or socially feasible.

B. RIGHT-OF-WAY ALTERNATIVE

The use of existing right-of-way alternative was also reviewed. Since the project site is currently vacant, undeveloped agricultural land, and already designated as a roadway right-of-way owned by the State of Hawaii, this alternative presents an opportunity which would not result in displacement of any individuals or families. Moreover, the project site is proximately located with the current primary airport access road (Dairy Road).

C. NO ACTION ALTERNATIVE

The no action or no build alternative would forego the implementation of the proposed project and maintain the status quo. In the absence of the proposed project, access along Dairy Road and Keolani Place to and from the Kahului Airport is anticipated to continue to deteriorate over time as Maui's population grows. Throughout the day, there is already queuing along major intersections of Dairy Road. As such, the no action alternative is not considered a viable or desirable scenario in light of existing and projected traffic conditions in the area.

D. HANA HIGHWAY INTERSECTION ALTERNATIVES

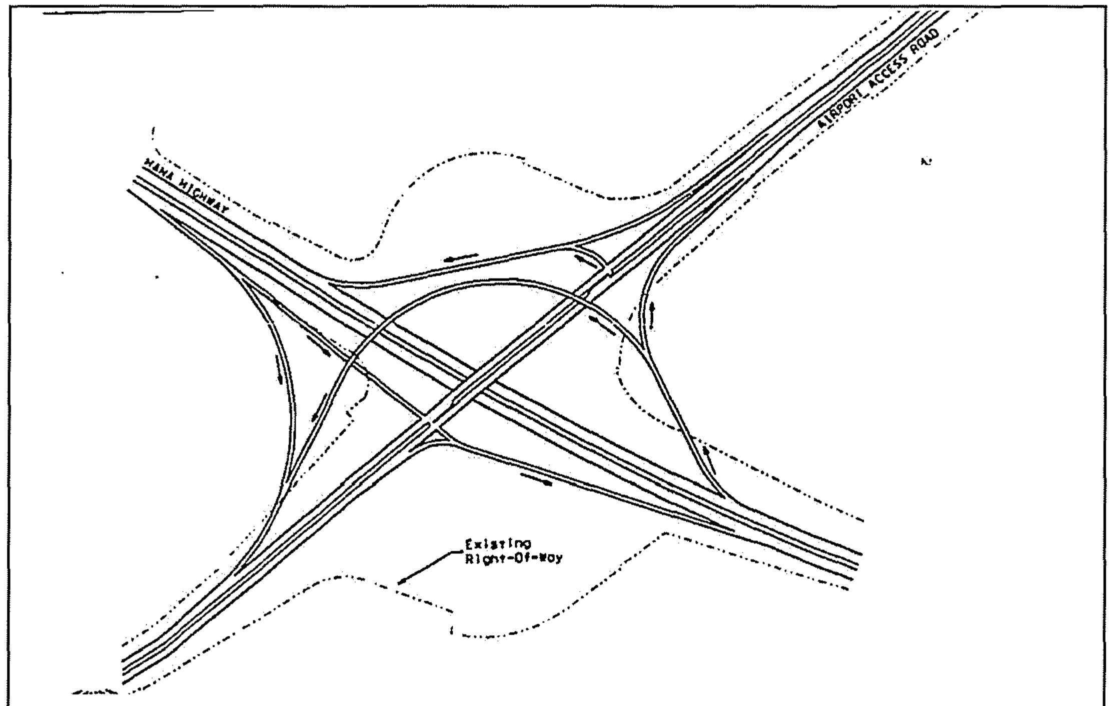
Three (3) intersection alternatives were studied for the Kahului Airport Access Road/Hana Highway intersection. See **Figure 3** for intersection alternatives that were studied.

1. Simple At-Grade Intersection Alternative

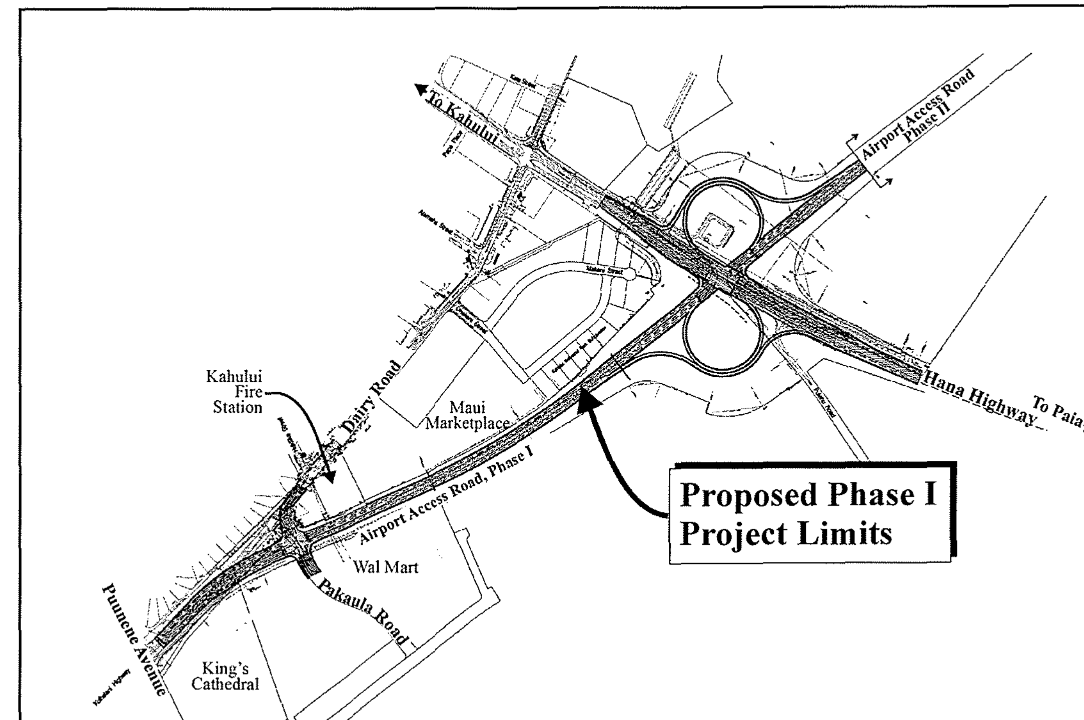
The simple at-grade intersection configuration would consist of an eight-phase traffic signal controlling vehicle movements. As reported in the Traffic Analysis Report (**Appendix "A"**), there were a number of sub-alternatives considered which were based on the number of left-turn lanes provided at the intersection. The analysis showed that even with two (2) left-turn lanes provided on Hana Highway and two (2) left-turn lanes provided on the Kahului Airport Access Road, the intersection would operate at acceptable levels of service during the AM and PM peak hours in both Year 2015 and Year 2035. Signal control at the intersection would be eight-phase, with the left-turn phase demand-actuated and leading (occurring before) the phase for opposing through movements. A 150-second cycle was used to minimize lost time while not incurring long delays. Refer to **Appendix "A"**.

2. At-Grade Loop Alternative

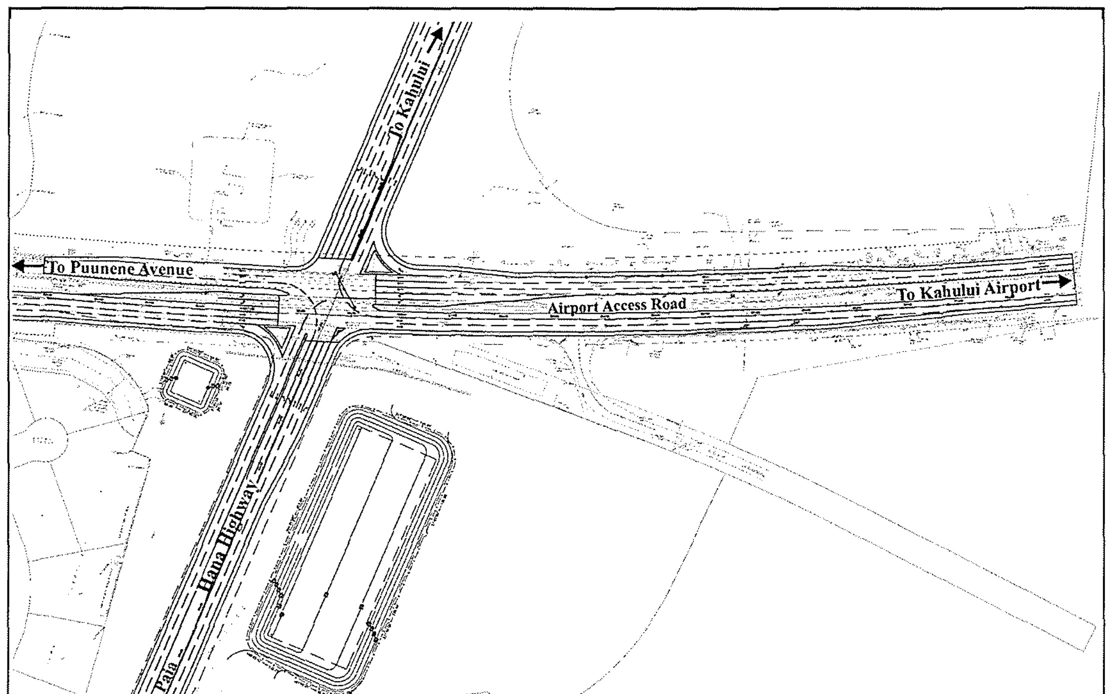
The Kahului Airport Access Road Phase I project's intersection with Hana Highway was evaluated to ensure that intersection geometrics allowed for the most efficient intersection operations. The proposed intersection configuration alternative consists of single-lane loops. This configuration reduces conflicting movements and reduces delays to provide acceptable levels of service during the design year peak hour. In particular, the single-lane loop eliminates the need for a separate left-turn signal phase on Hana Highway. Thus, there are no left-turns from Hana Highway



Grade Separated Intersection Alternative



At-Grade Loop Intersection Alternative



Simple At-Grade Intersection Alternative

Source: Wilbur Smith Associates and Fukunaga & Associates, Inc.

Figure 3

Kahului Airport Access Road Puunene Avenue to Hana Highway

Hana Highway Intersection Alternatives

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Fukunaga\KahuluiAP Access\SitePlan

onto the Kahului Airport Access Road. Similarly, right-turn movements from the Kahului Airport Access Road onto Hana Highway are accommodated via right-turn bypass lanes to eliminate right-turn movements at the intersection itself. The single-lane loop geometric configuration is workable within the existing State-owned right-of-way for the Kahului Airport Access Road.

3. Grade Separated Intersection

The right-of-way limits established at the Kahului Airport Access Road-Hana Highway intersection was originally based on a grade separated intersection. The grade-separated, partial cloverleaf interchange alternative was identified as the preferred alternative in the 1997 Kahului Airport EIS. Since the cost of the interchange alternative is considerable, additional traffic analyses were conducted to determine if another alternative could be identified. The other alternatives, using the at-grade single lane loop configuration and the simple at-grade intersection were determined to be achievable for the 2030 horizon year. The current traffic study prepared for the Phase I project (**Appendix "A"**), indicates that an overall LOS "D" would result using a 160-second traffic signal cycle.

While the three (3) alternatives were studied for the Airport Access Road/Hana Highway intersection, it is noted that the HDOT determined that the grade-separated intersection would be deleted from the final candidate analysis. The HDOT justification for deletion of the grade-separated intersection was due to past strong public opposition to the alternative, potential visual impacts, and the higher cost to implement the improvement without significant improvement to the LOS for the intersection function. As such, the two (2) at-grade intersection alternatives for the Hana Highway intersection were examined as the remaining candidates.

The alternatives identified, including the Hana Highway intersection options, were reviewed based on several criteria, including environmental factors, archaeological and cultural considerations, as well as public comment, cost, and level-of-service (LOS) outcomes. A more detailed analysis is provided in the next chapter.

III. POTENTIAL IMPACTS

III. POTENTIAL IMPACTS

The following analysis was performed to assess the existing social, economic, and environmental conditions in the area, as well as the project's potential impacts to those conditions and necessary mitigation measures to minimize such impacts.

A. 1997 ENVIRONMENTAL IMPACT STATEMENT CONTEXT

A Final Environmental Impact Statement (EIS) for the Kahului Airport Master Plan Improvements was completed in 1997 and accepted by the Governor of the State of Hawaii in February 1998. (The EIS document may be viewed at the Office of Environmental Quality Control's online library at http://oeqc.doh.hawaii.gov/Shared%20Documents/EA_and_EIS_Online_Library/Maui/1990s/1997-09-MA-FEIS-KAHULUI-AIRPORT-IMPROVEMENTS-VOL-1-OF-5.pdf). That EIS document addressed the Airport Access Road as part of the surface transportation network for the proposed airport improvements. Conditions at the time the EIS was prepared differed from current conditions as follows:

- The intersection of Haleakala Highway and Keolani Place/Dairy Road was not yet signalized (i.e., intersection was controlled by STOP signs)
- Mokulele Highway consisted of single travel lanes in each direction (versus the current four-lane configuration from Kuihelani Highway to Piilani Highway in Kihei)
- Land use conditions differed along the Airport Access Road (since the 1997 EIS was completed, Wal-Mart, Home Depot and a number of other retail/commercial businesses in Maui Business Park Phase I have opened adjacent to, or nearby the Kahului Airport Access Road right-of-way)
- Subsequent to the 1997 EIS, the Wailuku-Kahului Community plan was updated to reflect new limits of future light industrial lands in this vicinity of Kahului not previously recognized by the 1997 EIS
- The Maui Business Park Phase II project was granted zoning by the Maui County Council to provide an additional 141 acres of light industrial lands adjacent to the Airport Access Road Phase I limits
- Maui County public transportation bus service to the Kahului Airport is now available

- The Hookele Street Extension, now part of the master plan for the Maui Business Park Phase II project, was not recognized as part of the area's roadway network

While changes have occurred since 1997, the concerns with regard to traffic congestion have remained constant. The Airport Access Road was viewed as a key mitigation measure designed to absorb growing traffic volumes from Dairy Road and Keolani Place. With growth in the Kahului area since 1997, and continued growth anticipated at Kahului Airport, the importance of the proposed action continues.

This EA document considers the current conditions and assesses impacts as it relates to current-day conditions.

B. SOCIAL CONDITIONS

The Kahului region is the island's center of commerce. Combined with neighboring Wailuku, the region's economic character encompasses a broad range of commercial, service, industrial, residential, and government activities. In addition, the region is surrounded by large agricultural acreages which include sugar cane fields. The vast expanse of agricultural land, managed by Hawaiian Commercial & Sugar Company (HC&S), is considered a key component of the overall landscape.

The residential areas of Kahului contain a diverse mix of residents from all income classes and ethnic groups. No particular ethnic group or family of a particular income class will be disproportionately affected by the proposed project. Moreover, since the proposed project is being contemplated on a vacant, former agricultural field area, the proposed project is not anticipated to adversely impact a particular neighborhood or community, nor will the project result in the displacement of families or neighborhoods. Regional connectivity benefits from the project are anticipated, with the Kahului Airport Access Road providing congestion relief for Dairy Road, Keolani Place, and Hana Highway/Haleakala Highway.

C. ECONOMIC CONDITIONS

The economy of Maui is heavily dependent upon the visitor industry. The health of the visitor industry is especially evident at the Kahului Airport, the primary visitor entry point on Maui. The foundation for the island's visitor strength lies in the availability of vacation rentals, world-class resorts, and recreational facilities throughout the island.

The State's overall economic growth rate has slowed and its unemployment rate has increased through recent recessionary conditions. The State's overall unemployment rate for

December 2011 was 6.2 percent. Maui County is exhibiting similar trends with a seasonally unadjusted unemployment rate for the same period of 7.3 percent (State Department of Labor and Industrial Relations, March 2012).

On a short-term basis, the project will support design, construction, and construction-related employment. Accordingly, the project will have a beneficial impact on the local and State economy during the periods of design and construction. From a long-term perspective, the project will provide greater access to and from the airport, which is intended to improve circulation in the area. As a result, access to employment and businesses will improve.

Negligible impacts to infrastructure systems related to water and wastewater systems, solid waste disposal, schools, utility systems, and public services (police, fire, and medical) are anticipated due to the defined and limited scope of the project. The proposed roadway will serve to provide greater access to this portion of the Kahului community.

D. ENVIRONMENTAL CONDITIONS

1. Biological Resources

A Flora and Fauna Survey and Assessment for the project was prepared by Robert W. Hobdy, Environmental Consultant, in May 2008. See **Appendix "D".** The assessment noted that, since the project corridor had been in sugar cane production for over 100 years, the land had been repeatedly plowed, planted, burned, and harvested during that time. As a result, nothing remains of the dry land native shrub land that once occupied the site.

Sugar cane production ceased about 20 years ago and the area has since become overgrown with dry land grasses and agricultural weeds. A total of 48 plant species were recorded during the survey, of which one (1) specie, uhaloa, a specie widespread and common throughout Hawaii, is native. All 48 plant species are of no special environmental interest or concern.

Regarding fauna resources at the property, only one (1) mongoose was seen on the property during the survey. However, based on the property's proximity to residential areas, it is likely that rats, mice, and feral cats and dogs would likely roam the project area. Avifauna seen was fairly sparse in both diversity and numbers, consisting of non-native birds common throughout Hawaii, due to the dry, open land character of the property. Special effort was made to detect the presence of the endangered, native Hawaiian hoary bat. No bats were detected based on visual and electronic methods used. In addition, the low grass habitat is not suitable for hoary bats.

It is noted that during the consultation for the preparation of the EA document, the U.S. Fish and Wildlife Service (USFWS) provided comments on the proposed project and requested that a re-survey of the area be conducted to determine whether there was any presence of the Endangered Blackburn's sphinx moth or its habitat within the project limits. See **Appendix "D-1"**. A supplemental survey of the project area was conducted in June 2011 and concluded that there were three (3) species of plants located within the project area, however, none of the Blackburn's sphinx moth hosts plants (tree tobacco) were found. Further, there were no signs of the Blackburn's sphinx moth, their eggs or larve found on the plants observed. See **Appendix "D-2"**. The re-survey report was submitted to USFWS for review by FHWA in July 2011 and USFWS responded via letter dated August 19, 2011 that it concurred "... that the proposed project may affect, but is not likely to adversely affect, the Blackburn's sphinx moth." See **Appendix "D-3"**.

To minimize potential impacts with avifauna in the area, lights installed in the project corridor will be shielded. Additionally, no night time construction work will be conducted. Based on the results of the Flora and Fauna Survey and Assessments, and concurrence by USFWS, the proposed project is not anticipated to have a negative impact on the flora and fauna resources in this region of Maui.

2. <u>Drainage</u>

The project area is situated in an area with a long history of flooding and ponding problems. There are persistent drainage problems along Hana Highway, Dairy Road-Hana Highway intersection and low lying areas surrounding Kanaha Pond.

The area within the State right-of-way is approximately 38 acres, and the drainage basins were used to compute the runoff for both existing and future conditions and the increase in runoff due to construction of the access roadway within the project area.

The drainage area outside of the State right-of-way and above (mauka) of the access road project site consists primarily of agricultural fields and barren lands. Runoff from these areas migrates down gradient via overland sheet flow and is proposed to be collected by the Maui Business Park Phase II project and not flow into the State right-of-way.

A highway drainage system is proposed to capture runoff generated from the access road. The roadway is designed to sheet flow runoff based on the roadway profile and cross sections toward concrete gutters that channel the runoff into grated drain inlets.

The access road drainage system will also accommodate runoff from several offsite drainage basins which discharge into the right-of-way. These include:

1. Drainage basin for the 36-inch culvert on the makai side of Puunene Avenue and Kuihelani Highway.

2. Discharge from the new Harley Davidson development site via 18-inch culvert outlet structure and 2.5 feet x 4.5 feet box culvert at outlet structure.

3. Drainage basin for the 36-inch culvert on the mauka side of Puunene Avenue and Kuihelani Highway.

3. Air and Noise Quality

Airborne pollutants that exist in the vicinity can be largely attributed to vehicular exhaust from Dairy Road, Hana Highway, and Puunene Avenue. The prevailing trade winds disperse particulates generated by these sources. Moreover, existing noise in the project vicinity is primarily attributed to vehicular traffic and the operation of commercial and light industrial activities on adjacent parcels.

a. Noise Quality

A Noise Assessment was prepared for the proposed project by Mestre Greve Associates in January 2012. See **Appendix "E"**. Five (5) sites along the proposed project alignment were selected for the collection of data for the noise study. The identified sites were: (1) the residential area located on the northwest side of Dairy Road, between Puunene Avenue and Hukilike Street; (2) the First Assembly of God Church, located on the eastern side of Dairy Road, near its intersection with Puunene Avenue; (3) the outdoor sales area of the Maui Harley Davidson dealership, located north of the Dairy Road/Pakaula Street intersection; (4) the Kahului Fire Station located on Dairy Road; and (5) the outdoor retail area of the Lowe's hardware store.

A field noise study was conducted in accordance with FHWA guidelines. Both short-term and long-term noise measurements were conducted for the study. In addition to sound recordings, traffic volumes on Dairy Road and Pakaula Street were conducted concurrently with the short-term measurements. Traffic noise was evaluated for existing and future conditions with the project. It is noted that the HDOT's "Highway Noise Policy and Abatement Guidelines" (April, 2011), specifies the policies, procedures and practices to be used by agencies who sponsor new construction or reconstruction for federal or federal-aid highway projects. The HDOT policy stated that when noise impacts are identified, noise abatement must be considered and that abatement be reasonable and feasible to be implemented. There are two (2) criteria for consideration for assessment of feasibility: (a) The abatement must achieve at least a 5 dB reduction of highway traffic noise for two-thirds of front row receptors along the project, and (b) A determination that it is possible to design and construct the barrier after considering issues related to safety, barrier height, topography, drainage, utilities, and maintenance, maintenance access to adjacent properties and access to adjacent properties. The HDOT policy defines three (3) factors that must be considered when judging the feasibility and reasonableness for noise abatement: (a) Consideration of the Viewpoints of the Property Owners and Residents (noise abatement considered reasonable only if two-thirds of the landowners of impacted receptor units approve of the measure), (b) Cost effectiveness of the Highway Traffic Noise Abatement Measures (abatement costing $60,000.00 or less per benefitted residence is deemed to be reasonable for cost. For non-residential land uses, the HDOT policy is to determine the number of equivalent residential units impacted), and (c) Noise Reduction Design Goals for Highway Traffic Noise Abatement Measures (a noise abatement measure shall be considered reasonable if it achieves at least 7 dB of highway traffic noise reduction is achieved for 75 percent of front row receptors along the project). All three (3) factors must collectively be achieved in order for a noise abatement measure to be deemed feasible. Refer to **Appendix "E"**.

Results of the data collection and analysis for the noise study concluded that there were two (2) areas identified in the study for potential noise abatement: Receptor Area 1 (residential area adjacent to Dairy Road) and Receptor Area 3 (outdoor sales area for Maui Harley Davidson). The preliminary analysis performed in the Noise Study found that an 8-foot wall for Receptor Area 1 would reduce noise level by at least 7 dB. HDOT will be conducting further analysis on the cost and feasibility of constructing noise abatement walls and will be meeting with the affected landowners to determine if there is support for the proposed noise abatement. For Receptor Area 3, the Noise Study reviewed the option of the installation of a six (6)-foot high wall around the commercial area. The size of the approximate area was 5,700 square feet. This option did not meet the criteria for reasonableness in that it did not provide at least a 7dB noise reduction of over 75 percent. Other options reviewed for Receptor Area 3 included eight (8)-foot, 10-foot, 12-foot and 14-foot high walls to provide a 7dB noise reduction for the site for at least 75 percent of the impacted receptors. Analysis was also done in the Noise Study relative to cost implications. The area impacted in Receptor Area 3 was calculated as equivalent to 1.4 residences, utilizing the HDOT methodology. The cost estimates for the installation of the eight (8)-foot high wall, the lowest option in the series, exceeded the cost of $60,000.00 per unit and as such, was determined infeasible by HDOT standards to implement. As previously noted, per the HDOT Noise Policy, there are three (3) criteria that must be considered before a final determination can be made on the noise abatement, support by the landowners for the noise abatement, cost effectiveness and the noise reduction. HDOT will meet with the affected landowners and conduct a cost analysis to address the two (2) remaining criteria. As warranted by this additional analysis, HDOT would implement said noise abatement measures at the Reception Area 1.

The proposed Kahului Airport Access Road Phase I will traverse between the Maui Business Park Phase I and Phase II project which are designated for light-industrial uses. In the long term, implementation of the proposed project with proposed mitigation measures, as warranted, will have minimal anticipated impacts to noise sensitive land users.

b. **<u>Air Quality</u>**

The potential for major highway projects to impact air quality via Mobile Source Air Toxics (MSAT) has been an emerging area of environmental concern. MSATs are a subset of the 188 air toxins defined by the Clean Air Act. The MSATs for the proposed projects are compounds emitted from highway vehicles and non-road equipment.

As previously noted, the purpose of the proposed project is to redistribute existing traffic in the area by constructing an alternative and more direct access to the Kahului Airport. This project has been determined to generate minimal air quality impacts for Clean Air Act Amendments (CAAA) criteria pollutants and has not been linked with any special MSAT concerns. As such, this project will not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause an increase in MSAT impacts of the project from that of the no-build alternative.

The proposed Kahului Airport access road is not anticipated to generate additional traffic, but is intended to alleviate the existing traffic congestion on area roadways.

Moreover, Environmental Protection Agency (EPA) regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's MOBILE 6.2 model forecasts a combined reduction of 72 percent in the total annual emission rate for the priority MSAT from 1999 to 2050 while vehicle-miles of travel are projected to increase by 145 percent. This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project (U.S. Department of Transportation, Federal Highway Administration, September 30, 2009).

In the short term, air and noise quality in the general vicinity may be impacted during the period of construction. Applicable provisions of HAR, Chapter 11-60.1, Air Pollution Control will be implemented to minimize potential air quality impacts. Moreover, should noise during the construction phase of the project exceed the maximum allowable noise levels, a noise permit will be obtained. In the long term, there are no anticipated adverse impacts to air quality attributed to the project.

E. TRAFFIC

A Traffic Analysis Report for the project was prepared by Julian Ng, Inc. in July 2008 and updated in March 2011. Refer to **Appendix "A"**. It was noted in the Traffic Analysis Report that the average daily traffic along Keolani Place, the current primary entrance to Kahului Airport, in 2003 was estimated to be 15,421 vehicles. A regression analysis performed as part of the Traffic Analysis Report estimated that traffic volumes have increased on Keolani Place at an annual average rate of 1.19 percent.

Moreover, it was noted in the Traffic Analysis Report that the projected traffic volumes on the main roadway into the airport would increase to 17,300 and 22,800 vehicles per day in the years 2015 and 2035, respectively. The project segment south of Hana Highway will also provide an alternate route for other traffic that currently uses Dairy Road; that segment is projected to carry volumes of 22,800 and 25,600 vehicles per day in the years 2015 and 2035, respectively. A result of project implementation is that the Airport Access Road will become the primary roadway serving the airport. As a consequence, traffic along Keolani Place and Dairy Road is anticipated to decrease from current levels.

Intersection improvements at Hana Highway and the Airport Access Road, as well as at Pakaula Road/Dairy Road and the Airport Access Road, will be necessary as a result of project implementation. These improvements include traffic signals and separate turning lanes identified in the traffic report. As analyzed, the intersection at Hana Highway and the Airport Access Road will have an overall level of service (LOS) D or better for the 2035 peak hour traffic assignments, which is considered acceptable at both intersections.

While the Airport Access Road will meet the long-term needs for servicing the Kahului Airport at acceptable levels of service, its value is found in providing relief to other routes to the Kahului Airport. For example, an analysis of Dairy Road prepared for the adjacent Maui Business Park Phase II project in 2004, indicated that both the Dairy Road at Hana Highway at LOS "D" for both the morning and afternoon peak hours (Phillip Rowell and Associates, 2004). Equally important, the analysis shows that traffic waiting to turn left from the side streets onto Dairy Road experienced long delays, with unsignalized intersections at Dairy Road at Hukilike Street and Dairy Road at Maui Marketplace experiencing LOS "F" conditions for the afternoon peak hour.

As a basis for analyzing future conditions, the Maui Business Park Phase II Traffic Impact Analysis Report (2004) assumed that both the Airport Access Road Phase I and Phase II, as well as the Hookele Street Extension, between Puunene Avenue and Hana Highway would be in place.

The traffic counts for the Maui Business Park Phase II project were updated in 2006 and indicated that the conclusions of the 2004 traffic study did not change (Phillip Rowell and Associates, October 2006). Essentially, both the Airport Access Road Phase I and Phase II, along with the Hookele Street Extension to Hana Highway, will provide circulation redundancy between Puunene Avenue and Hana Highway to provide relief to Dairy Road. It is noted that while the construction schedule for the Hookele Street Extension is not yet defined, the Change in Zoning ordinance for the Maui Business Park Phase II project (Ordinance No. 3556) does require that the roadway be constructed concurrent with the first increment of the project.

It is further noted that since the Airport Access Road will utilize the existing Dairy Road at Puunene Avenue intersection as its terminus, traffic operations at that intersection would not be affected until further intersection improvements are implemented via the HDOT's separate Puunene Avenue Widening (Wakea Avenue to Kuihelani Highway) project.

The project's traffic engineer reviewed historical traffic counts taken in the area from 2005 and 2007. It is noted that in comparison to the 2003 traffic counts, in both 2005 and 2007, the traffic counts decreased at intersections along Dairy Road. Dairy Road is one (1) of the existing roadways which would see a reduction in traffic with the proposed Airport Access Road implementation. As a result of the supplemental analysis, the project's traffic engineer noted that the 2003 data provides conservative estimates for future traffic volumes in the area. Refer to **Appendix "A"**.

F. HISTORIC AND ARCHAEOLOGICAL

Numerous archaeological investigations have been conducted over the past two (2) decades along and in the vicinity of the project area. In the archaeological investigations conducted as part of the Kahului Airport Master Plan efforts, no cultural deposits were found on or in the vicinity of the project lands. However, in keeping with the results of previous archaeological work within the general Wailuku/Kahului corridor, culturally significant materials are often found in the sandy substrate in this area. An archaeological monitoring program is therefore required during construction activities.

An Archaeological Monitoring Plan for the project was developed by Scientific Consultant Services, Inc. in September 2006 in accordance with accepted State Historic Preservation Division principles. The State Historic Preservation Division accepted the archaeological monitoring plan in January 2007. See **Appendix "F"**. A qualified archaeologist will monitor subsurface construction activities during project construction. If archaeological or historic deposits or features are identified, the onsite archaeologist will have the authority to temporarily suspend construction activities so that the deposits or features may be fully evaluated.

Based on the absence of known archaeological features within the project area and the mitigative measures in place should features be discovered during construction, no impacts to historic and archaeological properties are anticipated as a result of project implementation. In accordance with Section 6E-43.6, HRS and Chapter 13-300, HAR, if any cultural deposits or human skeletal remains are encountered, work will stop in the immediate vicinity of the find and the State Historic Preservation Division will be contacted.

Historical research into prior activities in the project area noted that there were two (2) fishponds constructed at the seashore, called Kanaha and Mau`oni. The ponds are thought to have supplied fish for the population during fishing kapu times. Within the Kahului area in general, there are historic accounts of a battle between two (2) warring chiefs, Kahekili from Maui and Kalani`opu`u of Hawaii island. In the early 1800's accounts describe the village of Kahului as mainly populated near the sea, with residents depending on coastal waters for sustenance.

In the late 1800's the sugar cane industry grew in the Kahului area. Improvements to the Kahului Harbor were done to facilitate the sugar cane operation as well as to service the growing population. In 1910, the Kahului Railroad Company constructed the breakwater at the Kahului Harbor and dredged the harbor to allow ships to dock at the wharf. No historic or cultural uses were identified at the project site aside from use for sugar cane cultivation. See **Appendix "G"**.

G. <u>CULTURAL</u>

A Cultural Impact Assessment for the project was prepared by Scientific Consultant Services, Inc. in April 2007 to preserve, protect, and prevent interference with the traditional and customary rights of native Hawaiians. Refer to **Appendix "G"**. Historically, the roadway right-of-way and surrounding lands were used for sugar cultivation. The sugar industry entered in the late 19^{th} century, which led to commercial production of sugar which exists in the area in the present day. The area has been in a fallow state recently, with vacant, undeveloped lands adjacent to the right-of-way now designated for light industrial use.

An outreach effort was conducted as part of the Cultural Impact Assessment to solicit pertinent cultural information from native Hawaiian agency resources. See **Appendix "G-1"**. Based on historical research, existing proximate land uses, coupled with the absence evidence of customary activities, the assessment concluded that Hawaiian rights related to gathering, access, or other customary activities within the project area will not be affected and there will be no direct adverse effect upon cultural practices or beliefs.

Based on the results of the Cultural Impact Assessment, no impacts to cultural resources are anticipated.

H. SECONDARY AND CUMULATIVE IMPACTS

The proposed Airport Access Road, extending from Hana Highway to the Kuihelani Highway/Puunene Avenue intersection, is a project which has been planned since the early 1990's. As noted previously, the Airport Access Road (Hana Highway to Puunene Avenue) represents one segment of the roadway, the other being the segment from Hana Highway to Kahului Airport. The Hana Highway to Puunene Avenue segment of the roadway is being designed and will be constructed under the administrative auspices of the Department of Transportation's Highways Division. The Hana Highway to Kahului Airport (a.k.a. Phase II of the Airport Access Road) segment is currently under design and will be constructed by the Department of Transportation's Airport Division. A portion of the Phase II project site is located within the County's SMA area and as such a SMA permit was received for the project. The design of the Phase II portion of the Airport Access Road involved an analysis of the existing traffic loads and patterns for area roadways utilized for the Kahului Airport. The Highways and Airports Divisions have and continue to be in communication in the design and future construction of each phase of the Airport Access Road. The Hana Highway to Puunene Avenue segment of the road lies outside of the County's SMA and is not subject to SMA permitting requirements. When considered together, both Airport Access Road segments will function as an integrated roadway designed to provide efficient and safe access to the Kahului Airport. In so doing, the roadway will provide much needed relief to the heavily congested Dairy Road corridor.

This project component is viewed as a stand-alone project with no other associated improvements which would yield cumulative impact considerations.

The required site work, utility improvements, and landscaping for the Airport Access Road are deemed to be supportive actions which are needed to implement the proposed actions, with no associated cumulative impacts.

As previously noted, A&B Properties, Inc. (A&B) received approvals for their District Boundary Amendment, Community Plan Amendment and Change in Zoning for Phase II of the Maui Business Park (MBPII) light industrial subdivision. The MBPII project is located adjacent to the proposed Airport Access Road. As designed, there will be no direct access from the MBPII subdivision to the Airport Access Road. As part of their approvals, A&B will be required to construct internal roadways for the subdivision including the extension of the existing Pakaula Road which will intersect with the Airport Access Road at the relocated Dairy Road intersection. The anticipated time frame for the MBPII is for the initiation of construction of subdivision improvements in 2011. While there is ongoing coordination between HDOT and A&B for regional roadway improvements and on the previously noted condition for A&B regarding the landscaping for the areas adjacent to the Airport Access Road, the proposed roadway and the MBPII are independent projects. Cumulatively, the Airport Access Road and the roadway improvements associated with the MBPII will enhance and improve the overall functionality of the area roadways and thus facilitate the flow of vehicles to and from the Kahului Airport as well as the surrounding light industrial areas.

Secondary impacts are those which have the potential to occur later in time or farther in distance, but are still reasonably foreseeable. They can be viewed as actions of others that are taken because of the presence of the project. Secondary impacts from highway projects, for example, can occur because they can induce development by removing one of the impediments to growth; that is, transportation access.

The proposed project is not considered a generating component for population, and there are no foreseeable secondary impacts associated with the proposed project. The proposed project has been designed so as to place the least possible burden on the environment and existing infrastructure.

I. ADDITIONAL CONSIDERATIONS

A summary of additional environmental concerns which were reviewed and determined to have no impact by the proposed roadway project are included in **Table 1** below. Additional environmental concerns that were not reviewed as part of the Draft EA document include Social Impacts, Permits and Visual Impacts.

Table 1. Environmental Considerations Checklist

Environmental Consideration	Adverse Impact	Comment
Land Use Impacts	No	Lands have been designated for roadway use by the State of Hawaii since the 1990's.
Noise Impacts	No	No long term noise impacts with proposed roadway.
Coastal Zone Impacts	No	Project site is located over 1.0 mile from the nearest shoreline.
Water Body Modification and Wildlife Impacts	No	There is no water body or related wildlife in the vicinity of the project location.
Social Impacts	No	No social impacts related to construction of roadway.
Permits	No	All applicable permits will be secured prior to the start of construction.
Relocation Impacts	No	No relocation of persons or structures needed for project to proceed.
Wetland Impacts	No	No wetlands identified in roadway alignment.
Hazardous Wastes Sites	No	No hazardous wastes sites identified in roadway alignment.
Economic Impacts	No	No negative economic impacts identified with roadway project.
Water Quality Impacts	No	Drainage mitigation measures to be implemented for project.
Visual Impacts	No	Roadway will be at-grade, thus no visual impacts.
Joint Development	No	Short-term economic impacts during the construction of the roadway, but no long term Joint Development impacts identified.
Floodplain Impacts	No	Roadway alignment not located within a floodplain area.
Energy	No	No extraordinary energy consumption needed for project implementation.
Wild and Scenic Rivers	No	No wild or scenic rivers identified in roadway alignment.

Table 1. Environmental Considerations Checklist (continued)

Environmental Consideration	Adverse Impact	Comment
Construction Impacts	No	Temporary noise and air impacts during construction to be mitigated through the use of Best Management Practices plan. Traffic mitigation during work on Hana Highway intersection improvements with roadway to be implemented to minimize impacts to traffic.
Coastal Barriers	No	Roadway located approximately 1.5 miles from the shoreline.
Relationship of Local Short-Term Uses vs. Long-Term Productivity		The proposed roadway is in keeping with the anticipated future development in the area and is in concert with the long-range planning for improved roadway circulation in the area. Benefits to long-term productivity were judged to outweigh short-term use of resources.
Irreversible and Irretrievable Commitment of Resources	No	There are no irreversible and irretrievable commitment of resources identified for the roadway project.

A summary of all alternatives studied for the Kahului Airport Access Road, relative to the analysis criteria presented in this chapter, is provided below in **Table 2**. As discussed previously, although an analysis for the grade-separate intersection for the Airport Access Road/Hana Highway alternative was included in this review, HDOT determined that this alternative would be dismissed from further study, due to strong public opposition to the alternative, potential view impacts, and anticipated higher cost to implement, with negligible improvement to the LOS rating at the intersection, over the remaining two (2) candidate strategies. Based on the analysis, a preferred alternative will be identified by the HDOT.

Table 2. Analysis of Kahului Airport Access Road Phase I Alternatives

Alternative	Meets Purpose and Need	Cost Impacts	Flora/Fauna Impact Potential	Air/Noise Impact Potentiial	Anticipated LOS Rating (2015 2035)	Archaeological/ Cultural Impact Potential	Social Justice Impact Potential	Public Comment
Road Widening (Dairy Road)	No	$10 million	No, surrounding area is fully developed	Yes, mitigation measures required for residences along existing right-of-way	---	Low, existing surrounding area is fully developed	Yes, will require land acquisition from adjacent landowners	No comments received
Right-of-Way	Yes	N/A, ROW acquired	No, no endangered or threatened species of flora or fauna identified during biological survey	Low, with mitigation measures to address potential noise impacts to residents and commercial location in southern terminus area	---	Low, archaeological assessment completed; no significant findings; land was actively cultivated in sugar cane for over 75 years; archaeological monitoring to be provided during ground altering activity	No, State of Hawaii owns right-of-way	Public support for project to proceed
No Action	No	None	No	No	---	None	No	
Simple At-Grade Intersection	Yes	$25 million	No	No	D, D D, D	Archaeological monitoring to be implemented during construction	No	1997 HDOT EIS identified as alternative
At-Grade Loop Intersection	Yes	$40 million	No	No	E, E	Archaeological monitoring to be implemented during construction	No	1997 HDOT EIS identified as alternative; Public support for alternative
Grade Separated Intersection	Yes	Approximately $45 million	No	No	N/A	Archaeological monitoring to be implemented during construction	No	Was identified as preferred HDOT alternative in 1997 HDOT EIS, however, strong public opposition and potential visual impacts

IV. COMPLIANCE WITH FEDERAL ENVIRONMENTAL REQUIREMENTS

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A. SECTION 4(F), U.S. DEPARTMENT OF TRANSPORTATION ACT OF 1966

Section 4(f) refers to the original section within the Department of Transportation (DOT) Act of 1966 which set the requirement for consideration of park and recreational lands, wildlife and waterfowl refuges, and historic sites in transportation project development. Section 4(f) requirements are implemented by the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA). Section 4(f) applies to any significant publicly owned public park, recreation area, or wildlife and waterfowl refuge and any land from a historic site of national, state or local significance.

The proposed Kahului Airport Access Road and related improvements will not affect Section 4(f) properties. There are no publicly owned parks, recreation areas, wildlife refuges, or lands of historic significance that will be utilized for the project.

B. SECTION 106, NATIONAL HISTORIC PRESERVATION ACT

Due to the involvement of federal funds, the proposed project is considered a federal action subject to the consultation requirements of Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's implementation procedures (CFR Part 800). Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of federal actions on historic properties. Historic properties are defined as properties that are included in the National Register of Historic Places or that meet the criteria for the National Register. The Section 106 process seeks to accommodate historic preservation concerns with the needs of federal actions through consultation among the agency official and interested parties. The goal of consultation is to identify historic properties potentially affected by the action, assess the effects and seek ways to avoid, minimize or mitigate any adverse effects on historic properties.

As previously noted, an archaeological inventory survey was completed in 1995 for the project area as part of the EIS document for the Updated Kahului Airport Master Plan. Section 106 consultation was also undertaken as part of the prior EIS for the Kahului Airport Master Plan. As noted, the proposed project was included as a component of the previous master plan review. To address mitigation for identified archaeological sites within the Kahului Airport Master Plan, a PA was executed which included a mitigation plan for specified sites. None of the specified sites are located within the roadway alignment for the Airport Access Road Phase I project. An archaeological monitoring plan for the Airport Access Road was accepted by the State Historic Preservation Division (SHPD) in January 2007. Refer to **Appendix "F"**. Additionally, as previously noted, consultation with native Hawaiian agencies and organizations were undertaken as part of the Cultural Impact Assessment prepared for the project. Solicitation letters requested comments, potential interviewees who may have historical knowledge of the area and any concerns regarding the project. Refer to **Appendix "G-1"**. SHPD was consulted on the Section 106 review for the proposed project and provided a response letter noting that it concurred that no historic properties affected by the proposed project, provided that archaeological monitoring be conducted during ground-altering activities. Refer to **Appendix "C"**.

C. <u>ENDANGERED SPECIES ACT</u>

The Endangered Species Act provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found. The law requires federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The law also prohibits any action that causes a "taking" of any listed species of endangered fish or wildlife.

As previously noted, the USFWS provided comments on the proposed project during the preparation of the EA document. At the request of USFWS, a supplemental biological study was conducted in June 2011 to survey the area for any presence of the Endangered Blackburn's sphinx moth. The re-survey of the area concluded that no evidence of the Endangered Blackburn's sphinx moth, its eggs or larvae were identified. USFWS responded via letter dated August 19, 2011 that with the mitigation of down-shielded lights for the project roadway and no night-time construction work conducted for the project, that it concurred that the project may affect but is not likely to adversely affect listed seabirds, the Hawaiian Hoary Bat or the Blackburn's sphinx moth. Refer to **Appendix "D-3"**.

D. EXECUTIVE ORDER 11990 PROTECTION OF WETLANDS

Executive Order 11990 Protection of Wetlands was issued to minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. There are no wetlands found in the vicinity of the project corridor. The nearest wetland is approximately 0.5 mile away to the northwest.

E. EXECUTIVE ORDER 11988 FLOODPLAIN MANAGEMENT

Executive Order 11988 Floodplain Management was issued to avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. The project area is located within Flood Insurance Rate Map Zone X, an area of minimal flooding. Therefore, no adverse effects from development of a floodplain area are expected as a result of the proposed action.

F. COASTAL ZONE MANAGEMENT ACT

Coastal Zone Management Act (CZMA) encourages management of coastal areas. The CZMA requires federal agencies to be consistent with the policies of the State Coastal Zone Management programs for protection, and where possible, enhancement of the nation's coastal zones.

Compliance with CZMA is outlined in **Appendix "H"**, Consistency with Coastal Zone Management Objectives and Policies. It is noted that the new Kahului Airport Access Road Phase I, will not include work within the County's Special Management Area.

G. FARMLAND PROJECT POLICY ACT

Farmland Project Policy Act requires federal agencies to identify and consider adverse effects of their actions on the preservation of farmland. Lands underlying the new right-of-way alignment are presently fallow and not expected to affect the inventory of land for diversified or large-scale single crop agricultural use. The lands were acquired by HDOT in the late 1990s with the intent of constructing the Airport Access Road. Further, the Natural Resources Conservation Service commented that due to the intended use of the project area for industrial use, no Farmland Impact Conversion Rating analysis was required. See **Appendix "I"**. As previously noted, the lands surrounding the project limits received land entitlements for industrial use by the State Land Use Commission and the County of Maui.

H. EXECUTIVE ORDER 12898 ON ENVIRONMENTAL JUSTICE AND TITLE VI OF THE CIVIL RIGHTS ACT OF 1964

Executive Order 12898 on Environmental Justice requires federal agencies and recipients of federal funds to take appropriate steps to identify and address disproportionately high and adverse human health or environmental effects of federal projects on minority or low income populations. Similar non-discrimination protection is provided under Title VI of the Civil Rights Act of 1964.

The proposed project does not create a disproportionately high and adverse human health or environmental effect on minority and low income populations. All ethnicities and socio-economic populations of Maui will be allowed to utilize the proposed road corridor. In addition, compliance with outreach efforts for the project was provided through a public scoping meeting held on February 3, 2009. Also, the environmental review process allows for the public to provide feedback on the proposed project.

V. PRE-ASSESSMENT CONSULTATION

V. PRE-ASSESSMENT CONSULTATION

As part of the EA preparation process, a request for pre-assessment comments was sent to various Federal, State, and County agencies, as well as organizations having potential interest in the proposed actions. A tabulation of comments and responses are provided in **Table 3**. The letters received and responses are provided in **Appendix "J"** of this document.

Table 3. Tabulation of Agency Comments and Responses

Reviewing Agency	Comments Received	Date of Comment Letter	Response Prepared[a]
FEDERAL AGENCIES			
Natural Resources Conservation Service	✓	4/7/08	✓
U.S. Department of Agriculture	✓	3/28/08	
U.S. Department of the Army	✓	5/31/11	✓
U. S. Department of the Energy			
U. S. Environmental Protection Agency			
U. S. Department of Housing and Urban Development			
U.S. Fish & Wildlife Service	✓	4/18/08	✓
U. S. Department of Transportation			
STATE AGENCIES			
Department of Accounting and General Services	✓	4/4/08	
Department of Agriculture			
Department of Budget and Finance	✓	4/11/08	
Hawaii Housing Finance & Development Corp.			
Department of Business, Economic Development & Tourism			
Department of Education	✓	4/2/08	
Department of Hawaiian Home Lands	✓	4/1/08	
Department of Health, Clean Water Branch	✓	4/9/08	✓

[a] Responses prepared to address substantive comments only.

Table 3. Tabulation of Agency Comments and Responses (continued)

Reviewing Agency	Comments Received	Date of Comment Letter	Response Prepared[a]
STATE AGENCIES			
Department of Health, Maui Branch	✓	4/7/08	✓
Department of Land and Natural Resources	✓	3/28/08	
Maui/Lanai Island Burial Council			
Department of Transportation	✓	4/10/08	✓
State Historic Preservation Division	✓	9/27/11	
Hawaii State Civil Defense			
Office of Environmental Quality Control			
Office of Hawaiian Affairs	✓	5/5/08	✓
Office of Planning			
State Land Use Commission			
U. S. Senator Daniel K. Inouye			
U. S. Senator Daniel K. Akaka			
U. S. Representative Neil Abercrombie			
U. S. Representative Mazie Hirono			
State Senator Shan S. Tsutsui			
State Representative Bob Nakasone			
COUNTY AGENCIES			
Mayor Charmaine Tavares			
Office of Economic Development			
Maui Civil Defense Agency			
Department of Fire and Public Safety			
Department of Housing and Human Concerns			
Department of Parks and Recreation	✓	3/31/08	
Department of Planning	✓	4/29/08	✓

[a] Responses prepared to address substantive comments only.

Table 3. Tabulation of Agency Comments and Responses (continued)

Reviewing Agency	Comments Received	Date of Comment Letter	Response Prepared[a]
COUNTY AGENCIES			
Department of Police	✓	3/28/08	✓
Department of Public Works			
Department of Environmental Management	✓	4/9/08	
Department of Transportation	✓	3/27/08	
Department of Water Supply			
OTHER ORGANIZATIONS			
Hawaiian Telcom			
Maui Electric Company	✓	4/10/09	✓
Maui Chamber of Commerce			

[a] Responses prepared to address substantive comments only.

Agency commitments to be incorporated into the project based on early consultation comments are included in the Green Sheet summary below in **Table 4**.

Table 4. Green Sheet

	Agency Name		Commitment in EA
1.	U.S. Fish and Wildlife Service		Use of shielded lighting for the roadway; no night-time construction work.
2.	State Department of Health, Clean Water Branch		Implementation of Best Management Practices (BMP) plan to prevent storm water runoff from reaching State waters.
3.	State Historic Preservation Division		Archaeological monitoring during ground-alteration work.
4.	Office of Hawaiian Affairs		• Implementation of State protocols and procedures should iwi kupuna or Native Hawaiian cultural or traditional deposits be found during construction. • Use of Native Hawaiian plants for landscaping to the extent possible.

It is noted that all applicable permits for the project will be secured prior to the start of construction.

Additionally, it is noted that HDOT has conducted public review of the proposed overall Airport Access Road project (Phase I and Phase II) over the last four (4) years. Notably, in February 2009, the HDOT-Airports Division and HDOT-Highways Division held a joint public meeting on the project to discuss the proposed roadway. No comments in opposition to the project were received. It is also noted that in the 1997 EIS prepared for the Airport Master Plan, there was extensive public review of the proposed Airport Access Road component. Further, this EA document will be available for public comment and HDOT will schedule a public meeting during the review period.

VI. SUMMARY

VI. SUMMARY

The proposed Kahului Airport Access Road Phase I is designed to alleviate traffic congestion on Dairy Road. The completed Airport Access Road will extend from Puunene Avenue to the Kahului Airport. (The segment of the roadway between Hana Highway and the Kahului Airport will be implemented under the auspices of the State Department of Transportation, Airports Division.) The new Airport Access Road will allow vehicular traffic traveling to and from the airport to bypass Dairy Road and Hana Highway, thereby easing congestion.

The alignment of the Airport Access Road was contemplated during the development of the Kahului Airport Master Plan Improvements EIS in 1997. As a result of the selected alignment, the properties affected were reserved for the development of the Airport Access Road. The analysis of the subject properties contained herein results in non-significant impacts as it relates to social, economic, and environmental aspects of the area. Consequently, it is anticipated that the proposed project will result in a Finding of No Significant Impact (FONSI).

It is noted that the finding of non-significant impact applies to all three (3) of the Hana Highway intersection alternatives. The Simple At-Grade Alternative, the Grade Separated Alternative, and the At-Grade Loop Alternative represent one (1) component of the overall Airport Access Road Phase I project. Each of the intersection alternatives will be accommodated within existing State of Hawaii rights-of-way, thereby confining project impacts and mitigation options to a specific and defined geographic space. In the context of the overall project scope, the specific Hana Highway intersection design alternative ultimately selected for the project, will allow for construction and operations to be functionally safe and efficient, and sensitive to environmental impact parameters.

VII. REFERENCES

VII. REFERENCES

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APPENDIX A.

Traffic Analysis Report
March 2011

TRAFFIC ANALYSIS REPORT
Airport Access Road, Phase I
Dairy Road to Hana Highway
Kahului, Maui, Hawaii

July 2008
Revised March 2011

Prepared for:

Fukunaga & Associates, Inc.

and

State of Hawaii
Department of Transportation
Highways Division

JULIAN NG
LICENSED PROFESSIONAL ENGINEER
No. 3903-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION

Signature

Expiration Date: 4/30/2012

Prepared by:

Julian Ng, Incorporated
P. O. Box 816
Kaneohe, Hawaii

Table of Contents

Traffic Analysis Report
Route 3800 - Airport Access Road, Phase I
Dairy Road to Hana Highway
Kahului, Maui, Hawaii

July 2008 (Revised March 2011)

Executive Summary

The proposed access road into Kahului Airport will begin near the existing intersection of Kuihelani Highway, Puunene Avenue, and Dairy Road, and proceed in a northeasterly direction into the airport. The project will realign a portion of Dairy Road and construct a new four-lane roadway that will lead directly into the airport. Phase I of the project will construct the highway southwest of its intersection with Hana Highway; a separate Phase II project will construct the portion of the roadway from Hana Highway northeast into the airport.

This report for Phase I includes a description of the traffic projections, a summary of the evaluation of alternative treatments for the junction of the new airport access road with Hana Highway, and traffic analyses of two at-grade intersections along the new route. This report includes analyses done in 2008, with updates to account for new information that has become available since that time. A separate report discusses Phase II of the Airport Access Road.

Average Daily Traffic (ADT) volume for Phase I of the Airport Access Road has been forecasted to be 22,800 vehicles per day in the year of opening (2015). Design year (2035) Average Daily Traffic (ADT) volume for Phase I of the Airport Access Road is 25,600 vehicles per day. Trucks (T_{24}) would comprise 4% of the daily traffic volume. Design Hourly Volume (DHV) is 2,060 vehicles per hour with a 60% directional distribution (D).

Figures ES-1 and ES-2 show the layouts of the intersections. Minimum storage lengths to prevent blockage of the through lanes (does not include deceleration lengths, if needed) are shown in each figure.

