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# ***DRAFT*** ***ENVIRONMENTAL ASSESSMENT***

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## **RUNWAY 3-21 EXTENSION AND ASSOCIATED IMPROVEMENTS**

Lanai Airport  
Lanai, Maui County, Hawaii

*Prepared for:*

**STATE OF HAWAII DEPARTMENT OF TRANSPORTATION, AIRPORTS DIVISION**

**U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION**

As lead Federal Agency pursuant to the National Environmental Policy Act of 1969

*Prepared by:*

Munekiyo Hiraga  
Ricondo & Associates, Inc.

**December 2018**

**This environmental assessment becomes a Federal document when evaluated, signed and dated by the Responsible FAA Official.**

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**Responsible FAA Official**

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**Date**

# GENERAL INFORMATION ABOUT THIS DOCUMENT

**WHAT'S IN THIS DOCUMENT?** This document contains a Draft Environmental Assessment (EA) for the State of Hawaii's proposed Runway 3-21 Extension and Associated Improvements Project (Proposed Action) for Lanai Airport. The Proposed Action includes construction of a 500-foot runway extension of Runway 3-21 to the northeast (Runway 21 end), construction of associated airfield improvements, and grading of the runway safety area. This document discloses the analysis and findings of the potential impacts associated with the Proposed Action and the No Action alternatives.

**BACKGROUND.** The State of Hawaii Department of Transportation, Airports Division (HDOT-A), the owner and operator of the Lanai Airport (LNY or the Airport) in Maui County, Hawaii, proposes construction of a 500-foot extension to Runway 3-21 and associated improvements. The proposed project would better accommodate operations of the existing aircraft fleet at LNY during all weather conditions, increasing their margin of safety during high temperature and/or wet pavement conditions. The runway extension requires a change to the LNY Airport Layout Plan and Federal Aviation Administration (FAA) approval. This change is a federal action, requiring the preparation of this EA to meet the requirements of the National Environmental Policy Act.

The Draft EA has been made available for a 30-day public review starting on December 24, 2018. The notice of availability of the Draft EA was published in a local newspaper, the *Maui News*.

**WHAT SHOULD YOU DO?** Read the Draft EA to understand the actions that HDOT-A intends to take relative to the proposed runway extension. Copies of the document are available at the administrative offices of Lanai Airport, the Lanai Public Library, at the administrative offices of Hawaii Department of Transportation – Airports Division in Honolulu, and at FAA's Honolulu Airports District Office in Honolulu. Addresses of these locations are provided in Section 5 of this document. Anyone wishing to comment on the Draft EA may do so in writing through a letter to the following address:

Airports Division, Hawaii Department of Transportation  
Attention: Airports Planning  
400 Rodgers Boulevard, 7th Floor  
Honolulu, Hawaii 96819  
Fax: 808/838-8751  
E-mail: [dot.air.planning@hawaii.gov](mailto:dot.air.planning@hawaii.gov)

Comments are due no later than **5:00 p.m. – Hawaii Time on Friday, January 25, 2019.** Please allow sufficient time for mailing. HDOT-A must **receive** your comments by the deadline, not simply postmarked by that date.

**WHAT HAPPENS AFTER THIS?** The HDOT-A will prepare written responses to comments received on the adequacy of the information presented in this Draft EA and prepare a Final EA for transmittal to the FAA for the agency's review and acceptance. Following review of the Final EA, the FAA will either issue a Finding of No Significant Impact (FONSI) or decide to prepare an Environmental Impact Statement (EIS).

Before including your name, address, telephone number, email or other personal identifying information in your comment, be advised that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold from public review your personal identifying information, we cannot guarantee we will be able to do so.

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## Abbreviations and Acronyms

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### A

AAS – Archeological Assessment Survey

ALP – Airport Layout Plan

AOA – Air Operations Area

APE – Area of Potential Effects

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### B

BMPs – Best Management Practices

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### C

C&D – Construction & Demolition

CAA – Clean Air Act

CAAA – Clean Air Act Amendments of 1990

CAB – Clean Air Branch

CEQ – Council on Environmental Quality

CERCLA – Comprehensive Environmental  
Response, Compensation and Liability Act

C.F.R. – Code of Federal Regulations

CH<sub>4</sub> - Methane

CO – Carbon Monoxide

CO<sub>2</sub> – Carbon Dioxide

CWA – Clean Water Act

CWB – Clean Water Branch

CZM – Coastal Zone Management

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### D

dB – decibel

dba – A-weighted decibel

DLNR – Department of Land and Natural  
Resources

DME – Distance Measuring Equipment

DNL – Day-Night Average Sound Level

DOH – Department of Health

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### E

EA – Environmental Assessment

EDR – Environmental Data Resources

EIS – Environmental Impact Statement

EPA – Environmental Protection Agency

ESA – Endangered Species Act

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### F

FAA – Federal Aviation Administration

F.A.R. – Federal Aviation Regulation

FEMA – Federal Emergency Management  
Agency

F.R. – Federal Register

FWS – U.S. Fish and Wildlife Service

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### G

GHGs – Greenhouse Gases

GPS – Global Positioning System

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### H

HAR – Hawaii Administrative Rules

HCZMP – Hawaii Coastal Zone Management  
Program

HDOT – Hawaii Department of Transportation

HDOT-A – Hawaii Department of Transportation  
- Airports Division

HMTA – Hazardous Materials Transportation Act

HNL – Honolulu International Airport

HRS – Hawaii Revised Statutes

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**I**

ILS – Instrument Landing System

ILAS – Intensive Level Architectural Survey

IPCC – Intergovernmental Panel on Climate  
Change

**K**

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**L**

LNY – Lanai Airport

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**M**

MCSWD – Maui County Solid Waste Division

MECO – Maui Electric Company Power Plant

MGD – Million Gallons Per Day

MOA – Memorandum of Agreement

msl – mean sea level

ug/m<sup>3</sup> - Micrograms Per Cubic Meter

MLW – Maximum Landing Weight

MT CO<sub>2</sub>e – Metric Tons of CO<sub>2</sub> Equivalent

MTOW – Maximum Takeoff Weight

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**N**

NAAQS – National Ambient Air Quality  
Standards

NEPA – National Environmental Policy Act

NHO – Native Hawaiian Organization

NHPA – National Historic Preservation Act

N<sub>2</sub>O – Nitrous Oxide

NO<sub>2</sub> – Nitrogen Dioxide

NOA – Notice of Availability

NOAA – National Oceanic and Atmospheric  
Administration

NPDES – National Pollution Discharge  
Elimination System

NRHP – National Register of Historic Places

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**O**

O<sub>3</sub> – Ozone

OSWM – Office of Solid Waste Management

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**P**

PAPI – Precision Approach Path Indicator

Pb – Lead

Phase 1 ESA – Phase 1 Environmental Site  
Assessment

PM<sub>10</sub> – Particulate Matter

PM<sub>2.5</sub> – Fine Particulates

ppm – Parts Per Million

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**Q**

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**R**

RCRA – Resource Conservation and Recovery Act

REC – Recognized Environmental Condition

RSA-Runway Safety Area

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**S**

SB – Senate Bill

SDWA – Safe Drinking Water Act

SHPD – State Historic Preservation Division

SHPO – State Historic Preservation Office

SMA – Special Management Area

SO<sub>2</sub> – Sulfur Dioxide

SWPPP – Stormwater Pollution Prevention Plan

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**T**

TFMSC – FAA’s Traffic Flow Management System  
Counts database

TRC – TRC Environmental Corporation

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**U**

USACE – U.S. Army Corps of Engineers

U.S.C. – United States Code

USDA – U.S. Department of Agriculture

UST – underground storage tank

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**V**

VASI – Visual Approach Slope Indicator

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**W**

WHA – Wildlife Hazard Assessment

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**X**

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**Y**

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**Z**



## Section 1: Purpose and Need

### 1.1 INTRODUCTION

The State of Hawaii Department of Transportation, Airports Division (HDOT-A), the owner and operator of the Lanai Airport (LNY or the Airport) in Maui County, Hawaii, proposes construction of a 500-foot extension to Runway 3-21 and associated improvements (Proposed Action) to better accommodate operations of the existing aircraft fleet at LNY during all-weather conditions, increasing their margin of safety during high temperature and/or wet pavement conditions. This Environmental Assessment (EA) has been prepared pursuant to the requirements of Section 102(2) of the *National Environmental Policy Act of 1969* (NEPA); the Council on Environmental Quality (CEQ) Regulations, 40 Code of Federal Regulations (C.F.R.) §§ 1500-1508; and Section 509(b)(5) of the *Airport and Airway Improvement Act of 1982*, as amended. This EA has also been prepared in accordance with Federal Aviation Administration (FAA) Order 1050.1F, *Environmental Impacts: Policies and Procedures*<sup>1</sup>; and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*.<sup>2</sup> The FAA is the lead federal agency to ensure compliance with NEPA for airport development actions. The HDOT-A has prepared this EA on behalf of the FAA, in compliance with FAA Orders 1050.1F and 5050.4B, to evaluate the potential environmental impacts of the Proposed Action and its reasonable alternatives.

### 1.2 BACKGROUND

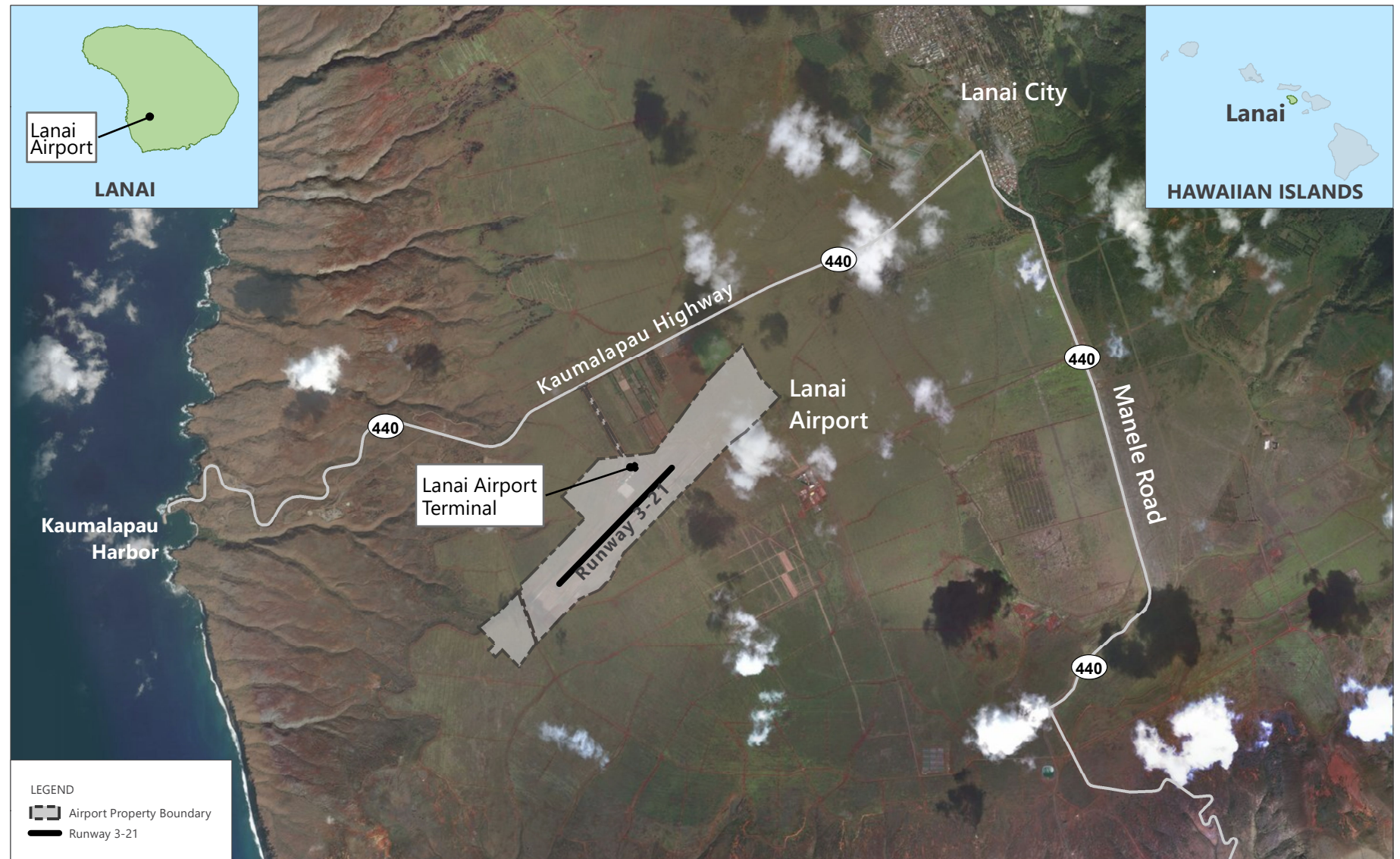
HDOT-A owns and operates LNY, which is located inland on the Island of Lanai, approximately 2 miles east from the coastline. See **Figure 1-1** (Project Location). Access to the Airport is from Kaunalapau Highway (State Highway 440), a two-lane paved road connecting Kaunalapau Harbor to the west and Lanai City to the northeast. The Airport lies at an elevation that ranges from 1,318 feet to 1,336 feet above mean sea level (MSL). The existing ground elevation along the runway extension ranges from 1,309 feet to 1,315 feet MSL. The existing and proposed Runway Safety Area (RSA)<sup>3</sup> (beyond the proposed runway extension) slightly slopes upward to the north.