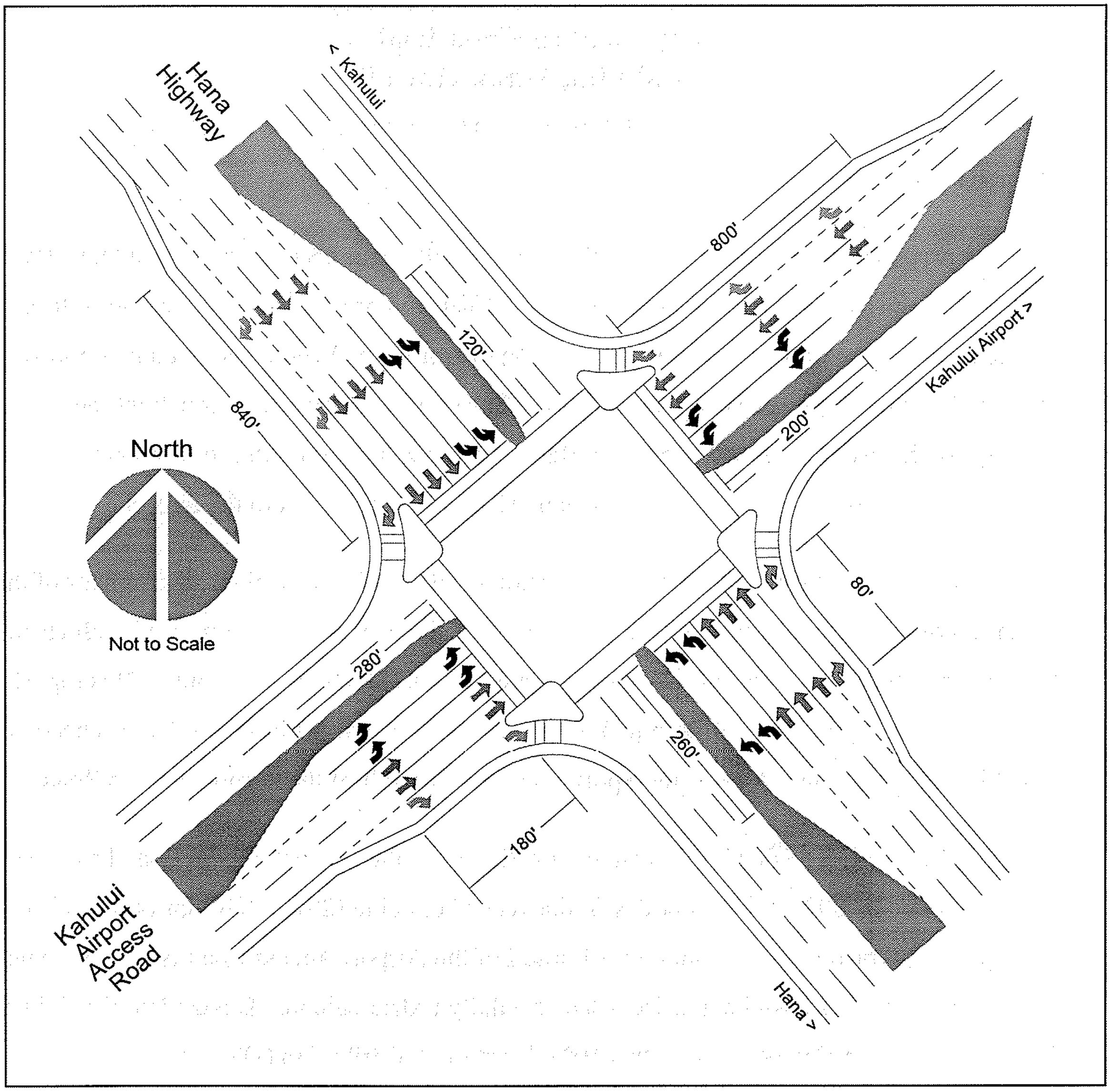

Figure ES-1 – Intersection with Hana Highway

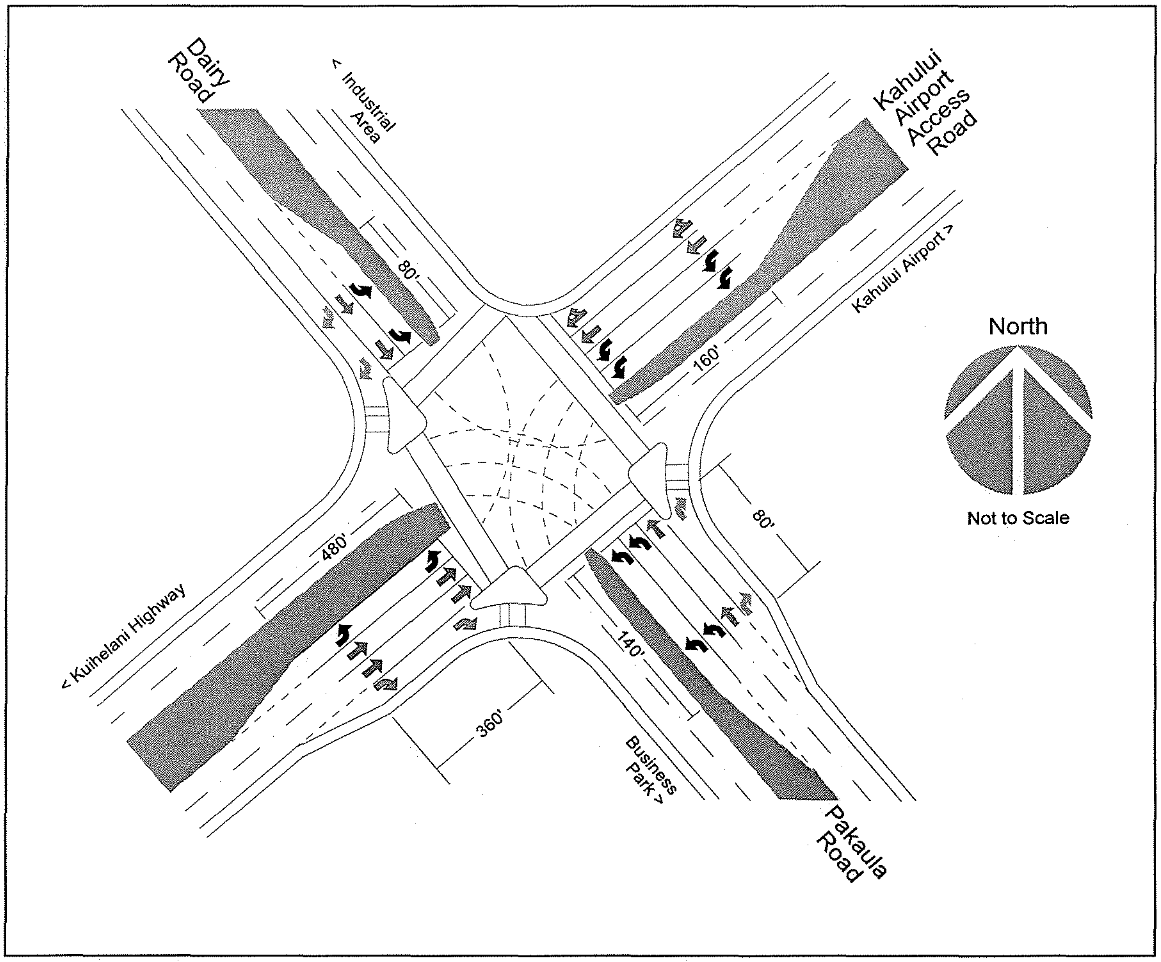

Figure ES-2 – Intersection with Dairy Road and Pakaula Road

Introduction

A new access road to the Kahului International Airport has been proposed to provide direct access into the airport, replacing the service currently provided by portions of Dairy Road and Keolani Place. Phase I of the project includes the realignment of a portion of Dairy Road, a new four-lane highway between Puunene Avenue and Hana Highway, and intersection improvements at the Hana Highway junction. Figure 1 shows the project location.

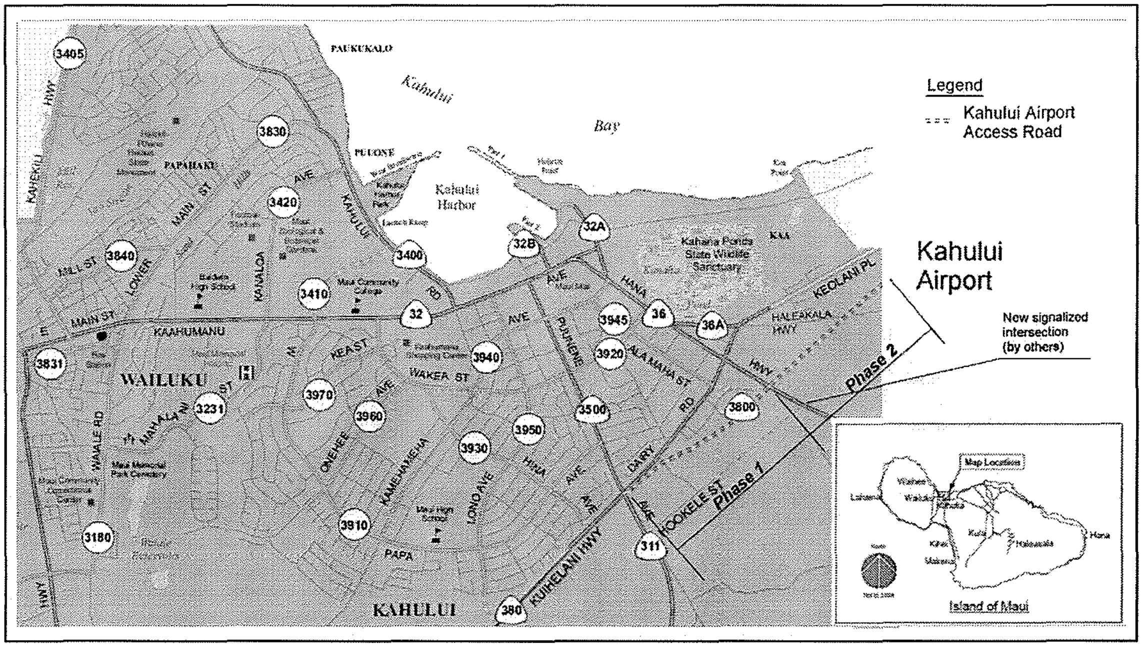

Figure 1 – Project Location

This report describes the development of traffic assignments (projections of future peak hour traffic movements) for design year 2035, evaluation of several alternatives for the intersection with Hana Highway, and other traffic analyses.

Traffic Assignments

Historically, traffic near the airport has increased. Average Daily Traffic (ADT) estimates based on traffic counts taken during odd-numbered years were computed by the State of Hawaii Department of Transportation Highway Planning Branch and are shown in Table 1.

Table 1 – Average Daily Traffic, 1985-2003

Year	Average Daily Traffic (vehicles per day)	
	Hana Highway	Keolani Place
1985	22,690	12,686
1987	26,180	13,976
1989	27,422	13,599
1991	33,371	13,790
1993	35,432	13,328
1995	38,706	14,866
1997	39,632	15,545
1999	38,212	15,755
2001	39,979	15,926
2003	39,513	15,421

Source: State of Hawaii, Department of Transportation, Highway Planning Branch, *Traffic Summary, County of Maui* reports (various years)

Table 1 shows the ADT estimates for the Hana Highway segment between the Dairy Road and Haleakala Highway junctions. Traffic volumes on Hana Highway had significant increases until the early 1990s. From 1991 to 2003, average annual increase in ADT was 1.3%; between 1995 and 2003, the average annual increase in ADT was 0.25%. A traffic count taken in September 2007 on Hana Highway west of Hansen Road (Table 2) provides further information that supports the leveling off of traffic volumes on Hana Highway.

Keolani Place has been the primary entrance roadway into Kahului Airport. A regression of the ADTs from 1985 to 2003 shows an average annual increase of 1.19%. Data from traffic counts taken in March 2003 on Keolani Place north of its intersection with Haleakala Highway are also summarized in Table 2.

Table 2 – Traffic Count Data

Hana Highway, September 2007	westbound	eastbound	total
24-hour total	18,951	18,202	37,153
7:15 AM to 8:15 AM	2,253	717	2,970
4:15 PM to 5:15 PM	1,149	1,929	3,078
Keolani Place, March 2003	southbound	northbound	total
24-hour total	9,064	7,627	16,691
8:00 AM to 9:00 AM	447	501	948
2:30 PM to 3:30 PM	911	466	1,377
3:15 PM to 4:15 PM	781	506	1,287
Source: State of Hawaii, Department of Transportation, Highways Division. *Traffic Station Maps – 2007 (Station ID B74003600087)* State of Hawaii, Department of Transportation, Highways Division. *Traffic Survey Data – County of Maui 2003.* (Station 2-A)			

From Table 2, the highest hourly volumes in and out of the airport occurred in the afternoon; hourly volume was 7.7% of daily volume with 66% of the volume in the southbound direction. Applying these percentages to the 2003 ADT, PM Peak Hour volumes were 785 vehicles per hour northbound and 405 vehicles per hour southbound.

For the Kahului Airport Access Road traffic analyses, conditions during the commute peak hours were considered. Traffic assignments were developed for the year 2035, using published data and traffic projections for the year 2020 that were made by others for a major nearby development. Traffic assignments for 2020 were based on turning movements shown in Figures 8 and 9 of the traffic report for the Maui Business Park Phase II project (*Traffic Impact Analysis Report, Maui Business Park Phase II and Hookele Street Extension,* prepared by Philip Rowell & Associates, May 19, 2003 and revised July 25, 2004).

The traffic assignments for 2020 showed volumes of 1,025 vehicles per hour southbound and 450 vehicles per hour northbound, on the airport access road north of Hana Highway. These projections represent increases of 30.6% southbound and 11.1% northbound over the 2003 volumes on Keolani Place north of Haleakala Highway. The increase in total volume is 23.9% (or an average annual increase of 1.27% over 17 years). Additional traffic count data that became available subsequent to the original analyses done in July 2008, published in November 2008, showed that daily volume on Dairy Road south of Hana Highway decreased (2003 count showed 35,913 vehicles per day, the higher of two days' counts in 2007 was

34,406 vehicles per day) and on Dairy Road north of Puunene Avenue, the comparison is 32,890 in 2003 versus 32,235 in 2007. The 23.9% increase averaged over 13, instead of 17, years would be an annual rate of 1.54%.

Adjustments to the through traffic on Hana Highway were also made, based on the peak hour volumes from the 2007 counts. Peak hour traffic volumes extrapolated to year 2020 using an annual increase of 1.6% (from the last completed long-range highway plan for the island of Maui (Kaku Associates, Inc., *Maui Long-Range Land Transportation Plan*, October 1996) were compared with the volumes on the highway east of the airport access road intersection from the business park traffic study. The extrapolated volumes were slightly higher (<2%) in the AM Peak Hour but about 20% lower in the PM Peak Hour.

Growth rates were applied and other adjustments were made to the 2020 traffic assignments to account for several roadway movements that will not be possible in the future with the proposed Airport Access Road to develop 2015 and 2035 traffic assignments. For the 2035 traffic assignment, diversion of traffic onto a proposed Kihei-Upcountry Highway was based on the year 2022 traffic assignments for project (shown in the *Kihei Upcountry Maui Highway PreFinal Environmental Impact Statement*, January 2002).

Design year (2035) traffic assignments were based on the 2020 traffic assignments, using growth rates. Volumes for movements to and from the airport were factored using the increase in airport activity as an indicator for the increase in traffic to and from the airport. Figure 2 shows the historical trend of passenger activity at the airport.

While annual totals of airline passengers (enplaned and deplaned) at Kahului Airport have fluctuated over the past 25 years due to economic and other conditions, the totals show a definite upward trend and such a trend is expected to continue. A regression of the data from 1985 to 2007 shows an average annual increase of 1.39%* in the total number of passengers.

* - In comparison, the traffic volume on the existing main access road has increased at an annual rate of 1.2%, while the traffic assignments for 2020 indicate an annual growth rate of 1.27% over the 2003 counts. The Maui land transportation long-range plan used an annual growth rate of 1.6% for traffic volumes in the area.

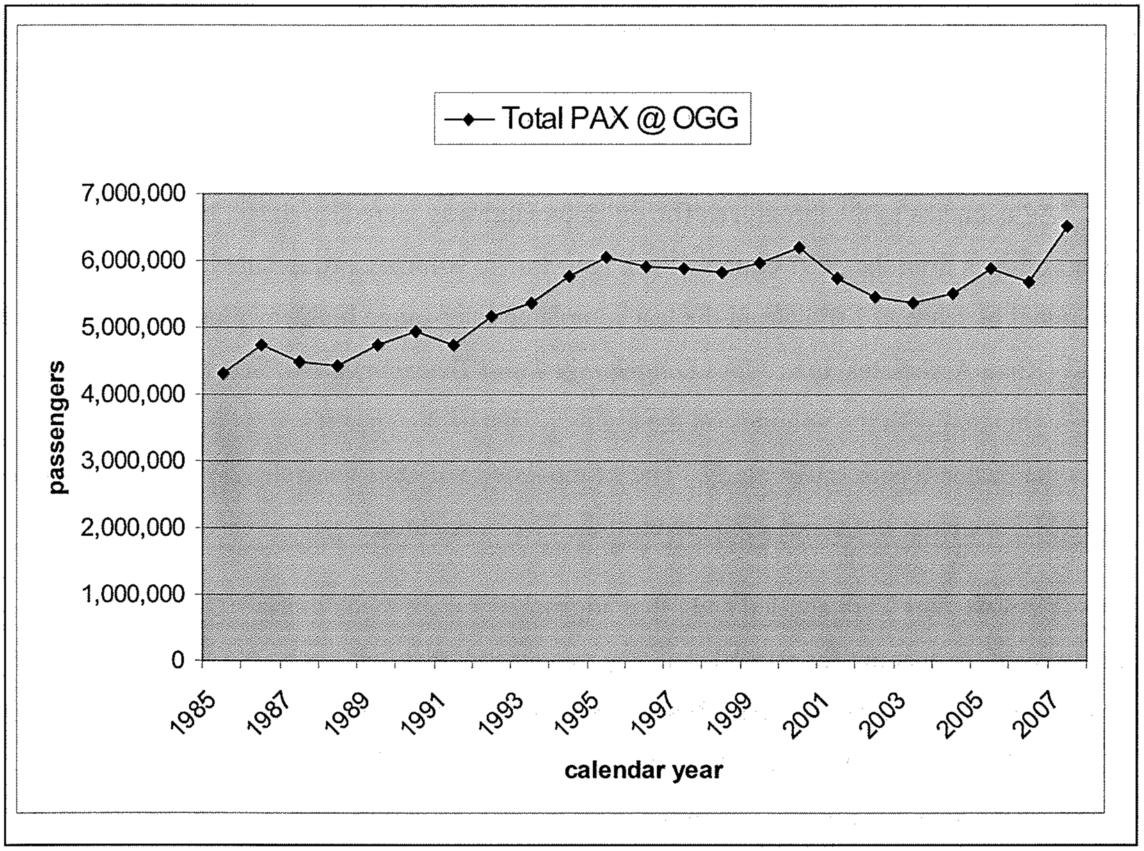

Figure 2 – Trends in Passenger Activity at Kahului Airport

Projections of the number of passengers at the airport in the future based on an extrapolation of the data would be 8,365,000 passengers per year in 2025 and 9,613,000 passengers per year in 2035. These projections compare with the most recent projection of 9,421,300 for 2025 that was obtained from the Airports Division (made by Aries Consulting, Ltd., 2001, using a straight-line extrapolation of 1998 and 1999 totals).

For the purposes of extrapolating traffic volumes to an opening year of 2015 and to a design year of 2035 for this project, an annual average rate of 1.4% per year was used for traffic volumes to and from the airport. Continued slow growth in highway volumes on Hana Highway is expected, however, and an average annual increase of 0.5% was used to extrapolate volumes from the 2020 traffic assignments.

Figures 3 and 4 show the traffic assignments.

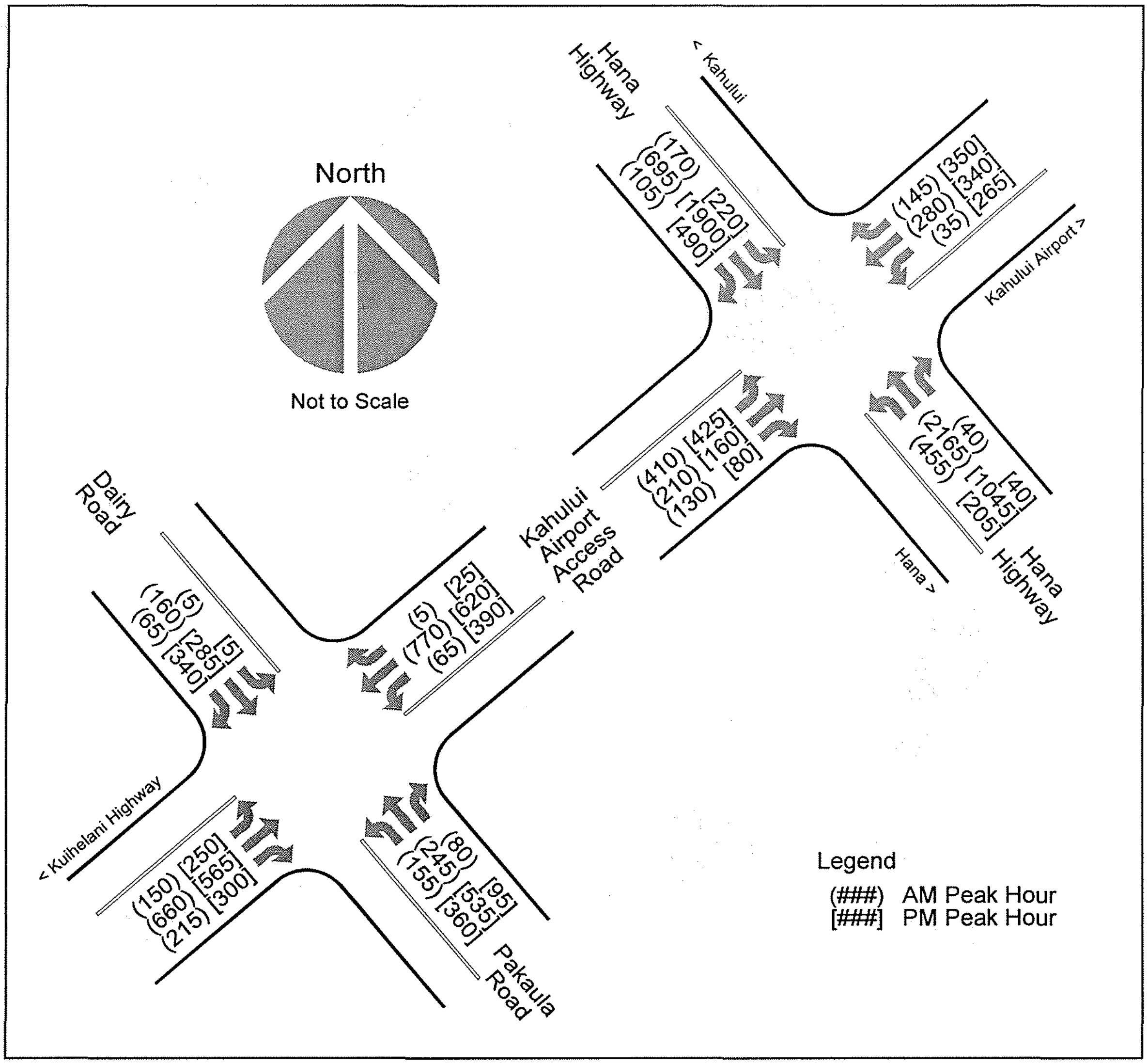

Figure 3 – Traffic Assignments (2015)

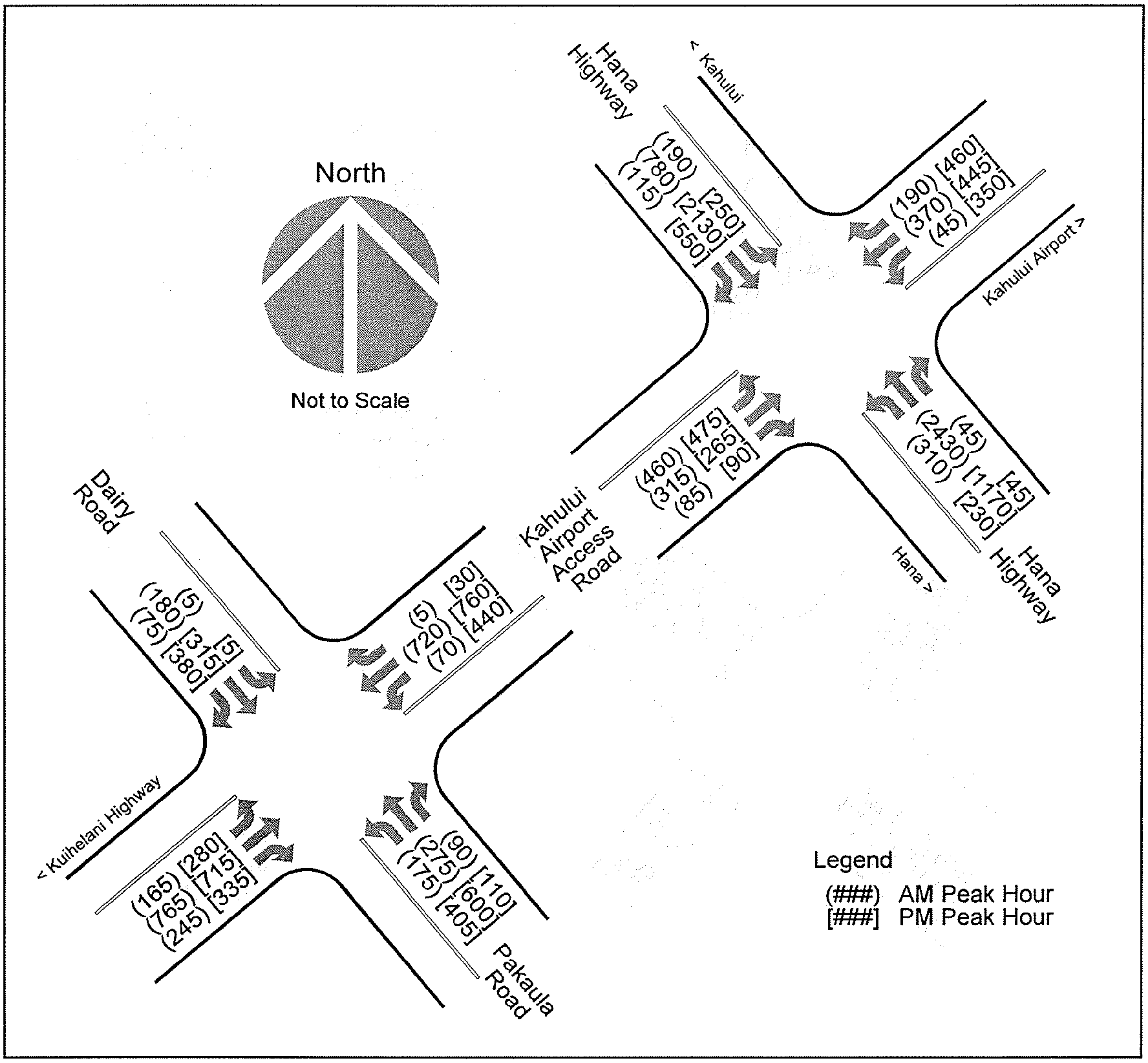

Figure 4 – Traffic Assignments (2035)

Average Daily Traffic volumes were computed with "K"-factors (hourly traffic volumes divided by daily traffic volume) of 6.5% and 8.0% for the AM and PM Peak Hours respectively and are shown in Table 3. Summaries from 2003 classification counts indicate that truck traffic was 3.5% of daily traffic on Dairy Road and 4.0% on Keolani Place. A T_{24} = 4.0% should be used for future traffic.

Table 3 – Average Daily Traffic, Airport Access Road

Year	Average Daily Traffic (vehicles per day) Phase 1 – southwest of Hana Highway	Phase 2 - northeast of Hana Highway
2015	22,220	18,530
2035	25,540	21,290

Table 4 shows that traffic volumes at the intersection of the airport access road and Hana Highway and at the intersection of the airport access road, Dairy Road, and Pakaula Road would exceed warrant levels for the installation of traffic signals (volumes for the 3rd highest and 4th highest hours are estimated from peak hour volumes). The warrants, from the *Manual on Uniform Traffic Control Devices for Streets and Highways,* published by the Federal Highway Administration, described minimum conditions which need to be met before intersections with federal-aid highways can be signalized.

Table 4 – Traffic Signal Warrant Checks

	Major Street Hana Highway (> 40 mph)		Minor Street Airport Access Road		Major Street Airport Access Road		Minor Street Pakaula Road	
	2035	**2015**	**2035**	**2015**	**2035**	**2015**	**2035**	**2015**
AM Peak Hour	3,810	3,430	785	620	1,760	1,645	475	400
PM Peak Hour	4,860	4,145	795	605	2,250	1,825	1,055	895
3rd highest hour (85% of 2nd highest hour)		2,915		515		1,400		340
4th highest hour (70% of 2nd highest hour)		2,400		425		1,150		280
Warrant Level*		***1,000***		***80***		***1,000***		***200***

* Examples of minimum volumes needed to satisfy the Four-Hour Vehicular (volume) warrant

Projected traffic volumes for 2015 are higher than the warrant levels at each intersection. Traffic signals at each of these intersections, therefore, will be warranted when the roadway is opened and all further analyses assume that these intersections will be signalized. As traffic volumes are expected to increase, the signals will continue to be warranted.

Alternatives Considered

Alternatives were limited to at-grade junctions. Alternatives included loop ramps to eliminate left turns; while these alternatives were found to have less delays and acceptable levels of service, the use of loop ramps was found to not as desirable as simple cross-intersections when total delays to affected users were considered.

Level of Service Analyses of Intersections

Operational analyses of intersections were done to determine levels of service (see Appendix A for descriptions of this analysis and Level of Service definitions). The analyses were based on procedures described in the *Highway Capacity Manual.* Signal phasing and timing were used to estimate approach capacities and the resulting delays to intersection users. Levels of service based on these delays were determined. Tables in the report show the approach and overall levels of service based on delays computed in the analyses. Copies of summary reports from the analyses are attached as Appendix B.

Intersection of Airport Access Road and Hana Highway

Figure 5 shows the layout of the Hana Highway and Airport Access Road intersection. Hana Highway is considered the east-west roadway and the Airport Access Road the north-south roadway in the discussion and tables that follow.

The intersection is a standard cross-intersection with a separate right turn lane and double left turn lanes on each approach (illustrated in Figure 5 on page 14). The signal control would be eight-phase, with the left turn phase demand-actuated and leading (occurring before) the phase for opposing through movements. Right turn lanes were assumed to be sufficiently long that right turns can be made concurrent with the adjacent through movement and during the time that the complementary left turn movement has a green light; however, other right turns on red were assumed to be negligible. A 150-second cycle was used to minimize lost time while not incurring very long delays. Table 5 shows the signal timing parameters based on balancing the volume-to-capacity ratios of conflicting flows and Table 6 shows the results of the analyses.

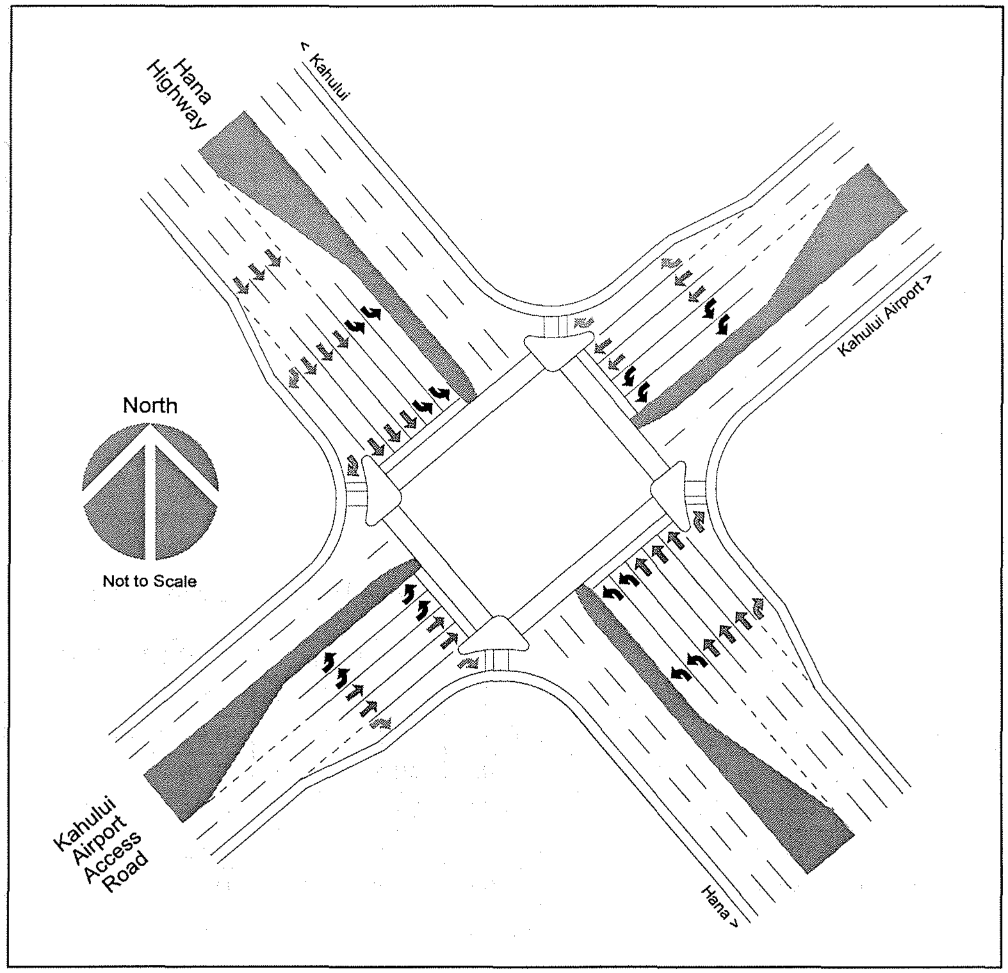

Figure 5 – Airport Access Road and Hana Highway

Table 5 – Hana Highway Signal Timing Parameters

	Split (seconds)			
	AM Peak Hour		PM Peak Hour	
Eastbound left turn / Westbound left turn	16	29	30	18
Westbound through / Eastbound through	83	70	64	76
Northbound left turn / Southbound left turn	27	10	27	22
Southbound through / Northbound through	24	41	29	34
Total for cycle	**150**	**150**	**150**	**150**
Note: splits include yellow and all-red (5 seconds at end of left turn greens and 6 seconds at end of through / right turn phases)				

Table 6 – Conditions at Intersection with Hana Highway (2015)

	AM Peak Hour			PM Peak Hour		
	X	ADPV	LOS	X	ADPV	LOS
Eastbound approach	0.72	38.7	D	0.82	39.2	D
Westbound approach	0.88	43.2	D	0.70	42.7	D
Northbound approach	0.87	66.2	E	0.86	70.3	E
Southbound approach	0.66	65.0	E	0.69	59.5	E
Overall Intersection	**0.83**	**47.9**	**D**	**0.78**	**47.3**	**D**

X= utilization, or volume-to-capacity ratio (most critical lane group in approach)
ADPV = average delay per vehicle, in seconds
LOS = level of service

Table 7 – Conditions at Intersection with Hana Highway (2035)

	AM Peak Hour			PM Peak Hour		
	X	ADPV	LOS	X	ADPV	LOS
Eastbound approach	0.80	40.5	D	0.92	44.9	D
Westbound approach	0.98	49.8	D	0.79	44.9	D
Northbound approach	0.97	75.0	E	0.96	78.3	E
Southbound approach	0.88	75.9	E	0.92	72.4	E
Overall Intersection	**0.95**	**54.9**	**D**	**0.89**	**54.5**	**D**

X= utilization, or volume-to-capacity ratio (most critical lane group in approach)
ADPV = average delay per vehicle, in seconds
LOS = level of service

The overall intersection levels of service are acceptable.

Intersection of Airport Access Road, Dairy Road, and Pakaula Road

Figure 6 shows a conceptual layout of the intersection of Airport Access Road, Dairy Road, and Pakaula Road that was used in the analyses. This layout was developed using the traffic assignments, with double left turn lanes provided where peak hour volume is greater than 300, and the inclusion of additional lanes, for lane balance or to provide deceleration, is not suggested by this layout. The Airport Access Road is the north-south roadway and Dairy Road and Pakaula Road are the east-west roadways in the discussion and tables that follow.

Analyses using a signal cycle that matched the signal cycle at the Hana Highway intersection showed low volume-to-capacity ratios and high delays and poor levels of service. Reduced cycle lengths that would improve levels of service while still providing adequate capacities were used. Table 8 shows signal timing splits and Table 9 shows the results of the levels of service analyses.

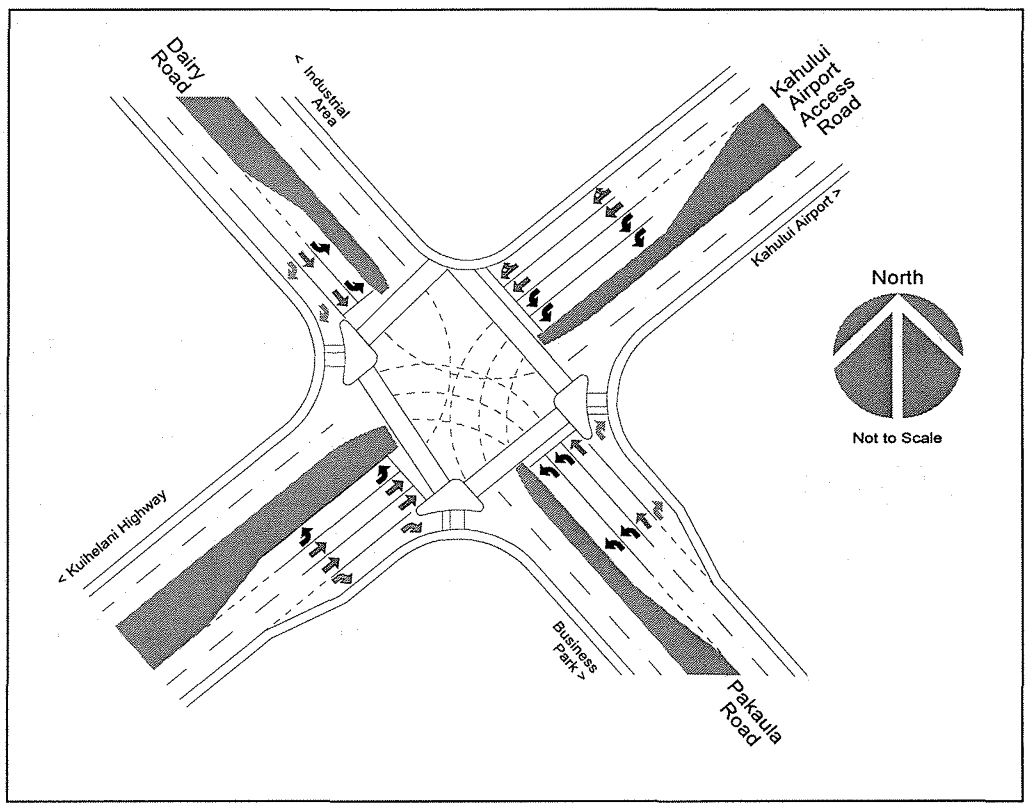

Figure 6 – Intersection with Dairy Road and Pakaula Road

Table 8 – Dairy Road Signal Timing Parameters

	Split (seconds)			
	AM Peak Hour		PM Peak Hour	
Eastbound left turn / Westbound left turn	8	12	8	22
Westbound through / Eastbound through	25	21	41	27
Northbound left turn / Southbound left turn	16	10	22	23
Southbound through / Northbound through	26	32	29	28
Total for cycle	**75**	**75**	**100**	**100**
Note: splits include yellow and all-red (5 seconds at end of left turn greens and 6 seconds at end of through / right turn phases)				

Table 9 – Conditions at Intersection with Dairy Road & Pakaula Road (2015)

	AM Peak Hour			PM Peak Hour		
	X	ADPV	LOS	X	ADPV	LOS
Eastbound approach	0.46	26.8	C	0.74	34.5	D
Westbound approach	0.52	29.4	C	0.87	41.6	D
Northbound approach	0.61	22.5	C	0.88	45.0	D
Southbound approach	0.83	33.7	C	0.81	44.1	D
Overall Intersection	**0.63**	**27.8**	**C**	**0.83**	**42.1**	**D**

X= utilization, or volume-to-capacity ratio (most critical lane group in approach)
ADPV = average delay per vehicle, in seconds
LOS = level of service

Table 10 – Conditions at Intersection with Dairy Road & Pakaula Road (2035)

	AM Peak Hour			PM Peak Hour		
	X	ADPV	LOS	X	ADPV	LOS
Eastbound approach	0.51	27.7	C	0.82	37.9	D
Westbound approach	0.59	30.8	C	0.98	51.9	D
Northbound approach	0.68	24.0	C	0.99	61.4	E
Southbound approach	0.78	31.4	C	0.99	60.2	E
Overall Intersection	**0.65**	**27.8**	**C**	**0.95**	**54.9**	**D**

X= utilization, or volume-to-capacity ratio (most critical lane group in approach)
ADPV = average delay per vehicle, in seconds
LOS = level of service

The cycle lengths shown would allow coordination between the two signals with offsets repeating every cycle at the Hana Highway intersection (two cycles at the Dairy Road / Pakaula

Road intersection) in the AM Peak Hour and every two cycles at the Hana Highway intersection (three cycles at the Dairy Road / Pakaula Road intersection) in the PM Peak Hour.

Storage Lengths for Turn Lanes

The operational analyses also provide queue lengths in the turn lanes for the volumes, signal timing, and other traffic conditions assumed in computing the levels of service. Queue lengths (95^{th}-percentile) from the analyses of 2035 traffic are shown in Table 11. The numbers of vehicles are used as the desirable storage requirement to prevent blockage of the through lanes by queues from the turn lanes. The table shows the storage length in feet based on an average spacing of 23 feet per vehicle (which provide for 22 feet per car and 50 feet per truck with a vehicular mix of 96.5% cars and 3.5% trucks).

Table 11 – Desired Turn Lane Storage Lengths

	95^{th}-percentile queue (vehicles)				Storage Length (feet) *
	AM Peak Hour		PM Peak Hour		
	2015	2035	2015	2035	
Airport Access Road and Hana Highway intersection					
Eastbound left turn lane	9.3	10.6	9.4	10.6	120
Eastbound right turn lane	6.7	7.2	30.5	36.9	840
Westbound left turn lane	21.9	13.6	10.2	11.7	260
Westbound right turn lane	2.3	2.6	2.7	3.1	80
Northbound left turn lane	19.8	23.8	19.7	23.5	280
Northbound right turn lane	10.3	7.0	6.8	7.6	180
Southbound left turn lanes	2.1	2.7	12.4	17.5	200
Southbound right turn lanes	11.4	14.9	23.3	35.0	800
Airport Access Road, Dairy Road, and Pakaula Road intersection					
Eastbound left turn lane	0.3	0.3	0.4	0.4	80
Westbound left turn lane	4.4	5.0	11.4	13.0	140
Westbound right turn lane	3.2	3.6	3.3	3.8	80
Northbound left turn lane	7.6	8.5	16.8	20.9	480
Northbound right turn lane	6.5	7.5	13.8	15.7	360
Southbound left turn lanes	1.9	2.1	12.2	14.0	160
* Storage length based on higher queue length and 23 feet/vehicle, rounded to nearest 20 feet. (minimum for one car plus one truck = 80 feet)					

APPENDIX A

LEVEL OF SERVICE DEFINITIONS

The *Highway Capacity Manual 2000 (HCM)* provides analyses to determine "Levels of Service" (LOS) that are related to average delays. The methodology for signalized intersections uses traffic volumes, traffic characteristics, signal phasing and timing, and intersection layout to estimate capacities and delays.

Levels of Service (LOS) are related to average delays. For signalized intersections, the criteria are:

LOS	General Description of Delay	Average Delay (seconds per vehicle)
A	Little or no delay	≤ 10
B	Short traffic delays	> 10 and ≤ 20
C	Average traffic delays	> 20 and ≤ 35
D	Long traffic delays	> 35 and ≤ 55
E	Very long traffic delays	> 55 and ≤ 80
F	Very long traffic delays	>80

Very long traffic delays for individual movements may be unavoidable. Overall intersection Level of Service D or better is considered acceptable for urban conditions.

APPENDIX B

LEVEL OF SERVICE COMPUTATION SUMMARIES

Detailed Report and Back-of-Queue Worksheet for each:

Intersection 1: Hana Highway and Airport Access Road, 2015 AM Peak Hour

Intersection 1: Hana Highway and Airport Access Road, 2015 PM Peak Hour

Intersection 1: Hana Highway and Airport Access Road, 2035 AM Peak Hour

Intersection 1: Hana Highway and Airport Access Road, 2035 PM Peak Hour

Intersection 2: Dairy Road, Pakaula Road, and Airport Access Road, 2015 AM Peak Hour

Intersection 2: Dairy Road, Pakaula Road, and Airport Access Road, 2015 PM Peak Hour

Intersection 2: Dairy Road, Pakaula Road, and Airport Access Road, 2035 AM Peak Hour

Intersection 2: Dairy Road, Pakaula Road, and Airport Access Road, 2035 PM Peak Hour

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	JN	Intersection	Hana Highway
Agency or Co.	Julian Ng Inc.	Area Type	All other areas
Date Performed	3/22/2011	Jurisdiction	HDOT
Time Period	AM Peak Hour	Analysis Year	2015
		Project ID	Kahului Airport Access Road @ Hana Highway 2015 AM

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	2	3	1	2	3	1	2	2	1	2	2	1
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Volume, V (vph)	170	695	105	455	2165	40	410	210	130	35	280	145
% Heavy vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, l_1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of effective green, e	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Arrival type, AT	3	3	3	3	3	3	3	3	3	3	3	3
Unit extension, UE	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Filtering/metering, I	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Initial unmet demand, Q_b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ped / Bike / RTOR volumes	0		0	0		0	0		0	0		0
Lane width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0	0	0	0	0	0	0	0	0	0	0
Min. time for pedestrians, G_p		3.2			3.2			3.2			3.2	

Phasing	EB Only	Thru & RT	WB Only	04	NB Only	Thru & RT	SB Only	08
Timing	G = 11.0	G = 48.0	G = 24.0	G =	G = 22.0	G = 8.0	G = 5.0	G =
	Y = 5	Y = 6	Y = 5	Y =	Y = 5	Y = 6	Y = 5	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 150.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	181	739	112	484	2303	43	436	223	138	37	298	154
Lane group capacity, c	252	2165	675	550	2638	823	504	828	369	115	449	369
v/c ratio, X	0.72	0.34	0.17	0.88	0.87	0.05	0.87	0.27	0.37	0.32	0.66	0.42
Total green ratio, g/C	0.07	0.43	0.43	0.16	0.52	0.52	0.15	0.23	0.23	0.03	0.13	0.23
Uniform delay, d_1	68.0	28.9	26.5	61.6	31.6	17.8	62.5	47.0	48.3	70.8	62.5	48.8
Progression factor, PF	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Delay calibration, k	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Incremental delay, d_2	16.2	0.4	0.5	18.0	4.4	0.1	17.7	0.8	2.9	7.3	7.5	3.4
Initial queue delay, d_3												
Control delay	84.1	29.3	27.1	79.6	36.0	17.9	80.3	47.8	51.2	78.1	70.0	52.3
Lane group LOS	F	C	C	E	D	B	F	D	D	E	E	D
Approach delay		38.7			43.2			66.2			65.0	
Approach LOS		D			D			E			E	
Intersection delay		47.9			X_c = 0.83			Intersection LOS			D	

BACK-OF-QUEUE WORKSHEET

General Information

Project Description *Kahului Airport Access Road @ Hana Highway 2015 AM*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Init. queue/lane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flow rate/lane	181	739	112	484	2303	43	436	223	138	37	298	154
Satflow per lane	1770	1862	1583	1770	1862	1583	1770	1862	1583	1770	1862	1583
Capacity/lane	252	2165	675	550	2638	823	504	828	369	115	449	369
Flow ratio	0.05	0.15	0.07	0.14	0.45	0.03	0.13	0.06	0.09	0.01	0.08	0.10
v/c ratio	0.72	0.34	0.17	0.88	0.87	0.05	0.87	0.27	0.37	0.32	0.66	0.42
I factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Arrival type	3	3	3	3	3	3	3	3	3	3	3	3
Platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q_1	3.8	7.6	2.9	10.1	30.9	0.9	9.1	4.0	4.8	0.8	6.2	5.5
k_B	0.4	1.4	1.2	0.7	1.6	1.4	0.6	0.9	0.8	0.2	0.6	0.8
Q_2	0.8	0.7	0.2	2.9	7.4	0.1	2.6	0.3	0.5	0.1	1.1	0.6
Q avg.	4.6	8.3	3.1	13.1	38.4	1.0	11.7	4.3	5.3	0.9	7.3	6.0

Percentile Back of Queue (95th percentile)

$f_{B\%}$	2.0	1.8	2.1	1.7	1.6	2.4	1.7	2.0	1.9	2.4	1.8	1.9
BOQ, $Q_{\%}$	9.3	14.8	6.7	21.9	61.4	2.3	19.8	8.7	10.3	2.1	13.3	11.4

Queue Storage Ratio

Q spacing	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Q storage	0	0	0	0	0	0	0	0	0	0	0	0
Avg. R_Q												
95% $R_{Q\%}$												

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	JN	Intersection	Hana Highway
Agency or Co.	Julian Ng Inc.	Area Type	All other areas
Date Performed	3/22/2011	Jurisdiction	HDOT
Time Period	PM Peak Hour	Analysis Year	2015
		Project ID	Kahului Airport Access Road @ Hana Highway 2015 PM

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	2	3	1	2	3	1	2	2	1	2	2	1
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Volume, V (vph)	220	1900	490	205	1045	40	425	160	80	265	340	350
% Heavy vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, l_1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of effective green, e	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Arrival type, AT	3	3	3	3	3	3	3	3	3	3	3	3
Unit extension, UE	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Filtering/metering, I	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Initial unmet demand, Q_b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ped / Bike / RTOR volumes	0		0	0		0	0		0	0		0
Lane width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0	0	0	0	0	0	0	0	0	0	0
Min. time for pedestrians, G_p		3.2			3.2			3.2			3.2	

Phasing	EB Only	Thru & RT	WB Only	04	NB Only	Thru & RT	SB Only	08
Timing	G = 25.0	G = 40.0	G = 13.0	G =	G = 22.0	G = 1.0	G = 17.0	G =
	Y = 5	Y = 6	Y = 5	Y =	Y = 5	Y = 6	Y = 5	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 150.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	224	1939	500	209	1066	41	434	163	82	270	347	357
Lane group capacity, c	573	2368	739	298	1996	623	504	662	295	390	568	570
v/c ratio, X	0.39	0.82	0.68	0.70	0.53	0.07	0.86	0.25	0.28	0.69	0.61	0.63
Total green ratio, g/C	0.17	0.47	0.47	0.09	0.39	0.39	0.15	0.19	0.19	0.11	0.16	0.36
Uniform delay, d_1	55.7	34.5	31.2	66.6	34.9	28.3	62.5	52.0	52.3	64.0	58.7	39.7
Progression factor, PF	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Delay calibration, k	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Incremental delay, d_2	2.0	3.3	4.9	12.9	1.0	0.2	17.3	0.9	2.3	9.7	4.8	5.1
Initial queue delay, d_3												
Control delay	57.7	37.8	36.1	79.6	36.0	28.5	79.8	52.9	54.7	73.7	63.5	44.8
Lane group LOS	E	D	D	E	D	C	E	D	D	E	E	D
Approach delay		39.2			42.7			70.3			59.5	
Approach LOS		D			D			E			E	
Intersection delay		47.3			X_c = 0.78			Intersection LOS			D	

BACK-OF-QUEUE WORKSHEET												
General Information												
Project Description *Kahului Airport Access Road @ Hana Highway 2015 PM*												
Average Back of Queue												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
Init. queue/lane	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*224*	*1939*	*500*	*209*	*1066*	*41*	*434*	*163*	*82*	*270*	*347*	*357*
Satflow per lane	*1770*	*1862*	*1583*	*1770*	*1862*	*1583*	*1770*	*1862*	*1583*	*1770*	*1862*	*1583*
Capacity/lane	*573*	*2368*	*739*	*298*	*1996*	*623*	*504*	*662*	*295*	*390*	*568*	*570*
Flow ratio	*0.06*	*0.38*	*0.32*	*0.06*	*0.21*	*0.03*	*0.13*	*0.05*	*0.05*	*0.08*	0.10	*0.23*
v/c ratio	*0.39*	*0.82*	*0.68*	*0.70*	*0.53*	*0.07*	*0.86*	*0.25*	*0.28*	*0.69*	*0.61*	*0.63*
I factor	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Platoon ratio	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
PF factor	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Q_1	*4.3*	*25.6*	*16.2*	*4.3*	*12.5*	*1.1*	*9.1*	*3.0*	*2.9*	*5.6*	*7.1*	*12.3*
k_B	*0.7*	*1.5*	*1.3*	*0.4*	*1.3*	*1.2*	*0.6*	*0.8*	*0.7*	*0.5*	*0.7*	*1.1*
Q_2	*0.4*	*5.3*	*2.5*	*0.9*	*1.5*	*0.1*	*2.5*	*0.3*	*0.3*	*1.1*	*1.0*	*1.7*
Q avg.	*4.7*	*30.8*	*18.8*	*5.2*	*14.0*	*1.1*	*11.6*	*3.3*	*3.2*	*6.6*	*8.1*	*14.0*
Percentile Back of Queue (95th percentile)												
$f_{B\%}$	*2.0*	*1.6*	*1.6*	*2.0*	*1.7*	*2.4*	*1.7*	*2.1*	*2.1*	*1.9*	*1.8*	*1.7*
BOQ, $Q_{\%}$	*9.4*	*49.4*	*30.5*	*10.2*	*23.2*	*2.7*	*19.7*	*6.9*	*6.8*	*12.4*	*14.5*	*23.3*
Queue Storage Ratio												
Q spacing	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

HCS2000™ DETAILED REPORT

General Information	Site Information
Analyst JN Agency or Co. Julian Ng Inc. Date Performed 3/22/2011 Time Period AM Peak Hour	Intersection Hana Highway Area Type All other areas Jurisdiction HDOT Analysis Year 2035 Project ID Kahului Airport Access Road @ Hana Highway 2035 AM

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	2	3	1	2	3	1	2	2	1	2	2	1
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Volume, V (vph)	190	780	115	310	2430	45	460	315	85	45	370	190
% Heavy vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, l_1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of effective green, e	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Arrival type, AT	3	3	3	3	3	3	3	3	3	3	3	3
Unit extension, UE	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Filtering/metering, I	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Initial unmet demand, Q_b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ped / Bike / RTOR volumes	0		0	0		0	0		0	0		0
Lane width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0	0	0	0	0	0	0	0	0	0	0
Min. time for pedestrians, G_p	3.2			3.2			3.2			3.2		

Phasing	EB Only	Thru & RT	WB Only	04	NB Only	Thru & RT	SB Only	08
Timing	G = 11.0	G = 48.0	G = 24.0	G =	G = 22.0	G = 8.0	G = 5.0	G =
	Y = 5	Y = 6	Y = 5	Y =	Y = 5	Y = 6	Y = 5	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 150.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	202	830	122	330	2585	48	489	335	90	48	394	202
Lane group capacity, c	252	2165	675	550	2638	823	504	828	369	115	449	369
v/c ratio, X	0.80	0.38	0.18	0.60	0.98	0.06	0.97	0.40	0.24	0.42	0.88	0.55
Total green ratio, g/C	0.07	0.43	0.43	0.16	0.52	0.52	0.15	0.23	0.23	0.03	0.13	0.23
Uniform delay, d_1	68.4	29.5	26.7	58.5	35.2	17.8	63.7	48.7	46.7	71.1	64.4	50.5
Progression factor, PF	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Delay calibration, k	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Incremental delay, d_2	23.0	0.5	0.6	4.8	13.4	0.1	33.4	1.5	1.6	10.8	20.8	5.7
Initial queue delay, d_3												
Control delay	91.4	30.0	27.3	63.3	48.6	18.0	97.0	50.1	48.3	81.8	85.2	56.3
Lane group LOS	F	C	C	E	D	B	F	D	D	F	F	E
Approach delay	40.5			49.8			75.0			75.9		
Approach LOS	D			D			E			E		
Intersection delay	54.9			X_c = 0.95			Intersection LOS			D		

BACK-OF-QUEUE WORKSHEET

General Information

Project Description *Kahului Airport Access Road @ Hana Highway 2035 AM*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Init. queue/lane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flow rate/lane	202	830	122	330	2585	48	489	335	90	48	394	202
Satflow per lane	1770	1862	1583	1770	1862	1583	1770	1862	1583	1770	1862	1583
Capacity/lane	252	2165	675	550	2638	823	504	828	369	115	449	369
Flow ratio	0.06	0.16	0.08	0.10	0.51	0.03	0.14	0.09	0.06	0.01	0.11	0.13
v/c ratio	0.80	0.38	0.18	0.60	0.98	0.06	0.97	0.40	0.24	0.42	0.88	0.55
I factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Arrival type	3	3	3	3	3	3	3	3	3	3	3	3
Platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q_1	4.3	8.7	3.2	6.5	38.6	1.0	10.4	6.2	3.0	1.0	8.4	7.4
k_B	0.4	1.4	1.2	0.7	1.6	1.4	0.6	0.9	0.8	0.2	0.6	0.8
Q_2	1.2	0.9	0.3	0.9	12.6	0.1	4.0	0.6	0.3	0.1	2.5	0.9
Q avg.	5.4	9.5	3.4	7.5	51.2	1.1	14.4	6.8	3.3	1.1	10.9	8.3

Percentile Back of Queue (95th percentile)

$f_{B\%}$	1.9	1.7	2.1	1.8	1.6	2.4	1.7	1.9	2.1	2.4	1.7	1.8
BOQ, $Q_{\%}$	10.6	16.7	7.2	13.6	81.9	2.6	23.8	12.6	7.0	2.7	18.7	14.9

Queue Storage Ratio

Q spacing	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Q storage	0	0	0	0	0	0	0	0	0	0	0	0
Avg. R_Q												
95% $R_{Q\%}$												