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<sup>1</sup> U.S. Department of Transportation, Federal Aviation Administration, Order 1050.1F, *Environmental Impacts: Policies and Procedures*, effective July 16, 2016.

<sup>2</sup> U.S. Department of Transportation, Federal Aviation Administration, Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, effective April 28, 2006.

<sup>3</sup> The RSA is an area that is capable, under normal (dry) conditions, of supporting aircraft without causing structural damage to the aircraft or injury to their occupants. It enhances the safety of aircraft which undershoot, overrun, or veer off the runway, and it provides greater accessibility for fire-fighting and rescue equipment during such incidents. The RSA for Runway 3-21 is required to extend 1,000 feet beyond the departure end of the runway and be 500 feet wide, centered on the extended runway centerline. The RSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations and free of objects, except for objects that need to be located in the RSA because of their function. (Federal Aviation Administration, Advisory Circular 150/5300-13A, *Airport Design*, Paragraph 307, September 28, 2012.)



SOURCES: Hawaii, Department of Transportation, *Lanai Airport Layout Plan*, 2014; U.S. Census Bureau, 2014 TIGER/Line Shapefiles, <http://www.census.gov/cgi-bin/geo/shapefiles2014/main>, (accessed: August 10, 2015); Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, March 2018 (aerial basemap).



NORTH

0 4,500 ft.

PROJECT LOCATION



The Island of Lanai is one of eight main Hawaiian Islands and is in the jurisdiction of the County of Maui. Constructed in 1940, Lanai Airport is the sole aviation facility on the island, located on a parcel approximately 504 acres in size. LNY hosts over 100 businesses<sup>4</sup> and has commercial airline service to Honolulu. Visitor expenditures generated by LNY passengers are expected to grow from approximately \$70 million in 2017 to \$100 million by 2030.<sup>5</sup>

Lanai's climate is characterized as semi-tropical due to Hawaii's geographic location within the tropics, southwest of the North Pacific High.<sup>6</sup> According to historical data (1949 to 2005) typical weather conditions at the Airport include temperature ranges between 68 degrees Fahrenheit (°F) in January, the coldest month, to 75°F in August-September, the warmest months.<sup>7</sup> The daily average maximum temperature ranges from 76°F in January to 84°F in August. The average annual rainfall is approximately 20 inches a year.<sup>8</sup> More recent weather observations for Lanai Airport indicate average high temperatures in July and August reach 88°F.<sup>9</sup>

The Lanai Airport includes a passenger terminal complex, which consists of a terminal building, administration building, Aircraft Rescue Fire Fighting Station, cargo/maintenance building, and public and employee automobile parking areas. The Airport's terminal and related facilities are open from 6:15 a.m. to 7:45 p.m., seven days a week, to serve scheduled passenger flights. The Airport also has an on-site wastewater treatment system.<sup>10</sup>

The existing runway at Lanai Airport is in a northeast-southwest orientation, designated as Runway 3-21. This is a concrete runway with a grooved asphalt overlay, approximately 5,000 feet long and 150 feet wide. A 287.5-foot connecting taxiway at 75 feet wide provides access between the runway and a 317,000-square foot concrete terminal apron for aircraft parking. Runway 3 has a precision instrument approach (instrument landing system [ILS]), with a visual approach slope indicator (VASI), and precision instrument runway markings. Runway 21 has a non-precision instrument approach (area navigation [RNAV]/global position system [GPS]), with a precision approach path indicator (PAPI), and non-precision instrument markings. Runway 3-21 is available 24 hours a day for unscheduled and emergency landings.

Extension of Runway 3-21 has been contemplated in various documents including the 1990 Lanai Airport Master Plan Chapter 343 Hawaii Revised Statutes (HRS) Environmental Impact Statement (EIS), a 2000

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<sup>4</sup> Lanai 96763 Community Site, <http://www.lanai96763.com/community-resource-type/businesses> (accessed April 25, 2018).

<sup>5</sup> Hawaii Department of Business, Economic Development & Tourism, Research & Economic Analysis. <http://dbedt.hawaii.gov/economic/qser/outlook-economy/> (accessed April 24, 2018).

<sup>6</sup> The North Pacific High is a semi-permanent, subtropical area of high pressure in the North Pacific Ocean. (National Oceanic Atmospheric Administration, <https://forecast.weather.gov/glossary.php?word=north+pacific+high> [accessed April 30, 2018]).

<sup>7</sup> National Oceanic and Atmospheric Administration (NOAA). National Environmental Satellite, Data, and Information Service, Station: Lanai Airport 656, <https://www.ncdc.noaa.gov/cdo-web/datatools/normals> (accessed April 9, 2018).

<sup>8</sup> Western Regional Climate Center, Lanai Airport 656, Hawaii (515275), Period of Record Monthly Climate Summary, October 1, 1949 to December 31, 2005, <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?hilana> (accessed November 15, 2018).

<sup>9</sup> Average high temperature during the hottest month of the year at LNY is 88.6 degrees Fahrenheit (Weatherbase, <http://www.weatherbase.com/weather/weather.php?s=210615&cityname=Lanai--Airport-Hawaii-United-States-of-America> [accessed November 15, 2018]).

<sup>10</sup> Munekiyo Hiraga, 2009; RM Towill 2013.

Chapter 343 HRS EA, and a 2013 HRS Chapter 343 EA. In 2000, the 2,000-foot runway extension was conditionally approved by FAA as part of the LNY Airport Layout Plan (ALP).

### 1.3 DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action at LNY includes the following project components, which are depicted on **Figure 1-2**:

- Demolish/remove old concrete pavement (approximately 700 feet long by 75 feet wide) that exists where the 500-foot runway extension would be constructed
- Extend Runway 3-21 by 500 feet to the northeast (Runway 21 end)
- Install 200-foot blast pad on the extended Runway 21 end
- Install new runway lights and pavement markings
- Extend the existing RSA commensurate with the 500-foot runway extension
  - Relocate localizer antenna and localizer/Distance Measuring Equipment (DME) building outside of the RSA
  - Relocate and install perimeter fencing and 12-foot wide perimeter Airport service road around the RSA
  - Grade and fill, as needed, to meet FAA RSA standards
- Relocate the existing Runway 21 Visual Approach Slope Indicator (VASI) to the extended end of Runway 21
- Install 10-foot wide vegetated swale along runway extension and graded RSA

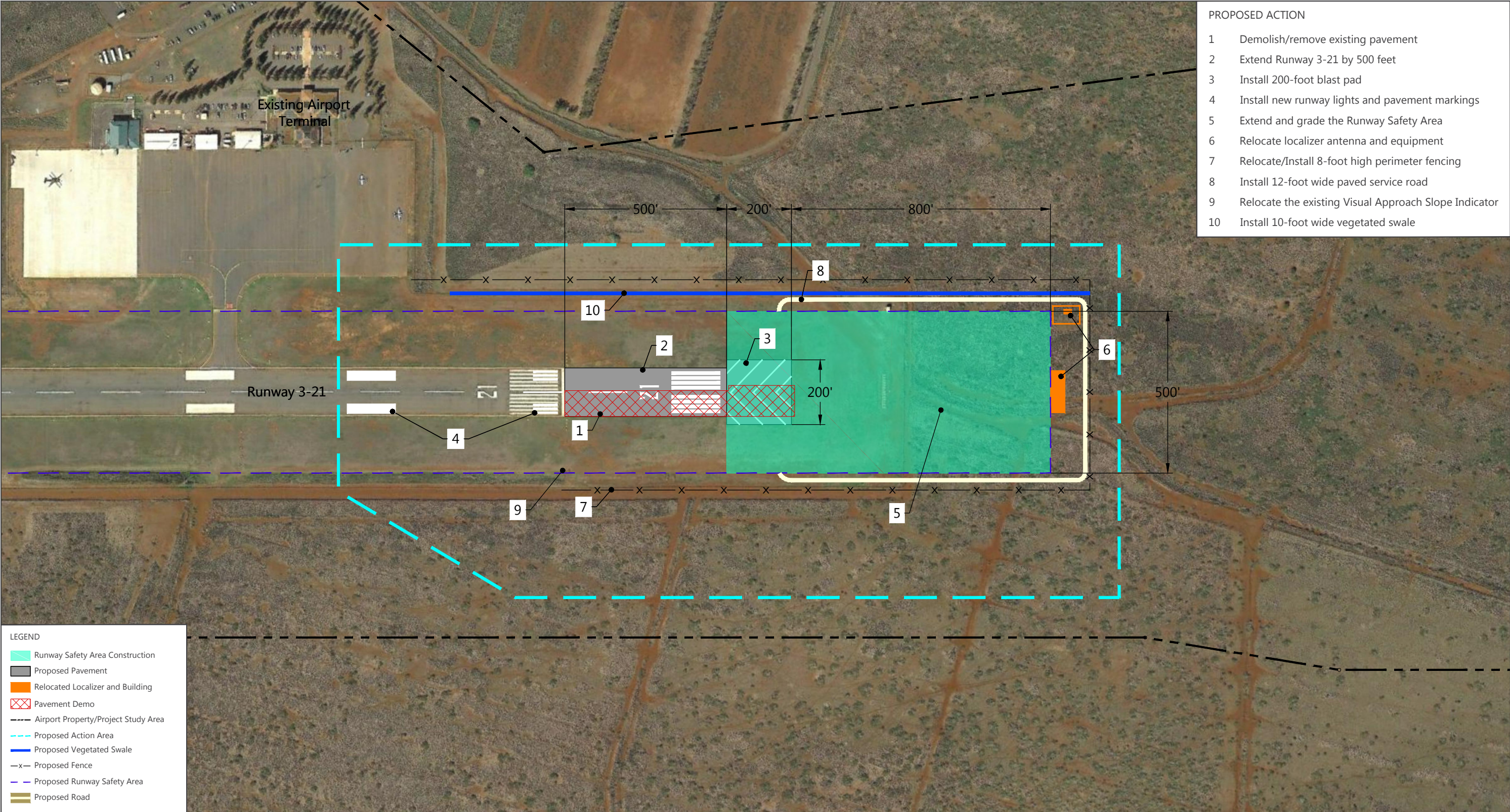
Blast pads are recommended for runways that accommodate corporate jet aircraft, such as the ATR 42, ATR 72, Gulfstream G500, and Gulfstream G650 that operate at LNY, to minimize unprotected soils adjacent to runways.<sup>11</sup> Because the existing localizer antenna, localizer/DME building, and portions of the perimeter fence and perimeter Airport service road are located within the proposed RSA, they must be relocated to comply with FAA standards.

The Proposed Action would not result in a change in the number of aircraft operations at LNY. The increased runway length would prevent incoming aircraft from having to divert to HNL or outgoing aircraft from having to delay or decrease payload due to weather conditions; it would not increase the number or change the type of aircraft operating at LNY.

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<sup>11</sup> U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13A, *Airport Design*, Appendix 3, September 28, 2012.





SOURCES: Hawaii, Department of Transportation, Lanai Airport Layout Plan, 2014 (property boundary); Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, March 2018 (aerial basemap); Mitsunaga & Associates, Inc., April 2008; Ricondo & Associate, Inc., August 2018.

FIGURE 1-2

PROPOSED ACTION





## 1.4 PURPOSE AND NEED

### 1.4.1 *Sponsor's Purpose and Need of the Proposed Action*

The Sponsor's purpose of the Proposed Action is to increase the ability of corporate jet aircraft fleet currently using LNY to operate flights between LNY and the U.S. West Coast during all-weather conditions and without significant weight restrictions.<sup>12</sup> Although the Proposed Action would not allow all of the existing aircraft fleet to operate under all-weather conditions with no payload restrictions, it would substantially improve their ability to operate under typical temperature and weather conditions experienced at LNY with fewer weight restrictions. The Proposed Action would also increase the available runway length for other aircraft, increasing their margin of safety during high temperature and/or wet pavement conditions.