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*JN*	Intersection	*1*
Agency or Co.	*Julian Ng Inc.*	Area Type	*All other areas*
Date Performed	*3/22/2011*	Jurisdiction	*HDOT*
Time Period	*PM Peak Hour*	Analysis Year	*2035*
		Project ID	*Kahului Airport Access Road @ Hana Highway 2035 PM*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	2	3	1	2	3	1	2	2	1	2	2	1
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Volume, V (vph)	250	2130	550	230	1170	45	475	265	90	350	445	460
% Heavy vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, l_1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of effective green, e	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Arrival type, AT	3	3	3	3	3	3	3	3	3	3	3	3
Unit extension, UE	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Filtering/metering, I	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Initial unmet demand, Q_b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ped / Bike / RTOR volumes	0		0	0		0	0		0	0		0
Lane width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0	0	0	0	0	0	0	0	0	0	0
Min. time for pedestrians, G_p		3.2			3.2			3.2			3.2	

Phasing	EB Only	Thru & RT	WB Only	04	NB Only	Thru & RT	SB Only	08
Timing	G = 25.0	G = 40.0	G = 13.0	G =	G = 22.0	G = 1.0	G = 17.0	G =
	Y = 5	Y = 6	Y = 5	Y =	Y = 5	Y = 6	Y = 5	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 150.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	255	2173	561	235	1194	46	485	270	92	357	454	469
Lane group capacity, c	573	2368	739	298	1996	623	504	662	295	390	568	570
v/c ratio, X	0.45	0.92	0.76	0.79	0.60	0.07	0.96	0.41	0.31	0.92	0.80	0.82
Total green ratio, g/C	0.17	0.47	0.47	0.09	0.39	0.39	0.15	0.19	0.19	0.11	0.16	0.36
Uniform delay, d_1	56.3	37.3	33.0	67.2	36.1	28.4	63.6	53.7	52.7	65.8	60.7	43.6
Progression factor, PF	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Delay calibration, k	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Incremental delay, d_2	2.5	7.1	7.2	18.8	1.3	0.2	31.7	1.9	2.7	28.5	11.2	12.7
Initial queue delay, d_3												
Control delay	58.7	44.4	40.2	86.0	37.4	28.7	95.3	55.6	55.4	94.3	71.9	56.3
Lane group LOS	E	D	D	F	D	C	F	E	E	F	E	E
Approach delay		44.9			44.9			78.3			72.4	
Approach LOS		D			D			E			E	
Intersection delay		54.5			X_c = 0.89			Intersection LOS			D	

BACK-OF-QUEUE WORKSHEET

General Information

Project Description *Kahului Airport Access Road @ Hana Highway 2035 PM*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Init. queue/lane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flow rate/lane	255	2173	561	235	1194	46	485	270	92	357	454	469
Satflow per lane	1770	1862	1583	1770	1862	1583	1770	1862	1583	1770	1862	1583
Capacity/lane	573	2368	739	298	1996	623	504	662	295	390	568	570
Flow ratio	0.07	0.43	0.35	0.07	0.24	0.03	0.14	0.08	0.06	0.10	0.13	0.30
v/c ratio	0.45	0.92	0.76	0.79	0.60	0.07	0.96	0.41	0.31	0.92	0.80	0.82
I factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Arrival type	3	3	3	3	3	3	3	3	3	3	3	3
Platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q_1	4.9	31.0	19.3	4.9	14.5	1.2	10.3	5.2	3.3	7.5	9.6	17.8
k_B	0.7	1.5	1.3	0.4	1.3	1.2	0.6	0.8	0.7	0.5	0.7	1.1
Q_2	0.5	8.5	3.6	1.3	1.9	0.1	3.9	0.5	0.3	2.6	2.2	3.9
Q avg.	5.5	39.4	22.9	6.2	16.3	1.3	14.2	5.7	3.6	10.1	11.7	21.7

Percentile Back of Queue (95th percentile)

$f_{B\%}$	1.9	1.6	1.6	1.9	1.6	2.4	1.7	1.9	2.1	1.7	1.7	1.6
BOQ, $Q_{\%}$	10.6	63.1	36.9	11.7	26.8	3.1	23.5	10.9	7.6	17.5	19.9	35.0

Queue Storage Ratio

Q spacing	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Q storage	0	0	0	0	0	0	0	0	0	0	0	0
Avg. R_Q												
95% $R_{Q\%}$												

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*JN*	Intersection	*Dairy & Pakaula Roads*
Agency or Co.	*Julian Ng Inc.*	Area Type	*All other areas*
Date Performed	*3/22/2011*	Jurisdiction	*HDOT*
Time Period	*AM Peak Hour*	Analysis Year	*2015*
		Project ID	*Kahului Airport Access Road @ Dairy Road 2015 AM*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	1	2	1	1	1	2	1	2	2	0
Lane group	L	T	R	L	T	R	L	T	R	L	TR	
Volume, V (vph)	5	160	65	155	245	80	150	660	215	65	770	5
% Heavy vehicles, %HV	3	3	3	3	3	3	3	3	3	3	3	3
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, l_1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Extension of effective green, e	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Arrival type, AT	3	3	3	3	3	3	3	3	3	3	3	
Unit extension, UE	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Filtering/metering, I	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Initial unmet demand, Q_b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Ped / Bike / RTOR volumes	50		0	50		0	50		0	50		0
Lane width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0	0	0	0	0	0	0	0	0	0	
Min. time for pedestrians, G_p		13.5			13.5			13.5			13.5	

Phasing	EB Only	Thru & RT	WB Only	04	NB Only	Thru & RT	SB Only	08
Timing	G = 3.0	G = 7.0	G = 7.0	G =	G = 11.0	G = 10.0	G = 5.0	G =
	Y = 5	Y = 6	Y = 5	Y =	Y = 5	Y = 6	Y = 5	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 75.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	5	168	68	163	258	84	158	695	226	68	816	
Lane group capacity, c	70	369	544	318	492	523	257	1217	794	227	983	
v/c ratio, X	0.07	0.46	0.13	0.51	0.52	0.16	0.61	0.57	0.28	0.30	0.83	
Total green ratio, g/C	0.04	0.20	0.35	0.09	0.27	0.33	0.15	0.35	0.51	0.07	0.28	
Uniform delay, d_1	34.7	26.4	16.7	32.4	23.4	17.6	30.0	20.0	10.7	33.3	25.3	
Progression factor, PF	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Delay calibration, k	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	
Incremental delay, d_2	2.0	4.0	0.5	5.8	4.0	0.7	10.5	1.9	0.9	3.4	8.1	
Initial queue delay, d_3												
Control delay	36.6	30.4	17.2	38.2	27.4	18.3	40.6	21.9	11.6	36.7	33.4	
Lane group LOS	D	C	B	D	C	B	D	C	B	D	C	
Approach delay		26.8			29.4			22.5			33.7	
Approach LOS		C			C			C			C	
Intersection delay		27.8			X_c = 0.63		Intersection LOS				C	

BACK-OF-QUEUE WORKSHEET

General Information

Project Description *Kahului Airport Access Road @ Dairy Road 2015 AM*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	L	T	R	L	T	R	L	T	R	L	TR	
Init. queue/lane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Flow rate/lane	5	168	68	163	258	84	158	695	226	68	816	
Satflow per lane	1752	1845	1568	1752	1845	1568	1752	1844	1568	1752	1842	
Capacity/lane	70	369	544	318	492	523	257	1217	794	227	983	
Flow ratio	0.00	0.09	0.04	0.05	0.14	0.05	0.09	0.20	0.14	0.02	0.23	
v/c ratio	0.07	0.46	0.13	0.51	0.52	0.16	0.61	0.57	0.28	0.30	0.83	
I factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Arrival type	3	3	3	3	3	3	3	3	3	3	3	
Platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Q_1	0.1	3.1	1.0	1.6	4.6	1.2	3.1	6.2	2.7	0.7	8.4	
k_B	0.2	0.5	0.7	0.3	0.6	0.6	0.4	0.7	0.9	0.2	0.6	
Q_2	0.0	0.4	0.1	0.3	0.7	0.1	0.6	1.0	0.3	0.1	2.5	
Q avg.	0.1	3.5	1.1	1.9	5.2	1.4	3.7	7.1	3.1	0.8	10.9	
Percentile Back of Queue (95th percentile)												
$f_{B\%}$	2.6	2.1	2.4	2.3	2.0	2.4	2.1	1.8	2.1	2.5	1.7	
BOQ, $Q_{\%}$	0.3	7.3	2.6	4.4	10.2	3.2	7.6	13.1	6.5	1.9	18.6	
Queue Storage Ratio												
Q spacing	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	
Q storage	0	0	0	0	0	0	0	0	0	0	0	
Avg. R_Q												
95% $R_{Q\%}$												

HCS2000™ Version 4.1c

HCS2000™ DETAILED REPORT

General Information	Site Information
Analyst JN Agency or Co. Julian Ng Inc. Date Performed 3/22/2011 Time Period PM Peak Hour	Intersection Dairy & Pakaula Roads Area Type All other areas Jurisdiction HDOT Analysis Year 2015 Project ID Kahului Airport Access Road @ Dairy Road 2015 PM

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	1	2	1	1	1	2	1	2	2	0
Lane group	L	T	R	L	T	R	L	T	R	L	TR	
Volume, V (vph)	5	285	340	360	535	95	250	565	300	390	620	25
% Heavy vehicles, %HV	3	3	3	3	3	3	3	3	3	3	3	3
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, l_1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Extension of effective green, e	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Arrival type, AT	3	3	3	3	3	3	3	3	3	3	3	
Unit extension, UE	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Filtering/metering, I	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Initial unmet demand, Q_b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Ped / Bike / RTOR volumes	50		0	50		0	50		0	50		0
Lane width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0	0	0	0	0	0	0	0	0	0	
Min. time for pedestrians, G_p		3.6			3.6			3.6			3.6	

Phasing	WB Only	Thru & RT	EB Only	04	NB Only	Thru & RT	SB Only	08
Timing	G = 17.0	G = 13.0	G = 3.0	G =	G = 17.0	G = 0.0	G = 18.0	G =
	Y = 5	Y = 6	Y = 5	Y =	Y = 5	Y = 6	Y = 5	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 100.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	5	300	358	379	563	100	263	595	316	411	679	
Lane group capacity, c	53	406	690	578	646	909	298	773	612	612	838	
v/c ratio, X	0.09	0.74	0.52	0.66	0.87	0.11	0.88	0.77	0.52	0.67	0.81	
Total green ratio, g/C	0.03	0.22	0.44	0.17	0.35	0.58	0.17	0.22	0.39	0.18	0.24	
Uniform delay, d_1	47.2	36.3	20.3	38.8	30.4	9.4	40.5	36.6	23.3	38.2	35.9	
Progression factor, PF	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Delay calibration, k	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	
Incremental delay, d_2	3.5	11.4	2.8	5.7	15.0	0.2	29.2	7.3	3.1	5.8	8.4	
Initial queue delay, d_3												
Control delay	50.7	47.8	23.1	44.5	45.4	9.7	69.8	43.9	26.4	44.0	44.2	
Lane group LOS	D	D	C	D	D	A	E	D	C	D	D	
Approach delay		34.5			41.6			45.0			44.1	
Approach LOS		C			D			D			D	
Intersection delay		42.1			X_c = 0.83			Intersection LOS			D	

BACK-OF-QUEUE WORKSHEET

General Information

Project Description *Kahului Airport Access Road @ Dairy Road 2015 PM*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	L	T	R	L	T	R	L	T	R	L	TR	
Init. queue/lane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Flow rate/lane	5	300	358	379	563	100	263	595	316	411	679	
Satflow per lane	1752	1845	1568	1752	1845	1568	1752	1844	1568	1752	1834	
Capacity/lane	53	406	690	578	646	909	298	773	612	612	838	
Flow ratio	0.00	0.16	0.23	0.11	0.31	0.06	0.15	0.17	0.20	0.12	0.19	
v/c ratio	0.09	0.74	0.52	0.66	0.87	0.11	0.88	0.77	0.52	0.67	0.81	
I factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Arrival type	3	3	3	3	3	3	3	3	3	3	3	
Platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Q_1	0.1	7.8	7.2	5.1	14.6	1.2	7.1	8.1	6.7	5.5	9.3	
k_B	0.2	0.7	0.9	0.5	0.9	1.2	0.5	0.7	0.9	0.5	0.7	
Q_2	0.0	1.6	1.0	0.9	4.3	0.1	2.5	1.9	0.9	1.0	2.4	
Q avg.	0.2	9.4	8.2	6.0	19.0	1.4	9.6	10.0	7.6	6.5	11.7	
Percentile Back of Queue (95th percentile)												
$f_{B\%}$	2.6	1.8	1.8	1.9	1.6	2.4	1.7	1.7	1.8	1.9	1.7	
BOQ, $Q_{\%}$	0.4	16.5	14.7	11.4	30.8	3.3	16.8	17.4	13.8	12.2	19.9	
Queue Storage Ratio												
Q spacing	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	
Q storage	0	0	0	0	0	0	0	0	0	0	0	
Avg. R_Q												
95% $R_{Q\%}$												

HCS2000™ DETAILED REPORT

General Information		**Site Information**	
Analyst	JN	Intersection	2
Agency or Co.	Julian Ng Inc.	Area Type	All other areas
Date Performed	3/22/2011	Jurisdiction	HDOT
Time Period	AM Peak Hour	Analysis Year	2035
		Project ID	Kahului Airport Access Road @ Dairy Road 2035 AM

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	1	2	1	1	1	2	1	2	2	0
Lane group	L	T	R	L	T	R	L	T	R	L	TR	
Volume, V (vph)	5	180	75	175	275	90	165	765	245	70	720	5
% Heavy vehicles, %HV	3	3	3	3	3	3	3	3	3	3	3	3
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, l_1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Extension of effective green, e	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Arrival type, AT	3	3	3	3	3	3	3	3	3	3	3	
Unit extension, UE	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Filtering/metering, I	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Initial unmet demand, Q_b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Ped / Bike / RTOR volumes	50		0	50		0	50		0	50		0
Lane width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0	0	0	0	0	0	0	0	0	0	
Min. time for pedestrians, G_p	13.5			13.5			13.5			13.5		

Phasing	EB Only	Thru & RT	WB Only	04	NB Only	Thru & RT	SB Only	08
Timing	G = 3.0	G = 7.0	G = 7.0	G =	G = 11.0	G = 10.0	G = 5.0	G =
	Y = 5	Y = 6	Y = 5	Y =	Y = 5	Y = 6	Y = 5	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 75.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	5	189	79	184	289	95	174	805	258	74	763	
Lane group capacity, c	70	369	544	318	492	523	257	1217	794	227	983	
v/c ratio, X	0.07	0.51	0.15	0.58	0.59	0.18	0.68	0.66	0.32	0.33	0.78	
Total green ratio, g/C	0.04	0.20	0.35	0.09	0.27	0.33	0.15	0.35	0.51	0.07	0.28	
Uniform delay, d_1	34.7	26.7	16.9	32.6	23.9	17.7	30.3	20.8	10.9	33.4	24.8	
Progression factor, PF	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Delay calibration, k	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	
Incremental delay, d_2	2.0	5.0	0.6	7.5	5.1	0.8	13.4	2.8	1.1	3.8	6.0	
Initial queue delay, d_3												
Control delay	36.6	31.7	17.4	40.1	29.0	18.5	43.8	23.6	12.0	37.2	30.8	
Lane group LOS	D	C	B	D	C	B	D	C	B	D	C	
Approach delay	27.7			30.8			24.0			31.4		
Approach LOS	C			C			C			C		
Intersection delay	27.8			$X_c = 0.65$			Intersection LOS			C		

BACK-OF-QUEUE WORKSHEET

General Information

Project Description *Kahului Airport Access Road @ Dairy Road 2035 AM*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	L	T	R	L	T	R	L	T	R	L	TR	
Init. queue/lane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Flow rate/lane	5	189	79	184	289	95	174	805	258	74	763	
Satflow per lane	1752	1845	1568	1752	1845	1568	1752	1844	1568	1752	1842	
Capacity/lane	70	369	544	318	492	523	257	1217	794	227	983	
Flow ratio	0.00	0.10	0.05	0.05	0.16	0.06	0.10	0.23	0.16	0.02	0.22	
v/c ratio	0.07	0.51	0.15	0.58	0.59	0.18	0.68	0.66	0.32	0.33	0.78	
I factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Arrival type	3	3	3	3	3	3	3	3	3	3	3	
Platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Q_1	0.1	3.5	1.1	1.9	5.2	1.4	3.4	7.4	3.2	0.8	7.7	
k_B	0.2	0.5	0.7	0.3	0.6	0.6	0.4	0.7	0.9	0.2	0.6	
Q_2	0.0	0.5	0.1	0.4	0.8	0.1	0.8	1.4	0.4	0.1	1.9	
Q avg.	0.1	4.0	1.2	2.2	6.1	1.5	4.2	8.8	3.6	0.9	9.6	
Percentile Back of Queue (95th percentile)												
$f_{B\%}$	2.6	2.0	2.4	2.2	1.9	2.3	2.0	1.8	2.1	2.4	1.7	
BOQ, $Q_{\%}$	0.3	8.2	3.0	5.0	11.5	3.6	8.5	15.6	7.5	2.1	16.8	
Queue Storage Ratio												
Q spacing	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	
Q storage	0	0	0	0	0	0	0	0	0	0	0	
Avg. R_Q												
95% $R_{Q\%}$												

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	JN	Intersection	Dairy & Pakaula Roads
Agency or Co.	Julian Ng Inc.	Area Type	All other areas
Date Performed	3/22/2011	Jurisdiction	HDOT
Time Period	PM Peak Hour	Analysis Year	2035
		Project ID	Kahului Airport Access Road @ Dairy Road 2035 PM

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	1	2	1	1	1	2	1	2	2	0
Lane group	L	T	R	L	T	R	L	T	R	L	TR	
Volume, V (vph)	5	315	380	405	600	110	280	715	335	440	760	30
% Heavy vehicles, %HV	3	3	3	3	3	3	3	3	3	3	3	3
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, l_1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Extension of effective green, e	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Arrival type, AT	3	3	3	3	3	3	3	3	3	3	3	
Unit extension, UE	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Filtering/metering, I	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Initial unmet demand, Q_b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Ped / Bike / RTOR volumes	50		0	50		0	50		0	50		0
Lane width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0	0	0	0	0	0	0	0	0	0	
Min. time for pedestrians, G_p		3.6			3.6			3.6			3.6	

Phasing	WB Only	Thru & RT	EB Only	04	NB Only	Thru & RT	SB Only	08
Timing	G = 17.0	G = 13.0	G = 3.0	G =	G = 17.0	G = 0.0	G = 18.0	G =
	Y = 5	Y = 6	Y = 5	Y =	Y = 5	Y = 6	Y = 5	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 100.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	5	332	400	426	632	116	295	753	353	463	832	
Lane group capacity, c	53	406	690	578	646	909	298	773	612	612	838	
v/c ratio, X	0.09	0.82	0.58	0.74	0.98	0.13	0.99	0.97	0.58	0.76	0.99	
Total green ratio, g/C	0.03	0.22	0.44	0.17	0.35	0.58	0.17	0.22	0.39	0.18	0.24	
Uniform delay, d_1	47.2	37.1	21.1	39.4	32.1	9.5	41.4	38.7	24.0	38.9	37.9	
Progression factor, PF	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Delay calibration, k	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	
Incremental delay, d_2	3.5	16.6	3.5	8.2	30.5	0.3	49.7	26.7	3.9	8.5	29.4	
Initial queue delay, d_3												
Control delay	50.7	53.6	24.6	47.5	62.6	9.8	91.1	65.4	27.9	47.4	67.3	
Lane group LOS	D	D	C	D	E	A	F	E	C	D	E	
Approach delay		37.9			51.9			61.4			60.2	
Approach LOS		D			D			E			E	
Intersection delay		54.9			X_c = 0.95			Intersection LOS			D	

APPENDIX B.

Letter from Airports Division, Dated September 13, 2010

LINDA LINGLE
GOVERNOR

RECEIVED
DOT-HWYS
MAUI DISTRICT OFFICE

2010 SEP 20 PM 3:01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
AIRPORTS DIVISION
400 Rodgers Boulevard, Suite 700
Honolulu, Hawaii 96819-1880

BRENNON T. MORIOKA
DIRECTOR

Deputy Directors
MICHAEL D. FORMBY
FRANCIS PAUL KEENO
JIRO A. SUMADA

IN REPLY REFER TO:

AIR-EC
10.0403

September 13, 2010

John D. Nickelson, P.E.
Transportation Engineer
U.S. Department of Transportation
Federal Highway Administration
Box 50206
300 Ala Moana Boulevard, Room 3-306
Honolulu, Hawaii 96850

Dear Mr. Nickelson:

Subject: Kahului Airport Access Road
Kahului Airport
State Project Nos. AM1061-14 and AM1044-15

The State of Hawaii, Department of Transportation, Airports Division is pleased to be financing work for the capital improvement for the Kahului Airport Access Road, State Project Nos. AM1061-14 and AM1044-15 for State of Hawaii fiscal year 2012. The financing commitment will be for the sum of sixty seven million dollars ($67,000,000).

The financing breakdown is as follows:

$50,000,000 for the OGG Airport Access Road and
$17,000,000 for the Parking Lot Expansion (Airport Loop Road extension).

Both projects must be completed for the Airport Access Road to be functional.

Should you have any questions, please feel free to contact Mr. Gene Matsushige, Head Construction Engineer at (808) 838-8826.

Very truly yours,

BRENNON T. MORIOKA, Ph.D., P.E.
Director of Transportation

c: Mr. Pat Phung, U.S. Department of Transportation, Federal Highway Administration

bc: Mr. Ferdinand Cajigal, HWY-M
bc: Mr. Robert Spilker, HWY-MD
bc: Mr. Edwin H. Sniffen, HWY-DS

2481

APPENDIX C.

State Historic Preservation Division Letter Dated September 27, 2011 Regarding Section 106 Review

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

September 27, 2011

Mark Alexander Roy, AICP, Program Manager
Munekioy & Hiraga
Via fax to: (808) 244-8729

LOG NO: 2011.2329
DOC NO: 1109MD04
Archaeology
History & Culture

Dear Mr. Roy:

SUBJECT: National Historic Preservation Act (NHPA) Section 106 Review – Revised: Proposed Kahului Airport Access Road, Phase 1 Wailuku Ahupuaʻa, Wailuku District, Island of Maui

Thank you for the opportunity to comment on the aforementioned undertaking, which we received on August 31, 2011. This project qualifies as an undertaking pursuant to 36 CFR § 800 due to the use of federal funds. This revised letter was prepared following discussions between yourself and Morgan Davis, Lead Archaeologist for SHPD on Maui. As a result of those conversations we have agreed to produce a revised letter to clarify our understanding of this project (*Log No. 2011.1328, Doc No. 1107MD10*).

This undertaking is part of a larger project involving the Kahului Airport Development, which is by a Programmatic Agreement (PA) among: the Advisory Council on Historic Preservation; the Federal Aviation Administration (FAA); and the Hawaii State Preservation Officer (SHPO). Concurring signatories include the Hawaii Department of Transportation (HDOT); the Maui/Lānaʻi Island Burial Council (MLIBC); and the Office of Hawaiian Affairs (OHA). That project is indicated by three phases enumerated within the PA; phase 1 of the proposed Kahului Airport Access Road is not the same as phase 1 in the PA.

Phase 1 of the Kahului Airport Access Road runs from Puunene Avenue to the Hana Highway. It is being undertaken by the Highways Division of HDOT, with federal funding provided by the Federal Highways Administration. This location was in sugarcane for over 100 years, with no historic properties identified during the archaeological survey.

Based on the information above, we concur that there will be **no historic properties affected** by this proposed undertaking pursuant to 36 CFR § 800 as long as mitigation in the form of the approved archaeological monitoring plan occurs (Shefcheck and Dega 2006; *Log No. 2006.4238, Doc No. 0612MK33*). If you have questions about this letter please contact Morgan Davis at (808) 243-5169 or via email to: morgan.e.davis@hawaii.gov.

Aloha,

Pua Aiu, Ph.D.
Administrator
State Historic Preservation Division

APPENDIX D.

Flora and Fauna Survey

FLORA AND FAUNA SURVEY AND ASSESSMENT

for the

KAHULUI AIRPORT ACCESS ROAD PHASE I

KAHULUI, MAUI

by

ROBERT W. HOBDY
ENVIRONMENTAL CONSULTANT
Kokomo, Maui
May 2008

Prepared for:
Fukunaga & Associates, Inc.

FLORA AND FAUNA SURVEY AND ASSESSMENT
KAHULUI AIRPORT ACCESS ROAD - PHASE 1

INTRODUCTION

The Kahului Airport Access Road Phase I Project lies just to the south of Kahului Town. It will connect Hana Highway with Dairy Road just east of Pu'unene Avenue. This survey was initiated to satisfy environmental requirements of the planning process.

SITE DESCRIPTION

This approximately 0.8 mile long by 160 feet wide corridor is about 15.5 acres in size (TMKs (2) 3-8-006:075 and (2) 3-8-080:999). The entire route lies on gently sloping land between the elevations of 20 feet and 35 feet above sea level. The area is an open grassland with a few widely scattered shrubs. Soils are dark brown, deep alluvial soils of the Ewa Silty Clay Loam, 0-3% slopes (EaA) Series and the Pulehu Clay Loam, 0-3% slopes (PsA) Series (Foote et al, 1972). These soils have moderate permeability, slow runoff and slight erosion hazard. Rainfall averages 25 inches per year with the bulk falling during the winter months (Armstrong, 1983).

BIOLOGICAL HISTORY

The road corridor was in sugar cane production for over 100 years during which time it was plowed, planted, burned and harvested repeatedly. Nothing remains of the dry land native shrub land that once occupied the site. About 20 years ago cane production was discontinued and the area became overgrown with dry land grasses and agricultural weeds. Meanwhile the surrounding lands have experienced extensive commercial development.

SURVEY OBJECTIVES

This report summarizes the findings of a flora and fauna survey of the proposed Kahului Airport Access Road Phase I Project which was conducted in May 2008. The objectives of the survey were to:

1. Document what plant, bird and mammal species occur on the property or may likely occur in the existing habitat.
2. Document the status and abundance of each species.
3. Determine the presence or likely occurrence of any native flora and fauna, particularly any that are Federally listed as Threatened or Endangered. If such occur, identify what features of the habitat may be essential for these species.
4. Determine if the project area contains any special habitats which if lost or altered might result in a significant negative impact on the flora and fauna in this part of the island.
5. Note which aspects of the proposed development pose significant concerns for plants or for wildlife and recommend measures that would mitigate or avoid these problems.

BOTANICAL SURVEY REPORT

SURVEY METHODS

A walk-through botanical survey method was used following routes to ensure that all parts of the project area were covered. Areas most likely to harbor native or rare plants such as gullys were more intensively examined. Notes were made on plant species, distribution and abundance as well as terrain and substrate.

DESCRIPTION OF THE VEGETATION

The vegetation of the property is a low, dry grassland with a scattering of shrubs and agricultural weeds. Abundant throughout the area is Guinea grass (*Panicum maximum*) which is almost monotypic in places. Also common are buffelgrass (*Cenchrus ciliaris*), spiny amaranth (*Amaranthus spinosus*), golden crown-beard (*Verbesina encelioides*) and cheeseweed (*Malva parviflora*).

A total of 48 plant species were recorded during two site visits to the property. Of these only ‘uhaloa (Waltheria indica) was native. ‘Uhaloa is widespread and common throughout Hawaii and occurs on many other Pacific islands as well. The remaining 47 species are all non-native in Hawaii and are of no special environmental interest or concern.

DISCUSSION AND RECOMMENDATIONS

The vegetation throughout the project area consists primarily of non-native species with only one native species scattered about. No Federally listed Threatened or Endangered species (USFWS, 1999) were found on the property nor were any found that are candidates for such status. No special habitats were found on the property either.

Because of the above existing conditions there is little of botanical concern on this property, and the proposed project is not expected to have a significant negative impact on the botanical resources in this part of Maui.

The only recommendation that is offered is that there are a number of native plants that might be incorporated into the landscape design that would lend a distinctive accent to the project. Ideas for appropriate species can be found in the Maui County Planting Plan or can be obtained from nursery growers who specialize in native plants.

PLANT SPECIES LIST

Following is a checklist of all those vascular plant species inventoried during the field studies. Plant families are arranged alphabetically within two groups: Monocots and Dicots. Taxonomy and nomenclature of the plants are in accordance with Wagner et al. (1999).

For each species, the following information is provided:

1. Scientific name with author citation
2. Common English or Hawaiian name.
3. Bio-geographical status. The following symbols are used:
   endemic = native only to the Hawaiian Islands; not naturally occurring anywhere else in the world.
   indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).
   Polynesian = those plants brought to the islands by the Polynesians in the course of their migrations.
   non-native = all those plants brought to the islands intentionally or accidentally after western contact.
4. Abundance of each species within the project area:
   abundant = forming a major part of the vegetation within the project area.
   common = widely scattered throughout the area or locally abundant within a portion of it.
   uncommon = scattered sparsely throughout the area or occurring in a few small patches.
   rare = only a few isolated individuals within the project area.

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
MONOCOTS			
ARECACEAE (Palm Family)			
Phoenix x dactylifera	hybrid date palm	non-native	rare
POACEAE (Grass Family)			
Cenchrus ciliaris L.	buffelgrass	non-native	common
Chloris barbata (L.) Sw.	swollen finger grass	non-native	uncommon
Eleusine indica (L.) Gaertn.	wiregrass	non-native	rare
Eragrostis pectinacea (Willd.) Zizka	Carolina lovegrass	non-native	uncommon
Panicum maximum Jacq.	Guinea grass	non-native	abundant
Setaria verticillata (L.) P. Beauv.	bristly foxtail	non-native	rare
DICOTS			
ACANTHACEAE (Acanthus Family)			
Asystasia gangetica (L.) T. Anderson	Chinese violet	non-native	rare
AMARANTHACEAE (Amaranth Family)			
Alternanthera pungens Kunth	khaki weed	non-native	rare
Amaranthus spinosus L.	spiny amaranth	non-native	common
Atriplex suberecta Verd.	------------------	non-native	uncommon
APOCYNACEAE (Dogbane Family)			
Asclepias physocarpa (E. Mey.) Schlecter	balloon plant	non-native	rare
ASTERACEAE (Sunflower Family)			
Bidens pilosa L.	Spanish needle	non-native	rare
Lactuca sativa L.	prickly lettuce	non-native	uncommon
Pluchea carolinensis (Jacq.) G. Don	sourbush	non-native	uncommon
Pluchea indica (L.) Less.	Indian fleabane	non-native	rare
Sonchus oleraceus L.	*pualele*	non-native	uncommon

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
Sphagneticola trilobata (L.) Pruski	wedelia	non-native	rare
Tridax procumbens L.	coat buttons	non-native	uncommon
Verbesina encelioides (Cav.) Benth. & Hook.	golden crown-beard	non-native	common
Xanthium strumarium L.	kikania	non-native	rare
BORAGINACEAE (Borage Family)			
Heliotropium procumbens Mill.	---------------	non-native	rare
BRASSICACEAE (Mustard Family)			
Lepidium virginicum L.	pepperwort	non-native	rare
CLEOMACEAE (Spider Plant Family)			
Cleome gynandra L.	wild spider flower	non-native	rare
CONVOLVULACEAE (Morning Glory Family)			
Ipomoea obscura (L.) Ker-Gawl.	---------------	non-native	uncommon
Ipomoea triloba L.	little bell	non-native	rare
Merremia aegyptia (L.) Urb.	hairy merremia	non-native	rare
CUCURBITACEAE (Gourd Family)			
Cucumis dipsaceus Ehrenb. ex Spach	hedgehog gourd	non-native	uncommon
EUPHORBIACEAE (Spurge Family)			
Chamaesyce hirta (L.) Millsp.	hairy spurge	non-native	rare
Ricinus communis L.	Castor bean	non-native	rare
FABACEAE (Pea Family)			
Crotalaria incana L.	fuzzy rattlepod	non-native	rare
Desmanthus pernambucanus (L.) Thellung	slender mimosa	non-native	uncommon
Indigofera hendecaphylla Jacq.	creeping indigo	non-native	rare
Leucaena leucocephala (Lam.) deWit	*koa haole*	non-native	uncommon

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
Macroptilium atropurpureum (DC) Urb.	------------------	non-native	uncommon
Prosopis pallida (Humb. & Bonpl. ex Willd.) Kunth	kiawe	non-native	rare
Senna occidentalis (L.) Link	coffee senna	non-native	rare
MALVACEAE (Mallow Family)			
Abutilon grandifolium (Willd.)Sweet	hairy abutilon	non-native	rare
Malva parviflora L.	cheese weed	non-native	common
Malvastrum coromandelianum (L.) Garcke	false mallow	non-native	rare
Sida rhombifolia L.	Cuban jute	non-native	rare
Waltheria indica L.	*'uhaloa*	indigenous	uncommon
NYCTAGINACEAE (Four-o'clock Family)			
Boerhavia coccinea Mill.	scarlet spiderling	non-native	uncommon
SOLANACEAE (Nightshade Family)			
Datura stramonium L.	jimson weed	non-native	rare
Nicandra physalodes (L.) Gaertn.	apple of Peru	non-native	rare
Solanum americanum Mill.	popolo	non-native	rare
Solanum lycopersicum L.	cherry tomato	non-native	uncommon

FAUNA SURVEY REPORT

SURVEY METHODS

A walk-through fauna survey method was conducted in conjunction with the botanical survey. All parts of the project area were covered. Field observations were made with the aid of binoculars and by listening to vocalizations. Notes were made on species, abundance, activities and location as well as observations of trails, tracks, scat and signs of feeding. In addition an evening visit was made to the area to record crepuscular activities and vocalizations and to see if there was any evidence of occurrence of the Hawaiian hoary bat (*Lasiurus cinereus semotus*) in the area.

RESULTS

MAMMALS

Only sign of one species of mammal was seen during two site visits on the property. Taxonomy and nomenclature follow Tomich (1986).

Mongoose (*Herpestes auropunctatus*) - Only one mongoose was seen scurrying through the grass on the property. Mongoose hunt for rodents in this type of habitat and are widespread.

While not seen during the survey rats (*Rattus rattus*) and mice (*Mus domesticus*) would be common in this type of area where they would feed on seeds, fruits and herbaceous vegetation. Feral cats (Felis catus) would also likely be found here, hunting for rodent and birds. Dogs (Canis familiaris) might also wander here from nearby residences.

A special effort was made to look for any occurrence of the native Hawaiian hoary bat by making an evening survey on the property. When present in an area these bats can be easily identified as they forage for insects, their distinctive flight patterns clearly visible in the glow of twilight. No evidence of such activity was observed though visibility was excellent. In addition a bat detection device (Batbox IIID) was employed set to the frequency of 27,000 to 28,000 hertz which is typical for this bat species. No bats were detected. The low grass habitat is not suitable for these bats.

BIRDS

Birdlife was fairly sparse in both diversity and numbers due to the dry open character of the habitat. Only eleven species of birds were seen during two site visits. All of these were non-native birds that are common throughout Hawaii. Taxonomy and nomenclature follow American Ornithologists' Union (2005).

Common myna (*Acridotheres tristis*) – Pairs of mynas were seen feeding and flying throughout the property.

Zebra dove (*Geopelia striata*) – These small doves were seen throughout the corridor feeding in small flocks in clearings.

House sparrow (*Passer domesticus*) – Many sparrows were seen near buildings alongside the corridor.

Chestnut mannikin (*Lonchura malacca*) – Small flocks of these small dark brown birds were seen feeding in the grasslands.

Nutmeg mannikin (*Lonchura punctulata*) – Small flocks of these manmichnikins were also seen feeding in the grasslands.

House finch (*Carpodacus mexicanus*) – A few of these finches were seen feeding in small shrubs near the middle of the corridor.

Spotted dove (*Streptopelia chinensis*) – A few of these large doves were seen in flight or resting in the larger shrubs.

Gray francolin (*Francolinus pondicerianus*) – Small family groups were seen in the margins of clearings where their loud calls could be heard.

Black francolin (*Francolinus francolinus*) – A few of these dark francolins were seen in grassland margins and their distinctive buzzing calls were heard.

Cattle egret (*Bubulcus ibis*) – Three of these large white egrets were seen during the evening survey.

Northern cardinal (*Cardinalis cardinalis*) – Two cardinals were seen and heard in shrubs during the evening survey.

Numerous water birds utilize the Kanahā Pond Waterfowl Refuge which is about ¾ mile distant, but nothing on this property is suitable habitat for these birds. Nor is the habitat suitable for Hawaii's native forest birds which occupy forested uplands beyond the range of mosquitoes and the diseases they carry.

INSECTS

While insects in general were not tallied, a good diversity of types were seen that no doubt helped fuel the diversity of birdlife seen. One native Sphingid moth, Blackburn's sphinx moth (*Manduca blackburni*) has been put on the Federal Endangered species list and this designation requires special focus (USFWS 2000). Blackburn's sphinx moth is known to occur in parts of East Maui and Central Maui but its feeding requirements are very specialized. It requires host plants in the nightshade family that are toxic, such as native species of 'aiea (*Nothocestrum spp.)* and such non-native alternative hosts as tobacco (*Nicotiana tabacum*) and tree tobacco (*Nicotiana glauca*). Blackburn's sphinx moth has been found on nearby lands near Kanahā Pond. None of these host species were found on the subject property and no Blackburn's sphinx moths or their larvae were seen.

CONCLUSIONS AND RECOMMENDATIONS

All of the fauna observed are common and widespread non-native species. None of these are of any particular environmental interest or concern. No Federally listed Threatened or Endangered mammal, bird or insect species were recorded during the course of the survey and no special fauna habitats were identified. As a result of the above findings, the proposed changes in land use are not expected to have a significant negative impact on the fauna resources in this part of Maui.

Seabirds are known to traverse the project site. Potential impacts to seabirds could be minimized by shielding outdoor lights so the bulb can only be seen from below.

ANIMAL SPECIES LIST

Following is a checklist of the animal species inventoried during the field work. Animal species are arranged in descending abundance within two groups: Mammals and Birds. For each species the following information is provided:

1. Common name
2. Scientific name
3. Bio-geographical status. The following symbols are used:
   - endemic = native only to Hawaii; not naturally occurring anywhere else in the world.
   - indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).
   - non-native = all those animals brought to Hawaii intentionally or accidentally after western contact.
   - migratory = spending a portion of the year in Hawaii and a portion elsewhere. In Hawaii the migratory birds are usually in the overwintering/non-breeding phase of their life cycle.

4. Abundance of each species within the project area:
   - abundant = many flocks or individuals seen throughout the area at all times of day.
   - common = a few flocks or well scattered individuals throughout the area.
   - uncommon = only one flock or several individuals seen within the project area.
   - rare = only one or two seen within the project area.

COMMON NAME	SCIENTIFIC NAME	STATUS	ABUNDANCE
MAMMALS			
Mongoose	*Herpestes auropunctatus*	non-native	rare
BIRDS			
Common myna	*Acridotheres tristis*	non-native	common
Zebra dove	*Geopelia striata*	non-native	common
House sparrow	*Passer domesticus*	non-native	common
Chestnut mannikin	*Lonchura mallaca*	non-native	common
Nutmeg mannikin	*Lonchura punctulata*	non-native	common
House finch	*Carpodacus mexicanus*	non-native	uncommon
Spotted dove	*Streptopelia chinensis*	non-native	uncommon
Gray francolin	*Francolinus pondicerianus*	non-native	uncommon
Black francolin	*Francolinus francolinus*	non-native	uncommon
Cattle egret	*Bubulcus ibis*	non-native	rare
Northern cardinal	*Cardinalis cardinalis*	non-native	rare

Literature Cited

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Armstrong, R. W. (ed.) 1983. Atlas of Hawaii. (2nd. ed.) University of Hawaii Press.

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U.S. Fish and Wildlife Service. 2000. Endangered and threatened wildlife and plants: determination of endangered status for Blackburn's sphinx moth from Hawaii. Federal Register 65(21): 4770-4779.

Wagner, W. L., D.R. Herbst, and S. H. Sohmer. 1999. Manual of the Flowering Plants of Hawai'i. Univ. of Hawai'I Press and Bishop Museum Press. Honolulu.

APPENDIX D-1.

Comment Letter from U.S. Fish and Wildlife Service, Dated June 6, 2011

WK —

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122, Box 50088
Honolulu, Hawaii 96850

RECEIVED
JUN 08 2011
HAWAII DIVISION

In Reply Refer To:
2011-TA-0296

JUN 0 6 2011

Mr. Wayne Kaneshiro
Safety Transportation Engineer
Federal Highway Administration
300 Ala Moana Boulevard
Room 3-306, Box 50206
Honolulu, Hawaii 96850

Subject: Technical Assistance for Phase 1 of the Kahalui Access Road, Maui

Dear Mr. Kaneshiro:

We received your letter on May 6, 2011, seeking our concurrence that the proposed Phase 1 of the Kahalui Access Road Realignment Project, is not likely to adversely affect federally-listed species. We coordinated on this project in March and April of 2008 and at that time we stated the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) and Hawaiian petrel (*Pterodroma phaeopygia sandwichensis*), and the threatened Newell's shearwater (*Puffinus auricularis newelli*) occur in the vicinity of the proposed project.

We are unable to concur with your "not likely to adversely affect" determination at this time. Based on new information in our files, the endangered Blackburn's sphinx moth (*Manduca blackburni*) is known to occur in the vicinity of the project. Blackburn's sphinx moth larvae feed upon non-native tree tobacco (*Nicotiana glauca*) and other non-native host plants including *Nicotiana tabacum* (commercial tobacco), *Solanum melongena* (eggplant), *Lycopersicon esculentum* (tomato), and possibly *Datura stramonium* (Jimson weed). The full range of the taxa that Blackburn's sphinx moth larvae may feed on is not known. We note that in your most recent letter you included a Flora and Faunal Survey and Assessment for the proposed project conducted by Robert W. Hobdy in 2008. Because many of the plant species Blackburn's sphinx moth larvae may feed on are ruderal, especially tree tobacco, and after three years may now be present on the site, we recommend you have a qualified biologist re-survey the project area for the presence of host plants, particularly tree tobacco. If larval host plants are not found, or if plants Blackburn's sphinx moth larvae may feed on can be avoided (no soil disturbance, no parked cars, staging areas, or work activities within 10 feet of the plants), then no additional surveys are necessary and we would be able to concur with your "not likely to adversely affect" determination. If plants Blackburn's sphinx moth larvae may feed on will be impacted or removed to complete the project, then we recommend a biologist document general plant density, proximity of plants to the work areas, average height of the plants and survey for any sign of feeding damage on the leaves or Blackburn's sphinx moth larvae eggs or larvae. Photo documentation would also be helpful. Ideally this survey would be completed after a sustained rainy period (usually in the winter with enough rain to allow for rejuvenation of the plants after the drier summer months). If the presence of Blackburn's sphinx moth larvae is confirmed, please contact our office for additional assistance.

If you have any questions regarding this letter, please contact Dr. Jeff Zimpfer, Fish and Wildlife Biologist, Consultation and Habitat Conservation Planning Program (phone: 808-792-9431; email: jeff_zimpfer@fws.gov).

Sincerely,

f. Loyal Mehrhoff
Field Supervisor

APPENDIX D-2.

Botanical Re-Survey of Project Area for Blackburn's Sphinx Moth and their Host Plants

KAHULUI AIRPORT ACCESS ROAD – PHASE 1 PROJECT

BOTANICAL RE-SURVEY OF PROJECT AREA

FOR BLACKBURN'S SPHINX MOTH

AND THEIR HOST PLANTS

by:
Robert W. Hobdy
Environmental Consultant
Koakomo, Maui June 2011

for: Fukunaga & Associates, Inc.

INTRODUCTION

The Kahului Airport Access Road – Phase 1 Project is part of a larger plan that will provide an improved access route from the Dairy Road / Kuihelani Highway to Kahului Airport. Phase 1 will develop the section of this route between Pu'unene Avenue Intersection and Hana Highway. This botanical re-survey of the project area, following up on a flora and fauna survey conducted in May 2009, will focus on determining whether any potential host plants of the endangered Blackburn Sphinx moth are present, to satisfy concerns raised by the U.S. Fish and Wildlife Service regarding this possibility.

SITE DESCRIPTION

This approximately 0.8 mile long by 160 foot wide corridor is about 15.5 acres in size (TMKs (2) 3-8-06:075 and (2) 3-8-080:999). The entire route lies on gently sloping land at elevations between 20 feet and 35 feet above sea level. The area is an open grassland with a few widely scattered shrubs.

BACKGROUND

The Blackburn's sphinx moth is federally listed as an endangered species which, along with its associated host plant species, is mandated certain protections under the Endangered Species Act. The caterpillars of these moths feed exclusively on certain species of the Nightshade Family (*Solanaceae*). They ingest the toxins in these plants which they use as a deterrent to predators. The May, 2008 survey recorded a total of 48 plant species within the project area, 4 of which were in the Nightshade Family. Two of these, the tomato plant (*Solanum lycopersicum*) and possibly also the jimsonweed (*Datura stramonium*) are potentially host plants for Blackburn's sphinx moths. The well documented, primary, non-native host plant for Blackburn's sphinx moths, which is the tree tobacco plant (*Nicotiana glauca*), was not found in the project area during the 2008 survey. The 2008 survey found no Blackburn's sphinx moths on the few marginal host plants that were found, and as a result a determination of no significant negative impact was made.

On June 6, 2011 the U.S. Fish and Wildlife service sent a response indicating non-concurrence with the "not likely to adversely affect" determination and requested a re-survey of the area to determine if there were any changes in the presence of Blackburn's sphinx moths and their host plants since the 2008 survey. This re-survey addresses those concerns.

RESULTS

The Kahului Airport Access Road – Phase 1 project area was re-surveyed on June 25, 2011, for Blackburn's sphinx moth host plants in the Nightshade Family. The entire 15.5 acre corridor was covered on foot. The results of the survey were as follows:

- No tree tobacco plants were found within the project area, and none were even visible on adjacent lands as far as the eye could see.

- One large cherry tomato plant was found growing on a steep bank on a developed, adjacent property to the southeast of the project area. This plant was examined and no Blackburn's sphinx moths, their eggs or larvae were detected.

- One dead jimson weed plant was seen on the same adjacent property near the tomato plant. This plant, which was growing alongside a hibiscus hedge, appeared to have been killed by herbicide and could not be adequately assessed.

- Several apple-of-Peru (*Nicandra physalodes*) plant were scattered around the project area. These plants, which have no known connection with Blackburn's sphinx moths, were dry and had gone to seed, and no sign of former feeding activity could be observed.

CONCLUSIONS

The results of the re-survey revealed three species of plants in the Nightshade Family, but, no tree tobacco plants on or near the project area were found. No signs of Blackburn's sphinx moths, their eggs or their larvae were found on the few marginal Nightshade Family plants observed. These findings corroborate the conclusions reached in the 2008 study which were and remain that this project will not have any significant negative impacts on the endangered Blackburn's sphinx moth populations in central Maui.

APPENDIX D-3.

Response Letter from U.S. Fish and Wildlife Service, Dated August 19, 2011

HAWAII DIVISION

AUG 24 2011

RECEIVED

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122, Box 50088
Honolulu, Hawaii 96850

In Reply Refer To:
2011-I-0433

AUG 19 2011

Mr. Wayne Kaneshiro
Federal Highway Administration
300 Ala Moana Boulevard, Room 3-306
Box 50206
Honolulu, Hawaii 96850

Subject: Informal Consultation for the Proposed Kahului Airport Access Road Project, Maui

Dear Mr. Kaneshiro:

The U.S. Fish and Wildlife Service received your letter on July 25, 2011, requesting our concurrence with your determination that the construction of the Kahului Airport Access Road in Kahului, Maui, will not adversely affect the endangered Hawaiian petrel (*Pterodroma sandwichensis*), the threatened Newell's shearwater (*Puffinus auricularis newelli*) (collectively known as seabirds), the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), and the endangered Blackburn's sphinx moth (*Manduca balckburni*).

The findings and recommendations in this consultation are based on: (1) your letter dated July 25, 2011; (2) your May 5, 2011, letter requesting informal consultation on the proposed project; and (3) your phone conversation with Patrice Ashfield, Consultation and Habitat Conservation Planning Program Leader, on August 19, 2010; and (4) other information available to us. A complete administrative record is on file in our office. This response is in accordance with section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*).

Project Description

The Federal Highway Administration proposes to develop the Kahului Airport Access Road to improve access to the Kahului Airport. The roadway will be aligned east of Dairy Road in Kahului and will span from the Puunene Avenue-Kuihelani Highway intersection to the Hana Highway. The Kahului Airport Access Road will serve as the primary access to Hana Highway from Kuihelani Highway upon project completion. The access road will be approximately 0.8 mile long within a 160-foot corridor. The area is currently open grassland with a few shrubs, and was in sugar cane production for over 100 years. Surrounding lands are primarily in commercial development.

Conservation Measures
The following measures identified in your letter and phone conversation will be implemented at the project site to avoid and minimize project effects to listed seabirds. These conservation measures are considered part of the project description. Any changes to, modifications of, or failure to implement these conservation measures may result in the need to reinitiate this consultation.

1. All roadway lighting on the access road will be down-shielded.
2. No night-time construction work.

Newell's shearwater and Hawaiian petrel
Seabirds may traverse the project area at night during the breeding season and outdoor lighting at this project site could result in seabird disorientation, fallout, and injury or mortality. Young birds (fledglings) traversing the project area between September 15 and December 15, in their first flight from their mountain nests to the sea, are particularly vulnerable. However, due to the aforementioned conservation measures to reduce seabird attraction to the project site and because seabird fallout has not been documented in the action area (incidences of fallout occur primarily on the southern portion of the island), we concur with your determination the proposed project may affect, but is not likely to adversely affect listed seabirds.

Hawaiian hoary bat
Hawaiian hoary bats have been detected near the proposed project site. The proposed project site consists of former sugarcane fields now converted to open grassland with scattered shrubs. There is no suitable habitat for roosting Hawaiian hoary bats at the proposed project site. Therefore we concur that the proposed project may affect, but is not likely to adversely affect, the Hawaiian hoary bat.

Blackburn's sphinx moth
Blackburn's sphinx moths have been detected near the proposed project site. Surveys for Blackburn's sphinx moths were conducted at the site in 2008 and 2011. Three potential host plants were detected at the site but no Blackburn's sphinx moths, eggs, or larvae were detected. Therefore we concur that the proposed project may affect, but is not likely to adversely affect, the Blackburn's sphinx moth.

Thank you for your efforts to conserve endangered species. If you have any questions or concerns regarding this consultation, please contact Rachel Rounds, Fish and Wildlife Biologist, (phone: 808-792-9400, email: rachel_rounds@fws.gov).

Sincerely,

Patrice Ashfield

for Loyal Mehrhoff
Field Supervisor

APPENDIX E.

Noise Assessment for Kahului Airport Road Phase I

Noise Assessment For:

KAHULUI AIRPORT ACCESS ROAD PHASE 1

KAHULUI, MAUI, HAWAII

Prepared For:

EKNA SERVICES, INC.

615 Piikoi Street, Suite 300
Honolulu, HI 96814-3139

Submitted By:

MESTRE GREVE ASSOCIATES

DIVISION OF LANDRUM AND BROWN

Vince Mestre P.E.
Matthew B. Jones P.E.
27812 El Lazo Road
Laguna Niguel, CA 92677
Phone: 949-349-0671

November 4, 2011 (Revised January 26, 2012)

MGA Report #525001N03

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1.0 Introduction

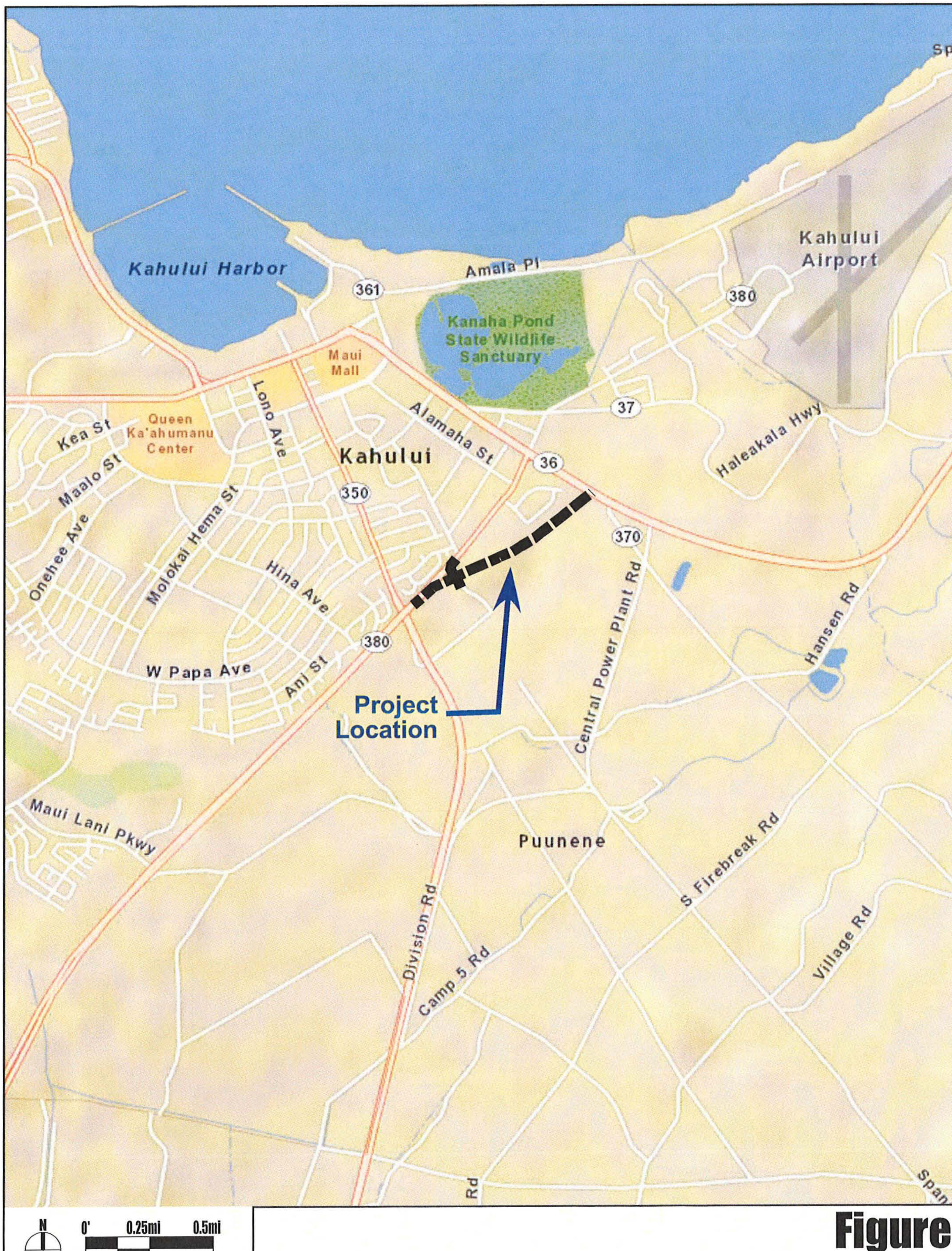
The purpose of this report is to evaluate noise impacts and abatement for the Kahului Airport Access Road Phase 1 project per Federal Highway Administration (FHWA) and Hawaii Department of Transportation (HDOT) standards. FHWA requirements for highway noise abatement are defined in Title 23, Part 772 of the Code of Federal Regulations (23 CFR 772) "Procedures for Abatement of Highway Traffic Noise." According to 23 CFR 772.3, all highway projects that are developed in conformance with this regulation are deemed to be in conformance with Federal Highway Administration (FHWA) noise standards. HDOT's noise policy is presented in "Highway Noise Policy and Abatement Guidelines" (April 2011 with corrections issued November 2011). The HDOT policy adopts the FHWA standards and defines parameters in determining impacts and abatement that are not defined by FHWA.

A description of the proposed project is presented in the next section. Section 2.0 presents background information on sound and traffic noise. Section 3.0 presents a detailed description of the FHWA and HDOT noise criteria that are applicable to the project. Section 4.0 provides detailed descriptions of the methodologies and procedures used in the preparation of this report. Existing measured and modeled noise levels in the project area are presented in Section 5.0. This includes a discussion of measured noise levels, modeled noise levels and a comparison of modeled noise levels to measured noise levels. Section 6.0 presents projected future noise levels with the project. Future noise levels, along with the projected increases over existing conditions are compared to state and federal criteria to determine which receptors are projected to be impacted by the proposed project in Section 6.1. Noise abatement is required to be considered for all impacted receptors. The results of this analysis are presented in Section 6.2. Section 7.0 discusses potential impacts from construction noise.

1.1 Project Description

The Kahului Airport Access Road project proposes a new access road to the Kahului Airport replacing the service currently provided by portions of Dairy Road and Keolani Place. Phase 1 of the project includes the realignment of a portion of Dairy Road, a new four-lane highway between Puunene Avenue and Hana Highway as well as intersection improvements at the Hana Highway junction. Figure 1 presents a vicinity map showing the location of the project. Figure 2 presents an aerial photograph of the project area with the project extents indicated along with areas with noise sensitive receptors per FHWA and HDOT criteria.

Figure 2 shows that there are five noise sensitive receptor areas. There are residences along the northwest side of Dairy Road between Puunene Avenue and Hukilike Street (Receptor Area 1). On the southeast side of Dairy Road just south of Puunene Avenue there is a church with a preschool (Receptor Area 2). An auto/motorcycle dealership with an outdoor sales area (Receptor Area 3) and a fire station (Receptor Area 4) are located southeast of Dairy Road near the intersection with Hukilike Street. There is an outdoor retail sales area (garden center) (Receptor Area 5) located just northwest of the proposed project approximately 1,200 feet southeast of Hana Highway which is considered a noise sensitive use. These receptor areas are discussed in detail in Section 5.1.



Mestre Greve Associates

Figure 1
Vicinity Map

Exhibit 2
Project Extents and Sensitive Receptor Areas

Mestre Greve Associates

All other land uses in the project vicinity are not considered noise sensitive per FHWA and HDOT criteria. Much of the area along the south side of the project southwest of Hana Highway is agricultural. The use on the north side of the project just southwest of Hana Highway is an industrial park with no outdoor areas of frequent human use. There is a retail shopping center on the north side of the highway southwest of the industrial area. The only area of outdoor frequent human use is the outdoor retail sales area noted on Figure 2. Note that parking lots are not considered noise sensitive areas because persons would not be expected to linger for considerable amounts of time in parking lots. There are two large retail establishments located south of the project on either side of Pakaula Street. Neither of these establishments have outdoor areas of frequent human use that could be impacted by the project.

2.0 Fundamentals of Traffic Noise

The following provides a brief discussion of fundamental traffic noise concepts.

2.1 Sound, Noise, And Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (for example, air) to a hearing organ, such as a human ear. Noise is defined as unwanted sound, which may be subjectively described as loud, unexpected, or annoying sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determine the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

2.2 Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz). (For example, a frequency of 250 cycles per second is referred to as 250 Hz.) High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

2.3 Sound Pressure Levels And Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascal (μPa). One μPa is approximately one hundred billionth (0.00000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 μPa. Because of this huge range of values, sound is rarely expressed in terms of μPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of decibels (dB). The threshold of hearing for a person of normal hearing is about 0 dB, which corresponds to 20 μPa.

2.4 Addition Of Decibels

Because decibels are logarithmic units, SPL cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3 dB increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions. For example, if one automobile produces an SPL of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB—rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level that is approximately 5 dB louder than one source.

2.5 A-Weighted Decibels

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000 to 8,000 Hz and perceive sounds within that range better than sounds of the same amplitude in higher or lower frequencies. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an "A-weighted" sound level (expressed in units of dBA) can be computed based on this information.

The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Other weighting networks have been devised to address high noise levels or other special problems (for example, B-, C-, and D-scales), but these scales are not used in conjunction with highway-traffic noise. Noise levels for traffic noise reports are typically reported in terms of A-weighted decibels or dBA. Figure 3 describes typical A-weighted noise levels for various noise sources.

2.6 Human Response To Changes In Noise Levels

As discussed above, doubling sound energy results in a 3 dB increase in sound. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different from what is measured.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1 dB changes in sound levels, when exposed to steady, single-frequency ("pure-tone") signals in the midfrequency (1,000 Hz to 8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dB are generally not perceptible. However, it is widely accepted that people are able to begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5 dB increase is generally perceived as a distinctly noticeable increase, and a 10 dB increase is generally perceived as a doubling of loudness. Therefore, a doubling of sound energy (for example, doubling the volume of traffic on a highway) that would result in a 3 dB increase in sound would generally be perceived as barely detectable.

SOUND LEVELS AND LOUDNESS OF ILLUSTRATIVE NOISES IN INDOOR AND OUTDOOR ENVIRONMENTS

Numbers in Parentheses are the A-Scale Weighted Sound Levels for that Noise Event

dB(A)	OVER-ALL LEVEL Sound Pressure Level Reference: 0.0002 Microbars	COMMUNITY (Outdoor)	HOME OR INDUSTRY	LOUDNESS Human Judgement of Different Sound Levels
130		Military Jet Aircraft Take-Off With After-Burner From Aircraft Carrier @ 50 Ft. (130)	Oxygen Torch (121)	120 dB(A) 32 Times as Loud
120 110	UNCOMFORTABLY LOUD	Concord Takeoff (113)*	Riveting Machine (110) Rock-N-Roll Band (108-114)	110 dB(A) 16 Times as Loud
100		Boeing 747-200 Takeoff (101)*		100 dB(A) 8 Times as Loud
90	VERY LOUD	Power Mower (96) DC-10-30 Takeoff (96)* Motorcycle @25 Ft. (90)	Newspaper Press (97)	90 dB(A) 4 Times as Loud
80		Car Wash @ 20 Ft. (89) Boeing 727 w/ Hushkit Takeoff (96)* Diesel Truck, 40 MPH @ 50 Ft. (84) Diesel Train, 45 MPH @ 100 Ft. (83)	Food Blender (88) Milling Machine (85) Garbage Disposal (80)	80 dB(A) 2 Times as Loud
70	MODERATELY LOUD	High Urban Ambient Sound (80) Passenger Car, 65 MPH @ 25 Ft. (77) Freeway @ 50 Ft. From Pavement Edge, 10:00 AM (76 +or- 6) Boeing 757 Takeoff (76)*	Living Room Music (76) TV-Audio, Vacuum Cleaner	70 dB(A)
60		Propeller Airplane Takeoff (67)* Air Conditioning Unit @ 100 Ft. (60)	Cash Register @ 10 Ft. (65-70) Electric Typewriter @ 10 Ft. (64) Dishwasher (Rinse) @ 10 Ft. (60) Conversation (60)	60 dB(A) 1/2 as Loud
50	QUIET	Large Transformers @ 100 Ft. (50)		50 dB(A) 1/4 as Loud
40		Bird Calls (44) Lower Limit Urban Ambient Sound (40)		40 dB(A) 1/8 as Loud
20	JUST AUDIBLE	(dB[A] Scale Interrupted) Desert at Night		
10	THRESHOLD OF HEARING			

*Aircraft takeoff noise measured 6,500 meters from beginning of takeoff roll

SOURCE: Leo L. Beranek "Noise And Vibration Control," 1971
*Aircraft Levels From FAA Advisory Circular AC-36-3G

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FIGURE 3
TYPICAL A-WEIGHTED NOISE LEVELS

2.7 Noise Descriptors

Noise in our daily environment fluctuates over time. Some fluctuations are minor, but some are substantial. Some noise levels occur in regular patterns, but others are random. Some noise levels fluctuate rapidly, but others fluctuate slowly. Some noise levels vary widely, but others are relatively constant. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors most commonly used in traffic noise analysis.

- Equivalent Sound Level (Leq): Leq represents an average of the sound energy occurring over a specified period. In effect, Leq is the steady-state sound level containing the same acoustical energy as the time-varying sound that actually occurs during the same period. The 1-hour A-weighted equivalent sound level (Leq[h]) is the energy average of A-weighted sound levels occurring during a 1-hour period, and is the basis for noise abatement criteria (NAC) used by Caltrans and FHWA.

- Percentile-Exceeded Sound Level (Lxx): Lxx represents the sound level exceeded for a given percentage of a specified period (for example, L10 is the sound level exceeded 10 percent of the time, and L90 is the sound level exceeded 90 percent of the time).

- Maximum Sound Level (Lmax): Lmax is the highest instantaneous sound level measured during a specified period.

- Day-Night Level (Ldn): Ldn is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10 dB penalty applied to A-weighted sound levels occurring during nighttime hours between 10 p.m. and 7 a.m.

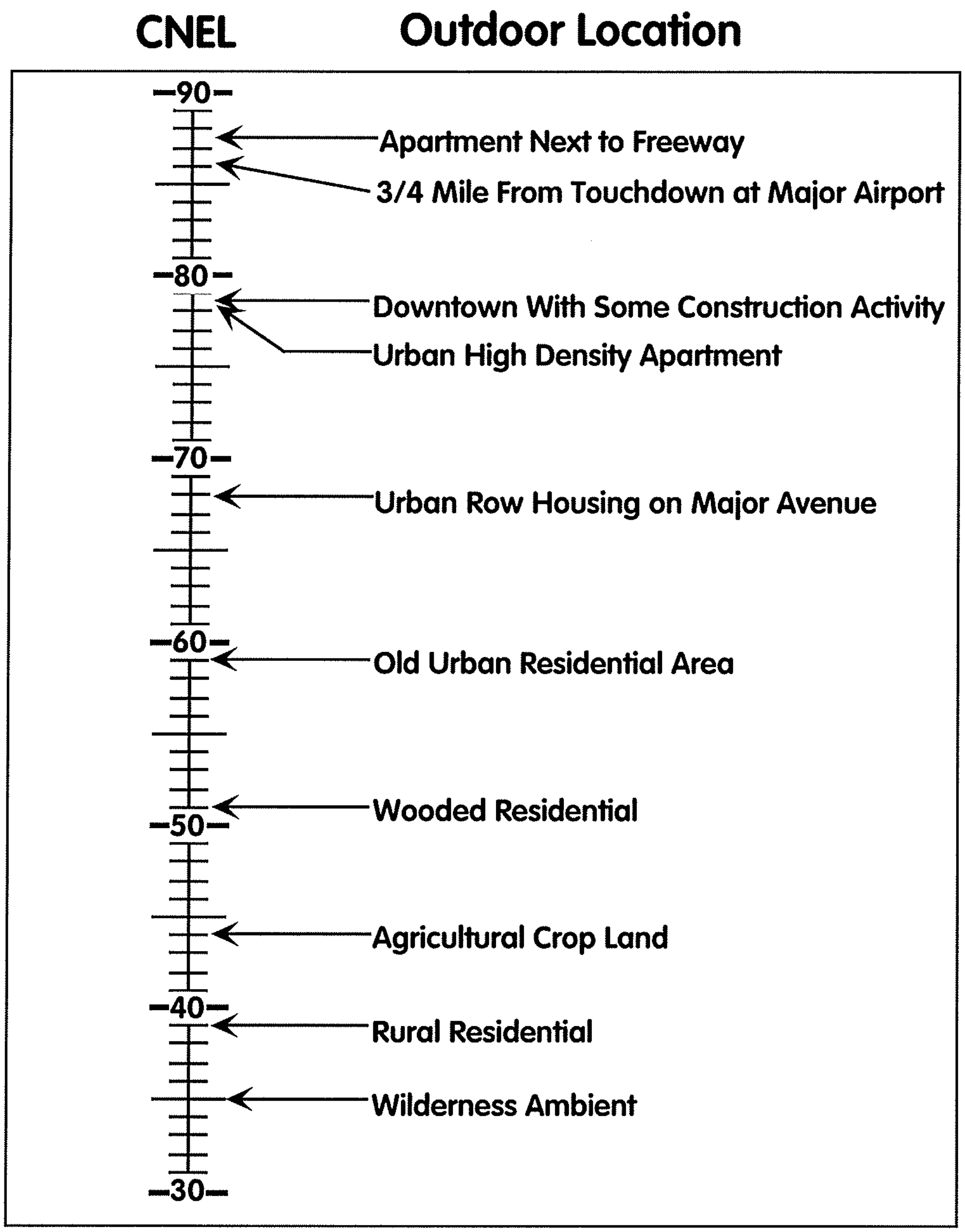
- Community Noise Equivalent Level (CNEL): Similar to Ldn, CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10 dB penalty applied to A-weighted sound levels occurring during the nighttime hours between 10 p.m. and 7 a.m., and a 5 dB penalty applied to the A-weighted sound levels occurring during evening hours between 7 p.m. and 10 p.m. Typical noise levels in terms of the CNEL scale for different types of communities are presented in Figure 4.

2.8 Sound Propagation

When sound propagates over a distance, it changes in level and frequency content. The manner in which noise reduces with distance depends on the following factors.

2.8.1 Geometric Spreading

Sound from a localized source (that is, a point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and, hence, can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source.



Source: U.S. Environmental Protection Agency, "Impact Characterization of Noise Including Implications of Identifying and Achieving Levels of Cumulative Noise Exposure," EPA Report NTID 73.4, 1973.

Figure 4
Typical Outdoor Noise Levels

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2.8.2 Ground Absorption

The propagation path of noise from a highway to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective-wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 feet. (More detailed calculations can reasonably predict ground absorption effects at distances greater than 200 feet.) For acoustically hard sites (that is, sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (that is, sites with an absorptive ground surface between the source and the receiver, such as soft dirt, grass, or scattered bushes and trees), an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance.

2.8.3 Atmospheric Effects

Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (for example, more than 500 feet) from the highway due to atmospheric temperature inversion (that is, increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects.

2.8.4 Shielding By Natural Or Human-Made Features

A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (for example, hills and dense woods) and human-made features (for example, buildings and walls) can substantially reduce noise levels. Walls are often constructed between a source and a receiver specifically to reduce noise. A barrier that breaks the line of sight between a source and a receiver will typically result in at least 5 dB of noise reduction. Taller barriers provide increased noise reduction. Vegetation between the highway and receiver is rarely effective in reducing noise because it does not create a solid barrier.

3.0 Noise Criteria

3.1 Federal Regulations (FHWA Highway Noise Abatement Criteria, 23 CFR 772)

Procedures are provided in 23 CFR 772 for preparing operational and construction noise studies and evaluating noise abatement considered for federal and federal-aid highway projects. Under 23 CFR 772.7, projects are categorized as Type I or Type II projects. FHWA defines a Type I project as a proposed federal or federal-aid highway project for the construction of a highway on a new location, or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes. A Type II project is a noise barrier retrofit project that involves no changes to highway capacity or alignment.

Type I projects include those that create a completely new noise source, as well as those that increase the volume or speed of traffic or move the traffic closer to a receiver. Type I projects include the addition of an interchange, ramp, auxiliary lane, or truck-climbing lane to an existing highway, or the widening of an existing ramp by a full lane width for its entire length. Projects unrelated to increased noise levels, such as striping, lighting, signing, and landscaping projects, are not considered Type I projects. The Kahului Airport Access Road is a Type I project.

Under 23 CFR 772.11, noise abatement must be considered for Type I projects if the project is predicted to result in a traffic noise impact. In such cases, 23 CFR 772 requires that the project sponsor "consider" noise abatement before adoption of the final NEPA document. This process involves identification of noise abatement measures that are reasonable, feasible, and likely to be incorporated into the project, and of noise impacts for which no apparent solution is available.

Traffic noise impacts, as defined in 23 CFR 772.5, occur when the predicted noise level in the design year approaches or exceeds the NAC specified in 23 CFR 772, or a predicted noise level substantially exceeds the existing noise level (a "substantial" noise increase). The terms "substantial increase" or "approach" are not specifically defined in 23 CFR 772, but left to each state to define. These criteria are State of Hawaii, Department of Transportation, Highway Department's "Highway Noise Policy and Abatement Guidelines", described in Section 3.2.1.

Table 1 summarizes NAC corresponding to various land use activity categories. Activity categories and related traffic noise impacts are determined based on the actual land use in a given area.

Table 1
FHWA/HDOT Noise Abatement Criteria (NAC)

Activity Category	NAC	Description of Activities
A	57 dBA Leq(h) Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose
B	67 dBA Leq(h) Exterior	Picnic Areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals
C	72 dBA Leq(h) Exterior	Developed lands, properties, or activities not included in Categories A or B above
D	--	Undeveloped lands
E	52 dBA Leq(h) Interior	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums

In identifying noise impacts, primary consideration is given to exterior areas of frequent human use. In situations where there are no exterior activities, or where the exterior activities are far from the roadway or physically shielded in a manner that prevents an impact on exterior activities, the interior criterion (Activity Category E) is used as the basis for determining a noise impact.

3.2 State Regulations And Policies

As discussed above, 23 CFR 772 leaves several noise abatement policies up to each state to define. The State of Hawaii's Highway Noise Policy and Abatement Guidelines defines these policies is summarized in Section 3.2.1. Noise generated by construction activities will be required to comply with the State's Noise Ordinance, which is summarized in Section 3.2.2.

3.2.1 Highway Noise Policy and Abatement Guidelines

The Hawaii DOT's "Highway Noise Policy and Abatement Guidelines" (April, 2011) specifies the policies, procedures, and practices to be used by agencies that sponsor new construction or reconstruction of federal or federal-aid highway projects. The NAC specified in the Policy are the same as those specified in 23 CFR 772 presented in Table 1 above. The Policy defines a noise increase as substantial when the predicted noise levels with project implementation exceed existing noise levels by 15 dBA. The Policy also states that a sound level is considered to approach a NAC level when the sound level is within 1 dB of the NAC identified in 23 CFR 772 (for example, 66 dBA is considered to approach the NAC of 67 dBA, but 65 dBA is not).

The state policy also defines which areas should be analyzed for potential noise impacts (i.e.; analysis location) and limits them to developed lands and undeveloped lands where development is planned, designed, and programmed. Future development is considered to be planned, designed and programmed if a noise sensitive land use has received a building permit from the local agency with jurisdiction at the time the analysis is prepared. The impact analysis to be performed at the edge of the right of way (ROW) or at a location deemed to have frequent human use of the noise sensitive use.

When traffic noise impacts are identified, noise abatement must be considered. The state policy requires that the noise abatement be reasonable and feasible to be implemented. Feasibility deals primarily with engineering considerations. The state policy defines two criteria for assessment of feasibility:

1) The abatement must achieve at least 5 dB of highway traffic noise reduction for two thirds of impacted receptors along the project.
2) Determination that it is possible to design and construct the barrier after considering issues relating to safety, barrier height, topography, drainage, utilities, and maintenance, maintenance access to adjacent properties and access to adjacent properties.

A barrier is considered feasible if it satisfies both of these criteria.

Reasonableness is a more subjective criterion than feasibility and asks whether a barrier should be implemented based on common sense and good judgment. The state policy defines three factors that must be considered when judging the feasibility and reasonableness of noise abatement:

1) <u>Consideration of the Viewpoints of the Property Owners and Residents:</u> A noise abatement measure shall be considered reasonable only if at least two thirds of the land owners of impacted receptor units approve of the measure.
2) <u>Cost Effectiveness of the Highway Traffic Noise Abatement Measures</u>: Abatement costing $60,000 or less per benefitted residence is deemed to be reasonable for cost. A residence is benefitted if it receives a noise reduction of no less than 5 dB. For non-residential land uses, HDOT policy is to determine the number of equivalent residential lots that are impacted. This is done by calculating the area on the property that is impacted by traffic noise (i.e. with noise levels approaching or exceeding the NAC) and dividing this by the typical residential lot size of 4,200 square feet for an urban project or 9,200 square feet for a rural project.
3) <u>Noise Reduction Design Goals for Highway Traffic Noise Abatement Measures</u>: A noise abatement measure shall be considered reasonable if it achieves at least 7 dB of highway traffic noise reduction is achieved for 75% of front row receptors along the project.

All three of the factors listed above must collectively be achieved in order for a noise abatement measure to be deemed reasonable.

3.2.2 State Noise Ordinance

Title 11, Chapter 46 of the State of Hawaii Administrative Rules "Community Noise Control" presents the State's Noise Ordinance. The Noise Ordinance provides maximum permissible sound levels and provides for the prevention, control, and abatement of noise pollution from excessive noise sources including, stationary noise sources, and equipment related to agricultural, construction, and industrial activities. The provisions of the Noise Ordinance are relevant to the construction of the proposed project. The State's Noise Ordinance does not apply to vehicles on public roadways.

Section 11-46-4 establishes maximum permissible sound levels applicable to stationary noise sources, and equipment related to agricultural, construction and industrial activities for three zoning districts defined in Section 11-46-3. These standards are summarized in Table 2. Section 11-46-4(c) states that noise levels shall not exceed the permissible sound levels for more than ten per cent of the time within any twenty minute period unless a permit is granted. This equates to the L10 percentile level. Section 11-46-4(e) states that for impulsive noise the maximum permissible sound level shall be 10 dB above the L10 limit.

Table 2
State of Hawaii Maximum Permissible Sound Levels

		Maximum Permissible Sound Level (dBA)			
		Daytime (7:00 a.m. to 10:00 p.m.)		Nighttime (10:00 p.m. to 7:00 a.m.)	
Zoning District	Description of Included Zones	L10[1]	Lmax[2]	L10[1]	Lmax[2]
Class A	Residential, Conservation, Preservation, Public Space, Open Space or Similar	55	65	45	55
Class B	Multi-Family Residential, Apartments, Business, Commercial, Hotel, Resort, or Similar	60	70	50	60
Class C	Agriculture. Country, Industrial, or Similar	70	80	70	80

1. Based on a 20-minute measurement.
2. Applicable to impulsive noise

Section 11-46-5 of the Ordinance exempts most emergency operations, backup alarm devices on any vehicle required by state or federal regulations, or school activities between the hours of 7:00 a.m. and 10:00 p.m. from the limits presented in Table 2.

Section 11-46-6 of the Ordinance requires that any vehicle or construction equipment with a motor or exhaust system, or both, be operated with a muffler. Additionally, vehicles, construction equipment, tools or devices with an altered, modified, or repaired motor or exhaust system cannot be operated unless it can be shown that the altered, modified, or repaired component is at least as effective in reducing noise as the original equipment.

Section 11-46-7 of the Ordinance describes the requirements and process for receiving permits to be allowed to operate equipment that emits or may emit noise levels in excess of those presented in 11-46-4. The factors to be considered in issuing the permit include:

- Best available noise control technology utilized.
- The noise generating activity is in the public interest.
- The noise generating activity is temporary and cannot be delayed, postponed, or rescheduled to a permitted time.

- Nighttime noise generating activity possible impacts
- Notification plan for people in the area surrounding proposed nighttime activities.

Section 11-46-7(j) of the Ordinance requires that permits for construction activities not allow construction activities that could exceed the limits presented in Table 2 before 7:00 a.m. or after 6:00 p.m. Monday through Friday or before 9:00 a.m. or after 6:00 p.m. on Saturday or at any time on Sunday or holidays.

If an activity exceeds the limits in Table 2 and is does not conform to the requirements for obtaining a Permit, a Variance can be issued as described in Section 11-46-8. This would be required for any construction activities occurring outside of the hours presented in Section 11-46-7(j) of the Ordinance.

4.0 Study Methods and Procedures

4.1 Methods For Identifying Land Uses And Selecting Noise Measurement And Modeling Receiver Locations

A review of current aerial photography with the project geometry overlaid was been performed, along with a field investigation to identify land uses that could be subject to traffic noise impacts from the proposed project. Land uses in the project area were categorized by land use type, activity category as defined in Table 1, and the extent of frequent human use. Noise abatement is only considered for areas of frequent human use that would benefit from a lowered noise level. Although all developed land uses are evaluated in this analysis, the focus is on locations of frequent human use that would benefit from a lowered noise level. Accordingly, this impact analysis focuses on locations with defined outdoor activity areas, such as residential backyards and common use areas at multi-family residences. The existing land uses that are potentially impacted by the project are discussed in Section 5.1.

Noise measurement locations were selected to represent each of the sensitive receptor areas potentially impacted by the project along. The noise measurement sites along existing roadways were selected to best represent areas of similar acoustical properties. The noise measurement sites away from existing roads were selected to represent the typical ambient noise level for each residential area to assess potential impacts due to a substantial noise increase. Specific measurement sites are presented in Section 5.1.

4.2 Field Measurement Procedures

A field noise study was conducted in accordance with the guidelines presented in the FHWA's "Measurement of Highway Related Noise." Short-term noise measurements were made along existing roadways to calibrate the traffic noise model. Long-term measurements were made to determine how traffic noise levels varied throughout the day and to calibrate the noise model. Additional, short-term noise measurements were made in areas away from existing roadways to determine the existing ambient noise levels in these areas. The following is a summary of the procedures used to collect short-term and long-term measurements.

4.2.1 Short-Term Measurements

Short-term noise measurements were taken for 15 minutes at representative receptor locations of the potentially impacted uses. The sound level meter was set to record the average (Leq), maximum (Lmax), and minimum (Lmin) noise level for every 1-second period during the measurements. Field staff attended the monitor, noting sources and the times of considerable non-traffic noise events. Strip charts of the noise measurements were reviewed with the field notes, and non-traffic noise events were removed from the final noise tabulations.

The measurements were performed using Brüel and Kjær 2236 and 2238 sound level meters that were calibrated before and after each measurement using a Brüel and Kjær 4231 Acoustic Calibrator. Serial numbers for the specific meters and calibrator used for this study are presented in the Appendix. This equipment is checked annually and certified with sources traceable to the National Institute of Standards and Technology (NIST). The sound level meters were set to use an A-weighted, slow detector response. Noise measurements were not performed during rain, snow, wet pavement conditions, or when wind speeds exceeded 11 miles per hour (mph). The sound level meter microphones were placed at a height of 5 feet above the ground and at least 10 feet from any wall or building to prevent reflections or unrepresentative shielding of the traffic noise. Field notes were used along with aerial mapping to identify the specific location of the noise measurement sites.

Traffic volumes on Dairy Road and Pakaula Street during the measurements were counted from video recordings made concurrently with the short-term measurements. The vehicle types included automobiles, medium trucks (two axle with six wheels but not including dual pickup trucks) and heavy trucks (three or more axle vehicles). The posted speed limit on Dairy Road is 30 mph.

Two measurements were made at each short-term measurement site. The measurements performed along existing roadways were then evaluated to determine their consistency (the methodology is described in detail in Section N-3330 of Caltrans' Technical Noise Supplement). To be considered consistent Leq noise levels at a site to differ by less than 2 dB after extracting extraneous noise events and normalizing for differences in traffic volumes. The results of this analysis are presented in Section 5.2.1.

4.2.2 Long-Term Measurements

Long-term measurements were taken at a residence along Dairy Road to determine how traffic noise levels vary over the day. The long-term measurements were performed concurrently with the short-term measurements to allow estimation of the peak noise hour at those locations based on a comparison of the concurrently measured noise levels. The long-term measurements were performed using a Brüel and Kjær 2238 sound level meter that was calibrated before and after the measurement using a Brüel and Kjær 4231 Acoustic Calibrator. Serial numbers for the specific meters and calibrators used for this study are presented in the Appendix. This equipment is checked annually and certified with sources traceable to the National Institute of Standards and Technology (NIST). The sound level meter was set to use an A-weighted, slow detector response. The sound level meter was set to record the average (Leq), maximum (Lmax), and minimum (Lmin) noise level for every 1-second period during the measurements. The long-term measurement results are presented in Section 5.2.2.

4.3 Traffic Noise Level Prediction Methods

Traffic noise levels were predicted using the FHWA Traffic Noise Model Version 2.5 (TNM 2.5). TNM 2.5 is a computer model based on two FHWA reports: FHWA-PD-96-009 and

FHWA-PD-96-010 (FHWA, 1998a/1998b). Key inputs to the traffic noise model were the locations of roadways, shielding features (for example, topography and buildings), noise barriers, ground type, and receivers. Three-dimensional representations of these inputs were developed using CAD drawings, aerials, and topographic contours prepared for the project provided by Fukunaga and Associates, the civil engineer for the project. Computer files of these elements were added to an ArcGIS (Version 10) project, and points were overlaid to represent the model elements. Elevations were read off the CAD drawings for the project and topographic contours, and ArcGIS was used to determine the horizontal (x and y) coordinates. This information was then transferred to TNM to build the noise model. Modeling files are provided in an attached data CD. A description of the conditions included in each model is presented in the Appendix.

Traffic noise was evaluated for existing conditions and future conditions with the project. As discussed below, traffic volumes from the traffic study prepared for the project were utilized along with other sources to estimate traffic volumes under each of these scenarios.

4.3.1 Model Calibration

To validate the accuracy of the model, TNM was used to compare measured traffic noise levels to modeled noise levels at field measurement locations. Traffic volumes were counted during the short-term measurement periods and then normalized to 1-hour volumes. Noise levels were then modeled using FHWA's TNM 2.5. The existing roadway configurations and average traffic volumes during the consistent noise measurements at each site were entered in the model. The results of the modeling were compared to the average measured noise levels. Adjustments were made in the model to best match the measured noise levels while representing existing conditions on the ground and conditions shown in mapping for the project. The results of this analysis are presented in Section 5.3.

4.3.2 Existing Traffic Data

The traffic engineer for the project Mr. Julian Ng, PE, provided directional traffic counts from HDOT Highway Planning. Directional AM and PM Peak hour traffic volumes counts performed in September 2007 and/or May 2009 were provided for several road segments. Mr. Ng stated that traffic volumes in the area had been relatively consistent for the past several years and these volumes would be equivalent to existing, 2011 traffic volumes. Counts were provided for Kuihelani Highway, south of Puunene Avenue (2007 & 2009), Dairy Road north of Puunene (2009), Puunene Avenue north of Dairy Road (2009), and Puunene Avenue south of Dairy Road (2009). Where two years of data were provided, the average was used. PM Peak hour traffic volumes were greater than AM peak hour volumes. Therefore, PM peak hour traffic volumes were used for the modeling. The existing peak hour traffic volumes used for the modeling are presented in the Appendix.

At the time the noise measurement survey was performed a vehicle speed survey for traffic on Dairy Road was also performed. The speed of fifty randomly selected vehicles traveling in each direction over 20 minute periods were measured using a radar gun during the morning and evening commute hours (a total of 200 samples). Recorded speeds ranged from 20 mph to 54 mph with a median speed of 34 mph and an average speed of 35 mph. All traffic was modeled at 35 miles per hour for existing conditions.

Traffic counts provided by the traffic engineer indicated that the average percentage of medium and heavy trucks was 2% each. Peak hour truck percentages were the same or lower than this. To model worst-case conditions, traffic was assumed to consist of 2% medium trucks, and 2% heavy trucks.

4.3.3 Future Traffic Data

Future traffic volumes on the Airport Access Road, Dairy Road, and Pakaula Street were taken from the traffic study prepared by the project (Julian Ng, Incorporated, March 2011). The traffic study presented AM and PM peak hour turning movements for the buildout year, 2030, at two intersections; Airport Access Road at Dairy Rd./Pakaula St. and Airport Access Road at Hana Highway. The PM peak hour volumes were greater than the AM Peak hour volumes and the PM peak hour volumes were used for modeling.

Future traffic data was not available for Puunene Avenue or Kuihelani Highway. The future buildout, 2030, traffic volumes for these roadways were estimated using the existing traffic volumes and assuming a 0.5% per year growth rate from 2011 to 2030.

The future peak hour traffic volumes used for the modeling are presented in the Appendix. All traffic was modeled at 35 miles per hour for future conditions. The same truck percentages, 2% medium trucks, and 2% heavy trucks were assumed for future conditions.

5.0 Existing Noise Environment

5.1 Existing Land Uses

Figure 2 presents an aerial photograph of the project extents and notes the sensitive receptor areas potentially impacted by the proposed project. All other areas, not indicated as a receptor area in the figure are land uses that are not considered sensitive to noise levels. The southeast side of the project is primarily undeveloped agricultural lands with two large retail establishments on either side of Pakaula Street. The church located at the eastern quadrant of the intersection of Dairy Road and Puunene Avenue is the only sensitive receptor area on the southeast side of the project.

Industrial uses that do not have outdoor areas of frequent human use are located on the northwest side of the project southwest of Hana Highway. Just north of this is a retail shopping center. The only outdoor area of frequent human use potentially impacted by the project is an outdoor garden center located at the northeast end of the shopping center. Just northeast of Pakaula Street there is a motor vehicle dealership with an outdoor sales area and the Kahului fire station, which are both considered sensitive to noise. Noise sensitive single-family residences are located on the northwest side of Dairy Road between Hukilike Street and Puunene Avenue. The characteristics of each receptor area are discussed below.

Receptor Area 1 is a residential area located on the northwest side of Dairy Road between Puunene Avenue and Hukilike Street developed with single-family homes. The residential property line is approximately 70 feet from the edge of Dairy Road for most of the homes. Most of the homes have only a chain link fence along the property line. In many instances sheets of various sizes of corrugated tin is mounted on the chain link fence for privacy. It was assumed that this did not provide considerable noise reduction. The first five lots southwest of Hukilike Street have concrete block walls that range from 4.5 feet above ground level (AGL) to 6 feet

AGL. Lot 13 located at 76 Aoloa Loop (the location of measurement site 1C) has a concrete block wall ranging in height between 5.33 feet AGL to 6 feet AGL with a 15-foot section that is chain link fence lined with corrugated tin. There is also a small 8-foot high AGL concert block building located along the property line. All of these residences are Activity Category B with a NAC of 67 dBA Leq(h).

Receptor Area 2 is the church located on the eastern quadrant of the intersection of Dairy Road and Puunene Avenue. There are no outdoor areas of frequent human use along the portion of the church closest to the project. Therefore, Activity Category E with an interior NAC of 52 dBA Leq(h) will be used to assess traffic noise impacts to the church. The church structure is constructed to modern building standards and there are no operable windows and the church structure achieves at least 20 dB of outdoor-to-indoor noise reduction. Therefore, demonstrating that noise levels at buildout with the project are 72 dBA Leq(h) or less will demonstrate that the interior NAC is achieved. There is an outdoor playground area used by a preschool that operates at the church at the northeast corner of the church. This area is Activity Category B have a NAC of 67 dBA Leq(h).

Receptor Area 3 represents an outdoor sales area for a motor vehicle dealership located in the southeast quadrant of the intersection of Dairy Road and Pakaula Street. Outdoor sales areas are Activity Category C and have a NAC of 72 dBA Leq(h).

Receptor Area 4 represents the Kahului Fire Station. Note that this facility not only includes the fire station but offices, training, and vehicle repairs. The residential portion of the station, where active duty personnel sleeping and living quarters are located is on the second floor of the fire station building, which is located along Dairy Road. There are balconies connected to the living quarters on each side of the building at the front along Dairy Road. These areas are Activity Category B with an NAC of 67 dBA Leq(h).

The outdoor interior area between the buildings on the fire station property is used for multiple purposes. During the noise measurements recruits used this area for exercises in the morning and active duty personnel were playing volleyball in the evening. Therefore, this area was considered as Activity Category B with an NAC of 67 dBA Leq(h) for assessing impacts. While this area could be considered Activity Category C, using Category B is a more conservative approach.

Receptor Area 5 represents an outdoor retail sales area (garden center) this is Activity Category C with an NAC of 72 dBA Leq(h). A wall that is approximately 26.67 feet tall AGL surrounds the garden center. However, the top 10 feet of the wall is constructed with openings estimated to be approximately 30% to 40% of the surface area. For modeling purposes it was assumed that the top 10-foot section of wall would not provide substantial noise reduction and only a 16.67-foot tall AGL wall was used in the modeling to conservatively estimate traffic noise levels.

5.2 Noise Measurement Results

The following sections summarize the results of the noise measurements. Section 5.2.1 presents the results of the short-term measurements and Section 5.2.2 presents the results of the long-term measurements. The noise measurement locations in Receptor Areas 1-4 are presented in Figure 5 and Receptor Area 5 is presented in Figure 6. The address of the homes where measurements were performed in Receptor Area 1 is presented in Table 3. Long-term measurements were performed at Site 1B.

Table 3
Receptor Area 1 Noise Measurement Locations

Measurement Site	Street Address
1A	18 Puakala Place
1B	30 Puakala Place
1C	76 Aoloa Loop
1D	96 Aoloa Loop
1E	116 Aoloa Loop
1F	5 Leioni Place

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Figure 5
Receptor Areas 1-4 Measurement Locations

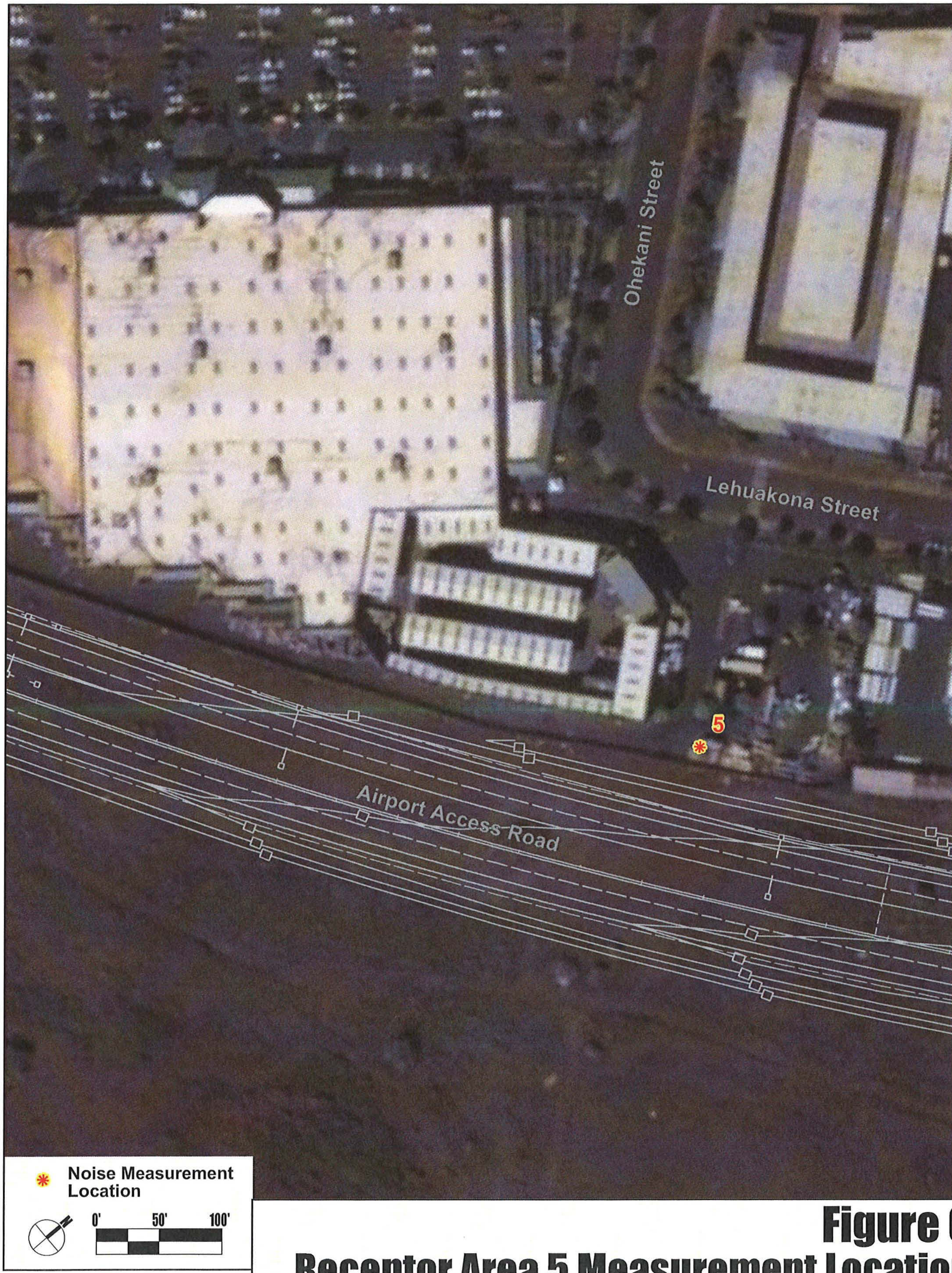

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Figure 6
Receptor Area 5 Measurement Location

5.2.1 Short-Term Measurements

As discussed in Section 4.2, at two measurements were performed at each short-term site. The measured noise levels were analyzed for consistency as discussed in Section 4.2.1. The traffic counts performed during the measurements are presented in the Appendix along with a table showing the factors used for the consistency analysis. The analysis found that the two measurements at each site were found to be consistent (i.e. within 2 dB after being normalized for differences in traffic volumes) at all measurement sites except Site 1F. At both Site 1E and Site 1F, noise level measured in the morning was higher than the evening measurement. This was largely due to the traffic volumes being greater in the morning than in the evening. However, even after adjusting for the traffic volume differences, the difference in the measured Leq levels at Site 1F was 2.5 dBA and 1.7 dBA at Site 1E. This difference was likely due to the traffic signal at Dairy Road and Pakaula Street and the amount of traffic turning on to and off of Pakaula Street.

The traffic signal at Pakaula Street and Dairy Road is primarily triggered by traffic waiting to turn left from Pakaula Street to Dairy Road. During the evening measurements there was considerably more traffic turning left from Pakaula Street that resulted in more and longer red light phases for Dairy Road traffic. Therefore, more traffic on Dairy Road slowed and stopped for the red light during the evening measurement while more traffic passed by at free flow during the morning measurement. The free flow traffic generates more noise than the slowing and accelerating traffic. This effect is greater the further back from the intersection because the cars at the front of the intersection tend to accelerate faster than those queuing behind. The difference in the measurements at Site 1E was lower than Site 1F because the front row accelerating vehicles, adjacent to Site 1E, generate more noise than the vehicles queuing behind the front row, adjacent to Site 1F. Because this represents a variable condition in which differences in traffic conditions can result in differing noise levels, even after adjusting for overall volume it was determined that the inconsistency in measurements at Site 1F was acceptable. As shown in Section 5.3, the modeled noise level at Site 1F was very close to the average measured noise level further indicating the acceptability of the differences in measured levels.

Table 4 presents the date, start time, and duration of the measurements. The measured Leq level is presented along with the maximum (Lmax) and minimum (Lmin) noise levels during the measurement period. The L10, L50, and L90 noise levels are also presented. The L10 is the noise level that was exceeded 10 percent of the time during the measurement. The L50 is the noise level that was exceeded 50 percent of the time during the measurement and is the median noise level. The L90 is the noise level that was exceeded 90 percent of the time and is often considered the background noise level.

The logarithmic average of the Leq's from the two measurements were used for calibration of the noise model along with the average of the traffic volumes recorded during the measurements as discussed in Section 4.3.1. The results are presented in Section 5.3.

Table 4
Short-Term Noise Measurement Summary

Site			Start	Leq	Lmax	L10	L50	L90	Lmin
				Measured Noise Level (dBA)					
1A	1	9/8/11	6:10 p.m.	62.8	74.8	65.5	61.5	56.6	48.2
1A	2	9/9/11	8:39 a.m.	65.0	73.9	67.9	63.6	59.2	52.9
1B	1	9/8/11	4:17 p.m.	66.0	74.9	71.0	68.7	66.9	64.9
1B	2	9/9/11	8:07 a.m.	66.7	76.1	73.3	69.8	67.5	65.6
1C	1	9/8/11	5:39 p.m.	62.4	71.2	65.1	61.2	56.9	51.9
1C	2	9/9/11	8:07 a.m.	63.9	75.6	66.8	62.5	56.7	48.5
1D	1	9/8/11	6:10 p.m.	61.3	69.4	64.2	60.3	55.3	50.6
1D	2	9/9/11	8:07 a.m.	64.9	73.6	67.7	63.5	58.8	51.6
1E	1	9/8/11	7:03 p.m.	62.9	76.0	65.9	61.2	55.9	51.8
1E	2	9/9/11	7:30 a.m.	66.1	76.4	68.9	64.7	58.0	51.8
1F	1	9/8/11	7:03 p.m.	65.4	73.4	68.8	64.0	57.6	48.6
1F	2	9/9/11	7:30 a.m.	69.6	81.3	73.0	67.9	58.8	49.7
2A	1	9/8/11	4:17 p.m.	62.1	72.8	64.4	60.6	57.4	54.3
2A	2	9/9/11	9:19 a.m.	61.7	69.6	64.4	60.4	57.3	53.4
2B	1	9/8/11	4:17 p.m.	58.5	67.0	60.6	57.6	54.8	53.1
2B	2	9/9/11	9:19 a.m.	57.8	63.6	60.4	56.8	54.4	52.1
3	1	9/8/11	4:50 p.m.	72.3	84.8	75.7	70.2	61.9	52.3
3	2	9/9/11	6:21 a.m.	73.2	89.2	76.9	69.1	60.2	53.3
4A	1	9/9/11	6:50 a.m.	67.6	78.9	70.4	66.2	60.6	53.0
4A	2	9/9/11	6:33 p.m.	64.7	64.7	64.7	64.7	64.7	64.7
4B	1	9/9/11	6:50 a.m.	54.5	65.9	55.9	53.1	50.1	48.8
4B	2	9/9/11	6:33 p.m.	55.0	63.6	56.1	54.2	53.2	52.2
5	1	9/12/11	5:37 p.m.	54.9	63.1	56.8	54.1	52.2	49.6
5	2	9/13/11	7:32 a.m.	51.5	60.4	53.9	50.4	48.6	46.4

Table 4 shows that the measured noise levels approach or exceed the applicable NAC of 67 dBA Leq(h) at residential sites 1B, 1E, and 1F and the applicable NAC of 72 dBA at Site 3. However, not all measurements were performed during peak noise hours. The measurements were used to calibrate the noise model as discussed in Section 4.3.1 for sites located along existing roadways (i.e. all except 4B and 5). The results of the noise model calibration are presented in Section 5.3.

5.2.2 Long-Term Measurements

Long-term measurements were performed to determine how traffic noise levels vary over the day. A long-term noise measurement was performed at location 1B for a period of 18 hours, beginning Thursday, September 8, 2011, at 2:00 p.m. and ending at 6:00 p.m. on Friday, September 9, 2011. Table 5 shows the hourly Leq noise measurements at site 1B. The hourly Leq noise levels are presented graphically in Figure 7.

Table 5
Summary Of Long-Term Monitoring at Site 1B

Hour Beginning	Measured Noise Level (dBA) Leq[h]	Lmax	Lmin	Hour Beginning	Measured Noise Level (dBA) Leq[h]	Lmax	Lmin
1:00 p.m.	64.9	77.8	54.4	4:00 a.m.	60.3	75.2	37.1
2:00 p.m.	64.8	75.3	53.4	5:00 a.m.	64.5	77.6	45.7
3:00 p.m.	65.3	82.5	54.5	6:00 a.m.	***66.6***	77.7	49.4
4:00 p.m.	65.8	77.6	56.1	7:00 a.m.	***66.8***	78.2	51.8
5:00 p.m.	***66.0***	78.5	54.8	8:00 a.m.	***66.4***	77.3	51.3
6:00 p.m.	***66.2***	84.1	53.1	9:00 a.m.	***66.5***	78.1	53.4
7:00 p.m.	65.0	81.3	52.3	10:00 a.m.	65.7	77.6	54.2
8:00 p.m.	63.7	77.2	45.7	11:00 a.m.	65.3	81.3	54.6
9:00 p.m.	62.3	76.3	44.3	12:00 p.m.	65.8	76.6	56.1
10:00 p.m.	61.0	72.6	45.1	1:00 p.m.	65.5	75.3	54.5
11:00 p.m.	59.6	78.0	39.2	2:00 p.m.	***65.9***	82.2	54.2
12:00 a.m.	54.2	69.5	37.3	3:00 p.m.	65.8	77.1	53.7
1:00 a.m.	59.0	89.1	36.7	4:00 p.m.	65.3	76.8	53.7
2:00 a.m.	58.9	81.2	36.7	5:00 p.m.	65.8	77.0	54.2
3:00 a.m.	57.5	73.6	34.8	6:00 p.m.	64.9	75.4	51.4

Note: Hourly noise levels within 1 dB of peak noise hour are bolded.

The peak noise hour was measured at 7:00 a.m. in the morning with a Leq(h) of 66.8 dBA. Hourly noise levels were within 1 dB of this value during the 5:00 p.m. and 6:00 p.m. hours the evening before as well as the 6:00 a.m., 8:00 a.m., and 9:00 a.m. hours surrounding the peak noise hour. The Leq during the 2:00 p.m. hour on the second day of measurements was also within 1 dB of the peak noise hour. Figure 7 shows that during the daytime hours, the hourly Leq's are within 2 dB of the peak noise hour with slight peaks during the AM and PM peak traffic periods.

Even though the measurements recorded the peak noise hour during the AM peak traffic period, the traffic data shows that the volumes on the Access Road and Dairy Road during the PM peak traffic period generates noise levels between 1 and 2 dB higher than the AM peak traffic period. As discussed in Sections 4.3.2 and 4.3.3, PM peak hour traffic volumes were used to model peak noise hour levels.

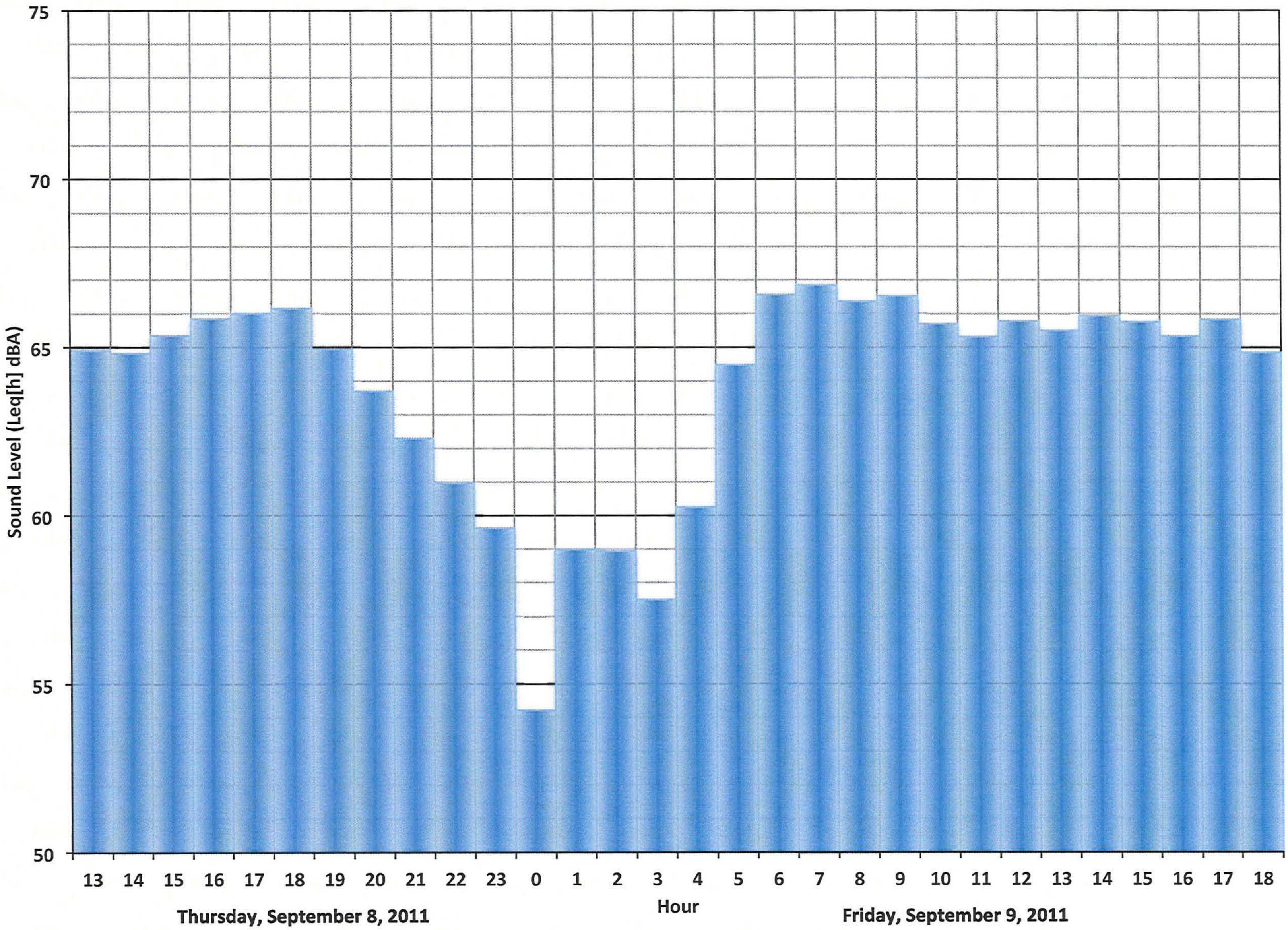

Figure 7
Hourly Noise Levels Measured at Site 1B

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5.3 Noise Model Calibration

TNM 2.5 was used to compare the measured traffic noise levels to modeled noise levels. The traffic data used for the calibration models was the average of the counts performed during the measurements at each site. Adjustments to the model were made to best match the measured noise levels while being representative of the actual conditions. Where the modeled levels differ greatly from the measured levels, a correction factor, added or subtracted from the modeled level can be used to match the measured level. Typical procedures call for the use of a correction factor only when the modeled levels differ by 2 dB or more from measured levels

Table 6 compares measured and modeled noise levels at each measurement location. The table shows that the TNM model modeled the sound level within ±1 dB for all measurement sites except Site 2A where the model over predicted the measured level by 1.8 dB and Site 3 where the model under predicted the measured level by -1.2 dB. These differences are within acceptable tolerances. All modeled levels were within 2 dB of the measured levels. Therefore, no model correction factor was used.

Table 6
Noise Model Calibration Results

Measurement Site	Measured Sound Level (dBA Leq[h])	Modeled Sound Level (dBA Leq[h])	Modeled Minus Measured (dB)
1A	64.1	64.8	0.7
1B	66.4	65.4	-1.0
1C	63.2	63.5	0.3
1D	63.5	64.4	0.9
1E	64.8	64.4	-0.4
1F	68.0	67.9	-0.1
2A	61.9	63.7	1.8
2B	58.2	58.8	0.6
3	72.7	71.5	-1.2
4A	66.4	65.5	-0.9

5.4 Modeled Existing Noise Levels At Measurement Sites

Using the calibrated noise model and existing average daily traffic volumes discussed in Section 4.3.2 and presented in the Appendix, existing peak noise hour traffic noise levels were modeled at the noise measurement sites. The results of this modeling are presented in Table 7. Sound levels approaching or exceeding the applicable NAC for each site are shown in bold-italics. Note that modeled results are presented rounded to the nearest whole dB to properly reflect the accuracy of the noise modeling.

Table 7
Modeled Existing Peak Noise Hour Noise Levels

Measurement Site	Modeled Sound Level (Leq[h])
1A	***67 dBA***
1B	***66 dBA***
1C	64 dBA
1D	***66 dBA***
1E	***67 dBA***
1F	***70 dBA***
2A	65 dBA
2B	60 dBA
3A	***72 dBA***
4A	***66 dBA***

Table 7 shows that the NAC is currently approached or exceeded at all of the residential measurement sites except 1C. Site 1C is one of the only measurement sites with an existing concrete block wall which reduces traffic noise in the yard. The applicable NAC is also approach or exceeded at Sites 3A and 4A as well. However, the in all cases the noise levels are at or within 1 dB of (i.e. approaching) the NAC.

6.0 Future Noise Environment, Impacts and Considered Abatement

6.1 Future Noise Environment And Impacts

The following sections summarize the traffic noise modeling results for existing conditions and design-year (2030) conditions with the project for each receptor area at analysis receptors that represent the locations where the NAC are applicable and would be expected to be exposed to the highest noise levels with the project. Predicted design-year traffic noise levels with the project are compared to existing conditions. The comparison to existing conditions is included in the analysis to identify traffic noise impacts under the substantial increase criterion.

6.1.1 Receptor Area 1 Impact Analysis

Figure 8 presents the noise analysis receptor locations used to assess impacts for Receptor Area 1. Noise analysis receptors were located in each lot fronting Dairy Road including those not included in the measurement survey. In all cases but one, the analysis locations used for lots where measurements were performed differed slightly from the noise measurement locations. This was done to place the receptor approximately 5 feet behind the property line, where a noise barrier would be located, and to locate the receptor in the area where the highest noise levels would be expected based on existing noise barriers. The receptors in lots where measurements were performed at the same location as the analysis receptor have the same designation, with a capital letter, as the measurement locations. The receptors in lots where measurements were performed at a different location than the measurement site have the same letter as the measurement site but it is lower case with an apostrophe. Receptors in lots where measurements were not taken have lower case letters.