The Sponsor's need for the Proposed Action is due to the insufficient runway length to meet the landing and takeoff requirements of aircraft frequently using the Airport during all-weather conditions. Currently, 4 of the 16 corporate/business aircraft that frequently utilize LNY cannot takeoff from the Airport with sufficient fuel to reach the U.S. West Coast under dry conditions, 86°F, zero wind, and 4 passengers, which is half the passenger capacity of these jets. During wet conditions, approximately 40 percent of the corporate/business aircraft (6 of 16) cannot land at the Airport carrying only half the passenger capacity of these jets. Due to the 5,000-foot runway length, elevation, and typical weather conditions, commercial passenger operations are limited to interisland service; they cannot fly non-stop to mainland destinations. Thus, passengers wishing to visit Lanai from the West Coast of the U.S. mainland must either fly to Honolulu International Airport (HNL) and transfer to an interisland flight, which increases travel time and the potential for delays and/or missed connections, or utilize a corporate/business jet. The need for the Proposed Action for takeoff and landing operations is discussed below.

#### **Insufficient Runway Length for Takeoff during All-Weather Conditions**

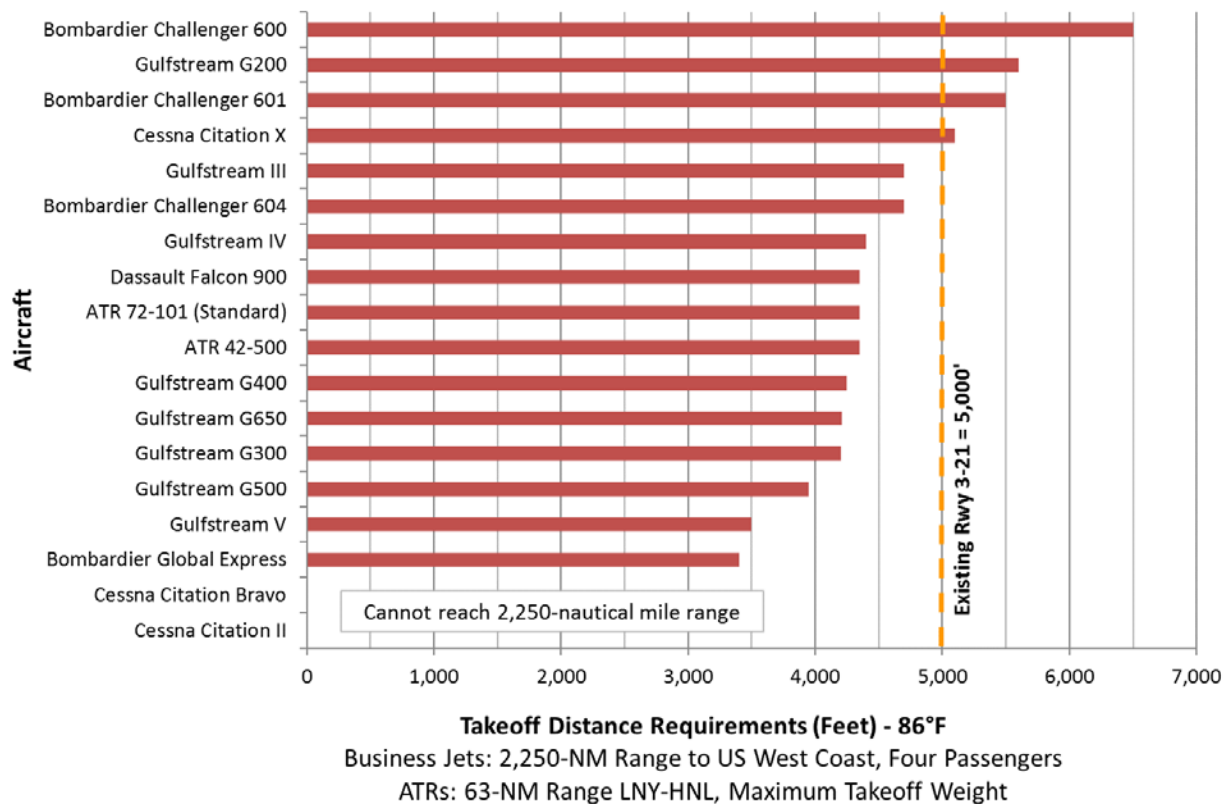
Aircraft runway length requirements<sup>13</sup> vary depending on a number of factors including type of aircraft, landing weight, temperature, pavement conditions, runway gradient, wind speed, and airport elevation, among others. **Figure 1-3** identifies the fleet of corporate jet aircraft utilizing LNY, as identified in the FAA's Traffic Flow Management System Counts (TFMSC) database, and the associated takeoff distance requirements for aircraft departing LNY to U.S. West Coast destinations under dry conditions, at a temperature of 86°F. The only commercial aircraft operations at LNY are provided on ATR aircraft (ATR 42 and ATR 72) via commuter service to Honolulu; these are also included in Figure 1-3 for comparative purposes.

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<sup>12</sup> Aircraft are designed with maximum takeoff weight (MTOW) and maximum landing weight (MLW) restrictions which set fixed limits to the payload (the total weight of passengers, baggage, and cargo) that an aircraft can safely transport. Some factors that can affect the maximum weights include elevation, temperature, pavement conditions (wet/dry), and runway length, among others. Depending on these factors, aircraft may be required to limit their payload to below MTOW or MLW in order to safely operate under those conditions.

<sup>13</sup> Federal Aviation Regulation (F.A.R.) Part 25, *Airworthiness Standards: Transport Category Airplanes*, provide standards for manufacturers of air transport aircraft over 12,500 pounds gross weight to determine runway length requirements based on differing operational and environmental conditions.

FIGURE 1-3 TAKEOFF DISTANCE REQUIREMENTS (DRY CONDITIONS)



NOTES:

Rwy – Runway

F – Fahrenheit

HNL – Honolulu International Airport

LNy – Lanai Airport

NM – Nautical Miles

1 Runway length requirements are based on 86 degrees Fahrenheit, at 1,300 feet MSL.

2 All runway length requirements are based on zero wind, anti-skid system off, and anti-ice system off.

3 Average high temperature during the hottest month of the year at LNY is 88.6 degrees Fahrenheit (Weatherbase, <http://www.weatherbase.com/weather/weather.php3?s=210615&cityname=Lanai--Airport-Hawaii-United-States-of-America> [accessed November 15, 2018]).

4 ATR takeoff distance requirements based on assumption of 63-NM range from LNY to HNL and 100 percent load factor.

5 Business jets takeoff distance requirements based on assumption of 2,250-NM range from LNY to U.S. West Coast and four passengers.

6 Takeoff distance required includes an additional 100 feet to account for LNY runway gradient.

SOURCES: Conklin & deDecker, Aircraft Performance Comparator, January 2018; ATR Aircraft Performance Manuals.

**Table 1-1** lists the runway length requirements for corporate/business aircraft frequently utilizing LNY at maximum takeoff weight, which is typically used to determine the runway length needed at an airport.<sup>14</sup> None of these aircraft can takeoff at maximum takeoff weight (fully loaded) from LNY under dry conditions and at temperatures of 86°F.

**TABLE 1-1 RUNWAY LENGTH REQUIREMENTS AT MAXIMUM TAKEOFF WEIGHT**

<b>Aircraft</b>	<b>Maximum Takeoff Weight (lbs)</b>	<b>Runway Length Required (ft)</b>
Gulfstream G650	99,600	7,107
Gulfstream IV	73,200	6,300
Dassault Falcon 900EX	45,500	5,590
Bombardier Challenger 600	41,100	7,500
Cessna Citation X	35,700	6,780

**NOTES:**

lbs – pounds

ft - feet

1 Dry conditions at 86°F.

2 Takeoff distance required includes an additional 100 feet to account for LNY runway gradient.

SOURCES: Various Aircraft Manufacturers Airport Planning Manuals.

### **Insufficient Runway Length for Landing during All-Weather Conditions**

**Figure 1-4** illustrates that six of the aircraft frequently operating at LNY cannot land<sup>15</sup> at the Airport under wet pavement conditions, at 86°F, zero wind, and with 4 passengers, which is half the passenger capacity of these jets. During these conditions, these aircraft must divert to other airports (on other Hawaiian islands) until conditions have improved allowing them to land at LNY.

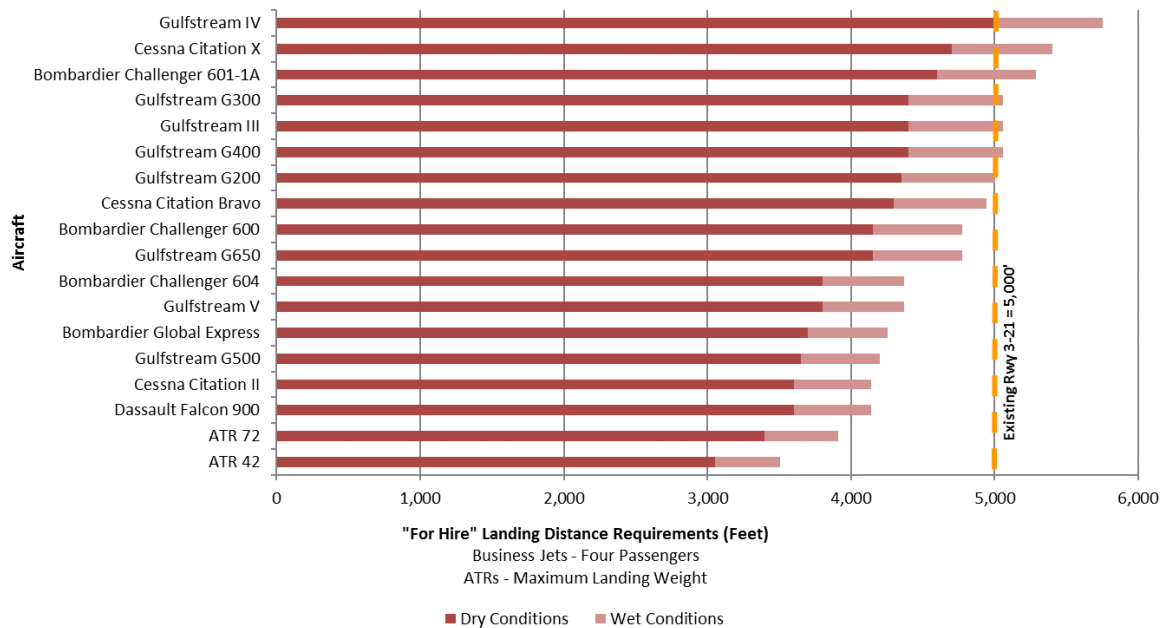
<sup>14</sup> Information for takeoff requirements at maximum takeoff weights is only available for 5 of the 16 corporate/business jets operating at LNY (as listed in Table 1-1).

<sup>15</sup> The landing distance, as required by F.A.R. regulations, is the distance needed to land and come to a complete stop from a point 50 feet above the threshold end of the runway. It includes the air distance required to travel from the 50-foot height to touchdown plus the stopping distance. Different regulations govern how the required runway length is calculated:

For F.A.R. Part 91 operators (aircraft not for hire), there is no requirement for any additional safety margin. An F.A.R. 91 operator can legally land on a runway without requirement for any margin to be left over after stopping.

For F.A.R. Part 121, Part 91 subpart K and Part 135 operators (aircraft carrying paying passengers), the required landing distance from the 50-foot height cannot exceed: (1) 60 percent of the actual runway length available for the intended destination airport, or (2) 80 percent of the actual runway length available for the planned diversion airport.

FIGURE 1-4 LANDING LENGTH REQUIREMENTS (F.A.R. PART 121 REGULATIONS)



NOTES:

- 1 All runway length requirements are based on zero wind, anti-skid system off, anti-ice system off, at sea level.
- 2 Average high temperature during the hottest month of the year at LNY is 88.6 degrees Fahrenheit (Weatherbase, <http://www.weatherbase.com/weather/weather.php3?s=210615&cityname=Lanai--Airport-Hawaii-United-States-of-America> (accessed November 15, 2018).
- 3 Business jets were assumed to carry four passengers. The maximum landing weights were assumed for commercial airline aircraft (ATRs).
- 4 Business jets and ATRs landing requirements were estimated for "for hire" operations.

SOURCES: Conklin & deDecker, Aircraft Performance Comparator, January 2018; ATR Aircraft Performance Manuals.

The Gulfstream G650 is the main aircraft operated by the principal landowner of the island of Lanai. **Table 1-2** identifies the takeoff distance requirements for the Gulfstream G650 with dry and wet pavement conditions under varying air temperature and aircraft operating weight assumptions. With dry pavement conditions, the Gulfstream G650 can takeoff on the existing 5,000-foot runway only when the air temperature is 82°F or less, and the takeoff weight is 82,500 pounds or less. With wet pavement conditions, the Gulfstream G650 can takeoff on the existing 5,000-foot runway only when the takeoff weight is 70,000 pounds or less.

Thus, the need to improve the existing runway is based on the restrictions imposed on corporate jet aircraft during high temperatures and/or wet pavement conditions, which increase the runway length requirements for aircraft, limit payloads, and restrict operations by these aircraft during these conditions at LNY.



TABLE 1-2 GULFSTREAM G650 TAKEOFF DISTANCE REQUIREMENTS (IN FEET)

Aircraft Weight	Dry Runway Pavement Based on Air Temperature (F)						Wet Runway Pavement Based on Air Temperature (F)					
	91	88	82	79	73	70	91	88	82	79	73	70
90,000	6,065	5,967	5,787	5,720	5,603	5,548	6,277	5,747	6,290	6,519	6,401	6,346
85,000	5,489	5,403	5,241	5,182	5,079	5,032	6,261	6,055	6,004	5,941	5,832	5,782
82,500	5,221	5,135	4,982	4,926	4,829	4,784	5,973	5,777	5,729	5,670	5,567	5,520
80,000	4,952	4,868	4,723	4,670	4,579	4,537	5,684	5,500	5,454	5,398	5,302	5,257
75,000	4,410	4,342	4,218	4,172	4,093	4,057	5,117	5,073	5,044	5,025	5,012	5,002
70,000	3,929	3,872	3,766	3,727	3,659	3,630	4,904	4,931	4,936	4,935	4,922	4,914
65,000	3,536	3,522	3,507	3,497	3,488	3,482	4,812	4,841	4,847	4,846	4,835	4,828
60,000	3,409	3,410	3,423	3,422	3,415	3,409	4,723	4,754	4,761	4,760	4,750	4,743
55,000	3,328	3,338	3,354	3,354	3,347	3,343	4,637	4,669	4,676	4,676	4,667	4,661

LEGEND:

GREEN TEXT: Operations can be accommodated on the existing 5,000-foot long runway.

ORANGE TEXT: Operations require a 500-foot runway extension (to 5,500 feet).

BLACK TEXT: Operations cannot be accommodated on the existing runway or planned runway extension.

NOTES:

F – Fahrenheit

MSL – Mean Sea Level

LNy – Lanai Airport

1 Runway length requirements based on airport elevation of 1,300 feet MSL.

2 Takeoff distance required includes an additional 100 feet to account for LNy runway gradient.

3 All runway length requirements are based on zero wind, cowl anti-ice system on or off, wing anti-ice system off, and 20-degree flaps.

4 Increase available runway length 1.5 percent for each 5 knots of headwind (up to 40 knots).

5 Based on need to increase available runway length 11 percent for each 1 percent of downhill slope (up to 2 percent), runway length at LNy increases by 17 feet when departing on Runway 21.

6 Average high temperature during the hottest month of the year at LNy is 88.6 degrees Fahrenheit (Weatherbase, <http://www.weatherbase.com/weather/weather.php3?s=210615&cityname=Lanai--Airport-Hawaii-United-States-of-America> (accessed November 15, 2018).

SOURCES: Gulfstream G650 Performance Handbook, Gulfstream Aerospace, 2016; Ricondo & Associates, Inc., February 2018.

### 1.4.2 FAA's Purpose and Need

The FAA's statutory mission is to ensure safe and efficient use of navigable airspace in the U.S. pursuant to 49 U.S.C. § 47101(a)(1). The FAA must ensure that implementation of the Proposed Action does not derogate the safety of aircraft and airport operations at LNy. Further, pursuant to 49 U.S.C. § 47107(a)(16), the FAA must approve any revision or modification to the LNy ALP. By approving the ALP revision, the FAA ensures that the Proposed Action would not result in any obstructions to airspace or airport safety areas at LNy.

## 1.5 REQUESTED FEDERAL ACTIONS

The federal actions being requested of the FAA by the HDOT-A include:

- Unconditional approval of the Airport Layout Plan (ALP) for LNY depicting the proposed improvements pursuant to 49 U.S.C. §§ 40103(b), 44718, and 47107(a)(16);
- Approval of a Construction Safety and Phasing Plan to maintain aviation and airfield safety during construction pursuant to FAA Advisory Circular 150/5370-2F, *Operational Safety on Airports During Construction* [14 C.F.R. Part 139 (49 U.S.C. § 44706)].

## 1.6 GENERAL IMPLEMENTATION TIMEFRAME AND FUNDING OF THE PROPOSED ACTION

Implementation of the Proposed Action can only occur after the FAA issues an environmental finding (e.g., a finding of no significant impact [FONSI]) for the LNY Runway 3-21 Improvements EA, and after required environmental permits are obtained or authorized. If FAA issues a FONSI for the Proposed Action, construction is anticipated to begin in 2019 and be completed by the beginning of 2021.

Pulama Lanai, which operates Lanai resorts and is the primary landowner on the Island of Lanai, has executed a Memorandum of Agreement (MOA) with HDOT-A to fund the design and construction of the Proposed Action as identified in this EA. No federal, state, or county funds would be used for implementation of the Proposed Action.

## Section 2: Alternatives

### 2.1 INTRODUCTION

This section identifies reasonable alternatives to the Proposed Action and evaluates the ability of the alternatives to meet the purpose and need for the Proposed Action described in Section 1.4. The Council on Environmental Quality (CEQ) regulations (40 C.F.R. § 1502.14) for implementing NEPA require federal agencies to perform the following tasks for analysis of alternatives:

- Evaluate all reasonable alternatives, including alternatives not within the jurisdiction of the federal agency, and for alternatives that were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.
- Devote substantial treatment to each alternative considered in detail, including a No Action alternative and the Proposed Action, so that reviewers may evaluate their comparative merits.

FAA policy (FAA Orders 1050.1F and 5050.4B) concerning the environmental review process require that a reasonable range of alternatives that are feasible or practical and might accomplish the objectives of a project must be identified and evaluated. Specifically, FAA Order 1050.1F states:

There is no requirement for a specific number of alternatives or a specific range of alternatives to be included in an EA. An EA may limit the range of alternatives to the proposed action and no action when there are no unresolved conflicts concerning alternative uses of available resources. Alternatives are to be considered to the degree commensurate with the nature of the proposed action and agency experience with the environmental issues involved.<sup>1</sup>

### 2.2 ALTERNATIVES SCREENING PROCESS

The following criteria were used for alternative screening and evaluation. An alternative must meet all criteria to be retained for detailed evaluation:

1. **Meet Purpose and Need** - The Proposed Action's purpose is to increase the ability of corporate jet aircraft currently utilizing LNY to operate between LNY and the U.S. West Coast during all-weather conditions without significant weight restrictions. The need is due to the existing insufficient runway length to meet the landing and takeoff requirements during wet pavement and/or high temperature conditions for aircraft frequently utilizing LNY. See Section 1.4 for a description of the Purpose and Need.

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<sup>1</sup> U.S. Department of Transportation, Federal Aviation Administration, Order 1050.1F, Paragraph 6-2.1.d, *Environmental Impacts: Policies and Procedures*, July 16, 2015.

2. **Feasibility** - If the alternative met the Purpose and Need criteria, then the alternative was evaluated against operational and financial considerations.

- a. **Operational Considerations**

The alternatives were reviewed to determine if they would meet FAA design standards, impact off-Airport property or facilities, or necessitate extended daytime closure of the runway during construction.

- b. **Financial Considerations**

Alternatives were reviewed relative to financial feasibility in terms of funding availability and projected costs of implementation.

### **2.2.1 *Alternative Considered but Eliminated***

1. **2,000-Foot Runway Extension Alternative**

The existing conditionally approved ALP for LNY includes a 2,000-foot extension of Runway 3-21 to the northeast. HDOT-A included the 2,000-foot runway extension in the 1990 Lanai Airport Master Plan, and the extension was evaluated again in 2000.

The 2,000-foot Runway Extension Alternative meets the Purpose and Need criteria as it would increase the ability of corporate jet aircraft currently utilizing LNY to operate between LNY and the U.S. West Coast during all-weather conditions without significant weight restrictions. In terms of the Operational Considerations, this alternative would not necessitate extended daytime closure of the runway during construction, would not impact off-Airport property or facilities, and would meet FAA design criteria.

While the 2,000-foot Runway Extension Alternative would meet the Purpose and Need, Operational Considerations criteria, and FAA design criteria, it would not meet the Financial Considerations criteria. Because of the sloping terrain, extensive grading work would be needed to implement this alternative, which greatly increases cost. A preliminary cost estimate for the 2,000-foot Runway Extension Alternative identified that it would cost approximately \$25 million (2018 dollars) to implement the improvements. There is no existing federal or state funding allocated for the 2,000-foot Runway Extension Alternative and the additional cost (approximately \$20 million beyond the identified funding for this project) to construct the improvements is not justified based on current operations and types of aircraft operating at LNY, as the full length of the 2,000-foot extension would not be necessary to meet the project's Purpose and Need, Operational Considerations criteria, and FAA design criteria. Therefore, this alternative was eliminated from further consideration.

### 2.2.2 *Alternatives Carried Forward for Detailed Evaluation*

Alternatives that are carried forward for detailed analysis in this EA are as follows:

- No Action Alternative
- 500-foot Runway Extension Alternative

#### 1. **No Action Alternative**

The No Action Alternative involves no improvements to the existing runway. Runway 3-21 would remain as it currently exists. This alternative would not increase the ability of corporate jet aircraft currently utilizing LNY to operate between LNY and the U.S. West Coast during all-weather conditions without significant weight restrictions, and thus does not meet the Purpose and Need for the Proposed Action. Although Alternative 1 does not meet the Purpose and Need criteria, the No Action Alternative was retained for analysis of environmental consequences in accordance with 40 C.F.R. § 1502.14(d).

#### 2. **500-Foot Runway Extension Alternative (Proposed Action)**

Alternative 2 (Proposed Action) involves extending the northeast end of Runway 21 by 500 feet so that the total Runway 3-21 length would be 5,500 feet. Additionally, the existing RSA would be extended to provide RSA dimensions that meet FAA design standards. Refer to Section 1.3 and **Figure 1-2**.

The 500-foot runway extension would provide the ability for Bombardier Challenger 601 and Cessna Citation X aircraft to takeoff from LNY with dry pavement and air temperature of 86°F. Additionally, the Gulfstream G200 could takeoff with fewer weight restrictions under these conditions. All of the existing corporate jet aircraft operating at LNY, except the Gulfstream IV, could land at LNY under wet pavement and 86°F conditions if Alternative 2 is implemented. Additionally, the Gulfstream G650, the main aircraft operated by the principal landowner of the Island of Lanai, could takeoff with fewer weight restrictions under dry pavement and 91°F conditions and would have fewer weight restrictions under wet pavement conditions. Thus, Alternative 2 meets the Purpose and Need criteria as it substantially improves the ability of corporate jet aircraft currently utilizing the Airport to operate between LNY and the U.S. West Coast under typical temperature and weather conditions experienced at LNY with fewer weight restrictions.

In terms of Operational Considerations, Alternative 2 would meet FAA dimensional standards for runways and RSAs on existing Airport property. Although this alternative would require the relocation of the localizer antenna and localizer/DME building, perimeter fencing, and perimeter airport service road, construction of components within the air operations area (AOA) would be conducted at nighttime and, therefore, this

alternative would not necessitate extended daytime closure of the runway during construction. Alternative 2 would occur entirely on Airport property, would not require any property acquisition, and thus, would not affect off-Airport property or facilities. The overall cost of this alternative is approximately \$5.0 million. As noted in Section 1.6, Pulama Lanai, which operates the Lanai Resorts and is the primary landowner on the Island of Lanai, has executed a Memorandum of Agreement (MOA) with HDOT-A to fund this alternative. Thus, Alternative 2 meets both screening criteria, and was retained for detailed analysis in this EA.

### 2.3 LIST OF PERMITS REQUIRED FOR THE PROPOSED ACTION

In accordance with FAA Order 1050.1F, paragraph 405d(4), it is anticipated that the following permits identified in **Table 2-1** would be required for the Proposed Action.

TABLE 2-1 PERMITS REQUIRED FOR THE PROPOSED ACTION

Issuing Agency	Permit Name/Type
State of Hawaii	Department of Health, Clean Water Branch: National Pollutant Discharge Elimination System (NPDES) Permit
	Department of Health, Indoor and Radiological Health Branch: Community Noise Permit (as applicable)
County of Maui	Department of Public Works: Grading Permit

SOURCE: Ricondo & Associates, Inc., October 2018.

### 2.4 LISTING OF FEDERAL LAWS AND REGULATIONS CONSIDERED

Relevant federal laws, statutes, regulations; Executive Orders and U.S. DOT orders and FAA orders, FAA Advisory Circulars, considered during the preparation of this EA are listed in **Tables 2-2, 2-3, and 2-4**, respectively.