A detailed impact analysis was performed at the receptors in Receptor Area 1, and the results of this analysis are presented in Table 8. Table 8 presents the applicable NAC category and level for each receptor along with the existing, and future-with-project peak-hour noise levels. Any noise levels approaching or exceeding the applicable NAC are shown in bold-italics. Noise level increases over existing conditions are presented. Any noise level increases over existing conditions greater than 15 dB are shown in bold-italics. The final column of Table 8 indicates if the receptor is predicted to be impacted by listing which criteria would be exceeded. Table 8 shows that all receptors in Receptor Area 1 except Receptors 1c', 1e', 1o, 1r, and 1s will be impacted because the projected noise level is approaches or exceeds the NAC of 67 dBA. Noise Abatement for impacted receptors in Receptor Area 1 is considered in Section 6.2.1.

Table 8
Receptor Area 1 Impact Analysis

Receptor	Noise Abatement Criteria Cat.	Noise Abatement Criteria Level	Peak Noise Hour Leq(h) Existing Conditions	Peak Noise Hour Leq(h) Future With Project	Increase Over Existing	Impact Type
1a'	B	67 dBA	***67 dBA***	***68 dBA***	1 dB	Approach/Exceed NAC
1g	B	67 dBA	***66 dBA***	***68 dBA***	2 dB	Approach/Exceed NAC
1h	B	67 dBA	***66 dBA***	***67 dBA***	2 dB	Approach/Exceed NAC
1b'	B	67 dBA	65 dBA	***67 dBA***	2 dB	Approach/Exceed NAC
1i	B	67 dBA	***66 dBA***	***67 dBA***	1 dB	Approach/Exceed NAC
1j	B	67 dBA	***66 dBA***	***66 dBA***	1 dB	Approach/Exceed NAC
1c'	B	67 dBA	65 dBA	65 dBA	0 dB	No Impact
1k	B	67 dBA	***66 dBA***	***66 dBA***	-1 dB	Approach/Exceed NAC
1l	B	67 dBA	***66 dBA***	***66 dBA***	-1 dB	Approach/Exceed NAC
1d'	B	67 dBA	***67 dBA***	***66 dBA***	-1 dB	Approach/Exceed NAC
1m	B	67 dBA	***68 dBA***	***66 dBA***	-3 dB	Approach/Exceed NAC
1n	B	67 dBA	***70 dBA***	***66 dBA***	-4 dB	Approach/Exceed NAC
1e'	B	67 dBA	***67 dBA***	63 dBA	-4 dB	No Impact
1o	B	67 dBA	64 dBA	61 dBA	-3 dB	No Impact
1F	B	67 dBA	***70 dBA***	***69 dBA***	-1 dB	Approach/Exceed NAC
1p	B	67 dBA	***71 dBA***	***70 dBA***	-1 dB	Approach/Exceed NAC
1q	B	67 dBA	***69 dBA***	***68 dBA***	-1 dB	Approach/Exceed NAC
1r	B	67 dBA	64 dBA	64 dBA	0 dB	No Impact
1s	B	67 dBA	61 dBA	62 dBA	1 dB	No Impact

6.1.2 Receptor Area 2 Impact Analysis

Figure 8 presents the noise analysis receptor locations used to assess impacts for Receptor Area 2. The noise analysis receptor locations were moved to accurately represent the noise levels in actual areas of impact. The measurements were performed away from these areas to avoid non-traffic related noise sources (i.e., air conditioner condenser units at the church). As discussed above, there are no outdoor areas of frequent human use on the side of the church facing Dairy Road. Receptor 2a' was located at the front of the church to determine the traffic noise level at the face of the building. The church is constructed to modern building standards and does not feature operable windows. Therefore the building achieves at least 20 dB of outdoor-to-indoor noise reduction and traffic noise levels inside the building are at least 20 dB lower than outdoor levels. Therefore, the outdoor NAC level for this Category E use with an indoor NAC of 52 dBA Leq(h) is 72 dBA Leq(h).

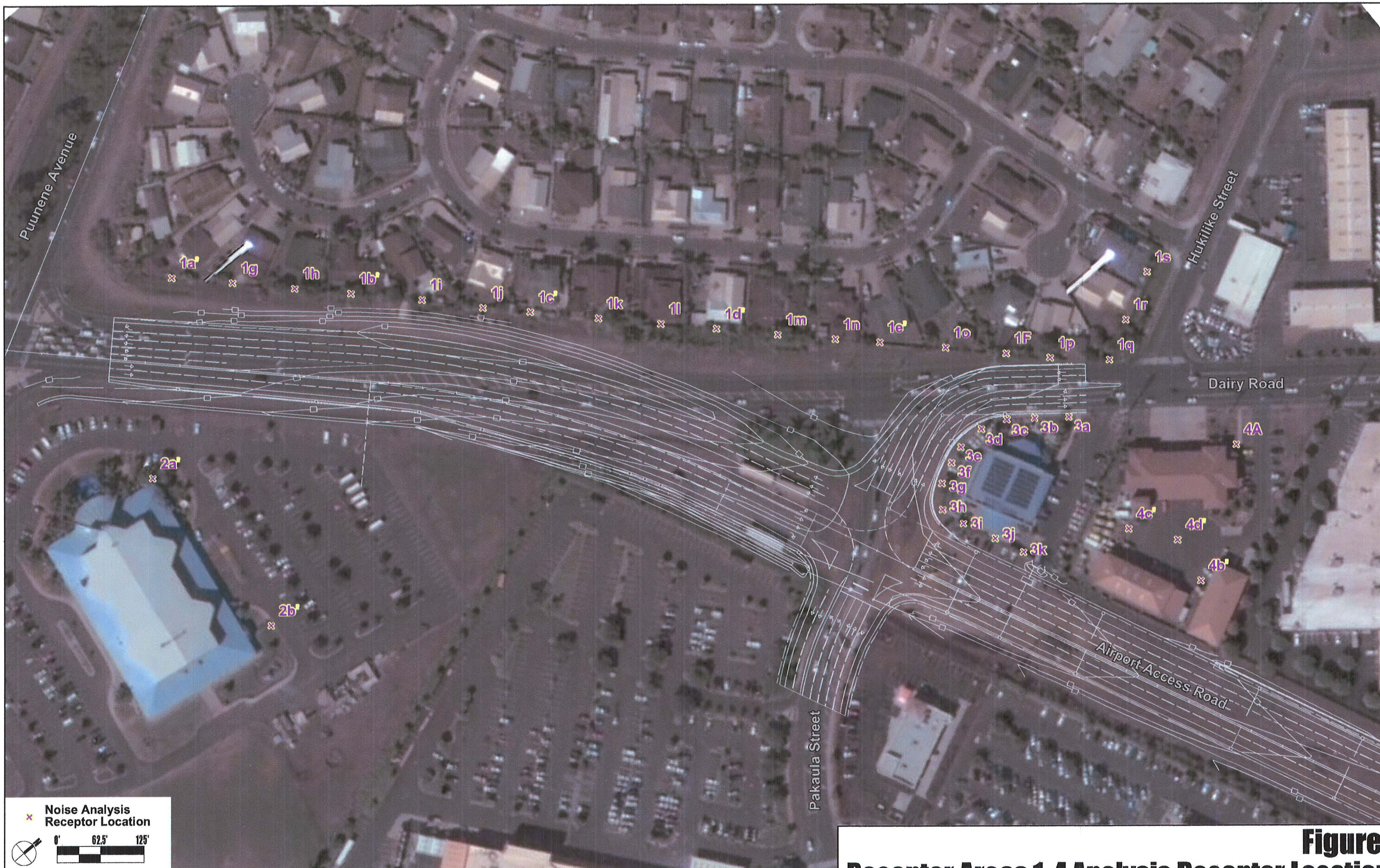

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Figure 8

Receptor Areas 1-4 Analysis Receptor Locations

A detailed impact analysis was performed at the receptors in Receptor Area 2, and the results of this analysis are presented in Table 9. Table 9 presents the applicable NAC category and level for each receptor along with the existing, and future-with-project peak-hour noise levels. Any noise levels approaching or exceeding the applicable NAC are shown in bold-italics. Noise level increases over existing conditions are presented. Any noise level increases over existing conditions greater than 15 dB are shown in bold-italics. The final column of Table 9 indicates if the receptor is predicted to be impacted by listing which criteria would be exceeded. Table 9 shows that no receptors in Receptor Area 2 will be impacted. Therefore, consideration of noise abatement is not required for Receptor Area 2.

Table 9
Receptor Area 2 Impact Analysis

Receptor	Noise Abatement Criteria		Peak Noise Hour Leq(h)		Increase Over Existing	Impact Type
	Cat.	Level	Existing Conditions	Future With Project		
2a'	E†	72 dBA†	64 dBA	66 dBA	1 dB	No Impact
2b'	B	67 dBA	59 dBA	60 dBA	1 dB	No Impact

† The NAC for Category E is an interior noise level of 52 dBA Leq(h). The church is constructed to modern building standards and achieves at least 20 dB of outdoor-to-indoor noise reduction. Therefore, the external NAC level to determine if there is an impact is 72 dBA Leq(h).

6.1.3 Receptor Area 3 Impact Analysis

Figure 8 presents the noise analysis receptor locations used to assess impacts for Receptor Area 3. The outdoor sales area wraps around the entire building on the northeast, northwest, and southeast sites of the building. Receptors were located 5 feet from edge of the sales area all around the area to accurately determine the level of impact and to allow for noise abatement consideration.

A detailed impact analysis was performed at the receptors in Receptor Area 3, and the results of this analysis are presented in Table 10. Table 10 presents the applicable NAC category and level for each receptor along with the existing, and future-with-project peak-hour noise levels. Any noise levels approaching or exceeding the applicable NAC are shown in bold-italics. Noise level increases over existing conditions are presented. Any noise level increases over existing conditions greater than 15 dB are shown in bold-italics. The final column of Table 10 indicates if the receptor is predicted to be impacted by listing which criteria would be exceeded. Table 10 shows that all receptors in Receptor Area3 will be impacted. Consideration of noise abatement for Receptor Area 3 is discussed in Section 6.2.2.

Table 10
Receptor Area 3 Impact Analysis

Receptor	Noise Abatement Criteria		Peak Noise Hour Leq(h)		Increase Over Existing	Impact Type
	Cat.	Level	Existing Conditions	Future With Project		
3a	C	72 dBA	***73 dBA***	***71 dBA***	-2 dB	Approach/Exceed NAC
3b	C	72 dBA	***73 dBA***	***71 dBA***	-2 dB	Approach/Exceed NAC
3c	C	72 dBA	***73 dBA***	***72 dBA***	-1 dB	Approach/Exceed NAC
3d	C	72 dBA	***72 dBA***	***72 dBA***	0 dB	Approach/Exceed NAC
3e	C	72 dBA	70 dBA	***72 dBA***	2 dB	Approach/Exceed NAC
3f	C	72 dBA	70 dBA	***72 dBA***	2 dB	Approach/Exceed NAC
3g	C	72 dBA	69 dBA	***73 dBA***	4 dB	Approach/Exceed NAC
3h	C	72 dBA	68 dBA	***73 dBA***	5 dB	Approach/Exceed NAC
3i	C	72 dBA	66 dBA	***72 dBA***	6 dB	Approach/Exceed NAC
3j	C	72 dBA	62 dBA	***71 dBA***	9 dB	Approach/Exceed NAC
3k	C	72 dBA	61 dBA	***71 dBA***	10 dB	Approach/Exceed NAC

6.1.4 Receptor Area 4 Impact Analysis

Figure 8 presents the noise analysis receptor locations used to assess impacts for Receptor Area 4. Receptor 4A, which represents the portion of the fire station facing Dairy Road was modeled at ground level and elevated 15 feet above the ground to represent the balcony on the second floor of the building which is part of the residential area of the fire station where active fire personnel live. Measurement Site 4B does not represent an outdoor area of frequent human use at the facility. Therefore, three receptors were added to represent this area. In this area, noise from local traffic on Dairy Road is considerable but not a dominant source. Therefore, to determine existing and future noise levels the average of the two measured noise levels at Site 4B were added to the modeling results to accurately represent the overall noise level in this area.

A detailed impact analysis was performed at the receptors in Receptor Area 4 and the results of this analysis are presented in Table 11. Table 11presents the applicable NAC category and level for each receptor along with the existing, and future-with-project peak-hour noise levels. Any noise levels approaching or exceeding the applicable NAC are shown in bold-italics. Noise level increases over existing conditions are presented. Any noise level increases over existing conditions greater than 15 dB are shown in bold-italics. The final column of Table 11 indicates if the receptor is predicted to be impacted by listing which criteria would be exceeded. Table 11 shows that no receptors in Receptor Area 4 will be impacted. Therefore, consideration of noise abatement is not required for Receptor Area 4.

Table 11
Receptor Area 4 Impact Analysis

Receptor	Noise Abatement Criteria		Peak Noise Hour Leq(h)		Increase Over Existing	Impact Type
	Cat.	Level	Existing Conditions	Future With Project		
4A	B	67 dBA	***66 dBA***	65 dBA	-1 dB	No Impact
4A†	B	67 dBA	***67 dBA***	65 dBA	-2 dB	No Impact
4b	B	67 dBA	58 dBA	60 dBA	2 dB	No Impact
4c	B	67 dBA	58 dBA	64 dBA	6 dB	No Impact
4d	B	67 dBA	61 dBA	60 dBA	-1 dB	No Impact

6.1.5 Receptor Area 5 Impact Analysis

Figure 9 presents the noise analysis receptor locations used to assess impacts for Receptor Area 5. Six analysis receptors were included to ensure that the peak noise level conditions were captured. With a high wall (there is a 16.67 foot AGL wall around the garden center) the peak noise levels can occur away from the wall with lower noise levels at the receptor is located closest to the wall. Because this receptor area is located away from existing roadways that generate considerable noise, the average of the two measurements performed at Measurement Site 5 was used to establish the existing noise level. In addition, the average of the Site 5 measurements was added, logarithmically, to the modeled future traffic noise level to estimate the overall future noise levels at the Receptors.

A detailed impact analysis was performed at the receptors in Receptor Area 5 and the results of this analysis are presented in Table 12. Table 12 presents the applicable NAC category and level for each receptor along with the existing, and future-with-project peak-hour noise levels. Any noise levels approaching or exceeding the applicable NAC are shown in bold-italics. Noise level increases over existing conditions are presented. Any noise level increases over existing conditions greater than 15 dB are shown in bold-italics. The final column of Table 12 indicates if the receptor is predicted to be impacted by listing which criteria would be exceeded. Table 12 shows that no receptors in Receptor Area 5 will be impacted. Therefore, consideration of noise abatement is not required for Receptor Area 5.

Table 12
Receptor Area 5 Impact Analysis

Receptor	Noise Abatement Criteria		Peak Noise Hour Leq(h)		Increase Over Existing	Impact Type
	Cat.	Level	Existing Conditions	Future With Project		
5a	C	72 dBA	54 dBA	55 dBA	1 dB	No Impact
5b	C	72 dBA	54 dBA	55 dBA	1 dB	No Impact
5c	C	72 dBA	54 dBA	55 dBA	1 dB	No Impact
5d	C	72 dBA	54 dBA	55 dBA	1 dB	No Impact
5e	C	72 dBA	54 dBA	55 dBA	1 dB	No Impact

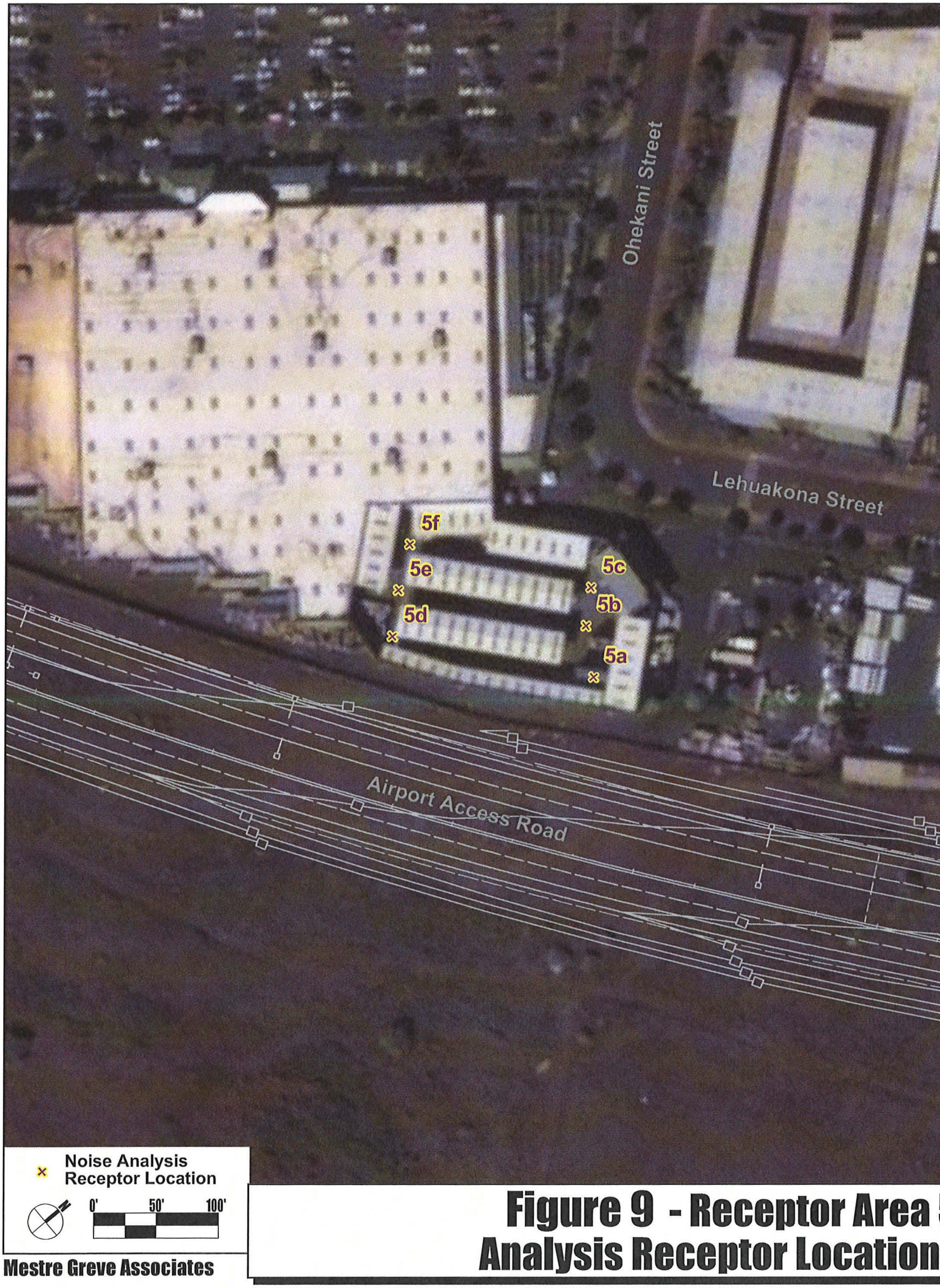

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Figure 9 - Receptor Area 5 Analysis Receptor Locations

5f	C	72 dBA	54 dBA	55 dBA	1 dB	No Impact

Figure 9 Receptor Area 5 Analysis Receptor Locations

6.2 Considered Noise Abatement

The analysis presented above concludes that the project will result in traffic noise impacts for Receptor Areas 1 and 3. Where traffic noise impacts are projected, noise abatement must be considered. Various methods of noise abatement are available to minimize the potential noise impact of the project. Reduction of speed limits could be used to reduce noise generated by the roadway. However, this is seldom practical due to the resulting reduction of the roadways operational efficiency. Prohibiting or restricting truck traffic would reduce the noise generated by the roadway. This would not be consistent with the project's stated purpose and need, though.

Altering the horizontal or vertical alignment of the road can also be used to limit the noise impacts. Altering the vertical alignment is typically not practical because of the amount of material that would have to be moved to alter the vertical alignment substantially. There is already an approximate 70-foot buffer between the residences in Receptor Area 1 and Dairy Road and the project will increase the size of this buffer area for some residences.

Acquisition of property to create buffer zones is another measure that can reduce noise impacts. However, this is typically cost prohibitive. As discussed above, there is an approximate 70-foot buffer between the residences in Receptor Area 1 and Dairy Road and the project will increase the size of this buffer area for some residences. There is no practical way to increase this buffer.

In most cases, the only practical way to mitigate highway noise is through the construction of noise barriers. Noise barriers reduce noise levels when they break the line of sight between a receiver and a noise source. The amount of noise reduction provided by the barrier is dependent on how much the noise has to bend around the barrier or, equivalently, by how much the barrier breaks the line of sight. The more the sound has to bend or the more the barrier breaks the line of sight the greater the noise reduction. Earthen berms can be used to decrease the required height of the wall or even eliminate a wall. An earthen berm with the same height as a wall will reduce noise levels more than the wall. Walls constructed on top of berms with the same top of wall elevation as a wall not on a berm provide the same amount of noise reduction with a lower height.

The following sections discuss the implementation noise walls for each of receptor area projected to be impacted. A wall for Receptor Area 1 is analyzed in Section 6.2.1 and a barrier for Receptor Area 2 is analyzed in 6.2.2. As discussed in Section 3.2.1, the HDOT Highway Noise Policy and Abatement Guidelines require a sound barrier to be feasible and reasonable for it to be implemented. The feasibility and reasonableness of each barrier is discussed as well.

6.2.1 Receptor Area 1 Noise Abatement

The most logical location for a noise barrier to abate traffic noise levels in Receptor Area 1 is along the property line of the residences. The location of the noise barrier considered for Receptor Area 1 is shown in Figure 10. Table 13 presents the results of the noise modeling with the noise barrier located as shown in Figure 10 with heights ranging from 6 feet AGL to 14 feet AGL in 2-foot increments. The first three columns of Table 13 present the receptor name, and the existing and future with project noise levels, without abatement, for each receptor. Levels approaching or exceeding the NAC of 67 dBA Leq(h) are shown in bold-italics. The rows of data for receptors that are not impacted but are along the front row are greyed. The remaining columns in the table present resulting noise level and noise reduction for each barrier height analyzed.

The percentage of impacted residences receiving at least 5 dB of reduction is indicated for each barrier height on the second to last row of Table 13. In order for the wall to be considered feasible this value must exceed 66%. The table shows that all wall heights achieve this criterion. Therefore, unless there are issues with safety, drainage, utilities or maintenance with the wall, which will be considered during the engineering design of the wall, the noise wall is considered feasible.

The percentage of impacted receptors with at least 7 dB of noise reduction for each wall is presented in the last row of Table 13. In order for the wall to satisfy this reasonableness criterion, this value must exceed 75%. The table shows that a 6-foot high noise barrier does not satisfy this criterion. Therefore, the 6 foot high wall is not considered reasonable.

The 8-foot, 10-foot, 12-foot, and 14-foot wall heights all provide at least 7 dB of reduction for at least 75% of the impacted receptors. The State of Hawaii has specified the cost criterion of $60,000 per benefitted residence. For each wall height, 17 residences are benefitted. Therefore, if the cost of the barrier for one of the feasible heights exceeds $1,020,000 to implement it is not considered reasonable.

Fukunaga and Associates prepared cost estimates for construction of the approximate 1,500 foot long wall. These estimates show that only the 8-foot high wall satisfies the reasonableness criterion with an estimated cost of $950,000. Walls taller than 8-feet would cost more than the $1,020,000 and do not satisfy the reasonableness criteria. This wall height must be approved by at least two-thirds of the landowners to be implemented.

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Figure 10
Receptor Area 1 Noise Barrier

Table 13
Receptor Area 1 Noise Barrier Analysis Table

Receptor	Noise Level (dBA Leq(H))		Noise Level (dBA Leq(H)) and Noise Reduction (N.R.) (dB) With Noise Barrier									
			6' High Wall		8' High Wall		10' High Wall		12' High Wall		14' High Wall	
	Existing	With Proj.	Level	N.R.	Level	N.R.	Level	N.R.	Level	N.R.	Level	N.R.
1a'	*67*	*68*	61	8	59	10	57	11	56	12	56	13
1g	*66*	*68*	59	9	57	11	56	12	54	13	53	14
1h	*66*	*67*	59	9	57	11	55	12	54	14	53	15
1b'	*65*	*67*	58	9	56	11	55	12	54	14	53	14
1i	*66*	*67*	59	7	57	10	55	12	54	13	53	14
1j	*66*	*66*	60	6	57	9	55	11	54	13	53	13
1c'	65	65	59	5	56	8	55	10	53	11	53	12
1k	*66*	*66*	58	7	56	10	54	12	53	13	52	14
1l	*66*	*66*	59	6	56	10	54	12	53	13	52	14
1d'	*67*	*66*	60	6	56	10	54	12	53	13	52	14
1m	*68*	*66*	57	8	55	11	53	13	52	14	51	15
1n	*70*	*66*	58	8	55	11	54	12	52	14	51	15
1e'	67	63	58	5	55	7	54	9	53	10	52	11
1o	64	61	58	3	56	5	54	7	53	8	52	9
1F	*70*	*69*	63	7	58	11	56	13	55	14	53	16
1p	*71*	*70*	63	6	59	11	57	13	55	14	54	16
1q	*69*	*68*	64	4	60	8	57	11	55	13	53	15
1r	64	64	64	1	63	1	63	1	63	2	62	2
1s	61	62	61	1	61	1	61	1	60	1	60	2
% of Impacted Residences Benefitted			**100%**		**100%**		**100%**		**100%**		**100%**	
% of Impacted Receptors Receiving 7 dB or More N.R.			**64%**		**100%**		**100%**		**100%**		**100%**	

6.2.2 Receptor Area 3 Noise Abatement

The most logical location for a noise barrier to abate traffic noise levels in Receptor Area 3 is a wall along the property line of the motor vehicle dealership. The location of the noise barrier considered for Receptor Area 3 is shown in Figure 11. The figure also shows the 71 dB Leq(h) contour. Portions of the sales area closer to the road than the contour are the area impacted by the project. This size of this area is approximately 5,700 square feet. As discussed below, this area is used in the determination of reasonableness of the barrier.

Table 14 presents the results of the noise modeling with the noise barrier located as shown in Figure 11 with heights ranging from 6 feet AGL to 14 feet AGL in 2-foot increments. The first three columns of Table 14 present the receptor name, and the existing and future with project noise levels, without abatement, for each receptor. Levels approaching or exceeding the NAC of 72 dBA Leq(h) are shown in bold-italics. The remaining columns in the table present resulting noise level and noise reduction for each barrier height analyzed.

The percentage of impacted receptors receiving at least 5 dB of reduction is indicated for each wall height. In order for the wall to be considered feasible, this value must exceed 66%. The table shows that all wall heights achieve this criterion. Therefore, unless there are issues with safety, drainage, utilities or maintenance with the wall, which will be considered during the engineering design of the wall, the noise wall is considered feasible.

The percentage of impacted receptors with at least 7 dB of noise reduction for each wall is presented in the last row of the table. In order for the wall to satisfy this reasonableness criterion, this value must exceed 75%. The table shows that a 6-foot high noise barrier does not satisfy this criterion. Therefore, the 6 foot high wall is not considered reasonable.

The 8-foot, 10-foot, 12-foot, and 14-foot wall heights all provide at least 7 dB of reduction for at least 75% of the impacted receptors. Designs and costs for these walls will need to be determined to see if the costs exceed the cost criterion of $60,000 per benefitted residence. For non-residential land uses, HDOT policy is to determine the number of equivalent residential lots that are impacted. This is done by calculating the area on the property that is impacted by traffic noise (i.e. with noise levels approaching or exceeding the NAC) and dividing this by the typical residential lot size of 4,200 square feet. The area that is impacted in Receptor Area 3 is 5,700 square feet, which is equivalent to 1.4 residences. HDOT guidance calls for the number of equivalent residences to be rounded the nearest whole residence. Therefore, if the wall cost of the wall exceeds $60,000 to implement, it will not be considered reasonable.

Fukunaga and Associates prepared cost estimates for the construction of the approximate 500-foot long wall shown in Figure 11 at the feasible heights. These cost estimates show that even the lowest feasible wall, 8-feet, would cost substantially more than $60,000 is not considered feasible. Therefore, a wall will not be implemented for Receptor Area 3.

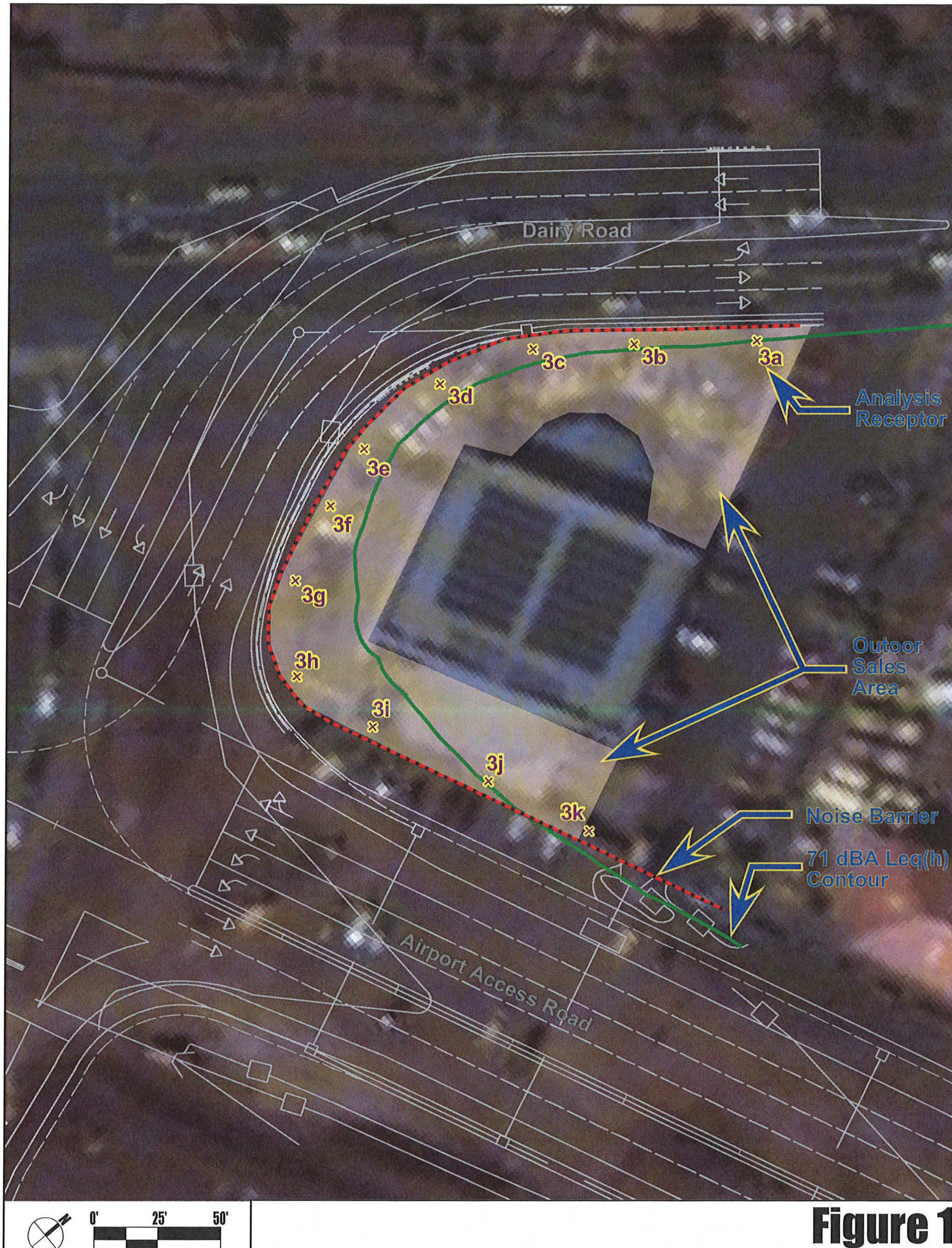

Figure 11
Receptor Area 3 Noise Barrier

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Table 14
Receptor Area 3 Noise Barrier Analysis Table

Receptor	Noise Level (dBA Leq(H)) Existing	With Proj.	6' High Wall Level	N.R.	8' High Wall Level	N.R.	10' High Wall Level	N.R.	12' High Wall Level	N.R.	14' High Wall Level	N.R.
3a	*73*	*71*	66	5	63	8	62	9	61	10	61	10
3b	*73*	*71*	66	6	62	9	60	12	58	13	57	14
3c	*73*	*72*	67	5	64	8	61	11	59	13	57	15
3d	*72*	*72*	67	5	64	8	61	10	60	12	58	14
3e	70	*72*	67	5	64	9	62	10	60	12	59	13
3f	70	*72*	67	5	64	9	61	11	59	13	58	15
3g	69	*73*	68	5	64	9	62	11	60	13	59	14
3h	68	*73*	68	6	63	10	61	12	60	14	58	15
3i	66	*72*	67	5	63	10	61	12	59	13	58	15
3j	62	*71*	66	6	61	10	59	12	58	13	57	15
3k	61	*71*	65	6	61	9	60	11	59	12	58	13
% of Impacted Receptors Benefitted			**100%**		**100%**		**100%**		**100%**		**100%**	
% of Impacted Receptors Receiving 7 dB or More N.R.			**0%**		**100%**		**100%**		**100%**		**100%**	

Noise Level (dBA Leq(H)) and Noise Reduction (N.R.) (dB) With Noise Barrier

7.0 Construction Noise

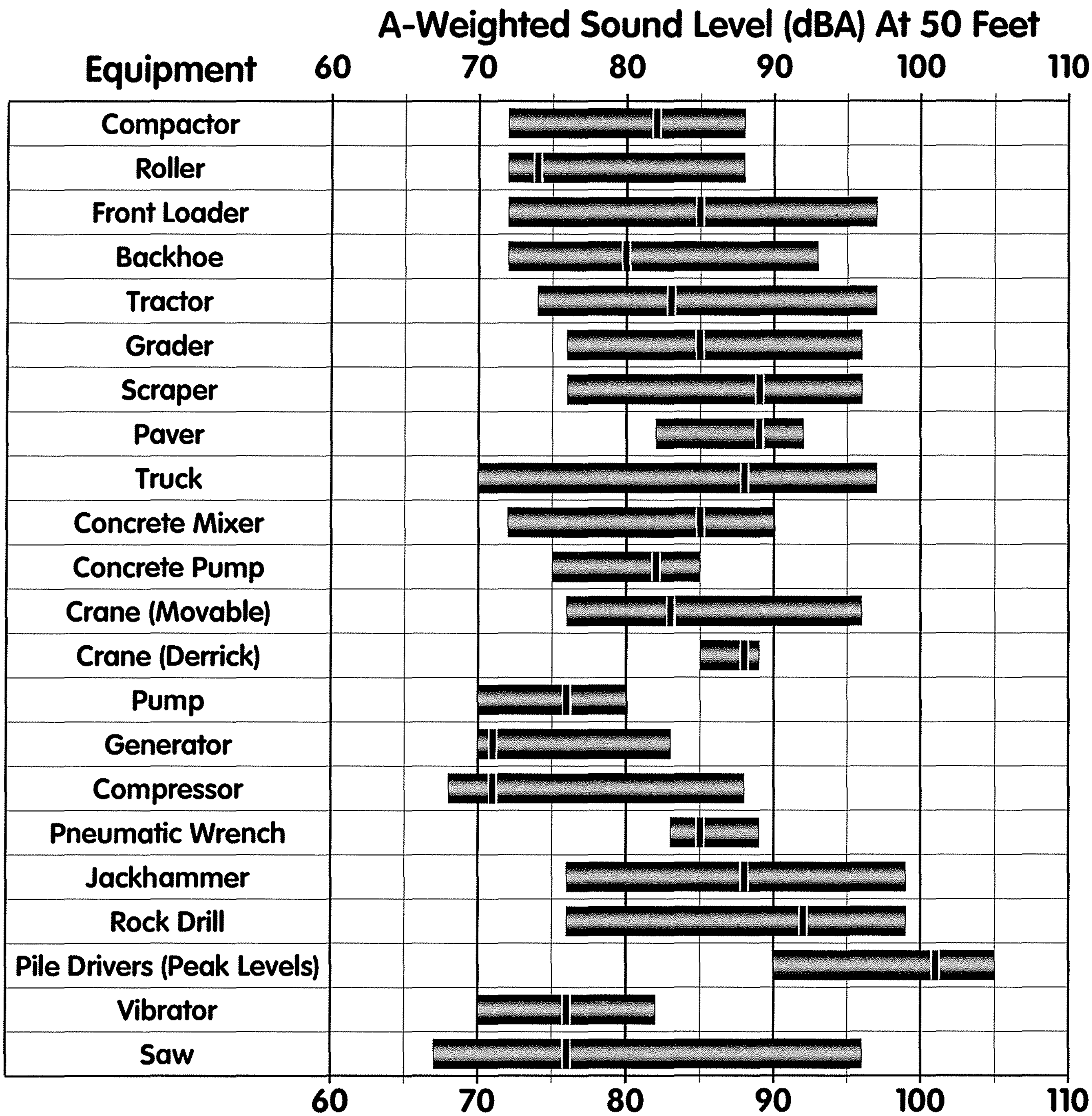
Construction noise represents a short-term impact on ambient noise levels. Noise generated by construction equipment, including trucks, graders, bulldozers, concrete mixers and portable generators can reach high levels. For the proposed project, the highest noise generating activities will include clearing and grading of the roadway.

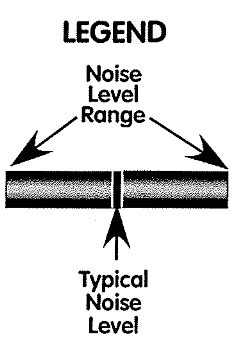
Worst-case examples of construction noise at 50 feet are presented in Figure 12. The peak noise level for most of the equipment that will be used during the construction is 70 to 95 dBA at a distance of 50 feet. Construction equipment noise levels are reduced at a rate of about 6 dB per doubling of distance. At 150 feet, the peak construction noise levels range from 61 to 86 dBA. At 1,000 feet, the peak noise levels range from 44 to 69 dBA. Note that these noise levels are based upon worst-case conditions. Measurements of construction equipment performed by Mestre Greve Associates show that peak noise levels rarely exceed the middle of the range indicated in Figure 12.

As discussed in Section 3.2.2, the State's Noise Ordinance controls the amount of noise that can be generated during construction. The Noise Ordinance defines Maximum Permissible Sound Levels (MPSL) for three zoning districts. These are the maximum L90 noise levels for a 20-minute period that can be generated without a permit or variance based on the zoning of the receiving land use. For two of the Zoning Districts, A and B, the nighttime (10:00 p.m. to 7:00 a.m.) standard is 10 dB lower than the daytime standard (7:00 a.m. to 10:00 p.m.). For Zoning District C, the nighttime standard is the same as the daytime standard. At this time, it is expected that all of the construction for the proposed project will occur during the daytime hours.

The majority of the uses along the project are Zoning District B, which has a daytime MPSL of 60 dBA and a nighttime MPSL of 50 dBA. The industrial park and the agricultural uses near the northeast end of the project are Zoning District C, which has a daytime and nighttime MPSL of 70 dBA.

Several pieces of heavy equipment (e.g., scrapers, graders, large dozers) operating in an area concurrently are estimated to generate an L10 noise level of 90 dBA at a distance of 50 feet. This activity would exceed the Zoning District B MPSL for all receptors within approximately 1,600 feet of the activity and the Zoning District C MPSL for all receptors within approximately 500 feet of the activity. One or two smaller pieces of equipment (e.g., front loader, backhoe) operating in an area concurrently are estimated to generate an L10 noise level of 75 dBA at a distance of 50 feet. This activity would exceed the Zoning District B MPSL for all receptors within approximately 281 feet of the activity and the Zoning District C MPSL for all receptors within approximately 90 feet of the activity. Note that actual noise levels generated by construction activities will be largely dependent on not only the specific equipment that is used but also how it is operated





Sources: "Handbook of Noise Control," by Cyril Harris, 1979
"Transit Noise and Vibration Impact Assessment" by Federal Transit Administration, 1995

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Figure 12
Construction Equipment Noise Levels

All Zoning District B land uses along the project are located closer than 281 feet from the project area where construction will occur and there are Zoning District C land uses located within 90 feet of where construction will occur. Because construction noise levels are projected to exceed the MPSL for at least one sensitive receptor area the construction activities will require a Permit as described in Section 11-46-7 of the State's Noise Ordinance. Issuance of a permit will require that Best Available Control Technology (as defined in the Noise Ordinance) to be implemented. Further, the permit requires construction activities that exceed the MPSL to be limited to the hours between 7:00 a.m. to 6:00 p.m. Monday through Friday, 9:00 a.m. to 6:00 p.m. on Saturday and at no time on Sundays or Holidays. If construction activities that may exceed the MPSL are required to occur outside of these hours, a Variance as described in Section 11-46-8 of the State's Noise Ordinance will be required.

Compliance with the State's Noise Ordinance (Title 11, Chapter 46 Community Noise Control of the State of Hawaii Administrative Rules) will ensure that the noise generated during the construction of the project will not result in a substantial adverse environmental impact.

8.0 Mitigation Measures

The analysis presented in this report determined that two receptor areas, Receptor Area 1 representing the residences along the west side of Dairy Road and Receptor Area 3 representing the motor vehicle dealership located just northwest of the proposed intersection of Dairy Road, Pakaula Street and the airport access road are projected to be subject to traffic noise levels that approach and/or exceed the applicable FHWA/HDOT Noise Abatement Criteria (NAC). No receptors are expected to experience a substantial noise increase over existing conditions in the future with the project. All other sensitive receptors in the project area will not be subject to traffic noise levels exceeding the applicable NAC. Nor will the project result in a substantial increase in noise levels over existing conditions for any receptors in the project area.

As discussed in Section 6.2, various methods of noise abatement were considered for the two receptor areas exposed to noise levels approaching and/or exceeding the NAC. It was determined that only practical noise abatement measure for these receptor areas is the construction of noise barriers.

The analysis presented in Section 6.2.1 shows that, for Receptor Area 1, an 8-foot high noise barrier shown in Figure 10 is the only barrier height that satisfies both the feasibility and reasonableness criteria assessed. The final reasonableness criterion, which has not been not assessed in this document, is the viewpoints of the affected landowners and residents. The noise barrier will only be implemented if at least two thirds of the landowners of impacted receptor units approve of the measure.

The analysis presented in 6.2.2 shows that, for Receptor Area 3, the noise barrier shown in Figure 11 does not satisfy the feasibility or reasonableness criterion. Therefore, there are no feasible and reasonable noise abatement options for Receptor Area 3. Receptor Area 3 will not be significantly impacted by the Project because noise levels are not anticipated to increase more than the substantial noise increase criterion and future noise levels with the Project will not exceed the highest levels currently experienced on portions of the project site (i.e., Receptor 3c). In fact, those areas currently exposed to the highest traffic noise levels at the front of the establishment will be reduced with the project. The greatest noise level increases are projected for the rear of the facility along the new road. However, the noise levels in this area will be the same or less than currently experienced at the front of the facility.

As discussed in Section 7.0, construction noise will not result in a significant impact as long as construction activities comply with the State of Hawaii Noise Ordinance (Title 11, Chapter 46 Community Noise Control of the State of Hawaii Administrative Rules), construction of the project will not result in a substantial adverse environmental impact. It is recommended that, if feasible and the land owners agree to the wall, the noise barrier for Receptor Area 1 be constructed before the commencement of roadway construction in that area to minimize construction noise levels at the residences in Receptor Area 1

9.0 References

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Julian Ng, Incorporated, *Traffic Analysis Report, Airport Access Road, Phase 1, Dairy Road to Hana Highway, Kahului, Maui, Hawaii.* July 2008 Revised March 2011

APPENDIX

A-1.0 Noise Measurement Data

This appendix section presents the results of the noise measurements performed for this report. Table 15 presents the specific noise monitoring equipment used during the measurements along with their serial number. Section A-1.1 presents the results of the traffic counts made concurrently with the short-term measurements and the results of the measurement consistency analysis. Section A-1.2 the traffic data used for the calibration modeling.

Table 15
Noise Monitoring Equipment

Identifier	Description	Manufacturer	Model	Serial Number
2236-1	Sound Level Meter	Brüel & Kjær	2236	2054750
	Microphone	Brüel & Kjær	4188	2008581
2238-1	Sound Level Meter	Brüel & Kjær	2238	2174456
	Microphone	Brüel & Kjær	4188	2230472
2238-1	Sound Level Meter	Brüel & Kjær	2238	2201724
	Microphone	Brüel & Kjær	4188	2200398
Cal-2	Calibrator	Brüel & Kjær	4231	2052092

A-1.1 Measurement Consistency Analysis and Calibration

Section N-3330 of the Caltrans' Technical Noise Supplement (TeNS) describes how calibration measurements, after being normalized for differences in traffic volumes, should match by 2 dB. The differences in traffic volumes are estimated by the ratio of noise equivalent autos during each measurement periods. The number of noise equivalent autos is calculated using the Traffic Noise Model (TNM) Reference Mean Emission Levels (REMEL). Using the REMELs, the number of autos that generate the same noise level as one medium truck and one heavy truck are determined. These numbers are multiplied by the number of trucks counted during the measurement and added to the number of autos to determine the number of equivalent autos. The ratio of the equivalent autos from two measurements gives the difference in noise level due to the different traffic volumes during the measurement.

Table 16 presents the results of the traffic counts performed concurrently with the short-term noise measurements. The number of each vehicle class, Autos, Medium Trucks (MT) (two axle with six wheels but not including dual pickup trucks), and Heavy Trucks (HT) (three or more axle vehicles), counted during each minute measurement period is presented. The last three columns of the table show the number of equivalent autos for the MT and HT categories along with the total equivalent autos that are used for the consistency analysis presented in Table 17.

Table 17 presents the consistency analyses for the short-term measurements from each site. The measurement data for each short-term measurement is presented along with the equivalent auto traffic volume during the measurement. The noise level difference that would be expected based on the difference in equivalent auto traffic volume from the first measurement is presented under the heading "Equiv. Vol. Δ dB." This value is added from the measured Leq to determine the Adjusted Leq, which must have a difference of 2 dB or less to be considered consistent.

Table 16
Short-Term Measurement Traffic Data

Road	Auto	MT	HT	MC	Bus	Hourly Equiv. Autos
Sites: 1B, 2A & 2B, Start: 9/8/11 16:17:00, Duration: 15 minutes						
NB Dairy Rd.	282	7	2	1	0	1,500
SB Dairy Rd.	379	8	1	13	0	2,124
Site: 3, Start: 9/8/11 16:50:30, Duration: 15 minutes						
NB Dairy Rd.	212	6	1	1	1	1,152
NB RT Dairy Rd.	60	0	0	0	0	240
SB Dairy Rd.	272	6	1	3	2	1,475
SB LT Dairy Rd.	66	2	0	1	0	344
EB LT Pakaula St.	64	1	0	0	0	284
EB RT Pakaula St.	63	0	0	0	0	252
Site: 1C, Start: 9/8/11 17:39:00, Duration: 15 minutes						
NB Dairy Rd.	288	4	1	5	0	1,459
SB Dairy Rd.	239	4	1	2	1	1,228
Site: 1A & 1D, Start: 9/8/11 18:10:00, Duration: 15 minutes						
NB Dairy Rd.	240	4	0	2	0	1,120
SB Dairy Rd.	204	4	0	3	2	1,071
Sites: 1E & 1F, Start: 9/9/11 19:03:30, Duration: 15 minutes						
NB Dairy Rd.	132	5	0	0	0	668
NB RT Dairy Rd.	64	0	0	0	0	256
SB Dairy Rd.	189	3	1	0	0	916
SB LT Dairy Rd.	29	0	0	0	0	116
EB LT Pakaula St.	44	0	0	0	0	176
EB RT Pakaula St.	45	1	0	0	0	208
Site: 3, Start: 9/9/11 6:21:30, Duration: 15 minutes						
NB Dairy Rd.	133	1	15	0	0	1,698
NB RT Dairy Rd.	19	0	0	0	0	76
SB Dairy Rd.	105	12	3	3	1	1,091
SB LT Dairy Rd.	19	2	0	0	0	132
EB LT Pakaula St.	18	2	0	0	0	128
EB RT Pakaula St.	11	0	0	0	0	44

(Table continued on Next Page)

Table 16 (Continued)
Short-Term Measurement Traffic Data

Road	Auto	Vehicle Count MT	HT	MC	Bus	Hourly Equiv. Autos
Site: 4A, Start: 9/9/11 6:50:00, Duration: 15 minutes						
NB Dairy Rd.	271	14	4	3	0	1,851
SB Dairy Rd.	248	5	6	1	2	1,683
Site: 1E & 1F, Start: 9/9/11 7:30:00, Duration: 15 minutes						
NB Dairy Rd.	179	4	6	0	1	1,319
NB RT Dairy Rd.	46	0	0	1	0	208
SB Dairy Rd.	155	5	3	0	0	988
SB LT Dairy Rd.	39	6	1	0	1	436
EB LT Pakaula St.	23	0	1	0	1	204
EB RT Pakaula St.	35	0	0	0	0	140
Site: 1B, 1C & 1D, Start: 9/9/11 8:07:00, Duration: 15 minutes						
NB Dairy Rd.	217	11	6	0	0	1,631
SB Dairy Rd.	285	13	3	1	1	1,792
Site: 1A, Start: 9/9/11 8:39:00, Duration: 15 minutes						
NB Dairy Rd.	201	7	5	2	2	1,500
SB Dairy Rd.	291	7	7	3	1	1,998
Site: 2A & 2B, Start: 9/9/11 9:19:00, Duration: 15 minutes						
NB Dairy Rd.	216	5	5	2	0	1,432
SB Dairy Rd.	272	5	4	1	0	1,556
Site: 4A, Start: 9/9/11 0:00:00, Duration: 15 minutes						
NB Dairy Rd.	262	1	0	1	2	1,172
SB Dairy Rd.	281	2	0	1	1	1,240

Table 17
Measurement Consistency Analysis

Site	Measurement Date	Measurement Time	Leq(h) dBA	Equiv. Auto Volume	Adjusted Leq	Equiv. Vol. ΔdB	Result
1A	9/8/11	18:10	62.8	2,191	62.8		
	9/9/11	8:39	65.0	3,498	63.0	0.2	Consistent
1B	9/8/11	16:17	66.0	3,624	66.0		
	9/9/11	8:07	66.7	3,423	67.0	1.0	Consistent
1C	9/8/11	17:39	62.4	2,687	62.4		
	9/9/11	8:07	63.9	3,423	62.8	0.5	Consistent
1D	9/8/11	18:10	61.3	2,191	61.3		
	9/9/11	8:07	64.9	3,423	63.0	1.7	Consistent
1E	9/8/11	19:03	62.9	2,340	62.9		
	9/9/11	7:30	66.1	3,295	64.6	1.7	Consistent
1F	9/8/11	19:03	65.4	1,908	65.4		
	9/9/11	7:30	69.6	2,883	67.9	2.5	Not Consistent
2A	9/8/11	16:17	62.1	3,624	62.1		
	9/9/11	9:19	61.7	2,988	62.6	0.4	Consistent
2B	9/8/11	16:17	58.5	3,624	58.5		
	9/9/11	9:19	57.8	2,988	58.6	0.1	Consistent
3	9/8/11	16:50	72.3	3,747	72.3		
	9/9/11	6:21	73.2	3,169	73.9	1.6	Consistent
4A	9/9/11	6:50	67.6	3,534	67.6		
	9/9/11	18:33	64.7	2,412	66.4	-1.2	Consistent

A-1.2 Model Calibration Traffic Data

Table 18 present the traffic volumes used for model calibration which are equivalent to the average the traffic counts presented in Table 16 for the two measurements performed at each site. All vehicles were modeled traveling at 35 mph.

Table 18
Traffic Volumes Used for Model Calibration

Site Road	Auto	Traffic Volume MT	HT	MC	Bus
Site: 1A					
NB Dairy Rd.	882	10	10	8	4
SB Dairy Rd	990	22	14	12	6
Site: 1B					
NB Dairy Rd.	998	16	16	2	0
SB Dairy Rd	1,328	42	8	28	2
Site: 1C					
NB Dairy Rd.	1,010	14	14	10	0
SB Dairy Rd	1,048	34	8	6	4
Site: 1D					
NB Dairy Rd.	914	12	12	4	0
SB Dairy Rd	978	34	6	8	6
Sites: 1E & 1F					
South of Pakaula St.					
NB Dairy Rd.	842	12	12	2	2
SB Dairy Rd	824	28	10	0	2
North of Pakaula St.					
NB Dairy Rd.	782	12	12	0	2
SB Dairy Rd	822	16	10	0	2
Pakaula St.					
Westbound	356	12	2	2	2
Eastbound	294	2	2	0	2
Site: 2A					
NB Dairy Rd.	996	14	14	6	0
SB Dairy Rd	1,302	26	10	28	0
Site: 2B					
NB Dairy Rd.	996	14	14	6	0
SB Dairy Rd	1,302	26	10	28	0

(Table Continued on Next Page)

Table 18 (Continued)
Traffic Volumes Used for Model Calibration

Site / Road	Auto	MT	HT	MC	Bus
Site: 3					
South of Pakaula St.					
NB Dairy Rd.	848	32	32	2	2
SB Dairy Rd	924	44	8	14	6
North of Pakaula St.					
NB Dairy Rd.	838	32	32	2	2
SB Dairy Rd	918	42	8	12	6
Pakaula St.					
Westbound	328	8	0	2	0
Eastbound	312	6	0	0	0
Site: 4A					
NB Dairy Rd.	1,066	8	8	8	4
SB Dairy Rd	1,058	14	12	4	6

Traffic Volume columns: Auto, MT, HT, MC, Bus.

A-2.0 Traffic Data Used For Modeling

Table 19 presents the traffic volumes used to model existing conditions without the project. Table 20 presents the data used to model buildout conditions with the project. All vehicles were modeled traveling at 35 mph.

Table 19
Modeled Traffic Volumes and Speeds for Existing Conditions Without Project

Road / Segment	NB A	NB MT	NB HT	SB A	SB MT	SB HT
Dairy Road						
North of Pakaula	1,063	22	22	1,296	27	27
Pakaula to Puunene	1,063	22	22	1,296	27	27
Pakaula Street						
East of Airport Access Rd.	936	20	20	950	20	20
Kuihelani Highway						
South of Puunene	721	15	15	858	18	18
Puunene Avenue						
West (N) of Dairy	1,128	23	23	1,172	24	24
East (S) of Dairy	1,052	22	22	969	20	20

Table 20
Modeled Traffic Volumes and Speeds for Future Conditions With Project

Road Segment	NB A	MT	HT	SB A	MT	HT
Airport Access Road						
North of Hana Highway	538	11	11	1,205	25	25
South of Hana Highway	797	17	17	1,176	25	25
North of Pakaula/Dairy	797	17	17	1,181	25	25
South of Pakaula/Dairy	1,277	27	27	1,483	31	31
Pakaula Street						
East of Airport Access Rd.	1,046	22	22	1,070	22	22
Dairy Road						
West of Airport Access Rd.	672	14	14	874	18	18
Kuihelani Highway						
South of Puunene	821	17	17	977	20	20
Puunene Avenue						
West (N) of Dairy	1,284	27	27	1,334	28	28
East (S) of Dairy	1,197	25	25	1,103	23	23

A-3.0 TNM Modeling File Descriptions

Table 21 presents a list of the TNM modeling files included in the Data CD included with this report. The file name is presented along with a description of the areas, receptors and conditions for each model. The tables in the report that present the results of each modeling file are presented in the final column of the table.