**TABLE 2-2 FEDERAL LAWS AND REGULATIONS**

<b>Federal Law or Statute</b>	<b>Citation</b>
National Environmental Policy Act of 1969	42 U.S.C. § 4321 et seq.
Clean Air Act of 1970, as amended	42 U.S.C. § 7401 et seq.
Department of Transportation Act of 1966, Section 4(f)	49 U.S.C. § 303(c)
Aviation Safety and Noise Abatement Act of 1979	49 U.S.C. § 47501 et seq. (14 C.F.R. Part 150)
Federal Aviation Act of 1958, as amended	49 U.S.C. § 40101 et seq.
Endangered Species Act of 1973	16 U.S.C. § 1531 et seq.
Migratory Bird Treaty Act of 1918	16 U.S.C. § 703 et seq.
Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Community Environmental Response Facilitation Act of 1992	42 U.S.C. § 9601 et seq.
Resource Conservation and Recovery Act of 1976, as amended by the Solid Waste Disposal Act of 1980	42 U.S.C. § 6901 et seq.
National Historic Preservation Act	54 U.S.C. § 300101 et seq.
Protection of Historic and Cultural Properties	36 C.F.R. Part 800

SOURCE: Ricondo & Associates, Inc., October 2018.

**TABLE 2-3 EXECUTIVE ORDERS**

<b>Executive Order</b>	<b>Citation</b>
Executive Order 11593, Protection and Enhancement of the Cultural Environment	36 F.R. 8921 et seq. (May 13, 1971)
Executive Order 13112, Invasive Species	64 F.R. 6183 et seq. (February 3, 1999)
Executive Order 13934, Executive Order Regarding Efficient Federal Operations	81 F.R. 38069 et seq. (September 15, 2016)

SOURCE: Ricondo & Associates, Inc., October 2018.

**TABLE 2-4 FAA ORDERS, ADVISORY CIRCULARS, AND OTHER FEDERAL GUIDANCE**

<b>FAA Orders, Advisory Circulars, and Other Federal Guidance</b>
FAA Order 1050.1F: Environmental Impacts: Policies and Procedures
FAA Order 5050.4B: National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions
FAA Order 5200.8, Runway Safety Area Program
FAA Order 5200.9, Financial Feasibility and Equivalency of Runway Safety Area Improvements and Engineered Material Arresting Systems
FAA Advisory Circular 70/7460-21: Proposed Construction or Alteration of Objects that May Affect the Navigable Airspace
FAA Advisory Circular 150/5020-1: Noise Control and Compatibility Planning for Airports
FAA Advisory Circular 150/5200-33B: Hazardous Wildlife Attractants On or Near Airports
FAA Advisory Circular 150/5300-13A, Airport Design
FAA Advisory Circular 150/5325-4B, Runway Length Requirements for Airport Design
U.S. DOT Order 5650.2: Floodplain Management and Protection
U.S. DOT Order 5660.1A: Preservation of the Nation's Wetlands
U.S. DOT Order 5680.1: Final Order to Address Environmental Justice in Low-Income and Minority Populations

SOURCE: Ricondo & Associates, Inc., October 2018.





## Section 3: Affected Environment

### 3.1 INTRODUCTION

Lanai Airport is located approximately 2 miles to the southwest of Lanai City and approximately 2 miles east of Kaunapali Harbor. Lands surrounding Lanai Airport were previously used for pineapple cultivation until the early 1990s. The access road to the Airport and primary roadway to Lanai City, Kaunapali Highway, is situated north of the Airport.

The project Study Area is defined as the Airport property, which encompasses approximately 504 acres (see **Figure 3-1**) and includes approximately 63 acres where the Proposed Action would be implemented (Proposed Action Area). See Figure 1-2 for a more detailed depiction of the Proposed Action Area. However, some resource categories such as air quality, land use compatibility, and socioeconomics are broader in scope. For instance, air quality impacts in this EA are discussed in the context of the County of Maui, and the City of Lanai has been included in the socioeconomic evaluation. Resource study areas that extend beyond the project Study Area are identified in the appropriate sections below. For construction of the Proposed Action, construction haul routes would use Kaunapali Highway to and from the Airport to Lanai City, Lanai Landfill, and Kaunapali Harbor as necessary.

### 3.2 ENVIRONMENTAL RESOURCES NOT AFFECTED

Based on the results of site visits, literature and database searches, and agency scoping/coordination, the Proposed Action would have no direct or indirect effect to the environmental resource categories identified in **Table 3-1**. These resource categories have been eliminated from detailed evaluation in this EA because they do not exist within the project Study Area or would otherwise not be affected by the Proposed Action.





SOURCES: Hawaii, Department of Transportation, Lanai Airport Layout Plan, 2014 (property boundary); Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, March 2018 (aerial basemap); Mitsunaga & Associates, Inc., April 2008; Ricondo & Associate, Inc., August 2018.



FIGURE 3-1

STUDY AREA



**TABLE 3-1 (1 OF 2) RESOURCE CATEGORIES NOT AFFECTED**

<b>Resource Category</b>	<b>Rationale</b>	<b>Effect/Impact</b>
Coastal Resources	The entire State of Hawaii is within the coastal zone. For the State of Hawaii, the Special Management Area (SMA) permitting system is part of the Coastal Zone Management Program approved by federal and state agencies. <sup>1</sup> The County of Maui designates the SMA on the Island of Lanai that are subject to the Hawaii Coastal Zone Management Program (HCZMP). The Airport is located over 2 miles from the nearest coastline and the SMA, and therefore, coastal resources are not present in the project Study Area. In accordance with FAA 1050.1F Paragraph 4-3.3, the various components of the Proposed Action would be consistent with the Hawaii CZM and would not impact coastal barrier resources, impact coral reef ecosystems, cause an unacceptable risk to human safety or property, or cause adverse impacts to the coastal environment that cannot be mitigated. Thus, the Proposed Action is consistent with the Coastal Zone Management Act.	Not Present/No Impact
Department of Transportation Act, Section 4(f)	No publicly owned parks, recreation areas, wildlife or waterfowl refuges, or historic sites are located in or immediately adjacent to the project Study Area. The nearest public park, Dole Park within Lanai City, is approximately 2 miles from the Study Area.	Not Present/No Use
Farmlands	The project Study Area and surrounding area were formerly pineapple fields; however, agricultural activities ceased when the property was transferred to the State of Hawaii in 1946 for the Airport. The United States Department of Agriculture (USDA) Important Farmland Maps do not designate any portion of the project Study Area as prime farmland. The project Study Area does not support existing farmland and the University of Hawaii, Land Study Bureau classifies the soils on Airport property as of low agricultural quality. Farmland resources, such as pastureland, cropland, or forested land, are not present in the project Study Area.	Not Present/No Impact
Land Use	The Proposed Action Area is entirely on LNY property. The Proposed Action is consistent with the Lanai Community Plan and Airport development plans. No land use or zoning changes are necessary.	No Change/No Impact
Socioeconomics	The nearest area of population to the Airport is Lanai City, with residences approximately 2 miles to the northeast. The Proposed Action Area is entirely on existing LNY property and would not impact houses, population, businesses, or established communities. There would be a short-term, temporary increase in employment due to construction activities. The use of the proposed construction haul route would not reduce level of service on any roadways or result in any road closures.	No Impact
Environmental Justice	The Proposed Action Area is entirely on LNY property; no areas of population where minorities or economically disadvantaged people reside are in or immediately adjacent to the project Study Area.	Not Present/No Impact
Children's Environmental Health and Safety Risks	The Proposed Action Area is entirely on LNY property; no schools, daycares, or other facilities used by children are located in or immediately adjacent to the project Study Area.	Not Present/No Impact
Light Emissions	The Proposed Action Area is entirely on LNY property; the Proposed Action would not introduce any type of new lighting that is not already present. Construction of the Proposed Action would introduce temporary visual and lighting elements but no residences are within 2 miles of the Proposed Action Area. Light emissions from the Proposed Action would be similar to existing airport lighting and would not create annoyance, interfere with activities, or affect the visual character of the project Study Area.	No Impact
Visual Resources/Visual Character	The Proposed Action Area is entirely on LNY property; the Proposed Action would involve extending the existing runway surface 500 feet to the northeast and would include pavement, fencing, and navigational aids similar to existing conditions within the project Study Area. The Proposed Action would not affect the visual character of the project Study Area, contrast with visual resources within the project Study Area, or obstruct views of visual resources.	No Impact

TABLE 3-1 (2 OF 2) RESOURCE CATEGORIES NOT AFFECTED

Resource Category	Rationale	Effect/Impact
<b>Water Resources</b>		
Wetlands	No federally protected wetlands or jurisdictional waters of the U.S. are present in the project Study Area, as confirmed by the U.S. Army Corps of Engineers (USACE) on July 24, 2018 (see <b>Appendix A</b> ).	Not Present/No Impact
Surface Waters	<p>One tributary of the Kalamaiki Stream is present within the northeastern portion of the Proposed Action Area; however, it is an ephemeral stream with no water a majority of the year. No project activities would occur within Kalamaiki Stream. Further, as noted above, the USACE determined that there are no jurisdictional waters of the U.S. within the project Study Area. There are no rivers, lakes, ponds, estuaries, oceans, or other surface waters in the Project Study Area.</p> <p>During construction, temporary Best Management Practices (BMPs) in accordance with a Hawaii Department of Health (DOH) Erosion Control Plan and a National Pollution Discharge Elimination System (NPDES) permit would be implemented to control water pollution, soil erosion, and siltation, and limit indirect impacts through the use of BMPs. Prior to commencing construction, all necessary construction permits would be obtained, and HDOT and/or the contractor would adhere to all terms and conditions of applicable permits.</p> <p>Approximately 1.3 acres of additional impervious surface would be created due to the Proposed Action. To accommodate any additional runoff, the Proposed Action would include a new vegetated swale and use the existing stormwater infiltration system and pollution control measures. With the proposed vegetated swale, the increase in impervious surfaces as a result of the Proposed Action would not adversely affect surface water quality to exceed Federal, state, local, or tribal regulatory agency standards, or contaminate public drinking water. As such, the Proposed Action would not impact surface water resources.</p>	No Impact
Floodplains	The project Study Area and surrounding area are not located in an area designated as a 100-year floodplain by the Federal Emergency Management Agency (FEMA). FEMA designated the project Study Area as Zone X, indicating an area of minimal flooding (FEMA Flood Rate Insurance Map Panel 1500030500F, effective September 9, 2012). Therefore, 100-year floodplain resources are not present in the project Study Area.	Not Present/No Impact
Groundwater	Lanai's drinking water supply is provided by wells that draw groundwater resources from an artesian aquifer. There are no groundwater wells within or immediately adjacent to the project Study Area. Grading for the Proposed Action is anticipated to occur at depths of 1 to 5 feet. According to the project geotechnical report, the maximum depth Proposed Action construction would not reach the depth of groundwater. <sup>2</sup> Temporary measures in accordance with a Hawaii Department of Health (DOH) Erosion Control Plan and an NPDES permit, issued by the DOH Clean Water Branch (CWB), would be implemented to control water pollution, soil erosion, and siltation, and limit indirect impacts through the use of BMPs.	Not Present/No Impact
Wild and Scenic Rivers	No wild and scenic rivers are designated in the State of Hawaii. Therefore, Wild and Scenic Rivers are not present in or near the project Study Area.	Not Present/No Impact

NOTES:

1/ Hawaii, Office of Planning, State CZM Programs, Special Management Area Permits, <http://planning.hawaii.gov/czm/special-management-area-permits/> (accessed, October 24, 2018).

2/ Geolabs, Inc., *Geotechnical Engineering Exploration, Lānaʻi Airport Runway Extension, Island of Lānaʻi, Hawaiʻi*, September 30, 2016.

SOURCES: Pulama Lanai, 2018; Munekiyo Hiraga 2018; Ricondo & Associates, Inc., 2018.

### 3.3 AIR QUALITY

#### 3.3.1 Regulatory Setting

The Federal Clean Air Act of 1970 (CAA), 42 U.S.C. § 7401, *et seq.*, as amended, requires that states identify those areas where the National Ambient Air Quality Standards (NAAQS) are not being met for specific air pollutants. The U.S. Environmental Protection Agency (EPA) designates such areas as nonattainment areas. Both federal and state standards have been established to maintain ambient air quality (see **Table 3-2**). The EPA, under mandates of the Clean Air Act Amendments of 1990 (CAAA), has established primary and secondary NAAQS for seven air contaminants or criteria pollutants. These contaminants are carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), lead (Pb), sulfur dioxide (SO<sub>2</sub>), particulate matter (PM<sub>10</sub>), and fine particulates (PM<sub>2.5</sub>).

In areas that do not meet the NAAQS, federal Conformity Rules (40 C.F.R. § 93) apply. In Hawaii, ambient air quality standards are set by the Department of Health in accordance with Hawaii Administrative Rules (HAR) Title 11, Chapter 59.