Table 21
TNM Modeling CD File Descriptions

File	Description	Results
Cal_1A	Site 1A Calibration: Existing Physical Conditions and Average Traffic Volumes During Measurements at Site 1A Presented In Table 18	Table 6
Cal_1B	Site 1B Calibration: Existing Physical Conditions and Average Traffic Volumes During Measurements at Site 1B Presented In Table 18	Table 6
Cal_1C	Site 1C Calibration: Existing Physical Conditions and Average Traffic Volumes During Measurements at Site 1C Presented In Table 18	Table 6
Cal_1D	Site 1D Calibration: Existing Physical Conditions and Average Traffic Volumes During Measurements at Site 1D	Table 6

	Presented In Table 18	

(Table Continued on Next Page)

Table 21 (Continued)
TNM Modeling CD File Descriptions

File	Description	Results
Cal_1E_1F	Sites 1E & 1F Calibration: Existing Physical Conditions and Average Traffic Volumes During Measurements at Sites 1E & 1F Presented In Table 18	Table 6
Cal_2A_2B	Sites 2A & 2B Calibration: Existing Physical Conditions and Average Traffic Volumes During Measurements at Sites 2A & 2B Presented In Table 18	Table 6
Cal_4A	Site 4A Calibration: Existing Physical Conditions and Average Traffic Volumes During Measurements at Site 4A Presented In Table 18	Table 6
Existing	Existing Conditions Without Project-Measurement Sites: Existing Physical Conditions and Existing Without Project Traffic Volumes Presented in Table 19 for measurement sites	Table 7
Exist_ AnlsysRcpt	Existing Conditions Without Project Analysis Sites: Existing Physical Conditions and Existing Without Project Traffic Volumes Presented in Table 19 for analysis sites in Receptor Areas 1, 2 & 4	Tables 8 9, and 11
FWP	Future Conditions With Project: Physical Conditions With Project With Future and Project Traffic Volumes Presented in Table 20 for analysis receptors in Receptor Areas 1, 2, & 4	Tables 8 9, and 11
FWP_06	Future Conditions With Project with 6' wall for Receptor Area 1: Physical Conditions With Project With Future and Project Traffic Volumes Presented in Table 20 for analysis receptors in Receptor Areas 1 with 6' wall	Table 13
FWP_08	Future Conditions With Project with 8' wall for Receptor Area 1: Physical Conditions With Project With Future and Project Traffic Volumes Presented in Table 20 for analysis receptors in Receptor Areas 1 with 8' wall	Table 13
FWP_10	Future Conditions With Project with 10' wall for Receptor Area 1: Physical Conditions With Project With Future and Project Traffic Volumes Presented in Table 20 for analysis receptors in Receptor Areas 1 with 10' wall	Table 13
FWP_12	Future Conditions With Project with 12' wall for Receptor Area 1: Physical Conditions With Project With Future and Project Traffic Volumes Presented in Table 20 for analysis receptors in Receptor Areas 1 with 12' wall	Table 13
FWP_14	Future Conditions With Project with 14' wall for Receptor	Table 13

	Area 1: Physical Conditions With Project With Future and Project Traffic Volumes Presented in Table 20 for analysis receptors in Receptor Areas 1 with 14' wall	

(Table Continued on Next Page)

Table 21 (Continued)
TNM Modeling CD File Descriptions

File	Description	Results
Exist_ AnlsysRcpt_3	Existing Conditions Without Project Analysis Sites: Existing Physical Conditions and Existing Without Project Traffic Volumes Presented in Table 19 for analysis sites in Receptor Area 3	Table 10
FWP_3Bar	Future Conditions With Project: Physical Conditions With Project With Future and Project Traffic Volumes Presented in Table 20 for analysis receptors in Receptor Area 3 for conditions with and without barrier (barrier analysis used to determine noise levels with barrier)	Tables 10 and 14
FWP_RA5	Future Conditions With Project: Physical Conditions With Project and Future With Project Traffic Volumes Presented in Table 20 for analysis receptors in Receptor Area 5.	Table 12

APPENDIX F.

Archaeological Monitoring Plan and State Historic Preservation Division Letter, Dated January 2, 2007 Regarding Approval of Monitoring Plan

SCS Project Number 747-AMP-1-Phase I

ARCHAEOLOGICAL MONITORING PLAN
FOR PROPOSED KAHULUI AIRPORT ACCESS ROAD (PHASE I)
KAHULUI, WAILUKU AHUPUA'A, WAILUKU DISTRICT
ISLAND OF MAUI, HAWAI'I
[TMK: 3-8-06 por.]

Prepared by:
Donna M. Shefcheck, B.A.
and
Michael F. Dega, Ph.D.
September 2006

Prepared For:
Fukunaga and Associates
1388 Kapiolani Blvd., 2nd Floor
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INTRODUCTION

Scientific Consultant Services (SCS), Inc. has prepared this Archaeological Monitoring Plan (AMP) in advance of road construction and improvements for the installation of a new access road toward the Kahului Airport. This phase of the project is designated as Phase I and runs from the corner of Puunene Avenue and Dairy Road to the Hana Highway. Phase II, covered under a separate Monitoring Plan, runs from Hana Highway to the Kahului Airport itself. The current Phase I project areas occurs within Wailuku Ahupua`a, Wailuku District, Island of Maui, Hawai`i ([TMK:3-8-06 por.] (Figures 1 and 2).

The proposed access road work has been divided into two phases. Phase I refers to the western half of the new road, from the corner of Dairy Road and Puunene Avenue, to the nexus of the proposed road and Hana Highway (Figure 3). This first phase will include improvements to Dairy Road itself, as well as the construction of a new road originating just east of the First Assembly of God Subdivision and stretching eastward to Hana Highway. Phase II will continue east from Hana Highway to the north side of Kahului Airport (Figure 4). The second phase will also include improvements Hana Highway itself. This AMP refers specifically to Phase I construction.

Archaeological Monitoring is required due to the potential for the inadvertant discovery of human remains and/or traditional or historic cultural deposits. Such culturally significant materials are often found in the sandy substrate known to lie below exisiting fill layers throughout municipal Kahului. While most of Phase I borders former cane field lands, there is the possibility that significant cultural deposits may be identified, per SHPD requirement of Monitoring. The present Monitoring program will ensure that any human remains found during subsurface work are identified and mitigated, as deemed appropriate and lawful under Hawai'i State Law for the Inadertant Discovery of Human Remains (pursuent to 13-300-40a, b, c, HAR). Archaeological Monitoring will also ensure that significant cultural resources identified in the project area are adequately sampled, documented, and evaluated for their historical significance.

This AMP will require the approval of the State Historic Preservation Division (Dr. Melissa Kirkendall, SHPD-Maui) prior to the commencement of any ground altering activities. The following text provides more detailed information on the reasons for monitoring, potential site types to be encountered during excavation, monitoring conventions and methodology for both field and laboratory work, as well as discusses curation and reporting.

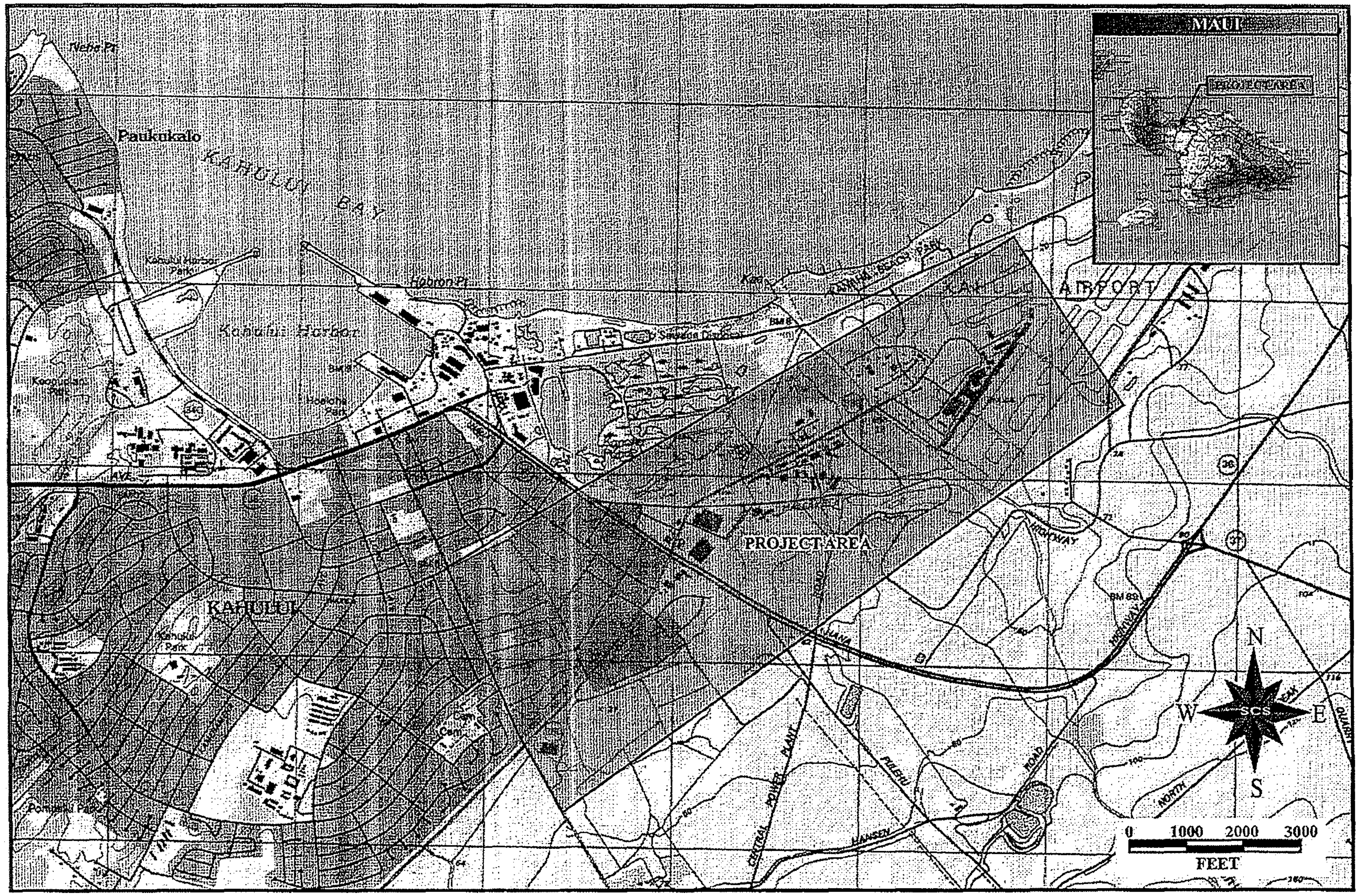

Figure 1: USGS Quadrangle Map Showing Project Area and Environs.

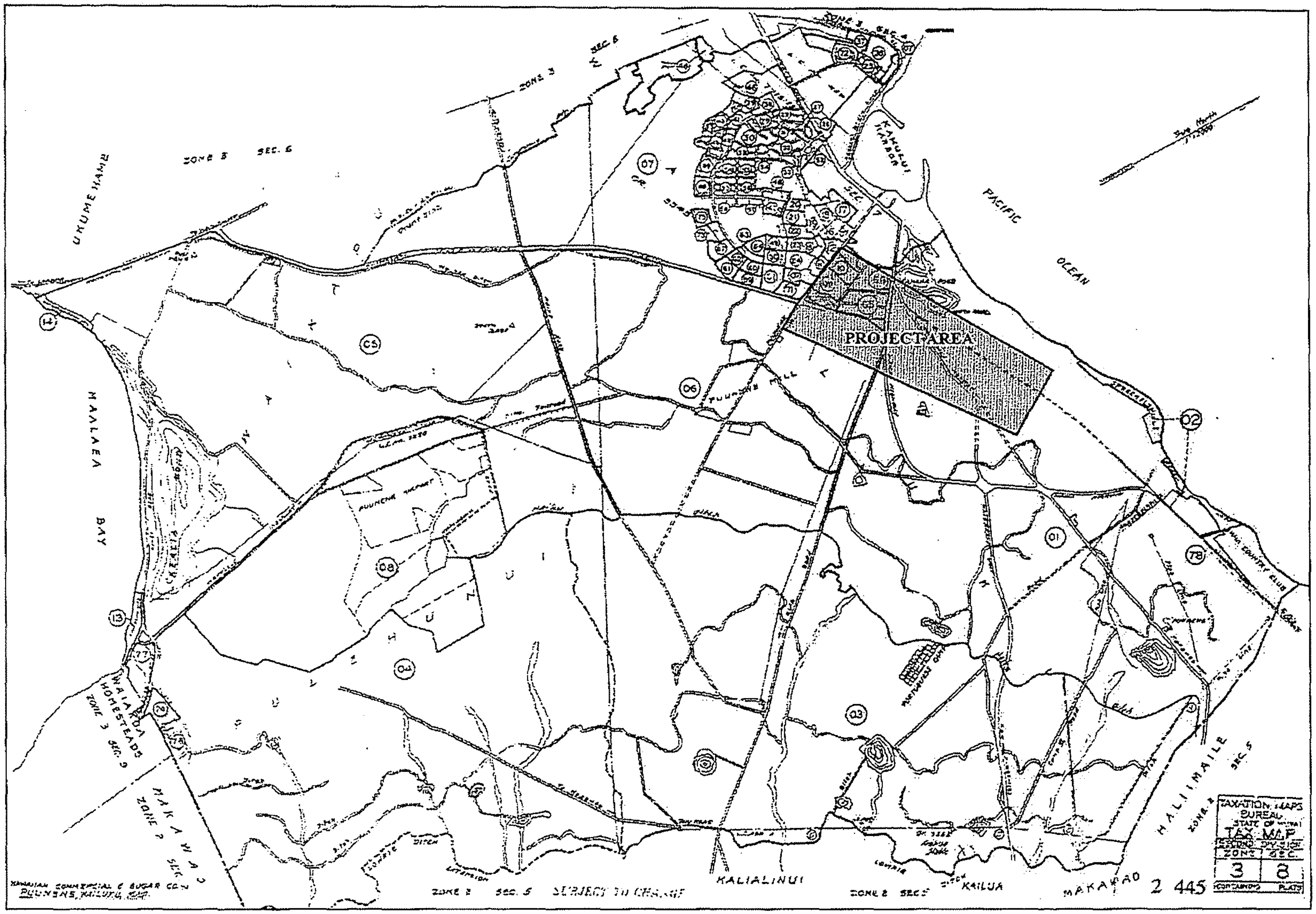

Figure 2: Tax Map Key [TMK] Showing Project Area.

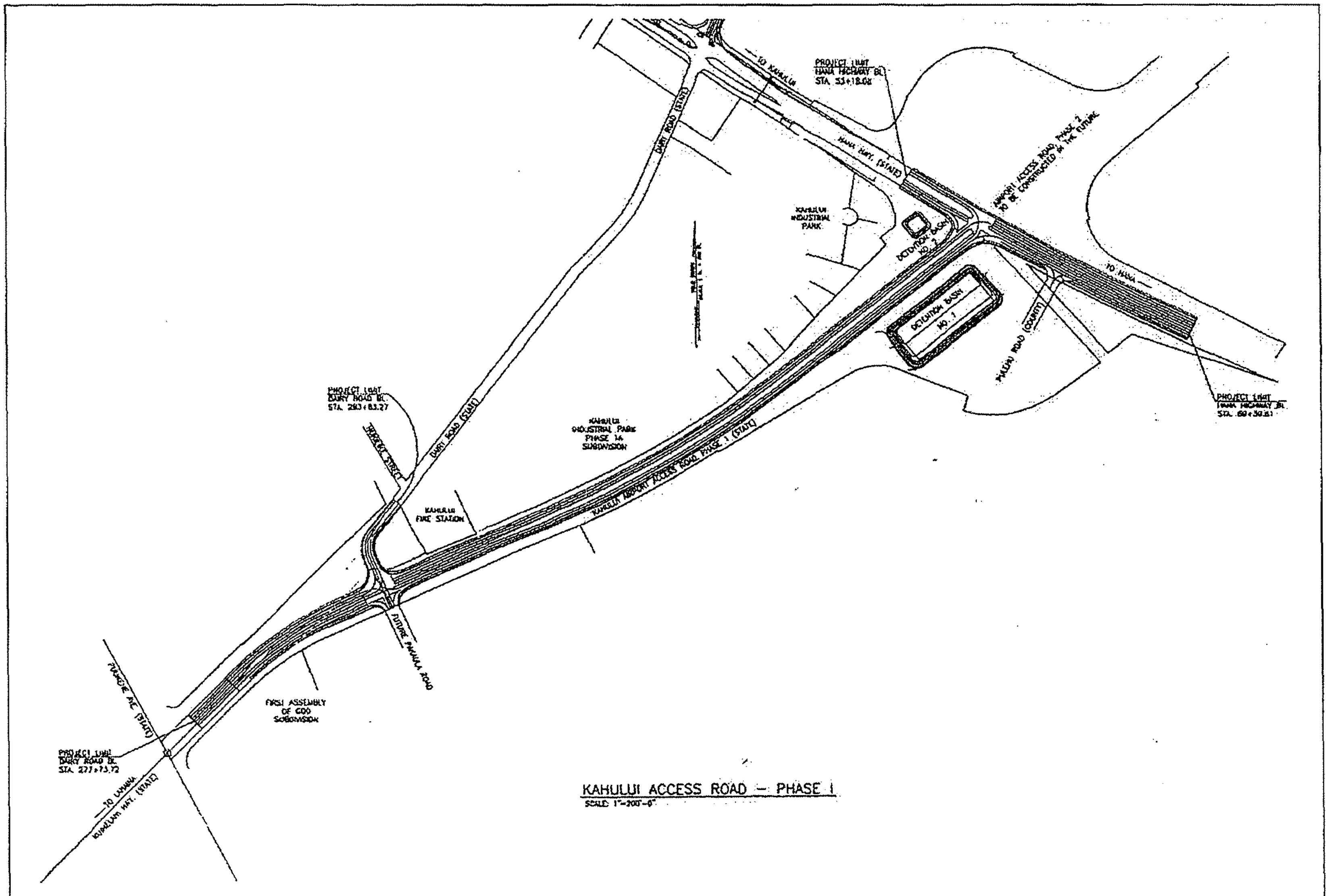

Figure 3: Plan View Map of the Phase I Project Area.

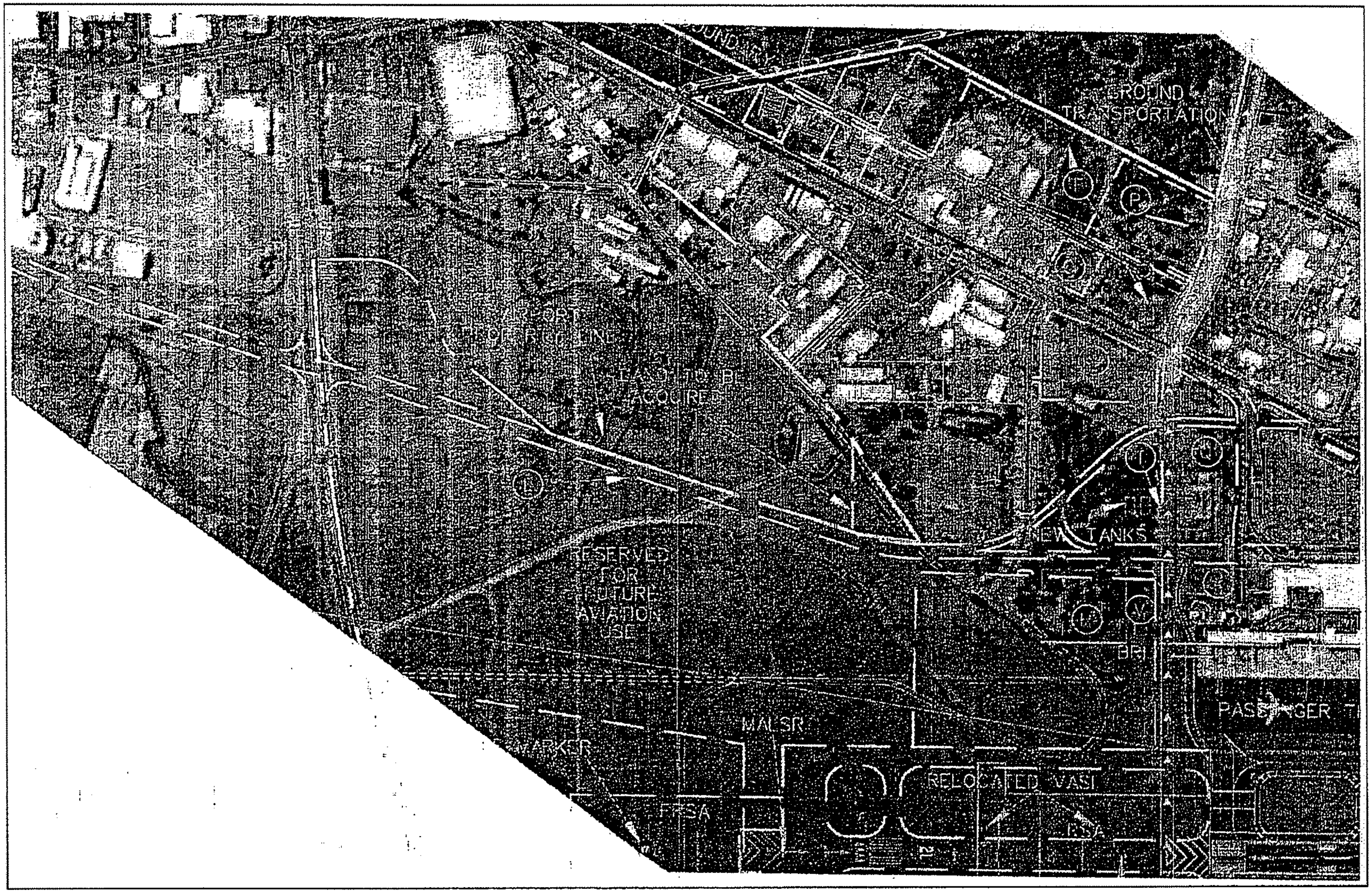

Figure 4: Aerial Photograph Showing General Phase II Project Area.

REASON FOR MONITORING

The current project area is located just inland of the northern shore of Maui's isthmus, in a region that has been heavily cultivated with sugar cane throughout the historic period. The soils in the area, as described in Foote *et al.* (1972), include Jaucus sand (JcC), Puuone sand (PZUE), and Molokai silty clay loam (MuA). There is a strong corrolation between Jaucus sand and human remains, as demonstrated by numerous previous archaeological projects in the Kahului area (discussed below). Previous archaeology also suggests that there is a strong potential for the identification of either *in situ* cultural deposits or truncated cultural remnants.

While the Phase I Monitoring area has been subject to much previous disturbance through the creation of Dairy Road and adjacent private properties, cultural remnants may still occur in subterranean contexts. The Phase II area, to the northeast, could contain non-disturbed cultural resources as areas not previously subject to infrastructure construction will be explored. Overall, there is the likelihood that intact natural sedimentary deposits (i.e., sand, sandy loam) could be identified in both Phase I and Phase II locations. Typically, within sandy-type substrate, there is the potential for discovering prehistoric or historic cultural deposits and/or native Hawaiian burials. Habitation and agricultural activity associated with non-sandy sediment could also be identified in the area. Both areas could reveal the presence of additional prehistoric and historic cultural resources. As discussed below, the results of archaeological research recently conducted in the vicinity of the present project area has led to the documentation of pre-Contact deposits, burials, and historic 19^{th} century cultural materials.

PREVIOUS ARCHAEOLOGY & POTENTIAL SITE TYPES TO BE ENCOUNTERED

Multiple archaeological investigations have been conducted over the past few years near the present project area in Kahului, Maui. Inventory Survey and Monitoring programs have yielded variable results. The subsequent text provides a brief overview of previous archaeological work conducted in the very general vicinity of the Kahului Airport area, followed by a listing of the known sites occurring within or very near the airport itself.

Generally to date, Fredericksen and Fredericksen (1988, 1989) conducted the most intensive study of the area through Inventory Survey. The survey led to the documentation of several supposed volcanic glass concentrations, historic irrigation ditches, and old stream gravels. The volcanic glass debris was later cleverly re-interpreted as slag associated with mill production. No subsurface deposits were identified near Dairy Road in the former sugarcane lands to the south of the present project area. A significant amount of archaeological work has been conducted to the southwest of the airport itself, in the Maui Lani area of Wailuku. This area is characterized by sand dunes/sandy substrata similar to the present project area. Rotunno-Hazuka *et al.* (1995:i) discuss the findings as being predominantly "scattered human skeletal remains." This may simply mean that they were identified post-backhoe work. There appeared to also be concentrations of burials. Few other studies directly adjacent to the project area have yielded significant deposits. These results may be a function of sampling, depth of required construction excavations, the predominance of fill in the area overlying sand, or the intrusive nature of sugarcane soils (clay and silty clay bordering the area) and cultivation activities themselves.

As summarized by McGerty and Spear (2001), for the Kahului area and Hawai`i in general (see Kirch 1985), there is an acute positive relationship between the presence of sandy substrate and traditional native Hawaiian burials. Archaeological studies conducted around the perimeter of Kahului Bay and slightly inland (inclusive of the current project area) have led to the identification of deposits related to remnants of the old Kahului Railroad bed, historic refuse, pre-Contact artifacts, midden, and isolated findspots of human remains. The depth of these cultural resources varies depending on previous construction activities in an area but often, these deposits have been identified from 0.20-2.00 meters below the ground surface. Similar to the present project area, many of these resources are associated with sandy substrata.

Archaeological Monitoring was conducted during building construction on an approximately. 30,000 square foot parcel located in Kahului, Wailuku Ahupua`a, Wailuku District, Island of Maui, Hawai`i (TMK:3-7-12:017). Five trenches were excavated for footings around the property allowing for an examination of subsurface cultural materials and analysis of project area strata. No cultural deposits or isolated cultural materials were identified during this project. The strata varied from mostly fill layers to natural, sandy sediment sterile of all organics and cultural material (Dega and Risedorf 2004).

To summarize, the combined Phase I and Phase II Monitoring work may indeed lead to the identification of prehistoric and historic structures, deposits, or burials. It appears less likely, per Monitoring, that architecture and extensive surface remains would be present given the location's long time susceptibility to modern infrastructure; exceptions are noted above however. In keeping with the results of previous archaeological work within the general Kahului/Wailuku corridor, most cultural signatures dating to pre-Contact and historic times would likely be present in subsurface contexts. As the Phase I Monitoring area has been subject to much modern construction, many of these deposits may be partially truncated and occur as remnants. Phase II areas may contain less disturbed deposits.

Based on previous archaeological work in the general Kahului area and the airport environs itself, both traditional and historical features and deposits may be identified during the proposed Monitoring work. Traditional deposits dating from the *c.* A.D. 1400s (or even earlier) could include signatures for habitation (hearths, possible living floors, postholes, subterranean alignments, and associated artifacts (*i.e.*, food preparation tools, debitage of tool manufacture, and fishing tool kits) and midden (*i.e.*, consumption products such as fish remains, shell, and terrestrial remains). There is also the possibility that human burials could be identified within subsurface strata. Historic use of the parcel could be indicated by burning episodes, the presence of historic artifacts (such as metals and glass), and historic burials, among others. In total, there appears to be a fair probability that Archaeological Monitoring may lead to the identification and documentation of continuous activity in the airport from traditional through historic times.

MONITORING CONVENTIONS AND METHODOLOGY

This Archaeological Monitoring Plan has been devised in accordance with DLNR-SHPD rules governing standards for archaeological monitoring (DLNR-SHPD 2003). SCS monitors will adhere to the following guidelines during monitoring both Phase I and Phase II areas:

1. A qualified archaeologist from SCS intimately familiar with the project area and the results of previous archaeological work conducted within and near the Kahului Airport will monitor subsurface construction activities on the parcels (both Phase I and II areas). If significant deposits or features are identified and additional field personnel are required, SCS will notify the contractor or representatives thereof before additional personnel are brought to the site.

2. If features or cultural deposits are identified during Monitoring, the on-site archaeologist will have the authority to temporarily suspend construction activities at the significant location so that the cultural feature(s) or deposit(s) may be fully evaluated and appropriate treatment of the cultural deposit(s) is conducted. SHPD (Dr. M. Kirkendall) will be contacted to establish feature significance and potential mitigation procedures. Treatment activities primarily include documenting the feature/deposit through plotting its location on an overall site map, illustrating a plan view map of the feature/deposit, profiling the deposit in three dimensions, photographing the finds—with the exception of human burials, artifact and soil sample collection, and triangulation of the finds. Construction work and/or back-filling of excavation pits or trenches will only continue in the sample location when all documentation has been completed.

3. Control stratigraphy in association with subsurface cultural deposits will be noted and photographed, particularly those containing significant quantities or qualities of cultural materials. If deemed significant by SHPD and SCS, these deposits will be sampled.

4. In the event that human remains are encountered, all work in the immediate area of the find will cease; the area will be secured from further activity until burial protocol has been completed. The SHPD island Culture and History Branch-Maui (Hinano Rodrigues) and SHPD-Burial Sites Program (Pi`ilani Chang; Kapolei, O`ahu) will be immediately identified as to the inadvertent discovery of human remains on the property. Notification of the inadvertent discovery will also be made to the Maui/Lanai Islands Burial Council by either SHPD (H. Rodrigues) or SCS (Michael Dega). A determination of minimum number of individuals (MNI), age(s), and ethnicity of the burial(s) will be ascertained in the field by SCS. Rules outlined in Chapter 6e, Section 43 shall be followed. Profiles, plan view maps, and illustrative documentation of skeletal parts will be recorded to document the burial(s). The burial location will be identified and marked. If a burial is disturbed during trench excavations, materials excavated from the vicinity of the burial(s) will be manually screened through 1/8" wire mesh screens to recover any displaced skeletal material. If the remains are to be removed, the work will be in compliance with HRS 6.E-43.6, Procedures Relating to Inadvertent Discoveries after approval from all parties (SHPD, Burial Council).

5. To ensure that contractors and the construction crew are aware of this Archaeological Monitoring Plan and possible site types to be encountered on the parcel, a brief coordination meeting will be held between the construction team and monitoring archaeologist prior to initiation of the project. The construction crew will also be informed as to the possibility that human burials could be encountered and how they should proceed if they observe such remains.

6. SCS will provide all coordination with the contractor, SHPD, and any other group involved in the project. SCS will coordinate all Monitoring and sampling activities with the safety officers for the contractors to ensure that proper safety regulations and protective measures meet compliance. Close coordination will also be maintained with construction representatives in order to adequately inform personnel of the possibility that open archaeological units or trenches may occur in the project area.

7. As necessary, verbal reports will be made to SHPD and any other agencies as requested.

LABORATORY ANALYSIS

All samples collected during the project, except human remains, will undergo analysis at the SCS laboratory in Honolulu. In the event that human remains are identified, and unless granted an extension by the landowner(s), the SHPD will have three days to decide whether to preserve the remains in place or relocate the remains. Photographs, illustrations, and all notes accumulated during the project will be curated at the Honolulu laboratory. All retrieved artifact and midden samples will be thoroughly cleaned, sorted, and analyzed. Significant artifacts will be photographed, sketched, and classified (qualitative analysis). All metric attributes and weights will be recorded (quantitative analysis). These data will be presented in tabular form within the final monitoring report. Midden samples will be minimally identified to a major 'class' (*e.g.*, bivalve, gastropod mollusk, echinoderm, fish, bird, mammal). All data will be clearly recorded on standard laboratory forms that also include number and weight (as appropriate) of each constituent category. These counts will also be included in the final report.

Should any samples amenable to dating be collected from a significant cultural deposit, they will be prepared in the SCS laboratory and submitted for specialized radiocarbon analysis. While primary emphasis for dating is placed on charcoal samples, we do not preclude the use of other material such as marine shell or nonhuman bone materials. SCS will consult with SHPD and the client if radiocarbon dates are deemed necessary.

All stratigraphic profiles will be drafted for presentation in the final report. Representative plan view sketches showing the location and morphology of identified sites/features/deposits will be compiled and illustrated.

CURATION

SCS will curate all recovered materials in Honolulu (except human remains, which would remain on-island at either the SCS office in Kahului or at SHPD in Wailuku) until a permanent, more suitable curation center is identified. The land owner may request to curate all recovered cultural materials once analysis has been completed.

REPORTING

An Archaeological Monitoring Report documenting the project findings and interpretation, following SHPD guidelines for Archaeological Monitoring reports, will be prepared and submitted 180 days after the completion of fieldwork for both Phases I and II.

If cultural features or deposits are identified during fieldwork, the sites will be evaluated for historical significance and assessed under State and Federal Significance Criteria. The Archaeological Monitoring report will be drafted until accepted by SHPD and will be submitted to the SHPD, the client, and another other organizations deemed by the client.

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LINDA LINGLE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

January 2, 2007

Dr. Michael Dega
Scientific Consultant Services, Inc.
711 Kapiolani Boulevard, Suite 975
Honolulu, Hawaii 96813

LOG NO: 2006.4238
DOC NO: 0612MK33
Archaeology

Dear Dr. Dega:

SUBJECT: Chapter 6E-42 Historic Preservation Review [County] – Archaeological Monitoring Plan for the Proposed Kahului Airport Access Road (Phase I) Wailuku Ahupuaa, Wailuku District, Island of Maui
TMK: (2) 3-8-006

Thank you for the opportunity to review this plan which was received by our staff on August 26, 2006 (Shefcheck and Dega 2006, *Archaeological monitoring Plan for Proposed Kahului Airport Access Road (Phase I) Kahului, Wailuku Ahupuaa, Wailuku District, Island of Maui, Hawaii [TMK 3-8-06 por.]*...Scientific Consulting Services, Inc., ms).

The subject monitoring plan (Phase I) pertains to construction of the western half of the new road, from the corner of Dairy Road and Puunene Avenue to the nexus of the proposed road and Hana Highway. Improvements to existing Dairy Road are included as part of the project, as well as the new road construction. Phase II is a separate project and includes improvements to Hana Highway as well as the distance from Hana Highway north to the airport.

The plan conforms to Hawaii Administrative Rules Chapter 13-279 which govern standards for monitoring; the subject plan includes the following provisions. An archaeologist will be on site on a full-time basis and will have the authority to halt excavation in the event that cultural materials are identified. Consultation with Maui SHPD will occur in this event, to determine acceptable course of action. If human burials are identified, work will cease, the SHPD Burial Sites Program, Maui SHPD, Oahu SHPD and the Maui/Lanai Islands Burial Council will be notified, and compliance with procedures outlined in HRS 6E-43 will be followed. Coordination meetings with the construction crew will be held prior to project initiation. The plan further indicates that an acceptable report will be submitted to this office within 180 days of project completion.

Please notify our Maui and Oahu offices, via facsimile, at onset and completion of the project and monitoring program

The plan is acceptable. We believe there will be "no historic properties affected" with the implementation of this monitoring plan. If you have any questions, please contact Dr. Melissa Kirkendall at (808) 243-5169.

Aloha,

Melanie Chinen, Administrator
State Historic Preservation Division

MK:kf

c: Bert Ratte, DPWEM, County of Maui
Michael Foley, Director, Dept. of Planning, 250 S. High Street, Wailuku, HI 96793
Maui Cultural Res. Commission, Dept. of Planning, 250 S. High St, Wailuku, HI 96793

APPENDIX G.

Cultural Impact Assessment for the Proposed Kahului Airport Access Road

A CULTURAL IMPACT ASSESSMENT FOR THE PROPOSED KAHULUI AIRPORT ACCESS ROAD (PHASE I AND II), WAILUKU AHUPUA`A, WAILUKU DISTRICT, MAUI ISLAND, HAWAI`I [TMK 3-8-001]

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April 2007

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INTRODUCTION

At the request of Fukunaga & Associates (Phase I) and Kim and Shiroma Engineers, Inc. (Phase II), Scientific Consultant Services, Inc. (SCS) conducted a Cultural Impact Assessment, for the proposed Kahului Airport Access Road, Wailuku Ahupua`a, Wailuku District, Maui Island (TMK:3-8-001, Figure 1). Documents received from Munekiyo & Hiraga, Inc., describe the proposed project as including construction of the western half of a new road, from the corner of Dairy Road and Pu`unene Avenue to the nexus of this proposed road and Hana Highway, as well as improvements to the existing Dairy Road, new road construction, improvements to Hana Highway north, and to the airport (Figures 2 and 3).

The Constitution of the State of Hawai`i clearly states the duty of the State and its agencies is to preserve, protect, and prevent interference with the traditional and customary rights of native Hawaiians. Article XII, Section 7 requires the State to "protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by *ahupua`a* tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778" (2000). In spite of the establishment of the foreign concept of private ownership and western-style government, Kamehameha III (Kauikeaouli) preserved the peoples traditional right to subsistence. As a result in 1850, the Hawaiian Government confirmed the traditional access rights to native Hawaiian *ahupua`*a tenants to gather specific natural resources for customary uses from undeveloped private property and waterways under the Hawaiian Revised Statutes (HRS) 7-1. In 1992, the State of Hawai`i Supreme Court, reaffirmed HRS 7-1 and expanded it to include, "native Hawaiian rights...may extend beyond the *ahupua`a* in which a native Hawaiian resides where such rights have been customarily and traditionally exercised in this manner" (Pele Defense Fund v. Paty, 73 Haw.578, 1992).

Act 50, enacted by the Legislature of the State of Hawaii (2000) with House Bill 2895, relating to Environmental Impact Statements, proposes that:

> ...there is a need to clarify that the preparation of environmental assessments or environmental impact statements should identify and address effects on Hawaii's culture, and traditional and customary rights... [H.B. NO. 2895].

Act 50 requires state agencies and other developers to assess the effects of proposed land use or shore line developments on the "cultural practices of the community and State" as part of the HRS Chapter 343 environmental review process (2001). Its purpose has broadened, "to promote and protect cultural beliefs, practices and resources of native Hawaiians [and] other

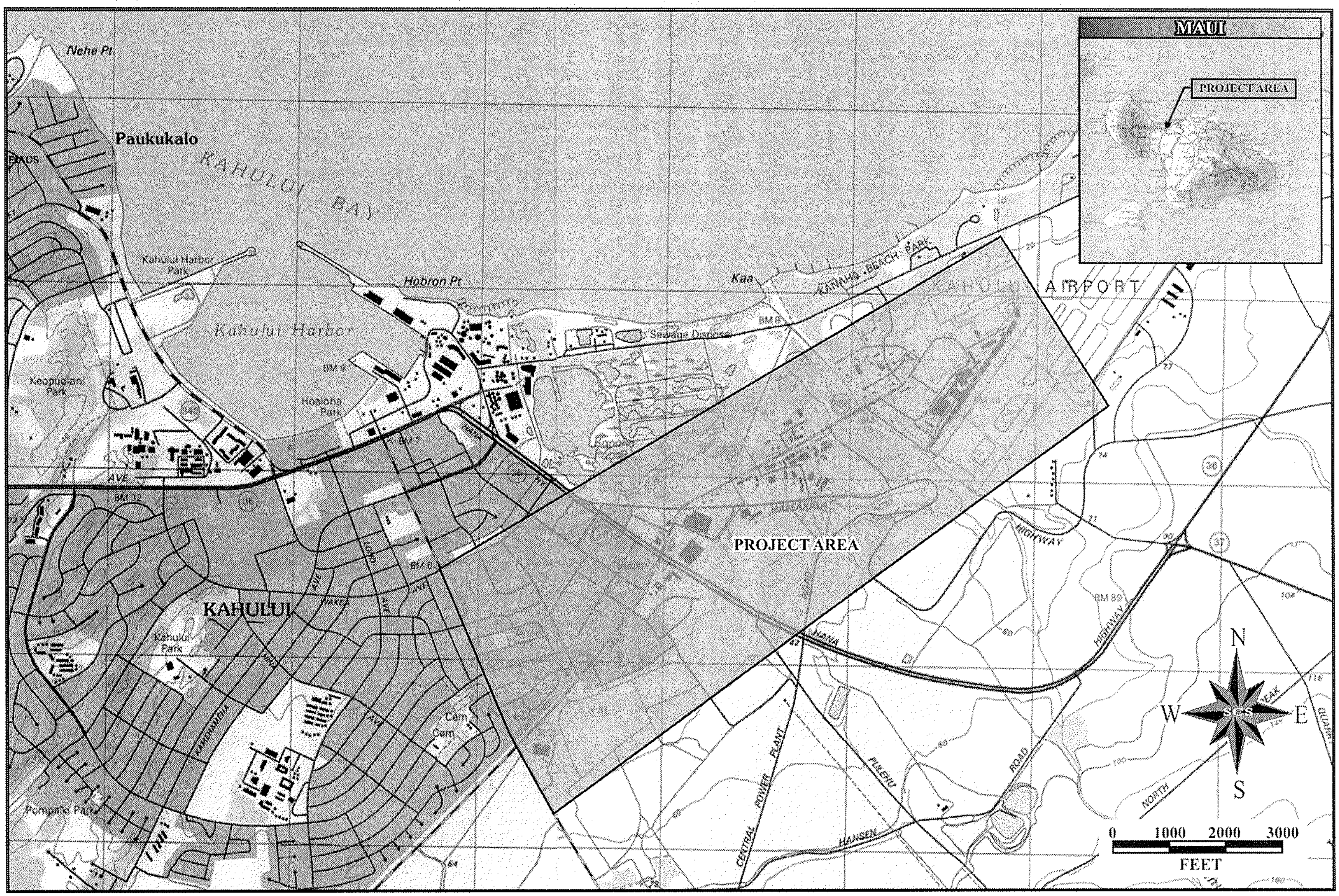

Figure 1: USGS Quadrangle Map Showing Project Area Location.

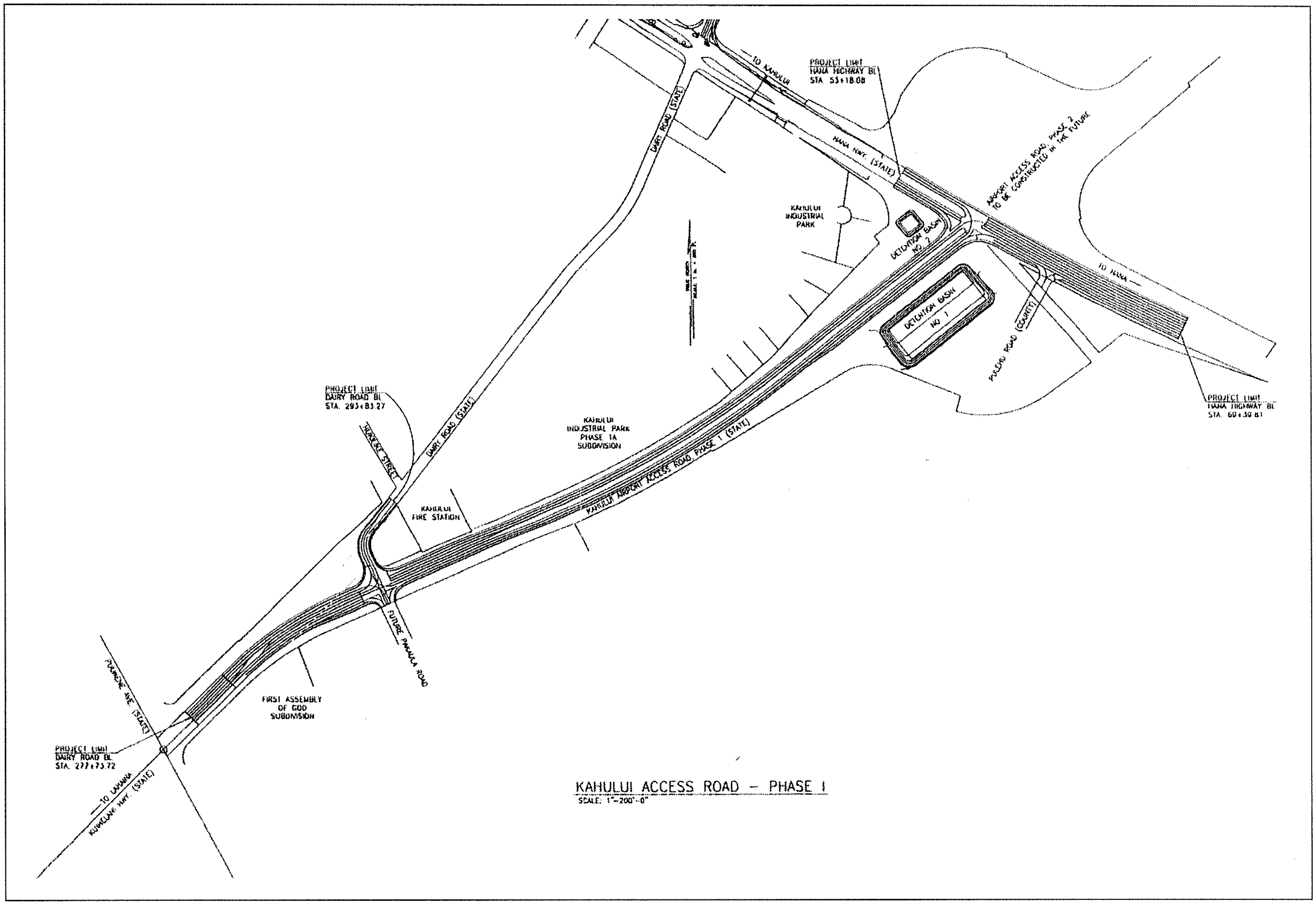

Figure 2: Kahului Access Road, Phase 1.

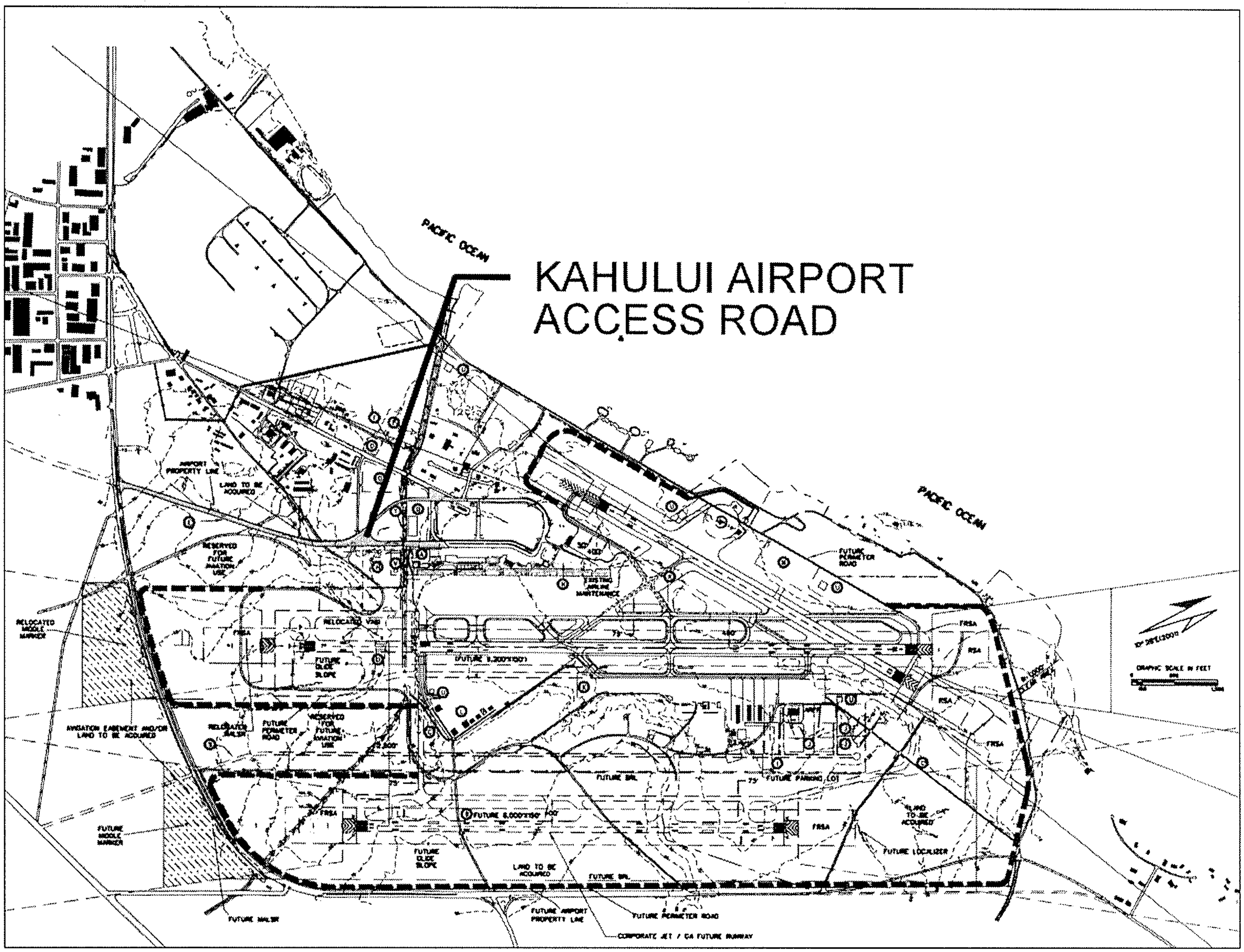

Figure 3: Kahului Airport Access Road, Phase II.

Ethnic groups, and it also amends the definition of 'significant effect' to be re-defined as "the sum of effects on the quality of the environment including actions that are…contrary to the State's environmental policies…or adversely affect the economic welfare, social welfare, or cultural practices of the community and State" (H.B. 2895, Act 50, 2000).

Thus, Act 50 requires an assessment of cultural practices to be included in the Environmental Assessments and the Environmental Impact Statements, and to be taken into consideration during the planning process. The concept of geographical expansion is recognized by using, as an example, "the broad geographical area, e.g. district or *ahupua`a*" (OEQC 1997). It was decided that the process should identify 'anthropological' cultural practices, rather than 'social' cultural practices. For example, *limu* (edible seaweed) gathering would be considered an anthropological cultural practice, while a modern-day marathon would be considered a social cultural practice.

According to the Guidelines for Assessing Cultural Impacts established by the Hawaii State Office of Environmental Quality Control (OEQC 1997):

> The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religions and spiritual customs. The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both manmade and natural, which support such cultural beliefs.

This Cultural Impact Assessment involves evaluating the probability of impacts on identified cultural resources, including values, rights, beliefs, objects, records, properties, and stories occurring within the project area and its vicinity cultural values and rights within the project area and its vicinity (H.B. 2895, Act 50, 2000).

METHODOLOGY

This Cultural Impact Assessment was prepared in accordance with the methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 1997). In outlining the "Cultural Impact Assessment Methodology", the OEQC state:

> …information may be obtained through scoping, community meetings, ethnographic interviews and oral histories… (1997).

The report contains archival and documentary research, as well as communication with organizations having knowledge of the project area, its cultural resources, and its practices and beliefs. This Cultural Impact Assessment was prepared in accordance with the methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 1997). The assessment concerning cultural impacts should address, but not be limited to, the following matters:

(1) a discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and features associated with the project area, including any constraints of limitations with might have affected the quality of the information obtained;

(2) a description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken;

(3) ethnographic and oral history interview procedures, including the circumstances under which the interviews were conducted, and any constraints or limitations which might have affected the quality of the information obtained;

(4) biographical information concerning the individuals and organizations consulted, their particular expertise, and their historical and genealogical relationship to the project area, as well as information concerning the persons submitting information or interviewed, their particular knowledge and cultural expertise, if any, and their historical and genealogical relationship to the project area;

(5) a discussion concerning historical and cultural source materials consulted, the institutions and repositories searched, and the level of effort undertaken, as well as the particular perspective of the authors, if appropriate, any opposing views, and any other relevant constraints, limitations or biases;

(6) a discussion concerning the cultural resources, practices and beliefs identified, and for the resources and practices, their location within the broad geographical area in which the proposed action is located, as well as their direct or indirect significance or connection to the project site;

(7) a discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the proposed project;

(8) an explanation of confidential information that has been withheld from public disclosure in the assessment;

(9) a discussion concerning any conflicting information in regard to identified cultural resources, practices and beliefs;

(10) an analysis of the potential effect of any proposed physical alteration on cultural resources, practices or beliefs; the potential of the proposed action to isolate cultural resources, practices or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place, and;

(11) the inclusion of bibliography of references, and attached records of interviews, which were allowed to be disclosed.

Based on the inclusion of the above information, assessments of the potential effects on cultural resources in the project area and recommendations for mitigation of these effects can be proposed.

ARCHIVAL RESEARCH

Archival research focused on a historical documentary study involving both published and unpublished sources. These included legendary accounts of native and early foreign writers; early historical journals and narratives; historic maps and land records such as Land Commission Awards, Royal Patent Grants, and Boundary Commission records; historic accounts, and previous archaeological project reports.

INTERVIEW METHODOLOGY

Interviews are conducted in accordance with Federal and State laws and guidelines. Individuals and/or groups who have knowledge of traditional practices and beliefs associated with a project area or who know of historical properties within a project area are sought for consultation. Individuals who have particular knowledge of traditions passed down from preceding generations and a personal familiarity with the project area are invited to share their relevant information. Often people are recommended for their expertise, and indeed, organizations, such as Hawaiian Civic Clubs, the Island Branch of Office of Hawaiian Affairs, historical societies, Island Trail clubs, and Planning Commissions are depended upon for their recommendations of suitable informants. These groups are invited to contribute their input, and suggest further avenues of inquiry, as well as specific individuals to interview.

If knowledgeable individuals are identified, personal interviews are sometimes taped and then transcribed. These draft transcripts are returned to each of the participants for their review and comments. After corrections are made, each individual signs a release form, making the information available for this study. When telephone interviews occur, a summary of the information is often sent for correction and approval, or dictated by the informant and then incorporated into the document. Key topics discussed with the interviewees vary from project to project, but usually include: personal association to the *ahupua*`a, land use in the project's vicinity; knowledge of traditional trails, gathering areas, water sources, religious sites; place names and their meanings; stories that were handed down concerning special places or events in the vicinity of the project area; evidence of previous activities identified while in the project vicinity.

In this case, letters briefly outlining the development plans along with maps of the project area were sent to individuals and organizations whose jurisdiction includes knowledge of the area with an invitation for consultation. Consultation was sought from the Director of Native Rights, Land and Culture, Office of Hawaiian Affairs on O`ahu; Thelma Shimaoka, Coordinator of the Maui branch of the Office of Hawaiian Affairs; the Central Maui Hawaiian Civic Club; Hinano Rodrigues, Cultural Historian with State Historic Preservation Division; and the Cultural Resources Commission of the Maui Planning Department. If cultural resources are identified based on the information received from these organizations and additional informants, an assessment of the potential effects on the identified cultural resources in the project area and recommendations for mitigation of these effects can be proposed.

PROJECT AREA AND VICINITY

The project area is located in Wailuku Ahupua`a and extends from the corner of Dairy Road and Pu`unene Avenue to Hana Highway and from Hana Highway north, to the airport. The project will be completed in two phases (Figure 4).

CULTURAL HISTORICAL CONTEXT

The island of Maui ranks second in size of the eight main islands in the Hawaiian Archipelago. Pu`u Kukui, forming the west end of the island (1,215m above mean sea level), is composed of large, heavily eroded amphitheater valleys that contain well-developed permanent stream systems that watered fertile agricultural lands extending to the coast. The deep valleys of West Maui and their associated coastal regions have been witness to many battles in ancient times and were coveted productive landscapes.