TABLE 3-2 NATIONAL AND STATE AMBIENT AIR QUALITY STANDARDS

Air Pollutant	Averaging Time	Federal Primary Standard	Federal Secondary Standard	State of Hawaii Standard
Carbon Monoxide	1- hour	35 ppm	--	9 ppm
	8-hour	9 ppm	--	4.4 ppm
Nitrogen Dioxide	1-hour	0.100 ppm	--	--
	Annual	0.053 ppm	0.053 ppm	0.04 ppm
Particulate Matter (PM <sub>10</sub> )	24-hour	150 ug/m <sup>3</sup>	150 ug/m <sup>3</sup>	150 ug/m <sup>3</sup>
	Annual	--	--	50 ug/m <sup>3</sup>
Fine Particulates (PM <sub>2.5</sub> )	24-hour	35 ug/m <sup>3</sup>	35 ug/m <sup>3</sup>	--
	Annual	12 ug/m <sup>3</sup>	15 ug/m <sup>3</sup>	--
Ozone	8-hour	0.070 ppm	0.070 ppm	0.08 ppm
Sulfur Dioxide	1-hour	0.075 ppm	--	--
	3-hour	--	0.5 ppm	0.5 ppm
	24-hour	--	--	0.14 ppm
	Annual	--	--	0.03 ppm
Lead	Calendar Quarter	0.15 ug/m <sup>3</sup>	0.15 ug/m <sup>3</sup>	1.5 ug/m <sup>3</sup>
Hydrogen Sulfide	1-hour	--	--	0.025 ppm

NOTES:

-- No Standard

ppm = Parts per Million

ug/m<sup>3</sup> = Micrograms per Cubic Meter

SOURCES: U.S. Environmental Protection Agency, NAAQS Table, <https://www.epa.gov/criteria-air-pollutants/naaqs-table> (accessed September 4, 2018); Hawaii Department of Health, Clean Air Branch, Federal and State Ambient Air Quality Standards, [http://health.hawaii.gov/cab/files/2013/05/naaqs\\_nov\\_2015.pdf](http://health.hawaii.gov/cab/files/2013/05/naaqs_nov_2015.pdf) (accessed September 4, 2018); Hawaii Administrative Rules, Title 11, Chapter 59, Ambient Air Quality Standards, revised September 15, 2001.



### 3.3.2 *Affected Environment*

Based on data collected by the State Department of Health (DOH), the State of Hawaii standards and NAAQS for all pollutants are being met; thus, no areas of Hawaii are listed as nonattainment.<sup>1</sup> The DOH Clean Air Branch (CAB) maintains air quality monitoring stations throughout the state; however, no monitoring stations are located on the Island of Lanai. The nearest air quality monitoring station to the project Study Area is the Kahului and Kihei stations on the Island of Maui, approximately 30 miles east of the project Study Area. These stations measure particulate matter concentrations.

Measurements for suspended particulates have been made at the Maui monitoring stations. In the past year, measurements of PM<sub>10</sub> ranged between 0.0 micrograms per cubic meter (ug/m<sup>3</sup>) and 36.3 ug/m<sup>3</sup>, with an average of 4.3 ug/m<sup>3</sup>. This is significantly lower than the Hawaii State Standard and Federal Primary and Secondary Standards, which are both set at 50.0 ug/m<sup>3</sup> (annual).<sup>2</sup>

## 3.4 BIOLOGICAL RESOURCES

### 3.4.1 *Regulatory Setting*

The primary federal statutes related to the consideration of biological resources are:

- Federal Endangered Species Act (ESA)
- Bald and Golden Eagle Protection Act
- Migratory Bird Treaty Act

The primary state statute related to the consideration of biological resources is:

- Hawaii Revised Statutes, Title 12 – Conservation and Resources, Subtitle 6 – General and Miscellaneous Programs, Chapter 195D – Conservation of Aquatic Life, Wildlife, and Land Plants, which is administered by the State of Hawaii Division of Forestry and Wildlife. This statute provides for state protection of species under the ESA as well as indigenous species of Hawaii, which are determined by the Hawaii Department of Land and Natural Resources (DLNR) to be threatened or endangered.<sup>3</sup>

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<sup>1</sup> U.S. Environmental Protection Agency, Nonattainment Areas for Criteria Pollutants (Green Book), <https://www.epa.gov/green-book> (accessed: August 31, 2018).

<sup>2</sup> Hawaii Department of Health, *Hawaii Ambient Air Quality Data, Maui County*, <http://health.Hawaii.gov/cab/Hawaii-ambient-air-quality-data/> (accessed: August 31, 2018).

<sup>3</sup> Hawaii Revised Statutes § 195D-4, 2013.



### 3.4.2 Affected Environment

#### Vegetation

Vegetation within the project Study Area has been highly modified by frequent mowing and maintenance activities. A survey conducted in September 2016 identified a total of 38 plant species within the project Study Area; of these, 35 species were non-native and three were native.<sup>4</sup> The Proposed Action Area is dominated by a mix of non-native grass and weed species. Two native plants were observed within the Proposed Action Area; the 'uhaloa (*Waltheria indica*) was abundant throughout and the pa'uohi'iaka vine (*Jacquemontia ovalifolia* subsp. *sandwicensis*) was observed near the existing localizer building in the north corner of the Proposed Action Area. No trees are located within the Proposed Action Area.

The portion of the Airport property outside the security fence is not mowed and maintained as intensively as land within the security fence. This area is dominated by the non-native Guinea grass (*Panicum maximum*). Other common non-native grass species observed include natal red top (*Melinis repens*) and sourgrass (*Digitaria insularis*). Native 'uhaloa and 'ilima (*Sida fallax*) were found widely scattered outside the security fence, though only a few 'ilima were identified during the field survey.

#### Wildlife

A Wildlife Hazard Assessment (WHA) was completed for the project Study Area and vicinity in June 2018 and included on-site point count surveys for all wildlife species, conducted twice per month for 12 months, beginning in June 2017.<sup>5</sup> The WHA surveys documented observation of 26 bird species, three mammal species, and one reptile/amphibian species. One bird nest was observed within the project Study Area during WHA surveys. The nest of a common myna bird was observed in the southwestern portion of the airfield, outside of the Proposed Action Area.<sup>6</sup> **Table 3-3** lists the bird species observed during the WHA surveys. The FAA's National Wildlife Strike database records two avian species involved in aircraft strikes at LNY in 2017 and one in 2018. These are the native pueo or Hawaiian short-eared owl (*Asio flammeus sandwichensis*) in February 2018, the non-native Eurasian skylark (*Alauda arvensis*) in September 2017, and an unidentified bird in September 2017.<sup>7</sup> The native pueo is common on Lanai and forages in open, grassy areas, such as that contained within the project Study Area.

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<sup>4</sup> Cardno, *Terrestrial Vegetation and Wildlife Surveys of a Proposed Runway Extension at Lāna'i Airport, Hawai'i*, December 2016.

<sup>5</sup> SWCA Environmental Consultants, *Final Wildlife Hazard Assessment for Lāna'i Airport, Lāna'i City, Maui County, Hawai'i*, June 2018.

<sup>6</sup> SWCA Environmental Consultants, *Final Wildlife Hazard Assessment for Lāna'i Airport, Lāna'i City, Maui County, Hawai'i*, June 2018.

<sup>7</sup> U.S. Department of Transportation, Federal Aviation Administration, *FAA Wildlife Strike Database*, <https://wildlife.faa.gov/databaseSearch.aspx> (accessed: September 18, 2018).

TABLE 3-3 BIRD SPECIES OBSERVED AT AND AROUND THE LANAI AIRPORT FROM  
JUNE 2017 THROUGH MAY 2018

Species Common Name	Scientific Name
African silverbill	<i>Euodice cantans</i>
Barn owl	<i>Tyto alba</i>
Black-crowned night-heron	<i>Nycticorax nycticorax</i>
Cattle egret	<i>Bubulcus ibis</i>
Chestnut munia	<i>Lonchura atricapilla</i>
Common myna	<i>Acridotheres tristis</i>
Eurasian skylark	<i>Alauda arvensis</i>
Grey francolin	<i>Francolinus pondicerianus</i>
Hawaiian coot	<i>Fulica alai</i>
Hawaiian short-eared owl	<i>Asio flammeus sandwichensis</i>
Hawaiian stilt	<i>Himantopus mexicanus knudseni</i>
House finch	<i>Haemorhous mexicanus</i>
House sparrow	<i>Passer domesticus</i>
Japanese bush warbler	<i>Horornis diphone</i>
Japanese white-eye	<i>Zosterops japonicus</i>
Northern cardinal	<i>Cardinalis cardinalis</i>
Northern mockingbird	<i>Mimus polyglottos</i>
Northern pintail	<i>Anas acuta</i>
Pacific golden-plover	<i>Pluvialis fulva</i>
Ring-necked pheasant	<i>Phasianus colchicus</i>
Ruddy turnstone	<i>Arenaria interpres</i>
Scaly-breasted munia	<i>Lonchura punctulata</i>
Snow goose	<i>Anser caerulescens</i>
Spotted dove	<i>Streptopelia chinensis</i>
Wild turkey	<i>Meleagris gallopavo</i>
Zebra dove	<i>Geopelia striata</i>

SOURCE: SWCA Environmental Consultants, *Final Wildlife Hazard Assessment for Lānaʻi Airport, Lānaʻi City, Maui County, Hawaiʻi*, June 2018.

### Threatened and Endangered Species

FAA requested a species list from the U.S. Fish and Wildlife Service (FWS) under Section 7 of the ESA on January 12, 2018. FWS replied in a letter dated March 6, 2018, in which it identified four species federally listed as endangered with the potential to occur within the project Study Area and that are of concern: the Hawaiian hoary bat (*Lasiurus cinereus semotus*), Hawaiian petrel (*Pterodroma sandwichensis*), Blackburn's sphinx moth (*Manduca blackburni*), and Hawaiian stilt (*Himantopus mexicanus knudseni*). The letter stated that no critical habitat is located within the project Study Area (see Appendix A). FWS provided the following information on potential threatened and endangered species within the project Study Area:<sup>8</sup>

- **Hawaiian hoary bat:** The Hawaiian hoary bat roosts in both exotic and native woody vegetation across all islands and will leave young unattended in trees and shrubs when they forage. Additionally, Hawaiian hoary bats forage for insects from as low as 3 feet to higher than 500 feet above the ground and can become entangled in barbed wire used for fencing.
- **Hawaiian petrel:** Hawaiian seabirds may traverse the project Study Area at night during the breeding season (March 1 to December 15).
- **Blackburn's sphinx moth:** The Blackburn's sphinx moth may be present in the vicinity of the project Study Area. Adult moths feed on nectar from native plants, including beach morning glory (*Ipomoea pes-caprae*), iliee (*Plumbago zeylanica*), and maiapilo (*Capparis sandwichiana*); larvae feed upon non-native tree tobacco (*Nicotiana glauca*) and native aiea (*Nothocestrum sp.*). To pupate, the larvae burrow into the soil and can remain in a state of torpor for up to a year (or more) before emerging from the soil.
- **Hawaiian stilt:** These waterbirds are found in fresh and brackish-water marshes and natural or man-made ponds. Hawaiian stilts may also be found wherever ephemeral or persistent standing water may occur. On Lanai, stilt are found around the wastewater treatment plant approximately 1.3 miles north of the Study Area and water features near the resort golf course approximately 2.6 miles southeast of the Study Area. To date there is no record of stilt at LNY.

## 3.5 CLIMATE

### 3.5.1 Regulatory Setting

The Intergovernmental Panel on Climate Change (IPCC) estimates that aviation accounted for 4.1 percent of global transportation greenhouse gas (GHG) emissions. Scientific research is ongoing to better understand climate change, including any incremental atmospheric impacts that may be caused by aviation. Uncertainties are too large to accurately predict the timing, magnitude, and location of

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<sup>8</sup> Jodi Charrier, U.S. Fish and Wildlife Service, Pacific Island Fish and Wildlife Office, "Species List for proposed Lanai Airport runway extension," letter to Ms. Dee Phan, FAA Western-Pacific Region, Airports Division, March 6, 2018.

aviation's climate impacts; however, it is clear that minimizing GHG emissions and identifying potential future impacts of climate change are important for a sustainable national airspace system.

Increasing concentrations of GHGs in the atmosphere affect global climate.<sup>9-10</sup> GHG emissions result from anthropogenic sources including the combustion of fossil fuels. GHGs include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), O<sub>3</sub>, and fluorinated gases.<sup>11</sup> CO<sub>2</sub> is the most important anthropogenic GHG because it is a long-lived gas that remains in the atmosphere for up to 100 years. Climate change is a global phenomenon that can have local impacts.<sup>12</sup> Scientific measurements show that Earth's climate is warming, with concurrent impacts including warmer air temperatures, increased sea level rise, increased storm activity, and an increased intensity in precipitation events. Research has shown there is a direct correlation between fuel combustion and GHG emissions.

The State of Hawaii has enacted several laws to address GHGs and climate impacts. Hawaii Senate Bill (SB) 559 (Act 032) expands strategies and mechanisms to reduce GHG emissions statewide in alignment with the principles and goals adopted in the Paris agreement.<sup>13</sup> HAR regarding Clean Air were updated in 2014 to include measures for GHG reductions.

### 3.5.2 Affected Environment

Climate change due to GHG emissions is a global phenomenon; therefore, the affected environment is the global environment.<sup>14</sup> The CAB has been tasked with establishing a baseline of conditions and creating GHG emissions reduction plans. Emissions data from 2010 was used to establish baseline conditions for the state. CAB emissions reduction plans have a goal of reducing emissions from baseline conditions 16 percent by 2020. For facilities where this goal is not feasible, facility-specific evaluations and plans have been made.<sup>15</sup> The Maui County 2016 Lanai Community Plan defers to state guidance on climate.<sup>16</sup> LNY

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<sup>9</sup> Intergovernmental Panel on Climate Change, *Fifth Assessment Report*, 2014, <https://www.ipcc.ch/report/ar5/syr/> 9 (accessed September 28, 2018).

<sup>10</sup> U.S. Global Change Research Program, *Global Climate Change Impacts in the United States*, 2009, <http://www.globalchange.gov/what-we-do/assessment/previous-assessments/global-climate-change-impacts-in-the-us-2009> (accessed September 28, 2018).

<sup>11</sup> U.S. Environmental Protection Agency, Overview of Greenhouse Gases, <http://www3.epa.gov/climatechange/ghgemissions/gases.html> (accessed May 11, 2017).

<sup>12</sup> As explained by the EPA, "greenhouse gases, once emitted, become well mixed in the atmosphere, meaning U.S. emissions can affect not only the U.S. population and environment but other regions of the world as well; likewise, emissions in other countries can affect the United States." U.S. Environmental Protection Agency, Climate Change Division, Office of Atmospheric Programs, *Technical Support Document for Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act 2-3*, 2009, <https://www.epa.gov/ghgemissions/technical-support-document-endangerment-and-cause-or-contribute-findings-greenhouse> (accessed September 28, 2018).

<sup>13</sup> State of Hawaii, Department of Health, Environmental Health, *Greenhouse Gas Reduction*, <http://health.hawaii.gov/epo/strategic/greenhouse/> (accessed: August 23, 2018).

<sup>14</sup> U.S. Environmental Protection Agency, *Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act; Final Rule*, December 15, 2009 [Federal Register, vol. 74, no. 239].

<sup>15</sup> State of Hawaii, Department of Health, Environmental Health, *Greenhouse Gas Reduction*, <http://health.hawaii.gov/epo/strategic/greenhouse/> (accessed: August 23, 2018).

<sup>16</sup> County of Maui, County Ordinance 4343, *Lanai Community Plan, 2016*, effective December 21, 1998, updated 2016.

does not have a baseline for GHG emissions or a facility-specific plan, but DOT-A works to comply with DOH emissions requirements.

### **3.6 HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION**

#### **3.6.1 *Regulatory Setting***

Many federal laws regulate the handling and disposal of hazardous materials, chemicals, substances, and waste, including solid waste and pollution prevention. The federal laws applicable to the Airport and project Study Area are:

- Comprehensive Environmental Response, Compensation & Liability Act (CERCLA)
- Resource Conservation & Recovery Act (RCRA)
- Clean Water Act (CWA)
- Safe Drinking Water Act (SDWA)
- Clean Air Act (CAA)
- Hazardous Materials Transportation Act (HMTA)

Pursuant to delegation from the EPA, the DOH is responsible for implementing and regulating these hazardous waste rules. HAR Chapters 11-260 to 11-280 regulates the disposal and management of hazardous waste within the State of Hawaii and Maui County Code, Chapter 14.21A.205, regulates the discharge of hazardous substances to publicly owned treatment works. Additionally, the DOH Office of Solid Waste Management (OSWM) is responsible for the implementation and regulation of solid waste rules.

#### **3.6.2 *Affected Environment***

The types, characteristics, and occurrences of hazardous materials and other regulated substances at LNY are typical of airports that offer commercial and cargo services. The substances that are used in large quantities on a routine basis at LNY and are classifiable as hazardous include aircraft and motor vehicle fuels. Other, smaller amounts of petroleum-products (e.g., lubricants and solvents), waste materials (e.g., used oils, filters, cleaning residues, and spent batteries) and manufactured chemicals (e.g., herbicides, fertilizers, paints, fire-fighting foam) are stored in various locations throughout the Airport on a routine basis.

In October 2016, a Phase 1 Environmental Site Assessment (Phase 1 ESA) was conducted by TRC Environmental Corporation (TRC) for the Proposed Action Area plus additional areas northeast of the Proposed Action Area. The Phase 1 ESA included a review of historical records and documentation, site and vicinity reconnaissance, and review of environmental databases and regulatory agency records for

any relevant information. This report documented no Recognized Environmental Conditions (RECs) in the vicinity of the project Study Area.<sup>17</sup>

In July 2018, an Environmental Data Resources (EDR) radius map report was generated for the Proposed Action Area. The EDR radius map report includes a database search of available environmental records within an approximate one-mile radius of the Proposed Action Area. The EDR report identified one database listing within the Proposed Action Area, and no other known database listings within a mile of the Proposed Action Area. The database listing within the Proposed Action Area is an underground storage tank (UST) in the northeastern portion of the Proposed Action Area. The 350-gallon former diesel UST is listed as owned by HDOT-A and has a listed status of: Permanently Out of Use. The UST was reported to be closed in June 1994, and no leaks were reported in conjunction with this listing. No other information is provided for this listing nor is this UST listed in any other EPA databases. No other known hazardous substance sites were identified within a mile of the Proposed Action Area.<sup>18</sup>

The Maui County Solid Waste Division (MCSWD) provides for the disposal of residential and commercial solid waste at the Lanai Landfill, located approximately 1-mile northwest of the project Study Area. The landfill is operated by the County, who maintains compliance with all federal, state, and county regulatory requirements, permits, mandates, and procedures.<sup>19</sup> The Lanai Landfill is projected to reach capacity in 2029.<sup>20</sup> The Lanai Community Plan has established goals, policies, and actions for comprehensive solid waste management in order to reduce the overall quantity of waste disposed through recycling and reuse strategies.<sup>21</sup> The Lanai Community Plan also documents strategies to reduce impacts to water quality through community workshops and education of landowners on BMPs for reducing stormwater runoff pollution.<sup>22</sup>

### **3.7 HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES**

#### **3.7.1 Regulatory Setting**

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to consider the effects of their undertakings on historic properties. Hawaii Revised Statutes, Chapter 6E-8, requires all agencies or officers of the State to provide the State Historic Preservation Division (SHPD) the opportunity to review the effect of their proposed projects on historic properties, aviation artifacts, or burial sites.

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<sup>17</sup> TRC Environmental Corporation, *Phase I Environmental Site Assessment, Lanai Airport-Runway Extension, Lanai Airport Road, Lanai City, Hawaii*, October 3, 2016.

<sup>18</sup> Environmental Data Resources, *EDR Radius Map Report with GeoCheck, Lanai Airport, Kamalapau Highway, Lanai City, HI 96763*, July 9, 2018.

<sup>19</sup> County of Maui, Solid Waste Division, *Solid Waste Division Overview*, <https://www.mauicounty.gov/1017/Solid-Waste-Refuse-Services-and-Informat> (accessed August 24, 2018).

<sup>20</sup> County of Maui, County Ordinance 4343, *Lanai Community Plan, 2016*, effective December 21, 1998, updated 2016.

<sup>21</sup> County of Maui, County Ordinance 4343, *Lanai Community Plan, 2016*, effective December 21, 1998, updated 2016.

<sup>22</sup> County of Maui, County Ordinance 4343, *Lanai Community Plan, 2016*, effective December 21, 1998, updated 2016.

### 3.7.2 Affected Environment

**Figure 3-2** depicts the Area of Potential Effects (APE) defined by the FAA to account for potential direct and indirect effects of the Proposed Action. The APE encompasses a total of approximately 160-acre area within the Lanai Airport; approximately 56 acres of this total is Direct APE where all actual construction activities would occur.

#### Historical and Architectural Resources

A September 2016 Archeological Assessment Survey (AAS),<sup>23</sup> a January 2018 Intensive Level Architectural Survey (ILAS),<sup>24</sup> and an April 2018 Reconnaissance Level Architectural Survey<sup>25</sup> were conducted in support of the Proposed Action. The results of these surveys were used to determine the presence of and potential for historic properties within the APE. The survey data comprised literature reviews, record searches, and pedestrian observations of the APE. The ILAS confirmed that the Airport Administration Building (formerly the Airport Terminal Building) and the Airport itself within the APE are historic-age (50 years or older) resources. However, both of these built resources have been deemed ineligible for inclusion in the Hawaii State Register of Historic Places and National Register of Historic Places (NRHP) due to extensive additions and/or alterations over the years. There are no other structures or resources within the APE that meet historic-age requirements nor do they possess unique architectural features to be considered eligible for the Hawaii State Register of Historic Places or the NRHP.<sup>26</sup>

#### Archeological and Cultural Resources

A 2016 AAS conducted for the Proposed Action included a literature review, a pedestrian survey, and excavation exploration at several sample sites to verify the presence or absence of archeological resources in surface and subsurface contexts.<sup>27</sup> During the archeological survey, 13 test pits were excavated to expose a representative sample of stratigraphic sections for subsurface investigation. No cultural materials or deposits of historical significance were present in the subsurface context within the APE. No traditional artifacts, buried layers of cultural significance, or human remains were identified during the literature review, the pedestrian survey, or the excavation exploration.<sup>28</sup> The FAA consulted with 29 Native Hawaiian Organizations (NHOs) regarding the proposed project to determine whether any culturally significant features were present within the project Study Area. The Lanai Cultural & Heritage Center responded with no objections and the remaining 28 organizations did not respond (see Appendix A).

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<sup>23</sup> T.S. Dye & Colleagues, Archeologists, Inc. *Archeological Assessment Survey for the Proposed Lānaʻi Airport Expansion Project. Lands of Kamoku and Kalulu, Lāhaina District, Lānaʻi Island, TMK: (2) 4-9-002:041 por.*, May 2, 2017.

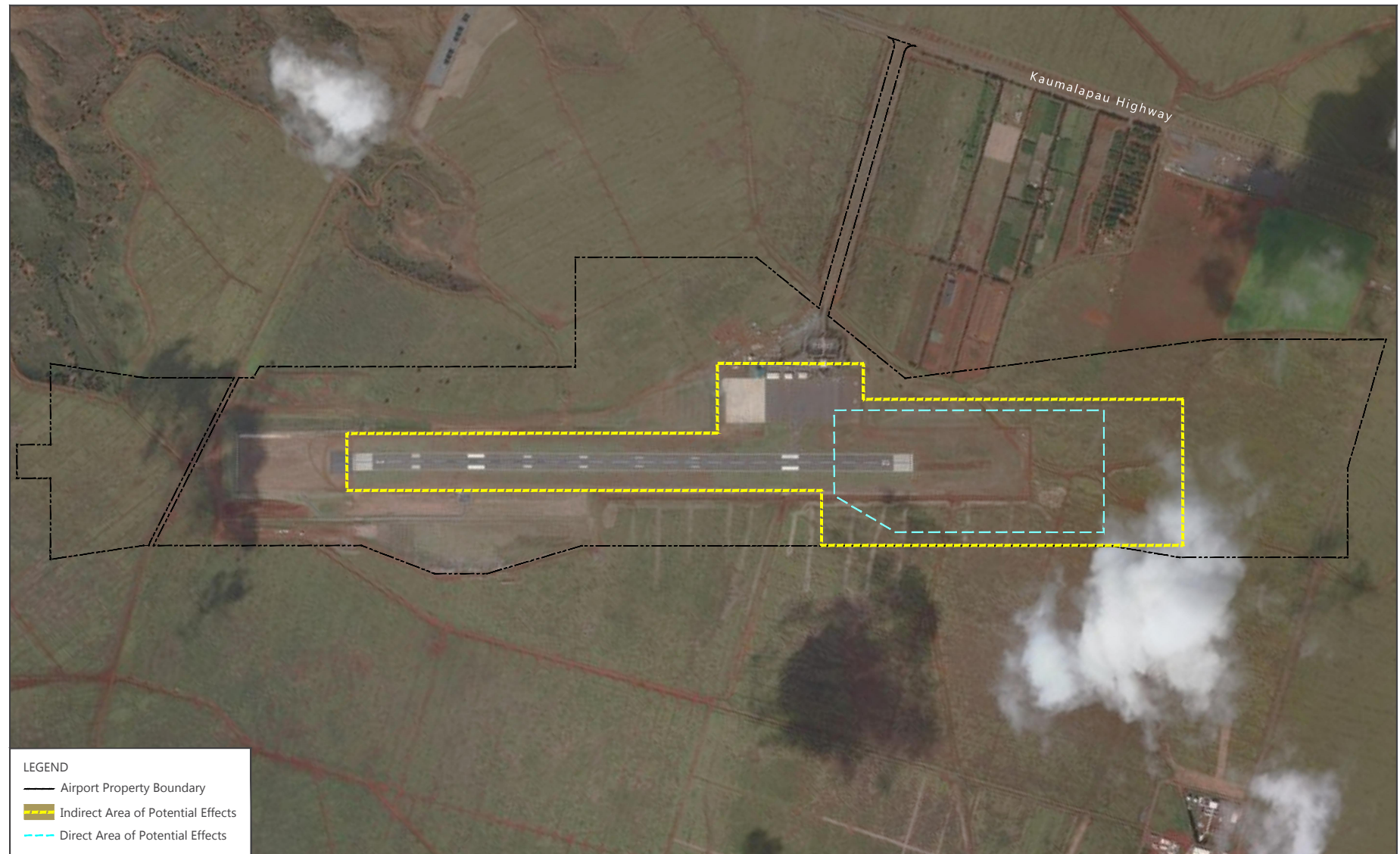
<sup>24</sup> Mason Architects, Inc., *Historic Resource Inventory Form – Intensive Level*, January 31, 2018.