PAST POLITICAL BOUNDARIES

Traditionally, the division of Maui's lands into districts (*moku*) and sub-districts was performed by a *kahuna* (priest, expert) named Kalaiha`ohia, during the time of the *ali`i* Kaka`alaneo (Beckwith 1940:383; Fornander places Kaka`alaneo at the end of the 15^{th} century or

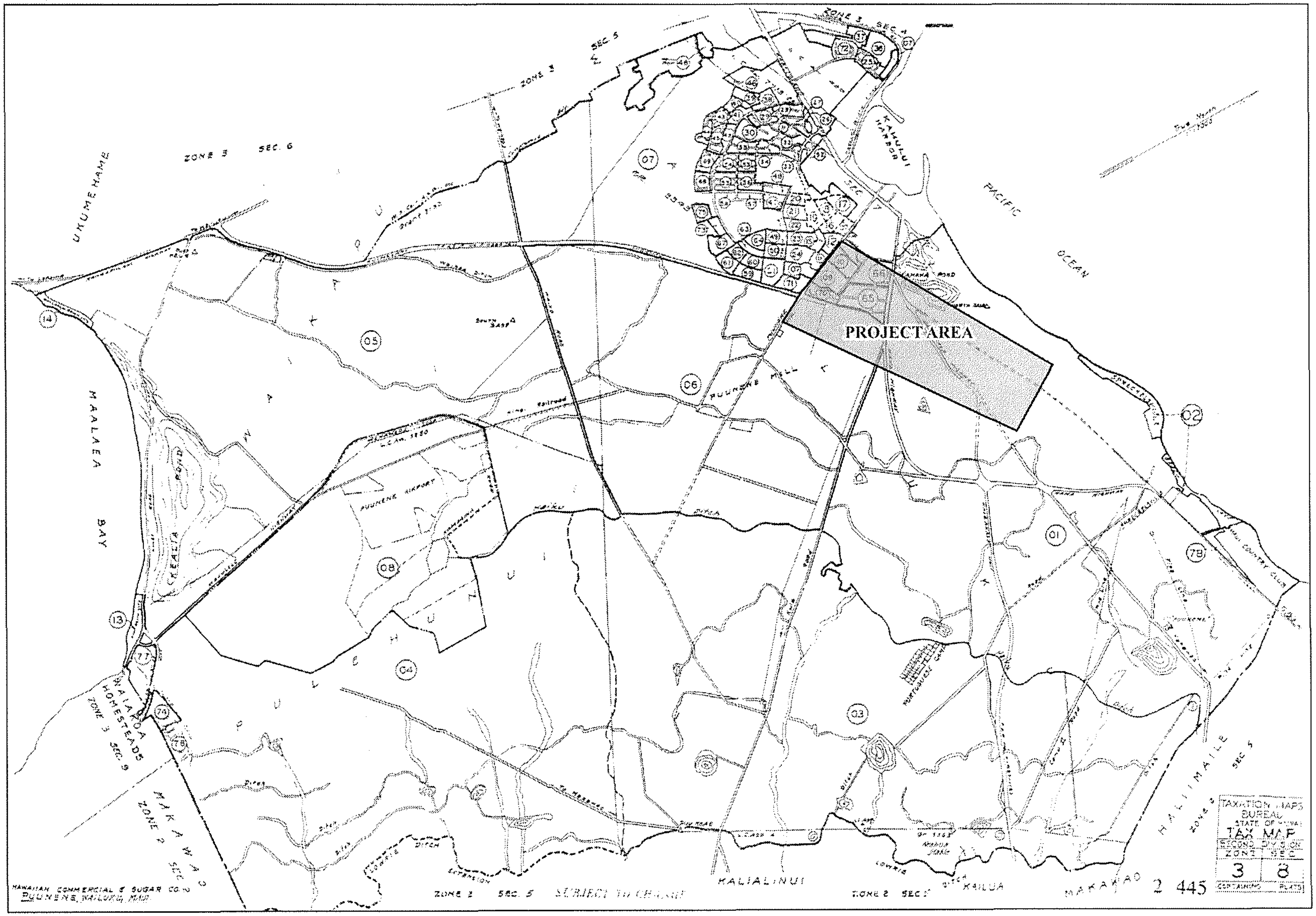

Figure 4: Tax Map Key [TMK] Showing Project Area.

the beginning of the 16th century [Fornander 1919-20, Vol. 6:248]). Land was considered the property of the king or *ali`i `ai moku* (the *ali`i* who eats the island/district), which he held in trust for the gods. The title of *ali`i `ai moku* ensured rights and responsibilities pertaining to the land, but did not confer absolute ownership. The king kept the parcels he wanted, his higher chiefs received large parcels from him and, in turn, distributed smaller parcels to lesser chiefs. The *maka`āinana* (commoners) worked the individual plots of land.

In general, several terms, such as *moku*, *ahupua`a*, *`ili* or *`ili`ā ina* were used to delineate various land sections. A district (*moku*) contained smaller land divisions (*ahupua`a*) which customarily continued inland from the ocean and upland into the mountains. Extended household groups living within the *ahupua`a* were therefore, able to harvest from both the land and the sea. Ideally, this situation allowed each *ahupua`a* to be self-sufficient by supplying needed resources from different environmental zones (Lyons 1875:111). The *`ili `āina* or *`ili* were smaller land divisions next to importance to the *ahupua`a* and were administered by the chief who controlled the *ahupua`a* in which it was located (*ibid*:33; Lucas 1995:40). The *mo`o`āina* were narrow strips of land within an *`ili*. The land holding of a tenant or *hoa `āina* residing in a *ahupua`a* was called a *kuleana* (Lucas 1995:61). The project area is located in the *ahupua`a* of Wailuku, which translated literally means "water of destruction" (Pukui *et al.*:225).

TRADITIONAL SETTLEMENT PATTERNS

The Hawaiian economy was based on agricultural production and marine exploitation, as well as raising livestock and collecting wild plants and birds. Extended household groups settled in various *ahupua`a*. During pre-Contact times, there were primarily two types of agriculture, wetland and dry land, both of which were dependent upon geography and physiography. River valleys provided ideal conditions for wetland *kalo* (*Colocasia esculenta*) agriculture that incorporated pond fields and irrigation canals. Other cultigens, such as *ko* (sugar cane, *Saccharum officinaruma*) and *mai`a* (banana, *Musa* sp.), were also grown and, where appropriate, such crops as *`uala* (sweet potato, *Ipomoea batatas*) were produced. This was the typical agricultural pattern seen during traditional times on all the Hawaiian Islands (Kirch and Sahlins 1992, Vol. 1:5, 119; Kirch 1985). Between A.D. 600-1100, sometimes referred to as the Developmental Period, the major focus of permanent settlement continued to be the fertile and well-watered windward valleys, such as those in the West Maui mountains in close proximity to Kahului (Kirch 1985).

WAHI PANI (LEGENDARY PLACES)

Scattered amongst the agricultural and habitation sites were other places of cultural significance to the *kama`aina* of the district. Near the project area were the *kuapa* (fishponds) of Kanaha and Mau`oni, also known as the twin ponds of Kapi`ioho (a chief of O`ahu and half of Moloka`i in the early 18th century; Cordy 2002). It was told that stones were passed hand-to-hand by a line of men extending from Makawela to Kanaha during the building of the banks. Kapi`ioho was killed before they were finished and Kamehamehanui (brother of Kahekili) finished their construction and placed a *kapu* on the bank dividing the two ponds (Sterling 1998). Another version published in *Ka Nupepa Kuokoa* stated that after Kapi`ioho was killed, Kihapi`ilani began the construction of the ponds and it was he who separated the water with a wall, giving it two names (August 23, 1884). The twin ponds supplied mullet to the population during the times of fishing *kapu* (Bartholomew 1994).

Wailuku District was a center of political power often at war with its rival in Hana. By the end of the 18th century, Kahekili resided with his entourage in Wailuku and it was on the sand dunes that Kahekili and his warriors engaged those of Kalani`opu`u, Chief from Hawai`i Island.

In his bid to conquer Kahekili and obtain Maui (A.D.1776), Kalani`opu`u brought his famous, and fearless, `Alapa warriors who were slaughtered by Kahekili's men. "The dead lay in heaps strewn like *kukui* branches; corpses lay heaped in death; they were slain like fish enclosed in a net…" (Kamakau1961:85-89).

George W. Bates recounted his journey from Wailuku to Kahului in 1854:

> Leaving Wai-lu-ku [town], and passing along toward the village Kahului, a distance of three miles, the traveler passes over the old battle-ground named after the village. It is distinctly marked by moving sand-hills, which owe their formation to the action of the northeast trades. Here these winds blow almost with the violence of a sirocco, and clouds of sand are carried across the northern side of the isthmus to a height of several hundred feet. These sand-hills constitute a huge "Golgotha" for thousands of warriors who fell in ancient battles. In places laid bare by the action of the winds, there were human skeletons projecting, as if in the act of struggling for resurrection from their lurid sepulchers. In many portions of the plain who cart-loads were exposed in this way. Judging of the numbers of the dead, the contest of the old Hawaiians must have been exceedingly bloody. . . .[*Sandwich Island Notes*, 309]

The1776 encounter between Kahekili and Kalani`opu`u resulted in a temporary truce which was broken in 1790 by the battle of Kepaniwai, when Kamehameha I consolidated his control over Maui Island. There were so many warriors and canoes invading from Hawai`i Island that it was called the Great Fleet. During Kahmehameha's campaign, it was recorded that the bay from Kahului to Hopukoa was filled with war canoes and they extended to Kalae`ili`ili at Waihe`e and below Pu`uhele and Kamakailima:

> . . . Kamehameha and his chiefs went on to the principal encounter at Wailuku. The bay from Kahului to Hopukoa was filled with war canoes. For two days there was constant fighting in which many of the most skilful warriors of Maui took part, but Kamehameha brought up the cannon, Lopaka, with men to haul it and the white men, John Young and Isaac Davis, to handle it; and there was great slaughter. (Kamakau 1961: 148).

From Kahului, Kamehameha marched on to Wailuku Village where Kalanikupule, Kahekili's son, waited with his warriors.

In 1837, the village of Kahului consisted of twenty-six *pili*-grass houses living close to the sea and depending on fishing in the coastal waters for the majority of their food (Bartholomew 1994). Mullet was still harvested from the twin ponds in the early 1900s and people swam in the spring waters that were continuously refreshed (*ibid.*). Thomas Hogan built the first western building, a warehouse, near the shoreline of Kahului in 1863 (Clark 1980). The dredging of Kahului harbor through the years filled in large sections of the ponds, eventually blocking the outlet to the sea.

As the sugar industry developed, Kahului became a cluster of warehouses, stores, wheelwright and blacksmith shops close to the harbor. A small landing was constructed in 1879 to serve the sugar company (Clark 1980). In the late 1800s, Kahului possessed a new custom house, a saloon, Chinese restaurants, a railroad and a small population of residents. Kahului 's main focus was shipping. The 1900 bubonic plague outbreak destroyed much of the town as officials decided to burn down the Chinatown area in an effort to contain the epidemic. The Chinese, Japanese and Hawaiian residents were displaced by this action. To further insure isolation, authorities encircled the entire town with corrugated iron rat-proof fences which ended the spread of the plague (Bartholomew 1994). The Kahului Railroad Company built a 1,800 foot long rubble-mound breakwater in 1910 and dredging of the harbor now allowed ships with a 25-foot draft to dock at the new 200-foot wharf (Clark 1980).

THE GREAT MAHELE

In the 1840s, traditional land tenure shifted drastically with the introduction of private land ownership based on western law. While it is a complex issue, many scholars believe that in order to protect Hawaiian sovereignty from foreign powers, Kauikeaouli (Kamehameha III) was forced to establish laws changing the traditional Hawaiian economy to that of a market economy (Kame`eleihiwa 1992:169-70, 176; Kelly 1983:45, 1998:4; Daws 1962:111; Kuykendall 1938 Vol. I:145). The Great Mahele of 1848 divided Hawaiian lands between the king, the chiefs, the government, and began the process of private ownership of lands. The subsequently awarded parcels were called Land Commission Awards (LCAs). Once lands were thus made available and private ownership was instituted, the *maka`ainana* (commoners), if they had been made aware of the procedures, were able to claim the plots on which they had been cultivating and living. These claims did not include any previously cultivated but presently fallow land, *`okipu* (on O`ahu), stream fisheries, or many other resources necessary for traditional survival (Kelly 1983; Kame`eleihiwa 1992:295; Kirch and Sahlins 1992). If occupation could be established through the testimony of two witnesses, the petitioners were awarded the claimed LCA and issued a Royal Patent after which they could take possession of the property (Chinen 1961:16).

There were over 400 *kuleana* awarded in the district of Wailuku, but none were identified in the project area.

HISTORIC LAND USE

Kahului was Maui's main harbor during the 20th century and provided employment to residents through the railroad, as dock workers, clerks, cannery workers and in the cane fields (Bartholomew 1994). Pu`unene Avenue sported Kahului Store a retail operation owned by Hawaiian Commercial & Sugar Company and Pu`unene Store, which supplied all of the plantation camp stores. This section of Kahului contained commercial establishments and homes that spread *makai*, down Pu`unene Avenue to the former Maui County Fairgrounds. Stands of *kiawe* and plantation camps were scattered across Kahului town (*ibid.*).

In January of 1942, Japanese submarines shelled Kalului Harbor as part of a harassment scheme and 75 mm shoreline artillery returned fire (Clark 1980). After WW II, the Kahului development company built houses that were sold to the employees of HC&S. In 1950, Kahului shopping center was open for business catering to the new homeowners. In February of 2005, a fire destroyed approximately 50% of the 99,563 square feet of retail space in the Kahului Shopping Center.

SUMMARY

The "level of effort undertaken" to identify potential effect by a project to cultural resources, places or beliefs (OEQC 1997) has not been officially defined and is left up to the investigator. A good faith effort can mean contacting agencies by letter, interviewing people who may be affected by the project or who know its history, research identifying sensitive areas and previous land use, holding meetings in which the public is invited to testify, notifying the community through the media, and other appropriate strategies based on the type of project being proposed and its impact potential. Sending inquiring letters to organizations concerning development of a piece of property that has already been totally impacted by previous activity and is located in an already developed industrial area may be a "good faith effort". However, when many factors need to be considered, such as in coastal or mountain development, a good faith effort might mean an entirely different level of research activity.

In the case of the present parcel, letters of inquiry were sent to organizations whose expertise would include the project area. Consultation was sought from the Director of Native Rights, Land and Culture, Office of Hawaiian Affairs on O`ahu; Thelma Shimaoka, Coordinator of the Maui branch of the Office of Hawaiian Affairs; the Central Maui Hawaiian Civic Club; Hinano Rodrigues, Cultural Historian with the State Historic Preservation Division, Maui; and the Cultural Resources Commission for the Maui Planning Department.

Historical and cultural source materials were extensively used and can be found listed in the References Cited portion of the report. Such scholars as I`i, Kamakau, Beckwith, Chinen, Kame`eleihiwa, Fornander, Kuykendall, Kelly, Handy and Handy, Puku`i and Elbert, Thrum, Sterling, and Cordy have contributed, and continue to contribute to our knowledge and understanding of Hawai`i, past and present. The works of these and other authors were consulted and incorporated in the report where appropriate. Land use document research was supplied by the Waihona `Aina 2007 Data base.

CIA INQUIRY RESPONSE

As suggested in the "Guidelines for Accessing Cultural Impacts" (OEQC 1997), CIAs incorporating personal interviews should include ethnographic and oral history interview procedures, circumstances attending the interviews, as well as the results of this consultation. It is also permissible to include organizations with individuals familiar with cultural practices and features associated with the project area.

As stated above, consultation was sought from the Director of Native Rights, Land and Culture, Office of Hawaiian Affairs on O`ahu; the Maui branch of the Office of Hawaiian Affairs; the Central Maui Hawaiian Civic Club; Cultural Historian with the State Historic Preservation Division, Maui; and the Maui Planning Department. Other than the O`ahu Office of Hawaiian Affairs acknowledging receipt of our inquiry, none of the native Hawaiian organizations, or the Maui Planning Department that is mandated "to preserve and protect customary and traditional practices of Native Hawaiians" (94 Haw. 31, 45, 2000) responded with information concerning the potential for cultural resources to occur in the project area (TMK 3-8-06:004), or with additional suggestions for further contacts. Therefore, no interviews were conducted for this property, as there were no interviewees identified.

Analysis of the potential effect of the project on cultural resources, practices or beliefs, its potential to isolate cultural resources, practices or beliefs from their setting, and the potential of the project to introduce elements which may alter the setting in which cultural practices take place is a requirement of the OEQC (No. 10, 1997). To our knowledge, the project area has not been used for traditional cultural purposes within recent times. Based on historical research and no response from the above listed contacts, it is reasonable to conclude that Hawaiian rights related to gathering, access or other customary activities within the project area will not be affected and there will be no direct adverse effect upon cultural practices or beliefs. The visual impact of the project from surrounding vantage points, e.g. the highway, mountains, and coast is minimal.

CULTURAL ASSESSMEMNT

Based on organizational lack of response, and archival research, it is reasonable to conclude that, pursuant to Act 50, the exercise of native Hawaiian rights, or any ethnic group, related to gathering, access or other customary activities will not be affected by development activities on TMK:3-8-001. Because there were no cultural activities identified within the project area, there are no adverse effects.

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APPENDIX G-1.

Consultation Letters Sent for Cultural Impact Assessment

SCIENTIFIC CONSULTANT SERVICES, Inc.

711 Kapiolani Blvd., Suite 975 Honolulu, Hawai'i 96813

County of Maui
Department of Planning
Cultural Resources Commission
250 S. High Street
Wailuku, HI 96793

January 25, 2007

Dear Sir or Madam:

Scientific Consultant Services, Inc. (SCS) has been contracted to conduct a Cultural Impact Assessment (CIA) on property in Kahului, Maui. It includes construction of the western half of a new road, from the corner of Dairy Road and Pu`unene Avenue to the nexus of the proposed road and Hana Highway. This project also includes improvements to existing Dairy Road, new road construction, improvements to Hana Highway north and to the airport.

As you know, this involves assessing the probability of impacting cultural values and rights within the project area and its vicinity. According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

> The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs...The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man made and natural which support such cultural beliefs...

We are asking you for any information that might contribute to the knowledge of traditional activities, or traditional rights that might be impacted by the redevelopment of the property. The assessment results are dependent on the response and contributions made by individuals and organizations such as yours.

Enclosed are maps showing the proposed construction area. Please contact me at out SCS Honolulu office at (808) 597-1182; my cell phone, 225-2355; or home, (808) 637-9539, with any information or recommendations concerning this Cultural Impact Assessment.

Sincerely yours,

Leann McGerty

Leann McGerty,
Senior Archaeologist
Enclosures (2)

SCIENTIFIC CONSULTANT SERVICES, Inc.

711 Kapiolani Blvd., Suite 975 Honolulu, Hawai'i 96813

Hinano Rodrigues, Cultural Historian
DLNR Maui Office
130 Mahalani Street
Wailuku, HI 96791

January 25, 2007

Dear Hinano:

Scientific Consultant Services, Inc. (SCS) has been contracted to conduct a Cultural Impact Assessment (CIA) on property in Kahului, Maui. It includes construction of the western half of a new road, from the corner of Dairy Road and Pu`unene Avenue to the nexus of the proposed road and Hana Highway. This project also includes improvements to existing Dairy Road, new road construction, improvements to Hana Highway north and to the airport.

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Sincerely yours,

Leann McGerty

Leann McGerty,
Senior Archaeologist
Enclosures (2)

Scientific Consultant Services, Inc.
HAWAII
711 Kapiolani Blvd., Suite 975 Honolulu, Hawai`i 96813

Central Maui
Hawaiian Civic Club
310 Ka`ahumanu Ave.
Kahului, Maui 96732

January 25, 2007

Dear Members:

Scientific Consultant Services, Inc. (SCS) has been contracted to conduct a Cultural Impact Assessment (CIA) on property in Kahului, Maui. It includes construction of the western half of a new road, from the corner of Dairy Road and Pu`unene Avenue to the nexus of the proposed road and Hana Highway. This project also includes improvements to existing Dairy Road, new road construction, improvements to Hana Highway north and to the airport.

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Sincerely yours,

Leann McGerty

Leann McGerty,
Senior Archaeologist
Enclosures (2)

Lance Foster
Director of Native Rights
C/o Office of Hawaiian Affairs
711 Kapi`olani Blvd, Suite 500
Honolulu, HI 96813

January 25, 2007

Dear Mr. Foster:

Scientific Consultant Services, Inc. (SCS) has been contracted to conduct a Cultural Impact Assessment (CIA) on property in Kahului, Maui. It includes construction of the western half of a new road, from the corner of Dairy Road and Pu`unene Avenue to the nexus of the proposed road and Hana Highway. This project also includes improvements to existing Dairy Road, new road construction, improvements to Hana Highway north and to the airport.

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Sincerely yours,

Leann McGerty

Leann McGerty,
Senior Archaeologist
Enclosures (2)

SCIENTIFIC CONSULTANT SERVICES, Inc.

HAWAII

711 Kapiolani Blvd., Suite 975 Honolulu, Hawai`i 96813

Thelma Shimaoka, OHA
Maui Branch
140 Hoohana St.
Suite 206
Kahului, HI 96732

January 25, 2007

Dear Ms. Shimaoka:

Scientific Consultant Services, Inc. (SCS) has been contracted to conduct a Cultural Impact Assessment (CIA) on property in Kahului, Maui. It includes construction of the western half of a new road, from the corner of Dairy Road and Pu`unene Avenue to the nexus of the proposed road and Hana Highway. This project also includes improvements to existing Dairy Road, new road construction, improvements to Hana Highway north and to the airport.

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Enclosed are maps showing the proposed construction area. Please contact me at out SCS Honolulu office at (808) 597-1182; my cell phone, 225-2355; or home, (808) 637-9539, with any information or recommendations concerning this Cultural Impact Assessment.

Sincerely yours,

Leann McGerty

Leann McGerty,
Senior Archaeologist
Enclosures (2)

APPENDIX H.

Assessment of Consistency with Coastal Zone Management Objectives and Policies

ASSESSMENT OF CONSISTENCY WITH COASTAL ZONE MANAGEMENT OBJECTIVES AND POLICIES

This section addresses the project's relationship to applicable coastal zone management considerations, as set forth in Chapter 205A, HRS.

1. **Recreational Resources**

Objective: Provide coastal recreational opportunities accessible to the public.

Policies:

(A) Improve coordination and funding of coastal recreational planning and management; and

(B) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:

(i) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;

(ii) Requiring replacement of coastal resources having significant recreational value, including but not limited to, surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;

(iii) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;

(iv) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;

(v) Ensuring public recreational use of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;

(vi) Adopting water quality standards and regulating point and non-point sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;

(vii) Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and

(viii) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of Section 46-6.

Response: The project area does not abut the shoreline. The proposed actions will not affect nearby coastal recreational opportunities, such as Kanaha Beach Park.

2. Historic Resources

Objective: Protect, preserve and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

Policies:

(A) Identify and analyze significant archeological resources;

(B) Maximize information retention through preservation of remains and artifacts or salvage operations; and

(C) Support state goals for protection, restoration, interpretation, and display of historic resources.

Response: Archaeological monitoring will be implemented in accordance with the project's approved monitoring plan. In accordance with Section 6E-43.6, Hawaii Revised Statutes and Chapter 13-300, Hawaii Administrative Rules, if any cultural deposits or human skeletal remains are encountered, work will stop in the immediate vicinity and the State Historic Preservation Division of the Department of Land and Natural Resources (SHPD/DLNR) will be contacted.

3. Scenic and Open Space Resources

Objective: Protect, preserve and, where desirable, restore or improve the quality of coastal scenic and open space resources.

Policies:

(A) Identify valued scenic resources in the coastal zone management area;

(B) Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;

(C) Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and

(D) Encourage those developments which are not coastal dependent to locate in inland areas.

Response: The Kahului Airport Access Road Phase I project will not adversely impact scenic or open space resources. The proposed actions involve the construction of a 4-lane divided roadway. Landscaping will complement the character of the surrounding light industrial environment.

4. Coastal Ecosystems

Objective: Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

Policies:

(A) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;

(B) Improve the technical basis for natural resource management;

(C) Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;

(D) Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and

(E) Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.

Response: The proposed project is not anticipated to result in any adverse impacts to coastal ecosystems. Roadway drainage improvements will be implemented to ensure that adverse impacts to downstream and adjacent properties are mitigated. Applicable Best Management Practices (BMPs) and erosion-control measures will be implemented to mitigate runoff during construction-related activities.

5. Economic Uses

Objective: Provide public or private facilities and improvements important to the State's economy in suitable locations.

Policies:

(A) Concentrate coastal dependent development in appropriate areas;

(B) Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor industry facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and

(C) Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:

(i) Use of presently designated locations is not feasible;

(ii) Adverse environmental effects are minimized; and

(iii) The development is important to the State's economy.

Response: The proposed improvements are in keeping with the Kahului Airport Master Plan and the Department of Transportation's Statewide Transportation

Improvement Program. The proposed actions are in keeping with the objective and policies for economic uses.

6. **Coastal Hazards**

Objective: Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence and pollution.

Policies:

(A) Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;

(B) Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint source pollution hazards;

(C) Ensure that developments comply with requirements of the Federal Flood Insurance Program; and

(D) Prevent coastal flooding from inland projects.

Response: The project site is located in Flood Zone X, an area determined to be outside the 0.2 percent annual chance floodplain. Appropriate drainage measures will be implemented to ensure downstream and adjacent properties will not be adversely impacted.

7. **Managing Development**

Objective: Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

Policies:

(A) Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;

(B) Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements; and

(C) Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the public to facilitate public participation in the planning and review process.

Response: A public information meeting for the Kahului Airport Access Road was conducted in February 2009. In addition, the NEPA EA process necessarily involves the facilitation of public understanding and involvement. Compliance with NEPA advances the objective and policies for managing development. Additionally, it is noted that the current Wailuku-Kahului Community Plan (2002) for the County of Maui, includes an objective supporting the construction of the Airport Access Road as well as other airport related improvements.

8. Public Protection

Objective: Stimulate public awareness, education, and participation in coastal management.

Policies:

(A) Promote public involvement in coastal zone management processes;

(B) Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities; and

(C) Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.

Response: As discussed above, public awareness and participation for the project were facilitated through the public information meeting conducted in February 2009 and the NEPA EA process. The proposed project is not contrary to the objectives of public awareness, education, and participation.

9. Beach Protection

Objective: Protect beaches for public use and recreation.

Policies:

(A) Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion;

(B) Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and

(C) Minimize the construction of public erosion-protection structures seaward of the shoreline.

Response: The proposed project is not located in proximity to shoreline areas, nor is it anticipated to impact shoreline activities or beach processes.

10. Marine Resources

Objective: Promote the protection, use, and development of marine and coastal resources to assure their sustainability.

Policies:

(A) Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;

(B) Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;

(C) Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;

(D) Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and

(E) Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

Response: The proposed project is not anticipated to impact marine or coastal resources in the vicinity.

In addition to the foregoing objectives and policies, HRS Section 205A-30.5 Prohibitions, provides specifications for the limitation of lighting in coastal shoreline areas in relation to the granting of SMA permits:

No special management area use permit or special management area minor permit shall be granted for structures that allow artificial light from floodlights, uplights, or spotlights used for decorative or aesthetic purposes when the light:

(1) Directly illuminates the shoreline and ocean waters; or

(2) Is directed to travel across property boundaries toward the shoreline and ocean waters.

(b) Subsection (a) shall not apply to special management area use permits for structures with:

(2) Artificial lighting provided by a government agency or its authorized users for government operations, security, public safety, or navigational needs; provided that a government agency or its authorized users shall make reasonable efforts to properly position or shield lights to minimize adverse impacts.

Response: Lighting design for the proposed roadway will specify the shielding of all lights and directional down lighting. The design considerations is anticipated mitigate to light pollution and prevent lighting from traveling across property boundaries.

APPENDIX I.

Response Letter from Natural Resources Conservation Service, Dated June 2, 2011

United States Department of Agriculture

NRCS

Natural Resources Conservation Service
P.O. Box 50004 Rm. 4-118
Honolulu, HI 96850
808-541-2600

June 2, 2011

Ms. Karlynn Fukuda
Munekiyo and Haraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96763

Dear Ms. Fukuda,

Thank you for providing the additional background information on the Proposed Kahului Airport Access Road Phase 1 Project, Maui County. Based on the information in your documentation – that the land intended for the project has been zoned for light industrial activity by the county – there is no need to complete the Farmland Impact Conversion Rating form (AD- 1006) as suggested in the April 7, 2008, communication from this office.

Please contact Cynthia Stiles with any questions or concerns. She can be reached at 808-541-2600 ext. 129 or cynthia.stiles@hi.usda.gov

We appreciate the opportunity to be of service.

Sincerely,

LAWRENCE T. YAMAMOTO
Director
Pacific Islands Area

cc: Cynthia Stiles, Acting Asst. Director for Soil Science and Natural Resource Assessments, Honolulu, HI

APPENDIX J.

Pre-Assessment Request for Comments, Comment Letters Received, and Responses to Comments (as applicable)

As previously noted, early consultation was sought with various Federal, State, County and community organizations. Refer to Chapter V, Pre-Assessment Consultation, of this EA document. This appendix includes copies of all comment letters received from agencies, as well as responses to the substantive comments is included in table below:

Summary of Substantive Comments Received and Responses Prepared

Reviewing Agency	Date of Comment Letter	Comments Received	Response to Comments	Project Considerations
FEDERAL AGENCIES				
Natural Resources Conservation Service	4/7/08	• Project located on Prime Farmlands. • Wetland considerations. • Soil survey information provided.	• No impacts to farmlands anticipated; project site was acquired by State DOT and not used for farming purposes; also adjacent lands were re-zoned for light industrial use. • No wetlands located within or adjacent to project corridor. • Soil survey information noted.	NRCS response letter (6/21/11) indicated no Farmland Impact Conversion rating form required.
U.S. Army Corps of Engineers	5/31/11	• No Section 10 permit required for project. • Request additional information to determine if Section 404 permit required. • Requested aquatic resource inventory for project site for Jurisdictional Determination.	• No impact to wetlands anticipated; provided map of location of project area relative to nearest waterbody and included map with overlay of Department of Land and Natural Resources and National Wetlands Inventory.	
U.S. Fish and Wildlife Service	4/18/08	• Mitigation for Hawaiian Hoary Bat. • Mitigation for Seabirds.	• Biological resources field survey had negative result for Hawaiian Hoary Bat in area. • Shielded lighting to be incorporated into project lighting for seabird mitigation.	USFWS response letter (8/19/11) indicated no adverse impact anticipated on Endangered Species provided that project roadway lighting be shielded and no night-time construction work occur.

Reviewing Agency	Date of Comment Letter	Comments Received	Response to Comments	Project Considerations
STATE AGENCIES				
Department of Health, Clean Water Branch	4/09/08	• Compliance with Hawaii Administrative Rules for stormwater runoff management and Clean Water Act. • State Historic Preservation Division (SHPD) Review of Notice of Intent. • Coordination with U.S. Department of Army (DOA).	• Applicant will comply with stormwater runoff rules and applicable DOH requirements. • Notice of Intent will be filed with SHPD. • Consultation with U.S. DOA included as part of project's early consultation process.	
Department of Health, Maui Branch (DOH)	4/07/08	• Compliance with National Pollutant Discharge Elimination System and Noise Standards and Regulations.	• Applicant will comply with applicable requirements of DOH.	
Department of Transportation	4/10/08	Coordination Between Phase and Phase II components of Airport Access Road.	Ongoing coordination between Highways Division and Airports Division on project to be included in Draft EA.	
Office of Hawaiian Affairs	5/05/08	Assurances that should iwi kupuna or Native Hawaiian Cultural or Traditional Deposits be discovered during construction, protocols and procedures to be followed. Use of Native Hawaiian Plants for project.	Confirm that Draft EA to note that should iwi kupuna or Native Hawaiian Cultural or Traditional Deposits be discovered during construction, protocols and procedures to be followed. To extent practical, Native Hawaiian plants to be used for project landscaping.	

Reviewing Agency	Date of Comment Letter	Comments Received	Response to Comments	Project Considerations
COUNTY AGENCIES				
Department of Planning	4/29/08	Consistency with Wailuku-Kahului Community Plan. Inclusion of Coastal Zone Management Objectives and Policies. Request for determination that supplemental HRS EA not required.	Draft EA to include language from Wailuku-Kahului Community Plan which supports Airport Access Road. Draft EA to include analysis of Coastal Zone Management's objectives and policies. Prior Chapter 343 EIS determined to be valid for project.	
Department of Police	3/28/08	Request for traffic assessment Pedestrian access Ongoing maintenance.	Draft EA to include updated traffic assessment. Pedestrian access not anticipated on proposed road, other alternative pedestrian routes exist in area. State DOT to provide ongoing maintenance upon completion.	
OTHER ORGANIZATIONS				
Maui Electric Company (MECO)	4/10/09	Request for coordination on project's electrical needs.	Confirmation of coordination with DOT consultants and MECO as project progresses.	

K:\DATA\Fukunaga\KahuluiAP Access\AppendixF.wpd

MUNEKIYO & HIRAGA, INC.

Michael T. Munekiyo
Gwen Ohashi Hiraga
Mitsuru "Mich" Hirano
Karlynn Kawahara

Mark Alexander Roy

March 19, 2008

Larry Yamamoto, State Conservationist
U. S. Department of Agriculture
Natural Resources Conservation Service
P. O. Box 50004
Honolulu, Hawai`i 96850-0001

SUBJECT: Early Consultation Request; Kahului Airport Access Road Phase 1 Project; TMK (2)3-8-006:075 and (2)3-8-080:999, Kahului, Maui, Hawai`i

Dear Mr. Yamamoto:

The State of Hawai`i Department of Transportation (HDOT) Highways Division proposes the development of the Kahului Airport Access Road Phase 1 Project, which will be located in Kahului, Maui, Hawai`i on lands owned by the State of Hawai`i. See **Figure 1**. Specifically, the proposed roadway will be aligned east (mauka) of Dairy Road and will span from the Pu`unene Avenue/Kuihelani Highway intersection to Hana Highway. See **Figure 2**.

Access between Hana Highway and Pu`unene Avenue is currently provided via Dairy Road. As part of the proposed project, Dairy Road will be truncated at its southwestern extent to connect to Kahului Airport Access Road Phase 1, near the Kahului Fire Station. Refer to **Figure 2**. Upon project implementation, Kahului Airport Access Road will serve as the primary access to Hana Highway from Kuihelani Highway. The scope of this project does not include Kahului Airport Access Road Phase 2, which connects Hana Highway to the airport and will be by the HDOT Airports Division under a separate contract.

Since Federal Highways Administration (FHWA) funds will be used, an environmental assessment will be prepared in accordance with the National Environmental Policy Act (NEPA). It is noted that the Chapter 343, Hawai`i Revised Statutes, Environmental Impact Statement for the Kahului Airport Improvements (1997) addressed the Airport Access Road project, and, therefore, the subject EA is being prepared in accordance with NEPA requirements only. On behalf of the HDOT, we are seeking early consultation comments in preparing the Draft EA document. With this in mind, we would appreciate receiving any written comments you may have regarding the proposed action by April 16, 2008. Please address your comments to the following:

Munekiyo & Hiraga, Inc.
Attention: Kyle Ginoza
305 High Street, Suite 104
Wailuku, Hawai`i 96793

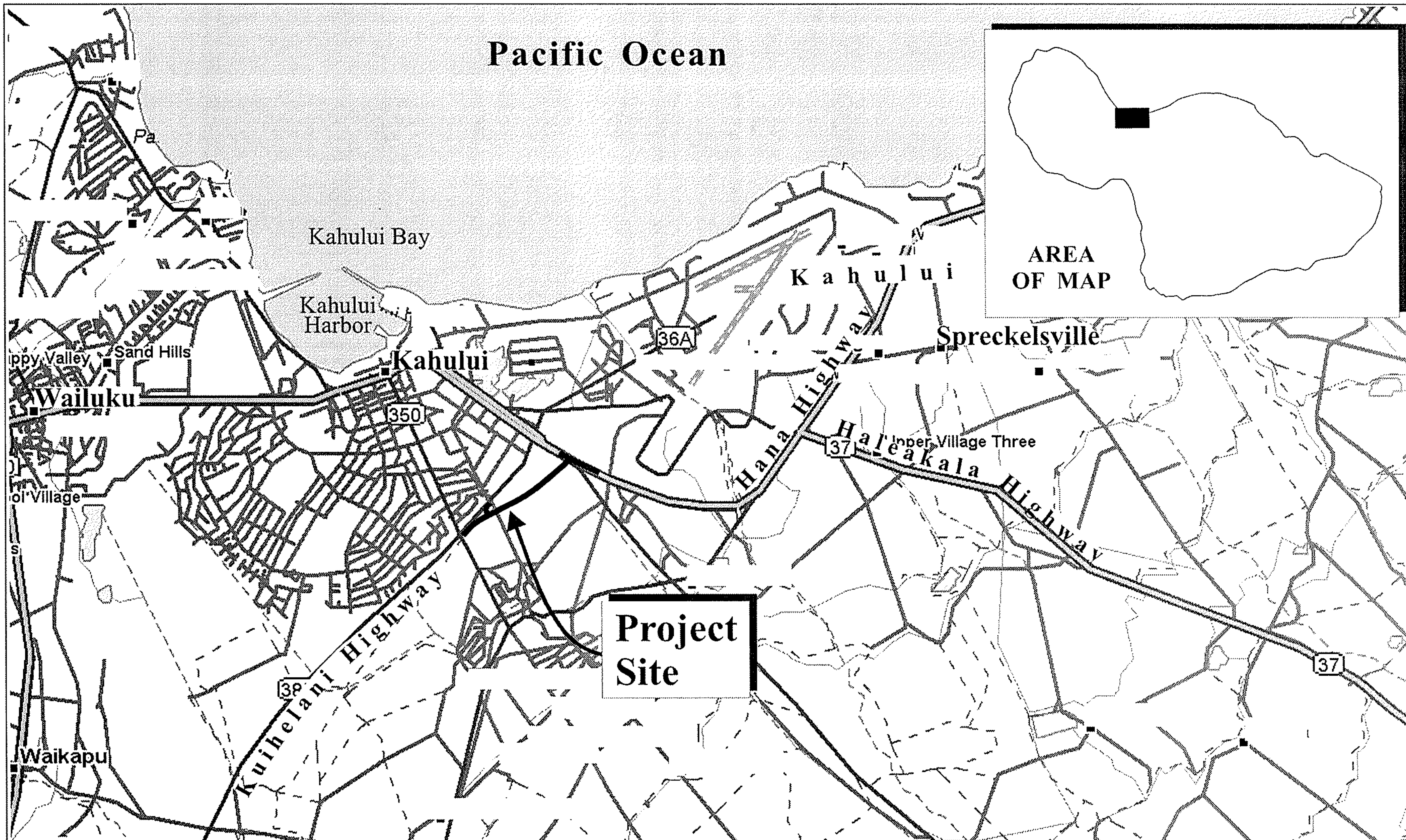
If you have any questions or require additional information, please do not hesitate to call me at (808) 244-2015.

Very truly yours,

Hirano
for

Kyle Ginoza
Project Manager

KG:lfm
Enclosures
F:\DATA\Fukunaga\KahuluiAP Access\agenciesec.ltr.wpd



Source: U.S. Geological Survey

Figure 1

Kahului Airport Access Road Phase 1

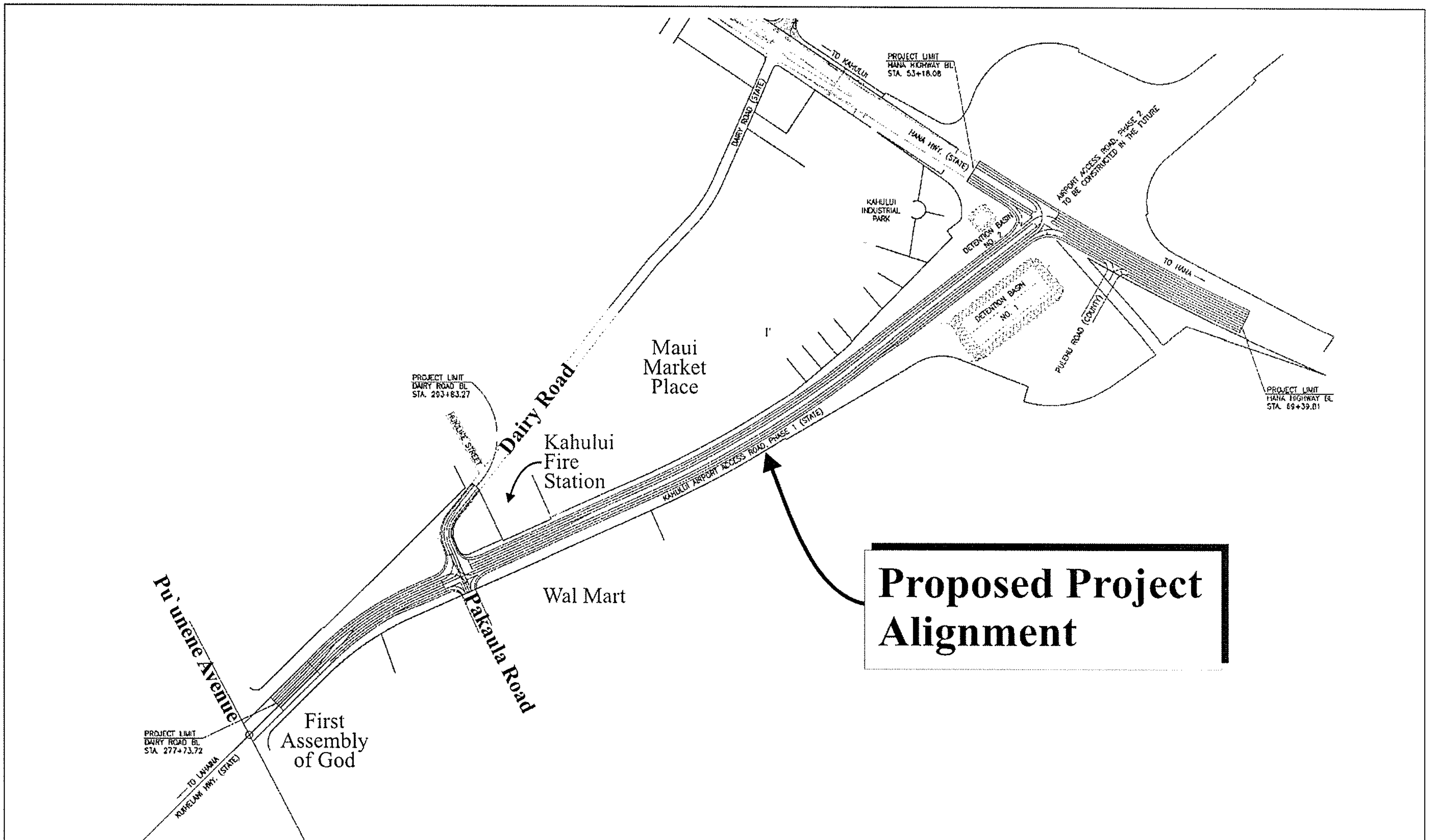
Regional Location Map

NOT TO SCALE

Prepared for: State of Hawai`i, Dept. Of Transportation

MUNEKIYO & HIRAGA, INC.

Fukunaga\KahuluiAP Access\regional



Source: Fukunaga & Associates, Inc.

Figure 2

Kahului Airport Access Road Phase 1

Site Plan

NOT TO SCALE

Prepared for: State of Hawai`i, Dept. Of Transportation

MUNEKIYO & HIRAGA, INC.

Fukunaga\KahuluiAP Access SitePlan

4

APR 0 8 2008

NRCS
Natural Resources Conservation Service
P.O. Box 50004 Rm. 4-118
Honolulu, HI 96850
808-541-2600

April 7, 2008

Kyle Ginoza, Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Ginoza,

In response to your request for comment on the Kahului Airport Access Road Phase 1 Project. Please find enclosed an NRCS Soil Survey Map, and soil reports. The Prime and other Important Farmlands soils report identifies areas of Important Farmlands. The entire project area is located on Prime Farmlands. Since Federal Highways Administration (FHWA) Funds will be used, completion of a Farmland Impact Conversion Rating Form (AD-1006) will most likely be needed for this project. Typically, this form is required on projects that convert farmlands into non-farmland uses and have federal dollars attached to the project. See the website link below for more information on the Farmland Protection Policy Act, and a copy of the AD-1006 form with instructions. No hydric soils are located in the project area. Hydric soils identify potential areas of wetlands. If wetlands do exist, any proposed impacts to these wetlands would need to demonstrate compliance with the "Clean Water Act", and may need an Army Corp of Engineers 404 permit.

The NRCS Soil Survey Map identifies all soil map units in the project area. The soil reports provide selected soil properties and interpretations, i.e. flooding hazard, limitations for roads, and dwellings, soil layers with USDA textures, and engineering classifications. The limitation ratings for the selected uses, i.e. roads and streets, range from somewhat limited to very limited. These ratings do not preclude the intended land use, however they do identify potential limitations for the use, which may require corrective measures, increase costs, and/or require continued maintenance.

The NRCS Soil Survey is a general planning tool and does not eliminate the need for an onsite investigation. If you have any questions concerning the soils or interpretations for this project please call, Tony Rolfes, Assistant State Soil Scientist, (808) 541-2600 x129, or email, Tony.Rolfes@hi.usda.gov.

NRCS - Farmland Protection Policy Act Website:
http://www.nrcs.usda.gov/programs/fppa/

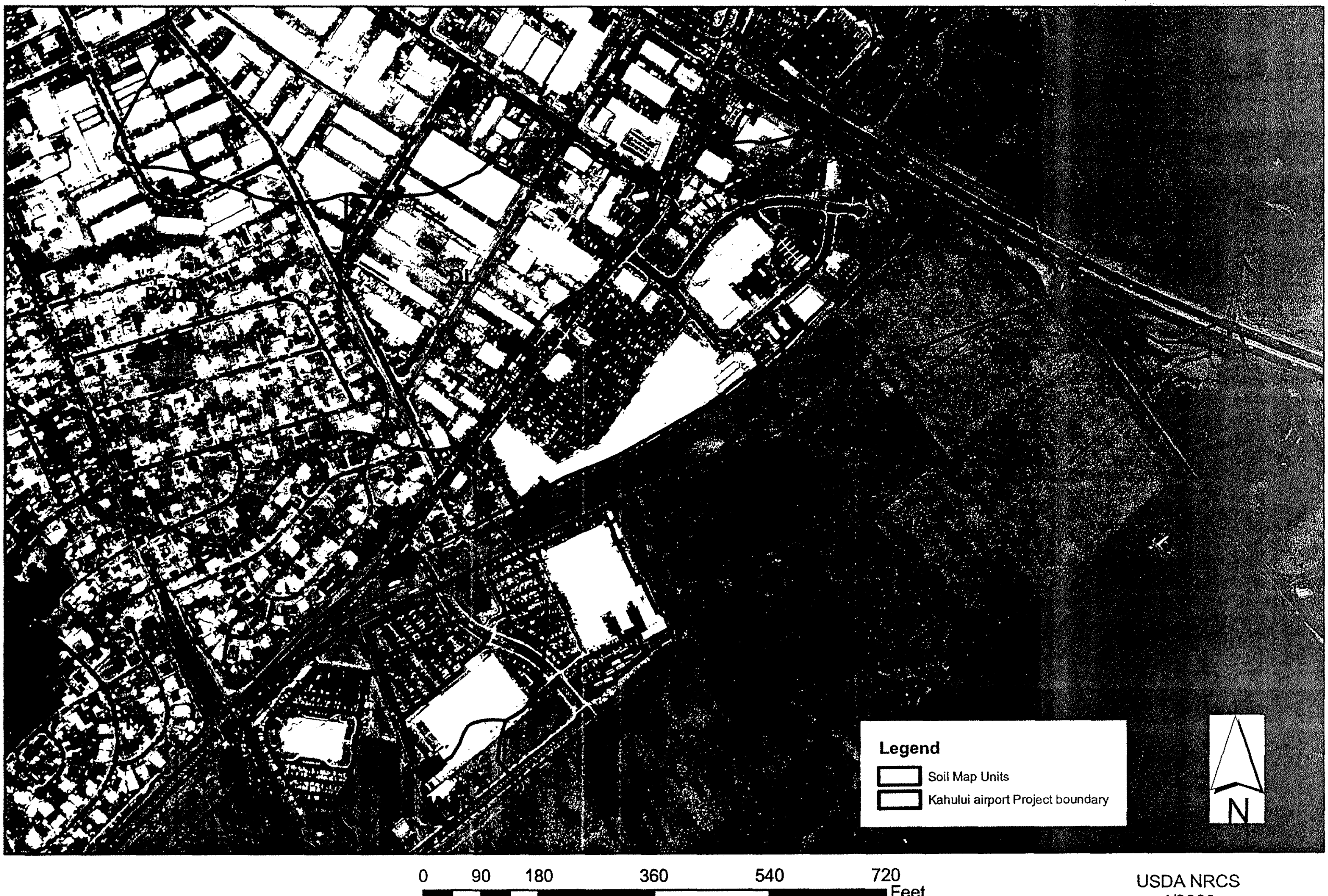
Sincerely,

LAWRENCE T. YAMAMOTO
Director
Pacific Islands Area

cc: Michael Robotham, Assistant Director for Soil Science and Natural Resource Assessments, USDA-NRCS, Pacific Islands Area

Enclosures: (3)

Soils Map
Kahului Airport Access Road Phase 1 Project



USDA NRCS
4/2008

Prime and other Important Farmlands

Island of Maui, Hawaii

Map symbol	Map unit name	Farmland classification
EaA	Ewa silty clay loam, 0 to 3 percent slopes	Prime farmland if irrigated
MuB	Molokai silty clay loam, 3 to 7 percent slopes	Prime farmland if irrigated
PpA	Pulehu silt loam, 0 to 3 percent slopes	Prime farmland if irrigated
PsA	Pulehu clay loam, 0 to 3 percent slopes	Prime farmland if irrigated

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Engineering Properties

Island of Maui, Hawaii

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
EaA:												
Ewa	0-18	Silty clay loam	CL-K (proposed), ML-K (proposed)	A-6, A-7	0	0	100	100	95-100	85-100	35-45	10-20
	18-60	Silty clay loam	CL-K (proposed), ML-K (proposed)	A-6, A-7	0	0-5	100	95-100	90-100	85-100	35-45	10-20
MuB:												
Molokai	0-15	Silty clay loam	CL-K (proposed), ML-K (proposed)	A-7	0	0	100	100	90-100	80-95	40-50	15-20
	15-72	Clay loam, Silty clay loam	ML-K (proposed)	A-7	0	0	100	100	80-100	70-95	40-50	10-20
PpA:												
Pulehu	0-21	Silt loam	CL, CL-ML, ML	A-4, A-6	0-5	0-5	80-95	75-90	70-90	55-80	20-40	NP-20
	21-60	Silty clay loam	CL-ML, ML, SC-SM, SM	A-4	0-5	0-5	75-85	75-85	60-85	40-60	20-30	NP-10

Engineering Properties

Island of Maui, Hawaii

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
PsA:												
Pulehu	0-21	Clay loam	CL, CL-ML, ML	A-4, A-6	0-5	0-5	80-95	75-90	70-90	55-80	20-40	NP-20
	21-60	Silty clay loam	CL-ML, ML, SC-SM, SM	A-4	0-5	0-5	75-85	75-85	60-85	40-60	20-30	NP-10

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Selected Soil Interpretations

Island of Maui, Hawaii

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

*This soil interpretation was designed as a "limitation" as opposed to a "suitability". The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation.

Map symbol and soil name	Pct. of map unit	ENG - Local Roads and Streets *	
		Rating class and limiting features	Value
EaA:			
Ewa	100	Somewhat limited	
		Low strength	0.10
MuB:			
Molokai	100	Somewhat limited	
		Low strength	0.10
PpA:			
Pulehu	100	Very limited	
		Flooding	1.00
PsA:			
Pulehu	100	Very limited	
		Flooding	1.00

Water Features

Island of Maui, Hawaii

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
EaA:										
Ewa	B	Low	Jan-Dec			---	---	None	---	None
MuB:										
Molokai	B	Medium	Jan-Dec			---	---	None	---	None
PpA:										
Pulehu	B	Low	January	---	---	---	---	None	Very brief	Occasional
			February	---	---	---	---	None	Very brief	Occasional
			March	---	---	---	---	None	Very brief	Occasional
			April	---	---	---	---	None	Very brief	Rare
			May	---	---	---	---	None	Very brief	Rare
			June	---	---	---	---	None	Very brief	Rare
			July	---	---	---	---	None	Very brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Occasional
			December	---	---	---	---	None	Very brief	Occasional

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Water Features

Island of Maui, Hawaii

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
PsA:										
Pulehu	B	Low	January	---	---	---	---	None	Very brief	Occasional
			February	---	---	---	---	None	Very brief	Occasional
			March	---	---	---	---	None	Very brief	Occasional
			April	---	---	---	---	None	Very brief	Rare
			May	---	---	---	---	None	Very brief	Rare
			June	---	---	---	---	None	Very brief	Rare
			July	---	---	---	---	None	Very brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Very brief	Rare
			November	---	---	---	---	None	Very brief	Occasional
			December	---	---	---	---	None	Very brief	Occasional

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO
KARLYNN FUKUDA

MARK ALEXANDER ROY

October 26, 2010

Lawrence T. Yamamoto, Director
Pacific Islands Area
Natural Resources Conservation Service
P. O. Box 50004, Rm.4-118
Honolulu, Hawaii 96850

SUBJECT: Early Consultation for Proposed Kahului Airport Access Road Phase I

Dear Mr. Yamamoto:

Thank you for your letter of April 7, 2008, providing early consultation comments on the proposed Kahului Airport Access Road. We provide the following information to address the comments noted.

1. ***Entire Project Located on Prime Farmlands***

   The Kahului Airport Road Phase I project is aligned along a corridor already owned by the State of Hawai`i for roadway purposes. The alignment and corridor was established and acquired a number of years ago in anticipation of the State implementation of the Airport Access Road to ensure long-term efficient automobile connectivity to Kahului Airport. We note that adjoining lands along the entire Phase I route are now zoned for light industrial use by the County of Maui. In light of the changes in land use patterns which have occurred along and adjacent to the proposed alignment, impacts to farmlands are not anticipated.

2. ***Wetlands***

   There are no wetlands found within or adjacent to the Kahului Airport Access Road Phase I route.

3. ***Soil Survey Information***

   The soil survey information is noted and will be referenced in the EA document.

environment planning government

305 High Street, Suite 104 · Wailuku, Hawaii 96793 · ph: (808)244-2015 · fax: (808)244-8729 · planning@mhplanning.com www.mhplanning.com

Thank you again for providing your early coordination comments for the proposed action.

Should you have further questions or comments, please do not hesitate

Very truly yours,

Karlynn Fukuda
Principal

KF:yp
cc: Jon Muraoka, Fukunaga & Associates, Inc.
Ferdinand Cajigal, State Department of Transportation
F:\DATA\Fukunaga\KahuluiAP Access\NRCS.ECres.doc

United States Department of Agriculture

NRCS

Natural Resources Conservation Service
P.O. Box 50004 Rm. 4-118
Honolulu, HI 96850
808-541-2600

June 2, 2011

Ms. Karlynn Fukuda
Munekiyo and Haraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96763

Dear Ms. Fukuda,

Thank you for providing the additional background information on the Proposed Kahului Airport Access Road Phase 1 Project, Maui County. Based on the information in your documentation – that the land intended for the project has been zoned for light industrial activity by the county – there is no need to complete the Farmland Impact Conversion Rating form (AD- 1006) as suggested in the April 7, 2008, communication from this office.

Please contact Cynthia Stiles with any questions or concerns. She can be reached at 808-541-2600 ext. 129 or cynthia.stiles@hi.usda.gov

We appreciate the opportunity to be of service.

Sincerely,

LAWRENCE T. YAMAMOTO
Director
Pacific Islands Area

cc: Cynthia Stiles, Acting Asst. Director for Soil Science and Natural Resource Assessments, Honolulu, HI

APR 2 1 2008

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122, Box 50088
Honolulu, Hawaii 96850

In Reply Refer To:
2008-TA-0172

APR 18 2008

Mr. Kyle Ginoza, Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Subject: Early Consultation Request; Kahului Airport Access Road Phase 1 Project; TMK (2)3-8-006:075 and (2)3-8-080:999, Kahului, Maui

Dear Mr. Ginoza:

We are in receipt of your March 21, 2008, letter, requesting information regarding potential impacts to threatened and endangered species from the above referenced project. The proposed project will construct an airport access road, on State of Hawaii owned land on the island of Maui. Specifically, the proposed roadway will be aligned east of Dairy Road and will span from the Puunene Avenue/Kuihelani Highway intersection to Hana Highway.

Based on the project information you provided and pertinent information in our files, including data compiled by the Hawaii Biodiversity and Mapping Program, and the Hawaii GAP Program, there are three federally listed species that may occur within the project footprint. The following recommendations are provided to assist you in your draft EA and to help you avaiod and minimize project impacts to these species:

- The endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) has been observed in the vicinity of the proposed project. Hawaiian hoary bats roost and give birth in both exotic and native woody vegetation and leave their young behind in "nursery" trees when they forage. If vegetation is cleared during the bat breeding season (April to August) there is a risk that young bats could inadvertently be harmed or killed. If there is suitable habitat for bats, then we recommend biological surveys be conducted for this species to determine if they are present. If bats are found on the property, then we can help you develop appropriate avoidance and minimization measures. One avoidance measure is to conduct all clearing of vegetation outside of the bat breeding season to avoid impacts to this endangered species.

- The threatened Newell's shearwater (*Puffinus auricularis newelli*) and endangered Hawaiian petrel (*Pterodroma phaeopygia sandwichensis*) (collectively referred to as seabirds) are known to traverse the project site. Potential impacts to seabirds could be minimized by shielding outdoor lights so the bulb can only be seen from below.

We recommend you incorporate this information in your Environmental Assessment. If you have questions regarding this letter, please contact Dr. Jeff Zimpfer, Fish and Wildlife Biologist, Consultation and Technical Assistance Program (phone: 808-792-9431; fax: 808-792-9581).

Sincerely,

for Patrick Leonard
Field Supervisor

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO
KARLYNN FUKUDA

MARK ALEXANDER ROY

October 26, 2010

Loyal Merhoff, Field Supervisor
United States Department of the Interior
Fish and Wildlife Service
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Box 50088
Honolulu, Hawai`i 96850

SUBJECT: Early Consultation for Proposed Kahului Airport Access Road Phase I

Dear Mr. Merhoff:

Thank you for your letter of April 18, 2008, providing early consultation comments on the proposed Kahului Airport Access Road. We provide the following information to address the comments noted.

1. *Hawaiian Hoary Bat*

A biological resources field survey was conducted for the project area. The survey included an evening visit to record crepuscular activities and vocalizations, to see if there was any evidence of occurrence of the Hawaiian hoary bat. The results of the survey were negative.

2. *Newell's Shearwater*

The biological resources field survey did not include any observations of the Newell's shearwater. Lighting for the roadway will be shielded as you have suggested.

Thank you again for providing your early coordination comments for the proposed action. Should you have further questions or comments, please do not hesitate to call.

Very truly yours,

Karlynn Fukuda
Principal

KF:yp
cc: Jon Muraoka, Fukunaga & Associates, Inc.
Ferdinand Cajigal, State Department of Transportation
F:\DATA\Fukunaga\KahuluiAP Access\USFWS.ECres.doc

WK —

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122, Box 50088
Honolulu, Hawaii 96850

RECEIVED
JUN 08 2011
HAWAII DIVISION

In Reply Refer To:
2011-TA-0296

JUN 0 6 2011

Mr. Wayne Kaneshiro
Safety Transportation Engineer
Federal Highway Administration
300 Ala Moana Boulevard
Room 3-306, Box 50206
Honolulu, Hawaii 96850

Subject: Technical Assistance for Phase 1 of the Kahalui Access Road, Maui

Dear Mr. Kaneshiro:

We received your letter on May 6, 2011, seeking our concurrence that the proposed Phase 1 of the Kahalui Access Road Realignment Project, is not likely to adversely affect federally-listed species. We coordinated on this project in March and April of 2008 and at that time we stated the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) and Hawaiian petrel (*Pterodroma phaeopygia sandwichensis*), and the threatened Newell's shearwater (*Puffinus auricularis newelli*) occur in the vicinity of the proposed project.

We are unable to concur with your "not likely to adversely affect" determination at this time. Based on new information in our files, the endangered Blackburn's sphinx moth (*Manduca blackburni*) is known to occur in the vicinity of the project. Blackburn's sphinx moth larvae feed upon non-native tree tobacco (*Nicotiana glauca*) and other non-native host plants including *Nicotiana tabacum* (commercial tobacco), *Solanum melongena* (eggplant), *Lycopersicon esculentum* (tomato), and possibly *Datura stramonium* (Jimson weed). The full range of the taxa that Blackburn's sphinx moth larvae may feed on is not known. We note that in your most recent letter you included a Flora and Faunal Survey and Assessment for the proposed project conducted by Robert W. Hobdy in 2008. Because many of the plant species Blackburn's sphinx moth larvae may feed on are ruderal, especially tree tobacco, and after three years may now be present on the site, we recommend you have a qualified biologist re-survey the project area for the presence of host plants, particularly tree tobacco. If larval host plants are not found, or if plants Blackburn's sphinx moth larvae may feed on can be avoided (no soil disturbance, no parked cars, staging areas, or work activities within 10 feet of the plants), then no additional surveys are necessary and we would be able to concur with your "not likely to adversely affect" determination. If plants Blackburn's sphinx moth larvae may feed on will be impacted or removed to complete the project, then we recommend a biologist document general plant density, proximity of plants to the work areas, average height of the plants and survey for any sign of feeding damage on the leaves or Blackburn's sphinx moth larvae eggs or larvae. Photo documentation would also be helpful. Ideally this survey would be completed after a sustained rainy period (usually in the winter with enough rain to allow for rejuvenation of the plants after the drier summer months). If the presence of Blackburn's sphinx moth larvae is confirmed, please contact our office for additional assistance.

If you have any questions regarding this letter, please contact Dr. Jeff Zimpfer, Fish and Wildlife Biologist, Consultation and Habitat Conservation Planning Program (phone: 808-792-9431; email: jeff_zimpfer@fws.gov).

Sincerely,

f. Loyal Mehrhoff
Field Supervisor

U.S. Department
of Transportation
Federal Highway Administration

Hawaii Federal-Aid Division

300 Ala Moana Blvd, Rm 3-306
Box 50206
Honolulu, Hawaii 96850
Phone: (808) 541-2700
Fax: (808) 541-2704

July 25, 2011

In Reply Refer To:
HDA-HI

Dr. Loyal A. Mehrhoff
Field Supervisor
U.S. Fish and Wildlife Service
300 Ala Moana Boulevard, Room 3-122
Honolulu, HI 96850

Subject: Proposed State of Hawaii Department of Transportation Kahului Airport Access Road, Phase I, Kahului, Maui, Hawaii, Request for Concurrence on Conformance with Section 7 Endangered Species Act, 2011-TA-0296

Dear Dr. Mehrhoff:

In response to the U.S. Fish and Wildlife Service (USFWS) letter of June 6, on the subject project, please find attached, for your review and information, a Botanical Re-survey of the project area, specifically for the Blackburn's Sphinx Moth and their host plants. The State Department of Transportation's consultant conducted the re-survey of the entire project area via foot survey on June 25. The re-survey found no evidence of the Blackburn's Sphinx moth, eggs or larvae in the area and no tree tobacco plants were observed in the area. Although three (3) other species of potential host plants were observed within the project area, the plants were limited in number and no evidence of the Blackburn's Sphinx moth, eggs or larvae were detected on said plants.

As such, we are requesting the USFWS concurrence in a "not likely to adversely affect" wildlife resources determination for the proposed Kahului Airport Access Road.

Should you have any questions regarding this request, please contact me at (808) 541-2326 or via e-mail at wayne.kaneshiro@dot.gov.

Sincerely yours,

Wayne Kaneshiro

Wayne Kaneshiro

Enclosure

cc: Ferdinand Cajigal, Hawaii Department of Transportation (w/attachment)
Robert Spilker, Hawaii Department of Transportation (w/attachment)

KAHULUI AIRPORT ACCESS ROAD – PHASE 1 PROJECT

BOTANICAL RE-SURVEY OF PROJECT AREA

FOR BLACKBURN'S SPHINX MOTH

AND THEIR HOST PLANTS

by:
Robert W. Hobdy
Environmental Consultant
Koakomo, Maui June 2011

for: Fukunaga & Associates, Inc.

INTRODUCTION

The Kahului Airport Access Road -- Phase 1 Project is part of a larger plan that will provide an improved access route from the Dairy Road / Kuihelani Highway to Kahului Airport. Phase 1 will develop the section of this route between Pu'unene Avenue Intersection and Hana Highway. This botanical re-survey of the project area, following up on a flora and fauna survey conducted in May 2009, will focus on determining whether any potential host plants of the endangered Blackburn Sphinx moth are present, to satisfy concerns raised by the U.S. Fish and Wildlife Service regarding this possibility.

SITE DESCRIPTION

This approximately 0.8 mile long by 160 foot wide corridor is about 15.5 acres in size (TMKs (2) 3-8-06:075 and (2) 3-8-080:999). The entire route lies on gently sloping land at elevations between 20 feet and 35 feet above sea level. The area is an open grassland with a few widely scattered shrubs.

BACKGROUND

The Blackburn's sphinx moth is federally listed as an endangered species which, along with its associated host plant species, is mandated certain protections under the Endangered Species Act. The caterpillars of these moths feed exclusively on certain species of the Nightshade Family (*Solanaceae*). They ingest the toxins in these plants which they use as a deterrent to predators. The May, 2008 survey recorded a total of 48 plant species within the project area, 4 of which were in the Nightshade Family. Two of these, the tomato plant (*Solanum lycopersicum*) and possibly also the jimsonweed (*Datura stramonium*) are potentially host plants for Blackburn's sphinx moths. The well documented, primary, non-native host plant for Blackburn's sphinx moths, which is the tree tobacco plant (*Nicotiana glauca*), was not found in the project area during the 2008 survey. The 2008 survey found no Blackburn's sphinx moths on the few marginal host plants that were found, and as a result a determination of no significant negative impact was made.

On June 6, 2011 the U.S. Fish and Wildlife service sent a response indicating non-concurrence with the "not likely to adversely affect" determination and requested a re-survey of the area to determine if there were any changes in the presence of Blackburn's sphinx moths and their host plants since the 2008 survey. This re-survey addresses those concerns.

RESULTS

The Kahului Airport Access Road – Phase 1 project area was re-surveyed on June 25, 2011, for Blackburn's sphinx moth host plants in the Nightshade Family. The entire 15.5 acre corridor was covered on foot. The results of the survey were as follows:

- No tree tobacco plants were found within the project area, and none were even visible on adjacent lands as far as the eye could see.

- One large cherry tomato plant was found growing on a steep bank on a developed, adjacent property to the southeast of the project area. This plant was examined and no Blackburn's sphinx moths, their eggs or larvae were detected.

- One dead jimson weed plant was seen on the same adjacent property near the tomato plant. This plant, which was growing alongside a hibiscus hedge, appeared to have been killed by herbicide and could not be adequately assessed.

- Several apple-of-Peru (*Nicandra physalodes*) plant were scattered around the project area. These plants, which have no known connection with Blackburn's sphinx moths, were dry and had gone to seed, and no sign of former feeding activity could be observed.

CONCLUSIONS

The results of the re-survey revealed three species of plants in the Nightshade Family, but, no tree tobacco plants on or near the project area were found. No signs of Blackburn's sphinx moths, their eggs or their larvae were found on the few marginal Nightshade Family plants observed. These findings corroborate the conclusions reached in the 2008 study which were and remain that this project will not have any significant negative impacts on the endangered Blackburn's sphinx moth populations in central Maui.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122, Box 50088
Honolulu, Hawaii 96850

In Reply Refer To:
2011-I-0433

AUG 19 2011

Mr. Wayne Kaneshiro
Federal Highway Administration
300 Ala Moana Boulevard, Room 3-306
Box 50206
Honolulu, Hawaii 96850

Subject: Informal Consultation for the Proposed Kahului Airport Access Road Project, Maui

Dear Mr. Kaneshiro:

The U.S. Fish and Wildlife Service received your letter on July 25, 2011, requesting our concurrence with your determination that the construction of the Kahului Airport Access Road in Kahului, Maui, will not adversely affect the endangered Hawaiian petrel (*Pterodroma sandwichensis*), the threatened Newell's shearwater (*Puffinus auricularis newelli*) (collectively known as seabirds), the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), and the endangered Blackburn's sphinx moth (*Manduca balckburni*).

The findings and recommendations in this consultation are based on: (1) your letter dated July 25, 2011; (2) your May 5, 2011, letter requesting informal consultation on the proposed project; and (3) your phone conversation with Patrice Ashfield, Consultation and Habitat Conservation Planning Program Leader, on August 19, 2010; and (4) other information available to us. A complete administrative record is on file in our office. This response is in accordance with section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*).

Project Description
The Federal Highway Administration proposes to develop the Kahului Airport Access Road to improve access to the Kahului Airport. The roadway will be aligned east of Dairy Road in Kahului and will span from the Puunene Avenue-Kuihelani Highway intersection to the Hana Highway. The Kahului Airport Access Road will serve as the primary access to Hana Highway from Kuihelani Highway upon project completion. The access road will be approximately 0.8 mile long within a 160-foot corridor. The area is currently open grassland with a few shrubs, and was in sugar cane production for over 100 years. Surrounding lands are primarily in commercial development.

Conservation Measures
The following measures identified in your letter and phone conversation will be implemented at the project site to avoid and minimize project effects to listed seabirds. These conservation measures are considered part of the project description. Any changes to, modifications of, or failure to implement these conservation measures may result in the need to reinitiate this consultation.

1. All roadway lighting on the access road will be down-shielded.
2. No night-time construction work.

Newell's shearwater and Hawaiian petrel
Seabirds may traverse the project area at night during the breeding season and outdoor lighting at this project site could result in seabird disorientation, fallout, and injury or mortality. Young birds (fledglings) traversing the project area between September 15 and December 15, in their first flight from their mountain nests to the sea, are particularly vulnerable. However, due to the aforementioned conservation measures to reduce seabird attraction to the project site and because seabird fallout has not been documented in the action area (incidences of fallout occur primarily on the southern portion of the island), we concur with your determination the proposed project may affect, but is not likely to adversely affect listed seabirds.

Hawaiian hoary bat
Hawaiian hoary bats have been detected near the proposed project site. The proposed project site consists of former sugarcane fields now converted to open grassland with scattered shrubs. There is no suitable habitat for roosting Hawaiian hoary bats at the proposed project site. Therefore we concur that the proposed project may affect, but is not likely to adversely affect, the Hawaiian hoary bat.

Blackburn's sphinx moth
Blackburn's sphinx moths have been detected near the proposed project site. Surveys for Blackburn's sphinx moths were conducted at the site in 2008 and 2011. Three potential host plants were detected at the site but no Blackburn's sphinx moths, eggs, or larvae were detected. Therefore we concur that the proposed project may affect, but is not likely to adversely affect, the Blackburn's sphinx moth.

Thank you for your efforts to conserve endangered species. If you have any questions or concerns regarding this consultation, please contact Rachel Rounds, Fish and Wildlife Biologist, (phone: 808-792-9400, email: rachel_rounds@fws.gov).

Sincerely,

Patrice Ashfield

for Loyal Mehrhoff
Field Supervisor

JUN 08 2011

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

REPLY TO
ATTENTION OF:

May 31, 2011

Regulatory Branch

File No. POH-2011-00135

Karlynn Fukuda, Principal
Munekiyo & Hiraga, Inc.
305 High St, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Fukuda,

We have received your request for the Department of the Army to review and comment on the Draft EA for the Kahului Airport Access Road Phase I project in Kahului, Maui. We have assigned the project the reference number POH-2011-00135. Please cite this reference number in any correspondence with us concerning this project. We have completed our review of the submitted document and have the following comments:

Section 10 of the Rivers and Harbors Act of 1899 (Section 10) requires that a Department of the Army (DA) permit be obtained from the U.S. Army Corps of Engineers (Corps) prior to undertaking any construction, dredging, and other activities occurring in, over, or under navigable waters of the U.S. Navigable waters of the United States are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

Section 404 of the Clean Water Act (Section 404) of 1972 (33 U.S.C. 1344) requires that a DA permit be obtained for the discharge (placement) of dredge and/or fill material into waters of the U.S., including wetlands. Fill material is any material that replaces a jurisdictional aquatic area with dry land or changes the bottom elevation of a waterbody. Fill may be temporary or permanent and often includes, but is not limited to, rock, sand, concrete, sandbags, etc.

Based on our review of the information provided, there are no navigable waters of the U.S. present within the project area. As such, a Section 10 permit is not required for the proposed project. However, the Corps does not have sufficient information to determine if there are waters of the U.S. present at the project site or if such waters are proposed for impact, which may require authorization under Section 404. The line of jurisdiction extends to the High Tide Line as measured by the Mean Higher High Water Mark for tidal waters, the Ordinary High Water Mark for non-tidal waters, and the approved delineated boundary for wetlands.

We recommend you conduct an aquatic resource inventory of the project site prior to designing any new facilities. The inventory should record any drainage features, streams, ditches, gulches, wetlands, etc., since these features may be jurisdictional waterbodies subject to

Section 10 and/or Section 404 regulations. Wetland delineations must be conducted in accordance with the Corps of Engineers 1987 Wetland Delineation Manual and the Hawaii and Pacific Islands Supplement. Information regarding the physical, chemical, and biological characteristics of each aquatic resource should also be documented.

Once an aquatic resource inventory is conducted, the landowner may submit a request to our office for an approved jurisdictional determination. Note that regulated waterbodies may be permanent, temporary, or ephemeral and may be natural, human-altered, or human-made. The Corps has sole authority to determine if a waterbody is jurisdictional. Based on the jurisdictional determination, we can then provide site specific guidance regarding permitting requirements for proposed work occurring within the jurisdictional waterbodies. The Corps can then determine what, if any, regulations may apply to potential work within jurisdictional waterbodies. This information can greatly assist in the design phase of the project as well as any pre-application meetings with our agency if impacts to jurisdictional waters are proposed.

Your letter also stated that you previously requested comments from our office for the proposed project but did not receive a response. Please note that while the Corps makes every effort to respond to informal pre-application requests, we do so only as a courtesy and as workload allows. Our regulations and policies require that we assign primary priority to evaluating permit applications for proposed work requiring authorization, followed by formal landowner requests for approved jurisdictional determinations regarding aquatic resources.

We recommend that you contact our office to determine if a proposed project warrants a pre-application meeting. In addition, to ensure we are able to provide you with meaningful comments on any written requests, we encourage you to include all information regarding potential aquatic resources on site and proposed impacts to those resources. In the absence of site-specific and project-specific information, we are only able to provide general regulatory information for your consideration and as workload allows.

Thank you for contacting us regarding this project and providing us with the opportunity to comment. Should you have any questions, please contact Ms. Kaitlyn Seberger at (808) 438-7023 or via email at Kaitlyn.R.Seberger@usace.army.mil.

Sincerely,

George P. Young, P.E.
Chief, Regulatory Branch

MUNEKIYO HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO
KARLYNN FUKUDA

MARK ALEXANDER ROY

July 29, 2011

George P. Young, P.E., Chief
Regulatory Branch
U. S. Army Corps of Engineers
Honolulu District
Fort Shafter, Hawaii 96858-5440

SUBJECT: Proposed Kahului Airport Access Road Phase 1 Project, Request for Comments, File No. POH-2011-00135

Dear Mr. Young:

Thank you for your comments on the subject project, dated May 31, 2011. In response to your comments, we provide you with the following information on behalf of the State of Hawaii, Department of Transportation Highways Division for the proposed Kahului Airport Access Road Phase 1 project.

We note your comment that the U.S. Army Corps of Engineers (Corps) has determined that a Section 10 permit will not be required for the project. Regarding your comment on Corps review of the Section 404 permit determination, as to whether there are any waters of the U.S. present at the project site or if such waters are proposed for impact, we note that there are no water bodies located within the proposed roadway right-of-way. Attached as additional information for your review and consideration is a map with the approximate location of the proposed roadway right-of-way and the location of the nearest water bodies as identified by the State of Hawaii, Department of Land and Natural Resources and the National Wetlands Inventory. It is noted that Phase I of the proposed roadway is not located in close proximity to either the Kanaha Pond Wildlife Sanctuary or the Kalialinui Gulch. Further, we note that the Kalialinui Gulch has been channelized in the vicinity of the Kahului Airport.

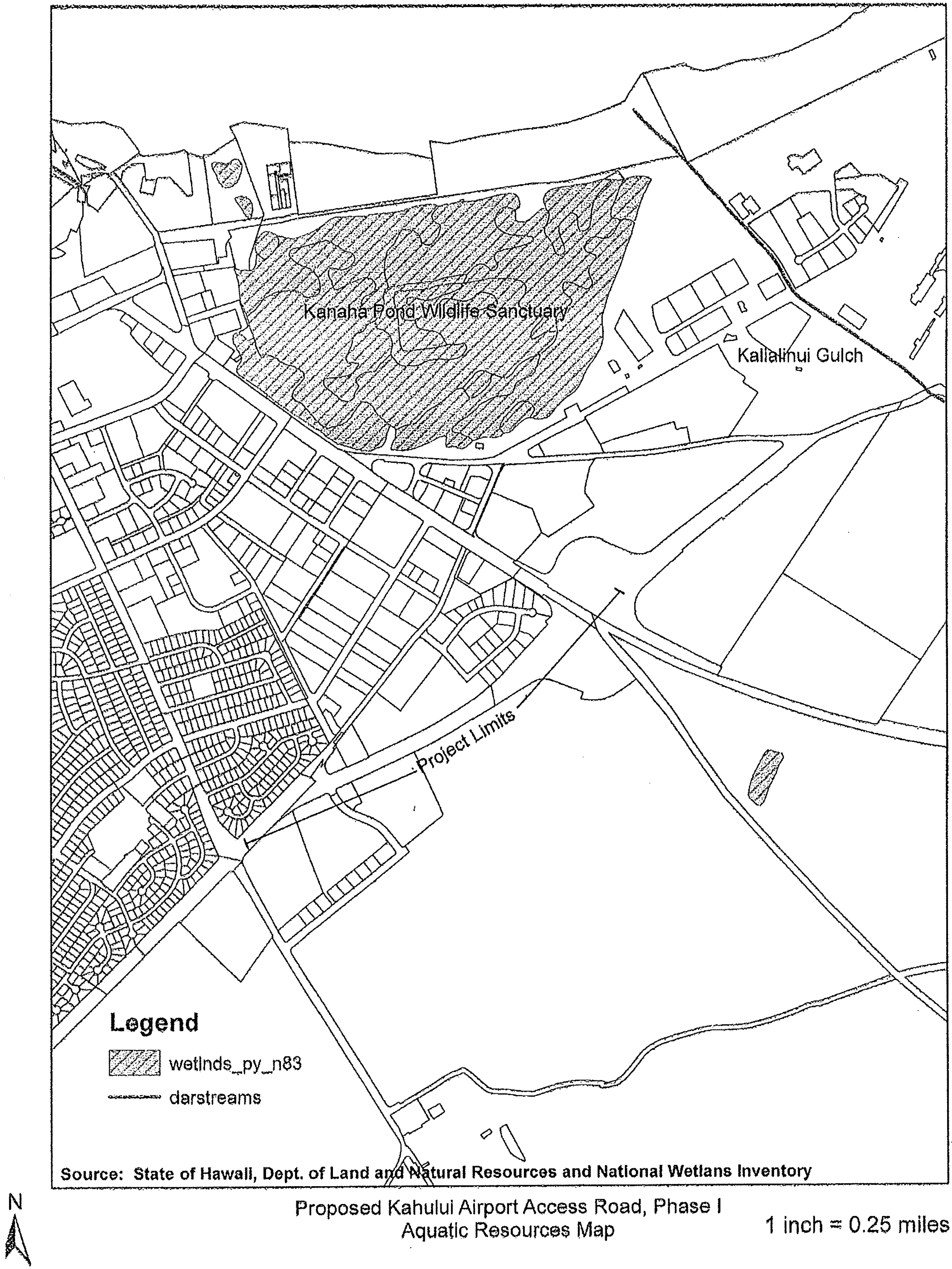
305 High Street, Suite 104 • Wailuku, Hawaii 96793 • ph: (808)244-2015 • fax: (808)244-8729 • planning@mhplanning.com • www.mhplanning.com

Please let me know if you need further information for the COE determination on whether a Section 404 permit would be required. Should you have any questions, please call me at (808) 244-2015.

Very truly yours,

for: Karlynn Fukuda, Principal

KF:yp
Enclosure
cc: Robert Spilker, State Department of Transportation, Maui Office (w/enclosure)
Jon Muraoka, Fukunaga & Associates, Inc. (w/enclosure)
K:\DATA\Fukunaga\KahuluiAP Access\Army.res.doc



Proposed Kahului Airport Access Road, Phase I
Aquatic Resources Map

1 inch = 0.25 miles

APR 0 8 2008

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

BARBARA A. ANNIS
DEPUTY COMPTROLLER

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

(P)1083.8

APR - 4 2008

Mr. Kyle Ginoza
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Ginoza:

Subject: Early Consultation Request; Kahului Airport Access Road Phase1 Project; TMK (2)3-8-006:075 and (2)3-8-080:999
Kahului, Maui, Hawaii

Thank you for the opportunity to provide early consultation comments on the subject project. This proposed project does not impact any of the Department of Accounting and General Services' projects or existing facilities, and we have no comments to offer at this time.

If you have any questions, please call me at 586-0400 or have your staff call Mr. Clarence Kubo of the Public Works Division at 586-0488.

Sincerely,

Russ K. Saito

RUSS K. SAITO
State Comptroller

APR 1 5 2008

LINDA LINGLE
GOVERNOR

GEORGINA K. KAWAMURA
DIRECTOR

ROBERT N. E. PIPER
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF BUDGET AND FINANCE
P.O. BOX 150
HONOLULU, HAWAII 96810-0150

EMPLOYEES' RETIREMENT SYSTEM
HAWAII EMPLOYER-UNION HEALTH BENEFITS TRUST FUND
OFFICE OF THE PUBLIC DEFENDER
PUBLIC UTILITIES COMMISSION

ADMINISTRATIVE AND RESEARCH OFFICE
BUDGET, PROGRAM PLANNING AND MANAGEMENT DIVISION
FINANCIAL ADMINISTRATION DIVISION

April 11, 2008

Mr. Kyle Ginoza, Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Ginoza:

This is in response to your letter dated March 19, 2008, which requests for comments in preparing the draft environmental assessment document for development of the Kahului Airport Access Road, Phase 1 Project, in Kahului, Maui.

We have no comments at this time.

Aloha,

Georgina K Kawamura

GEORGINA K. KAWAMURA
Director of Finance

LINDA LINGLE
GOVERNOR

PATRICIA HAMAMOTO
SUPERINTENDENT

APR 04 2008

STATE OF HAWAI'I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI'I 96804

OFFICE OF THE SUPERINTENDENT

April 2, 2008

Mr. Kyle Ginoza, Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawai`i 96793

Dear Mr. Ginoza:

Subject: Early Consultation Request; Kahului Airport Access Road
Kahului, Maui; TMK 3-8-006: 075 and 3-8-080: 999

The Department of Education has no comment or concern to offer at this stage of early consultation.

Thank you for the opportunity to comment. If you have any questions, please call Heidi Meeker of the Facilities Development Branch at (808) 377-8301.

Very truly yours,

Patricia Hamamoto
Superintendent

PH:jmb

c: Randolph Moore, Assistant Superintendent, OSFSS
Duane Kashiwai, Public Works Administrator, FDB

APR 0 2 2008

LINDA LINGLE
GOVERNOR
STATE OF HAWAII

MICAH A. KĀNE
CHAIRMAN
HAWAIIAN HOMES COMMISSION

KAULANA H. PARK
DEPUTY TO THE CHAIRMAN

ROBERT J. HALL
EXECUTIVE ASSISTANT

STATE OF HAWAIʻI
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAIʻI 96805

April 1, 2008

Mr. Kyle Ginoza, Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Ginoza:

Thank you for the opportunity to participate in the early consultation process of the first phase of a proposed Kahului Airport access road along Kuihelani and Hana Highway in Maui. The Department of Hawaiian Home Lands has no comments to offer.

Should you have any questions, please call the Planning Office at (808) 586-3836.

Aloha and mahalo,

for Micah A. Kane, Chairman
Hawaiian Homes Commission

APR 1 1 200

LINDA LINGLE
GOVERNOR OF HAWAII

CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:
EMD / CWB

04034PMT.08

April 9, 2008

Mr. Kyle Ginoza
Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Ginoza:

**Subject: Early Consultation Request – Draft Environmental Assessment (DEA)
Kahului Airport Access Road Phase 1 Project
TMKs: (2)3-8-006:075 and (2)3-8-080:999
Kahului, Maui, Hawaii**

The Department of Health, Clean Water Branch (CWB), has reviewed your letter dated March 19, 2008, regarding the subject project and offers these comments. Please note that our review is based solely on the information provided in your letter for the subject project and its compliance with Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at
http://www.hawaii.gov/health/environmental/env-planning/landuse/CWB-standardcomment.pdf.

1. Any project and its potential impacts to State waters must meet the following criteria:

   a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.

   b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.

   c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

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2. The Kahului Harbor is identified as a Priority Category 3 waters in the Section 303(d) of the Clean Water Act list of impaired water bodies. Priority 3 waters are currently being assessed and potentially will be Section 303(d) listed as an impaired water body. Accordingly, the subject Draft EA should also include this consideration toward ensuring the protection and improvement of this water body with respect to the subject project.

3. You are required to obtain a National Pollutant Discharge Elimination System (NPDES) permit for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55). For the following types of discharges into Class A or Class 2 State waters, you may apply for NPDES general permit coverage by submitting a Notice of Intent (NOI) form:

   a. Storm water associated with industrial activities, as defined in Title 40, Code of Federal Regulations, Sections 122.26(b)(14)(i) through 122.26(b)(14)(ix) and 122.26(b)(14)(xi).

   b. Storm water associated with construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. An NPDES permit is required before the start of the construction activities.

   c. Hydrotesting water.

   d. Construction dewatering effluent.

   e. Treated effluent from well drilling activities.

   You must submit a separate NOI form for each type of discharge at least 30 calendar days prior to the start of the discharge activity, except when applying for coverage for discharges of storm water associated with construction activity. For this type of discharge, the NOI must be submitted 30 calendar days before to the start of construction activities. The NOI forms may be picked up at our office or downloaded from our website at http://www.hawaii.gov/health/environmental/water/cleanwater/forms/genl-index.html.

4. The Kanaha Pond is designated as a wildlife sanctuary, and therefore is classified as a Class 1, Inland Water. Accordingly, wastewater discharging into Kanaha Pond, and for other types wastewater not listed in Item 3 above, will need to be covered under an NPDES individual permit. An application for an NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. The NPDES application forms may be picked up at our office or downloaded from our website at http://www.hawaii.gov/health/environmental/water/cleanwater/forms/indiv-index.html.

5. You must also submit a copy of the NOI or NPDES permit application to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD), or demonstrate to the satisfaction of the CWB that SHPD has or is in the process of evaluating your project. Please submit a copy of your request for review by SHPD or SHPD's determination letter for the project along with your NOI or NPDES permit application, as applicable.

6. Please call the Army Corps of Engineers (ACOE) at (808) 438-9258 to see if this project requires a Department of the Army (DA) permit. Permits may be required for work performed in, over, and under navigable waters of the United States. Projects requiring a DA permit also require a Section 401 Water Quality Certification (WQC) from our office.

7. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 WQC are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of $25,000 per day per violation.

If you have any questions, please visit our website at http://www.hawaii.gov/health/environmental/water/cleanwater/index.html, or contact the Engineering Section, CWB, at (808) 586-4309.

Sincerely,

Alec Wong

ALEC WONG, P.E., CHIEF
Clean Water Branch

MT:np

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO
KARLYNN FUKUDA

MARK ALEXANDER ROY

October 26, 2010

Alec Wong, P.E.,Chief
State of Hawaii
Department of Health
Clean Water Branch
P. O. Box 3378
Honolulu, Hawai`i 96801-3378

SUBJECT: Early Consultation for Proposed Kahului Airport Access Road Phase I

Dear Mr. Wong:

Thank you for your letter of April 9, 2008, providing early consultation comments on the proposed Kahului Airport Access Road. We provide the following information to address the comments noted.

1. ***Compliance with Hawai`i Administrative Rules, Section 11 -54, Chapter 11-55 and Section 303 of the Clean Water Act***

   The construction and operation of the proposed Airport Access Road Phase I will incorporate Best Management Practices to ensure that discharges from the roadway including storm runoff are appropriately managed so as to avoid reaching State waters, including the Kanaha Pond.

   In this regard, the Department of Transportation will comply with applicable standard comments of the Clean Water Branch, as posted on the branch's website.

2. ***State Historic Preservation Division (SHPD) Review of Project***

   In securing the Notice of Intent (NOI) for a National Pollutant Discharge Elimination System (NPDES) permit, coordination with the State Historic Preservation Division will be undertaken.

environment
planning
government

305 High Street, Suite 104 · Wailuku, Hawaii 96793 · ph: (808)244-2015 · fax: (808)244-8729 · planning@mhplanning.com www.mhplanning.com

3. ***Coordination with the U. S. Department of the Army***

Coordination with the U.S. Department of the Army was initiated as part of the early consultation process.

Thank you again for providing your early coordination comments for the proposed action. Should you have further questions or comments, please do not hesitate to call.

Very truly yours,

Karlynn Fukuda

Karlynn Fukuda
Principal

KF:yp
cc: Jon Muraoka, Fukunaga & Associates, Inc.
Ferdinand Cajigal, State Department of Transportation
F:\DATA\Fukunaga\KahuluiAP Access\DOHCWB.ECres.doc

APR 0 8 2008

LINDA LINGLE
GOVERNOR OF HAWAII

CHIYOME L. FUKINO, M. D.
DIRECTOR OF HEALTH

LORRIN W. PANG, M. D., M. P. H.
DISTRICT HEALTH OFFICER

STATE OF HAWAII
DEPARTMENT OF HEALTH
MAUI DISTRICT HEALTH OFFICE
54 HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2102

April 7, 2008

Mr. Kyle Ginoza
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawai`i 96793

Dear Mr. Ginoza:

Subject: **Early Consultation Request, Kahului Airport Access Road Phase 1, TMK: (2) 3-8-006: 075 and (2) 3-8-080: 999**

Thank you for the opportunity to participate in the early consultation process for the proposed Phase I of the Kahului Airport Access Road project. The following comments are offered:

1. National Pollutant Discharge Elimination System (NPDES) permit coverage may be required for this project. The Clean Water Branch should be contacted at 808 586-4309.

2. The noise created during the construction phase of the project may exceed the maximum allowable levels as set forth in Hawaii Administrative Rules, Chapter 11-46, "Community Noise Control". A noise permit may be required and should be obtained before the commencement of work.

It is strongly recommended that the Standard Comments found at the Department's website: www.state.hi.us/health/environmental/env-planning/landuse/landuse.html be reviewed, and any comments specifically applicable to this project should be adhered to.

Should you have any questions, please call me at 808 984-8230.

Sincerely,

Herbert S. Matsubayashi
District Environmental Health Program Chief

c EPO

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO
KARLYNN FUKUDA

MARK ALEXANDER ROY

October 26, 2010

Patti Kitkowski, Acting District
Environmental Health
Program Chief
State of Hawaii
Department of Health
Maui District Health Office
54 High Street
Wailuku, Hawai`i 96793-2102

SUBJECT: Early Consultation for Proposed Kahului Airport Access Road Phase I

Dear Ms. Kitkowski:

Thank you for your department's letter of April 7, 2008, providing early consultation comments on the proposed Kahului Airport Access Road. We provide the following information to address the comments noted.

1. ***Compliance with National Pollutant Discharge Elimination System (NPDES) and Noise Standards and Regulations***

The Department of Transportation will comply with all applicable requirements of the Department of Health, including those found at the Department's website.

Thank you again for providing your early coordination comments for the proposed action. Should you have further questions or comments, please do not hesitate to call.

Very truly yours,

Karlynn Fukuda
Principal

KF:yp
cc: Jon Muraoka, Fukunaga & Associates, Inc.
Ferdinand Cajigal, State Department of Transportation
F:\DATA\Fukunaga\KahuluiAP Access\DOHMaui.ECres.doc

APR 0 1 2008

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 28, 2008

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

Attention: Mr. Kyle Ginoza

Gentlemen:

Subject: Early Consultation for Kahului Airport Access Road Phase 1 Project

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

Charlene E. Unoki

for Morris M. Atta
Administrator

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

GUY H. KAULUKUKUI
FIRST DEPUTY

WILLIAM M. TAM
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

September 27, 2011

Mark Alexander Roy, AICP, Program Manager
Munekioy & Hiraga
Via fax to: (808) 244-8729

LOG NO: 2011.2329
DOC NO: 1109MD04
Archaeology
History & Culture

Dear Mr. Roy:

SUBJECT: National Historic Preservation Act (NHPA) Section 106 Review – Revised: Proposed Kahului Airport Access Road, Phase 1 Wailuku Ahupua'a, Wailuku District, Island of Maui

Thank you for the opportunity to comment on the aforementioned undertaking, which we received on August 31, 2011. This project qualifies as an undertaking pursuant to 36 CFR § 800 due to the use of federal funds. This revised letter was prepared following discussions between yourself and Morgan Davis, Lead Archaeologist for SHPD on Maui. As a result of those conversations we have agreed to produce a revised letter to clarify our understanding of this project (*Log No. 2011.1328, Doc No. 1107MD10*).

This undertaking is part of a larger project involving the Kahului Airport Development, which is by a Programmatic Agreement (PA) among: the Advisory Council on Historic Preservation; the Federal Aviation Administration (FAA); and the Hawaii State Preservation Officer (SHPO). Concurring signatories include the Hawaii Department of Transportation (HDOT); the Maui/Lāna'i Island Burial Council (MLIBC); and the Office of Hawaiian Affairs (OHA). That project is indicated by three phases enumerated within the PA; phase 1 of the proposed Kahului Airport Access Road is not the same as phase 1 in the PA.

Phase 1 of the Kahului Airport Access Road runs from Puunene Avenue to the Hana Highway. It is being undertaken by the Highways Division of HDOT, with federal funding provided by the Federal Highways Administration. This location was in sugarcane for over 100 years, with no historic properties identified during the archaeological survey.

Based on the information above, we concur that there will be **no historic properties affected** by this proposed undertaking pursuant to 36 CFR § 800 as long as mitigation in the form of the approved archaeological monitoring plan occurs (Shefcheck and Dega 2006; *Log No. 2006.4238, Doc No. 0612MK33*). If you have questions about this letter please contact Morgan Davis at (808) 243-5169 or via email to: morgan.e.davis@hawaii.gov.

Aloha,

Pua Aiu, Ph.D.
Administrator
State Historic Preservation Division

APR 16 2008

LINDA LINGLE
GOVERNOR

BRENNON T. MORIOKA
DIRECTOR

Deputy Directors
MICHAEL D. FORMBY
FRANCIS PAUL KEENO
BRIAN H. SEKIGUCHI

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:

STP 8.2835

April 10, 2008

Mr. Kyle Ginoza
Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Ginoza:

Subject: Early Consultation
Draft Environmental Assessment (Draft EA)
Kahului Airport Access Road Phase I Project
TMK: (2)3-8-006:075 and (2)3-8-080:999

The State Department of Transportation (DOT) is in full support of the subject project, which is being implemented by the DOT Highways Division.

Although the project does not include Phase 2 of the airport access road from Hana Highway into Kahului Airport, consideration should be given to include a discussion of the requirement for appropriate advance coordination and planning or the connection of the Phase 1 and 2 roadways in the Draft EA for the Phase 1 project.

The courtesy of your early consultation and request for comments is appreciated.

Very truly yours,

BRENNON T. MORIOKA, Ph.D, P.E.
Director of Transportation

32

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO
KARLYNN FUKUDA

MARK ALEXANDER ROY

October 26, 2010

Michael Formby, Interim Director
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawai`i 96813-5097

SUBJECT: Early Consultation for Proposed Kahului Airport Access Road Phase I

Dear Mr. Formby:

Thank you for your department's letter of April 10, 2008, providing early consultation comments on the proposed Kahului Airport Access Road. We provide the following information to address the comments noted.

1. *Coordination Between Phase I and Phase II Components*

The Draft EA will note the ongoing coordination between the Highways Division and Airports Division to ensure that design and construction matters are appropriately aligned.

Thank you again for providing your early coordination comments for the proposed action. Should you have further questions or comments, please do not hesitate to call.

Very truly yours,

Karlynn Fukuda
Principal

KF:yp
cc: Jon Muraoka, Fukunaga & Associates, Inc.
Ferdinand Cajigal, State Department of Transportation
F:\DATA\Fukunaga\KahuluiAP Access\SDOT.ECres.doc

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305 High Street, Suite 104 · Wailuku, Hawaii 96793 · ph: (808)244-2015 · fax: (808)244-8729 · planning@mhplanning.com www.mhplanning.com

PHONE (808) 594-1888

FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

HRD08/3589

May 5, 2008

Kyle Ginoza, Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

RE: Request for comments on the proposed Kahului Airport Access Road Phase 1 Project, Kahului, Maui, TMKs: (2) 3-8-006:075 and (2) 3-8-080:999.

Aloha e Kyle Ginoza,

The Office of Hawaiian Affairs (OHA) is in receipt of the above-mentioned letter dated March 19, 2008. The proposed project would allow for the construction of a roadway to be aligned east of Dairy Road, running from the Pu'unene Avenue and Kuihelani Highway intersection to Hana Highway. OHA has reviewed the project and offers the following comments.

OHA has substantive obligations to protect the cultural and natural resources of Hawai'i for its beneficiaries, the people of this land. The Hawaii Revised Statutes mandate that OHA "[s]erve as the principal public agency in the State of Hawaii responsible for the performance, development, and coordination of programs and activities relating to native Hawaiians and Hawaiians; . . . and [t]o assess the policies and practices of other agencies impacting on native Hawaiians and Hawaiians, and conducting advocacy efforts for native Hawaiians and Hawaiians." (HRS § 10-3)

We look forward to the opportunity to review the forthcoming Draft Environmental Assessment, and request the applicant's assurances that should iwi kūpuna or Native Hawaiian cultural or traditional deposits be found during the construction of the project, work will cease, and the appropriate agencies will be contacted pursuant to applicable law.

In addition, OHA recommends that the applicant use native vegetation in its landscaping plan for subject parcel. Landscaping with native plants furthers the traditional Hawaiian concept of mālama 'āina and creates a more Hawaiian sense of place.

Thank you for the opportunity to comment. If you have further questions, please contact Heidi Guth at (808) 594-1962 or e-mail her at heidig@oha.org.

ʻO wau iho nō me ka ʻoiaʻiʻo,

Clyde W. Nāmuʻo
Administrator

C: OHA Maui CRC Office

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO
KARLYNN FUKUDA

MARK ALEXANDER ROY

October 26, 2010

Clyde W. Namu`o, Administrator
Office of Hawaiian Affairs
711 Kapi`olani Boulevard, Suite 500
Honolulu, Hawai`i 96813

SUBJECT: Early Consultation for Proposed Kahului Airport Access Road Phase I

Dear Mr. Namu`o:

Thank you for your letter of May 5, 2008, providing early consultation comments on the proposed Kahului Airport Access Road. We provide the following information to address the comments noted.

1. ***Assurances Regarding Iwi Kupuna or Native Hawaiian Cultural or Traditional Deposits***

   The Draft EA will note that should iwi kupuna or Native Hawaiian cultural or traditional deposits be found during construction, work will cease in the area of the find and appropriate agencies contact to implement required protocols and procedures.

2. ***Use of Native Plants***

   To the extent practicable, native plants will be used in the landscaping of the Kahului Airport Access Road Phase I.

Thank you again for providing your early coordination comments for the proposed action. Should you have further questions or comments, please do not hesitate to call.

Very truly yours,

Karlynn Fukuda

Karlynn Fukuda
Principal

KF:yp
cc: Jon Muraoka, Fukunaga & Associates, Inc.
Ferdinand Cajigal, State Department of Transportation
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APR 14 2008

CHARMAINE TAVARES
Mayor

CHERYL K. OKUMA, Esq.
Director

GREGG KRESGE
Deputy Director

TRACY TAKAMINE, P.E.
Solid Waste Division

DAVID TAYLOR, P.E.
Wastewater Reclamation Division

COUNTY OF MAUI
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
2200 MAIN STREET, SUITE 175
WAILUKU, MAUI, HAWAII 96793

April 9, 2008

Mr. Kyle Ginoza
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

SUBJECT: KAHULUI AIRPORT ACCESS ROAD PHASE I PROJECT EARLY CONSULTATION REQUEST TMK (2) 3-8-006:075 AND 3-8-080:999, KAHULUI

Dear Mr. Ginoza,

We reviewed the subject project as a pre-application consultation and have the following comments:

1. Solid Waste Division comments
   a. None.
2. Wastewater Reclamation Division comments:
   a. None.

If you have any questions regarding this memorandum, please contact Gregg Kresge at 270-8230.

Sincerely,

Cheryl K. Okuma

Cheryl Okuma, Director

38

APR 0 9 2008

CHARMAINE TAVARES
Mayor

TAMARA HORCAJO
Director

ZACHARY Z. HELM
Deputy Director

(808) 270-7230
Fax (808) 270-7934

DEPARTMENT OF PARKS & RECREATION

700 Hali'a Nakoa Street, Unit 2, Wailuku, Hawaii 96793

March 31, 2008

Munekiyo & Hiraga, Inc.
Attention: Kyle Ginoza
305 High Street, Suite 104
Wailuku, Hawaii 96793

SUBJECT: Early Consultation Request for Kahului Airport Access Road Phase 1 Project, TMK (2)3-8-006:075 and (2)3-8-080:999, Kahului, Maui, Hawai'i

Dear Mr. Ginoza:

The Department of Parks and Recreation has no comments at this time. We will continue to work with you to ensure that there are no impacts to Parks property or operation.

Thank you for the opportunity to review and comment on this matter. Please feel free to contact me or Mr. Patrick Matsui, Chief of Parks Planning and Development, at 270-7387 should you have any other questions.

Sincerely,

Tamara Horcajo

TAMARA HORCAJO
Director

xc: Patrick Matsui, Chief of Parks Planning & Development
Baron Sumida, CIP Coordinator Parks Planning & Development

CHARMAINE TAVARES
Mayor

JEFFREY S. HUNT
Director

COLLEEN M. SUYAMA
Deputy Director

APR 30 2008

COUNTY OF MAUI
DEPARTMENT OF PLANNING

April 29, 2008

Mr. Kyle Ginoza
Munekiyo & Hiaraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Ginoza:

SUBJECT: **Pre-consultation Comments in Preparation of a Draft Environmental Assessment (EA) for the Proposed Kahului Airport Access Road Phase I TMK: 3-8-006:075 and 3-8-080:999, Maui, Hawaii (EAC 2008/0012)**

The Department of Planning (Department) is in receipt of the above-referenced document for the proposed Kahului Airport Access Road Phase I. The Department understands the proposed action includes the following:

- The applicant is the State Department of Transportation Highways Division (HDOT).
- The proposed improvements will span from the intersection of Pu`unene Avenue/Kuihelani Highway Intersection to Hana Highway

Based on the foregoing, the Department provides the following comments in preparation of the Draft EA:

1. The land use designations for the project area are as follows:

    a. State Land Use: Agricultural
    b. Community Plan: Agricultural
    c. County Zoning: Agricultural
    d. Other: Located outside of Special Management Area

2. No land use permits are required to be obtained from the Department;

3. The proposed Phase I alignment is consistent with the alignment identified in the Wailuku-Kahului Community Plan adopted in 2002;

4. The Draft EA should contain a thorough discussion on how the proposed project is consistent with the objectives and policies of the Wailuku-Kahului Community Plan;

5. The Draft EA should also contain a thorough discussion on how the proposed project is consistent with the objectives and polices of Chapter 205A, Coastal Zone Management, HRS; and

6. The Draft EA should contain a thorough discussion on how HDOT made the determination that a Supplemental EA, pursuant to Chapter 343, Hawaii Revised Statutes (HRS) is not required for the proposed project.

Thank you for the opportunity to comment. Please include the Department on the distribution list for the Draft EA. Should you require clarification, contact Robyn L. Loudermilk, at robyn.loudermilk@mauicounty.gov or at 270-7180.

Sincerely,

Clayton I. Yoshida

CLAYTON I. YOSHIDA, AICP
Planning Program Administrator

For: JEFFREY S. HUNT, AICP
Planning Director

xc: Robyn L. Loudermilk, Staff Planner
Milton Arakawa, AICP, DPW
Chief Thomas M. Phillips, Police Department
General File

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MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO
KARLYNN FUKUDA

MARK ALEXANDER ROY

October 26, 2010

Kathleen R. Aoki, Director
Department of Planning
250 South High Street
Wailuku, Hawaii 96793

SUBJECT: Early Consultation for Proposed Kahului Airport Access Road Phase I

Dear Ms. Aoki:

Thank you for your department's letter of April 29, 2008, providing early consultation comments on the proposed Kahului Airport Access Road. We provide the following information to address the comments noted.

1. ***Project's Consistency with the Wailuku-Kahului Community Plan***

   The Draft EA will include the Wailuku-Kahului Community Plan's action statement which calls for the construction of the Airport Access Road.

2. ***Coastal Zone Management Objectives and Policies***

   The Draft EA will include a discussion of the project's relationship to the Coastal Zone Management's (Chapter 205A) objectives and policies.

3. ***Determination that Supplemental Environmental Assessment (EA) Not Required***

   The Department of Transportation has determined that the Final Environmental Impact Statement for the Kahului Airport Improvements has addressed the project's compliance requirements for Chapter 343, Hawai`i Revised Statutes. This determination was based on the EIS' technical analysis for surface transportation systems which extended to the year 2020.

Thank you again for providing your early coordination comments for the proposed action. Should you have further questions or comments, please do not hesitate to call.

Very truly yours,

Karlynn Fukuda
Principal

KF:yp
cc: Jon Muraoka, Fukunaga & Associates, Inc.
Ferdinand Cajigal, State Department of Transportation
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APR 0 1 2008

POLICE DEPARTMENT
COUNTY OF MAUI

CHARMAINE TAVARES
MAYOR

55 MAHALANI STREET
WAILUKU, HAWAII 96793
(808) 244-6400
FAX (808) 244-6411

THOMAS M. PHILLIPS
CHIEF OF POLICE

GARY A. YABUTA
DEPUTY CHIEF OF POLICE

OUR REFERENCE
tj
YOUR REFERENCE

March 28, 2008

Mr. Kyle Ginoza
Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

Dear Mr. Ginoza:

SUBJECT: Early Consultation Request; Kahului Airport Access Road Phase 1 Project; TMK (2) 3-8-006:075 and (2) 3-8-080:999

Thank you for your letter of March 19, 2008, requesting comments on the above subject.

Please refer to a copy of the enclosed memorandum with our comments and/ or recommendations.

Thank you for giving us the opportunity to comment on this project.

Very truly yours,

AC Wayne T. Ribao

Assistant Chief Wayne T. Ribao
for: Thomas M. Phillips
Chief of Police

c: Jeffrey Hunt, Maui County Planning Department

COPY

TO	**:**	**THOMAS PHILLIPS, CHIEF OF POLICE, COUNTY OF MAUI**
VIA	**:**	**CHANNELS**
FROM	**:**	**STEPHEN ORIKASA, ADMINISTRATIVE SERGEANT, WAILUKU PATROL DIVISION**
SUBJECT	**:**	**RESPONSE TO REQUEST FOR EARLY CONSULTATION COMMENTS REGARDING THE KAHULUI AIRPORT ACCESS ROAD PHASE I**

CONCUR WITH SGT. ORIKASA'S ASSESSMENT.
AC Wayne [illegible]
03/27/08

This communication is submitted as a response to request for early consultation comments from Munekiyo & Hiraga, Inc., Project Manager Kyle Ginoza, regarding the below subject;

SUBJECT	:	Kahului Airport Access Road Phase I Project, Kahului, Maui, Hawaii
TMK	:	(2) 3-8-006:075 and (2) 3-8-080:999

RESPONSE:

In review of the documents provided, it appears this project is in parallel with the Maui Business Park Phase II, North & South Projects, which was discussed before the County of Maui Land Use Committee on July 5, 2007 (LU-49 Change in Zoning for the Maui Business Park Phase II Project).

During the discussion of the development of this proposed project alignment, the traffic design appeared adequate, although there are no improvements to include pedestrian movement. Pedestrian walkways, corridors or overpasses should be included in this plan to ensure the safety of both the pedestrians and motoring public.

The development of the access road will likely minimize congestion on Dairy Road and the existing bottle neck problems at the intersections with Alamaha Street and Hana Highway. Following the construction of the access road, traffic signals on Hana Highway and surrounding feeder streets will need to timed so not to cause another congestion point at the new intersection on Hana Highway.

CONCLUSION:

There are no objections to the development of the proposed Airport Access Road at this time. It is strongly suggested that follow-up traffic assessments and maintenance be conducted to sustain the purpose of developing this roadway.

Respectfully submitted for your review and approval.

Stephen T. Orikasa E#716
Administrative Sergeant/Wailuku Patrol Division
03/27/08 @ 1315 Hours

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO
KARLYNN FUKUDA

MARK ALEXANDER ROY

October 26, 2010

Gary A. Yabuta, Chief
County of Maui
Police Department
55Mahalani Street
Wailuku, Hawaii 96793

SUBJECT: Early Consultation for Proposed Kahului Airport Access Road Phase I

Dear Chief Yabuta:

Thank you for your department's letter of March 28, 2008, providing early consultation comments on the proposed Kahului Airport Access Road. We provide the following information to address the comments noted.

1. Follow-up Traffic Assessments and Maintenance

The Draft EA will include an updated traffic study which will be used in formulating the basis of design for the Kahului Airport Access Road Phase I project. It is noted that pedestrian facilities are not provided as part of the project scope due to the roadway's high speed arterial classification. Pedestrian access to the airport is available along Dairy Road and Keolani Place. The State Department of Transportation will provide ongoing maintenance for the road upon completion.

environment planning government

305 High Street, Suite 104 · Wailuku, Hawaii 96793 · ph: (808)244-2015 · fax: (808)244-8729 · planning@mhplanning.com www.mhplanning.com

Thank you again for providing your early coordination comments for the proposed action. Should you have further questions or comments, please do not hesitate to call.

Very truly yours,

K. G. FuCl

Karlynn Fukuda
Principal

KF:yp
cc: Jon Muraoka, Fukunaga & Associates, Inc.
Ferdinand Cajigal, State Department of Transportation
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APR 0 2 2008

CHARMAINE TAVARES
MAYOR

DON A. MEDEIROS
Director
WAYNE A. BOTEILHO
Deputy Director
Telephone (808) 270-7511
Facsimile (808) 270-7505

DEPARTMENT OF TRANSPORTATION

COUNTY OF MAUI
200 South High Street
Wailuku, Hawaii, USA 96793-2155

March 27, 2008

Mr. Kyle Ginoza
Munekiyo & Hiraga Inc.
305 High Street, Suite 104
Wailuku, Maui, Hawaii 96793

Subject: Kahului Airport Access Road Phase 1 Project

Dear Mr. Ginoza,

Thank you for the opportunity to comment on this project. We have reviewed the project and have no comments to make at this time.

Please feel free to contact me should you have any questions.

Sincerely,

Don Medeiros
Director

Maui Electric Company, Ltd. • 210 West Kamehameha Avenue • PO Box 398 • Kahului, Maui, HI 96733-6898 • (808) 871-8461

April 10, 2008

Mr. Kyle Ginoza
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Ginoza,

Subject: Early Consultation – Kahului Airport Access Road Phase 1 Project
TMK: (2) 3-8-006:075 and (2) 3-8-080:999
Kahului, Maui, Hawaii

Thank you for allowing us to comment on the notification letter and maps for the subject project.

In reviewing our records and the information received, we anticipate the need to relocate our electrical facilities to prevent conflicts with the proposed route of the new roadway. We would highly encourage the customer to submit survey and civil plans to us as soon as practical to verify the project's location requirements and address any possible relocations or conversions of our facilities.

If you have any questions or concerns, please call Ray Okazaki at 871-2340.

Sincerely,

Gregorysenn Kauhi
Customer Operations Manager

GK/ro:lh

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO
KARLYNN FUKUDA

MARK ALEXANDER ROY

October 26, 2010

Gregorysenn Kauhi
Customer Service Manager
Maui Electric Company, Ltd.
210 West Kamehameha Avenue
P.O. Box 398
Kahului, Hawai`i 96733-6898

SUBJECT: Early Consultation for Proposed Kahului Airport Access Road Phase I

Dear Mr. Kauhi:

Thank you for your letter of April 10, 2008, providing early consultation comments on the proposed Kahului Airport Access Road. We provide the following information to address the comments noted.

1. Coordination with Maui Electric Company, Ltd.

The Department of Transportation's design team will continue coordination with Maui Electric Company to ensure that electrical service requirements are addressed in a timely manner.

Thank you again for providing your early coordination comments for the proposed action. Should you have further questions or comments, please do not hesitate to call.

Very truly yours,

Karlynn Fukuda

Karlynn Fukuda
Principal

KF:yp
cc: Jon Muraoka, Fukunaga & Associates, Inc.
Ferdinand Cajigal, State Department of Transportation
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environment planning government