<sup>25</sup> Architects Hawaii Ltd., *Architectural Survey Report for Lanai Airport Runway Improvements*. May 9, 2018.

<sup>26</sup> Architects Hawaii Ltd., *Architectural Survey Report for Lanai Airport Runway Improvements*. May 9, 2018.

<sup>27</sup> T.S. Dye & Colleagues, Archeologists, Inc. *Archeological Assessment Survey for the Proposed Lānaʻi Airport Expansion Project. Lands of Kamoku and Kalulu, Lāhaina District, Lānaʻi Island, TMK: (2) 4-9-002:041 por.*, May 2, 2017.

<sup>28</sup> T.S. Dye & Colleagues, Archeologists, Inc. *Archeological Assessment Survey for the Proposed Lānaʻi Airport Expansion Project. Lands of Kamoku and Kalulu, Lāhaina District, Lānaʻi Island, TMK: (2) 4-9-002:041 por.*, May 2, 2017.



SOURCES: Hawaii, Department of Transportation, Lanai Airport Layout Plan, 2014 (property boundary); Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, March 2018 (aerial basemap); Muneakiyo Hiraga, August 2018 (APE).

**FIGURE 3-2****AREA OF POTENTIAL EFFECTS**

Drawing: P:\Project-Chicago\Hawaii\NY\EA\CAD\NY\_EA\_AffectedEnvironment\_20180913.dwg Layout: FIG 3-2 APE Plotted: Dec 18, 2018, 01:52PM



### 3.8 NATURAL RESOURCES AND ENERGY SUPPLY

#### 3.8.1 Regulatory Setting

Sections 1502.16(e) and (f) of the CEQ Regulations require that federal agencies consider energy requirements, natural depletable resource requirements, and the conservation potential of alternatives and mitigation measures. Executive Order 13934, *Executive Order Regarding Efficient Federal Operations*, directs federal agencies to manage their buildings, vehicles, and operations to optimize energy and environmental performance, reduce waste, and reduce cost.

#### 3.8.2 Affected Environment

The Airport is located on the Island of Lanai, in close proximity to urbanized areas with adequate access to energy and natural resources. Electricity is provided by a Maui Electric Company (MECO) Power Plant located in the Miki Basin, approximately 1-mile east of the Airport. The electrical service lines to the Airport are underground, running from Kaunalapau Highway along the Airport access road to the Airport. Electricity is primarily used at LNY for lighting, cooling, and equipment operation in buildings, as well as for airfield lighting and operations.

Aircraft fueling activities occur at the Airport ramp, supplied by a tanker truck that operates at the Airport on an as-needed basis. When not in use at the Airport, the tanker truck is stored offsite at a parking lot at the Miki Basin Industrial Condominium. A permanent fueling facility for aircraft is not provided at the Airport.<sup>29</sup>

The Airport's source of water (irrigation and safe drinking water) is provided by the Lanai Water Company. Safe drinking water service to the Airport is supplied via three wells: Well 6, Well 3, and Well 8. Water is transmitted to the Airport through an existing waterline along Kaunalapau Highway, which then connects to a second waterline that runs along the Airport access road to a central meter, and finally from the central meter it is distributed to the various Airport facilities.<sup>30</sup> The fire storage water supply is provided via the Palawai Irrigation grid from safe drinking water Wells 2 and 4 and the Hii Tank via a main waterline which connects to a 120,000-gallon steel water tank located to the northeast of the terminal building. The sustainable yield is estimated to be 6 million gallons per day (MGD) of domestic water supply for the Island of Lanai; current pumping practices for the entire island average 1.6 MGD.<sup>31</sup>

The Airport is subject to sustainability initiatives and goals established by the Hawaii State Energy Office and the HDOT-A to reduce reliance on natural resources and provide a renewable energy supply. These initiatives include, but are not limited to solar panels, alternative fuel vehicles, and the implementation of energy efficient systems. The Hawaii State Energy Office has established a goal of a 30 percent

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<sup>29</sup> R.M. Towill Corporation, *Final Environmental Assessment, Hawai'i Revised Statutes (HRS), Chapter 343, Lāna'i Airport Runway Safety Area Improvement Project (State Project No. AM-4022-15)*, July 2013.

<sup>30</sup> Lanai Water Company, September 2018.

<sup>31</sup> Muneakiyo Hiraga, *Final Environmental Assessment, Proposed Aircraft Rescue Fire Fighting Station, Fueling Facility and Hangar at Lāna'i Airport*, December 2009.

reduction in electricity by 2020 and to be operating at 100 percent of renewable energy for electricity by 2045.<sup>32</sup>

### 3.9 NOISE AND COMPATIBLE LAND USE

#### 3.9.1 *Regulatory Setting*

Several federal laws pertain to aircraft noise and noise-compatible land use impacts including the Noise Control Act of 1972, Aviation Safety and Noise Abatement Act of 1979, Airport and Airway Improvement Act of 1982, and Airport Noise and Capacity Act of 1990. These laws and regulations provide a basis for the local development of airport plans, an analysis of potential impacts from airport development, and land use compatibility policies. The FAA has determined that the cumulative aircraft noise exposure experienced by individuals must be evaluated in terms of the yearly Day-Night Average Sound Level (DNL) metric.<sup>33</sup> Sound levels (decibels [dB]) reported in this EA are expressed in A-weighted decibels (dBA), which filter sound to reduce the effect of very low and very high frequency sounds, much as the human ear filters sound frequencies. DNL represents the noise level over a 24-hour period and includes penalties to account for the increased sensitivity to noise events that occur during nighttime periods by applying a DNL 10-dB penalty during the hours of 10:00 p.m. to 7:00 a.m. DNL is employed to describe existing and predicted noise exposure in communities in airport environs, based on the average daily operations over the year and the average annual operational conditions at an airport. Methodology for the development of aircraft noise contours is provided in **Appendix B**.

#### 3.9.2 *Affected Environment*

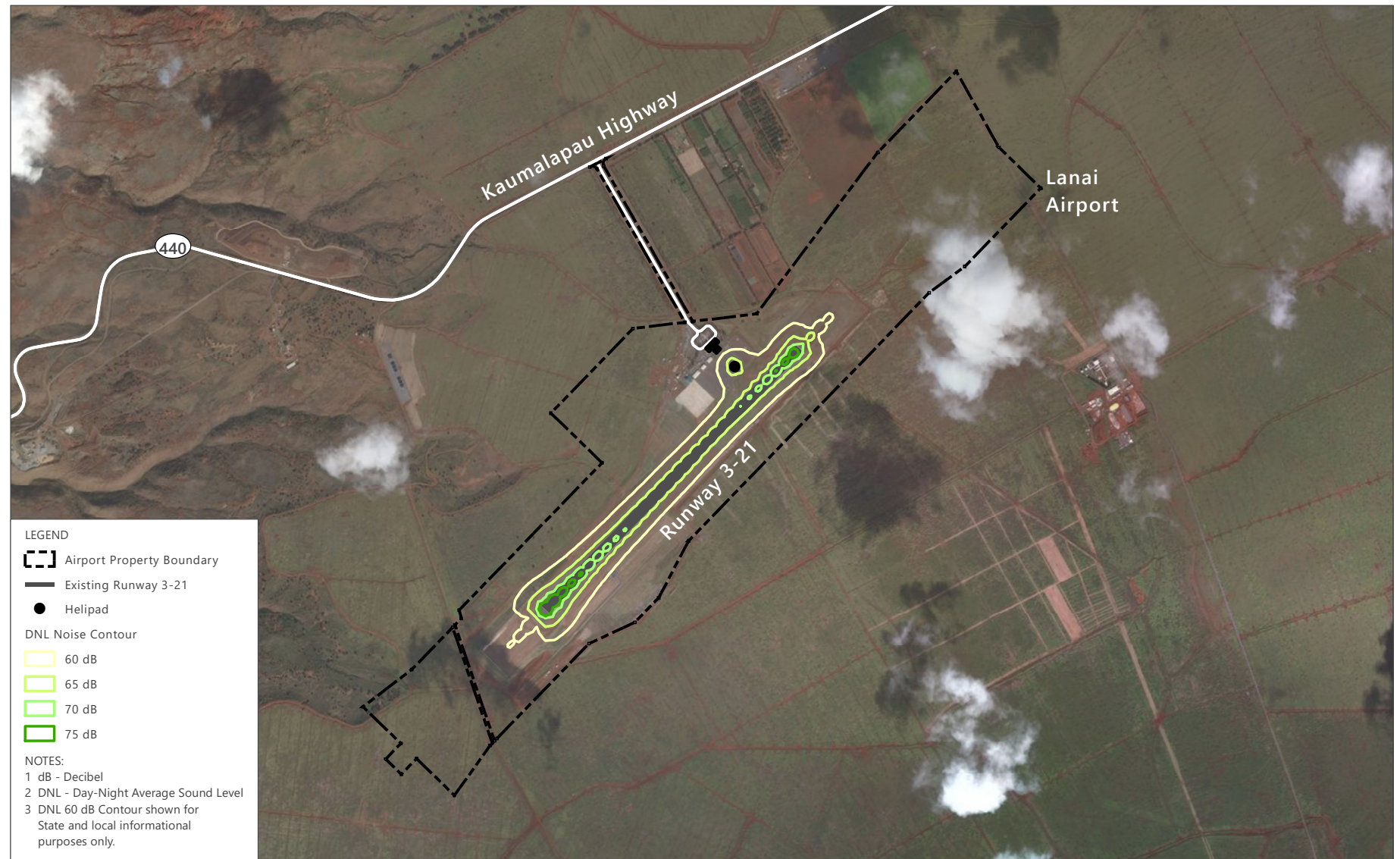
The existing noise environment in and around the project Study Area is dominated by noise from Airport-related activities, including roadway use and aircraft taxiing, taking off, and landing at the Airport. The nearest noise-sensitive areas to the project Study Area are located in Lanai City, approximately 2 miles to the northeast of the Airport. The existing DNL 65 dB contour is contained to on-Airport property and does not encompass any noise sensitive land uses. An existing conditions (2016) noise exposure map was developed and is shown on **Figure 3-3**.

Portions of the project Study Area are exposed to aircraft noise levels of DNL 60 dB and higher. However, no noise-sensitive areas are present within the project Study Area, and no incompatible land uses are present within the project Study Area.

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<sup>32</sup> Hawaii State Energy Office, *State of Hawaii Strategic Energy Plan*, [https://energy.Hawaii.gov/wp-content/uploads/2018/07/EnergyPlan-Brochure\\_June2018.pdf](https://energy.Hawaii.gov/wp-content/uploads/2018/07/EnergyPlan-Brochure_June2018.pdf) (accessed August 21, 2018).

<sup>33</sup> The EPA introduced the DNL metric in 1976 as a single-number measurement of community noise exposure. The FAA adopted DNL as the noise metric for measuring cumulative aircraft noise under F.A.R. Part 150, Airport Noise Compatibility Planning. DNL is the noise descriptor required for aircraft noise exposure analyses and land use compatibility planning under NEPA for airport improvement projects (FAA Order 10501.F).



SOURCES: Hawaii, Department of Transportation, *Lanai Airport Layout Plan*, 2014 (airport linework); U.S. Census Bureau, TIGER/Line Shapefiles, 2017 (roads); Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, March 2018 (aerial basemap); Ricondo & Associates, Inc., August 2018 (noise contours).

FIGURE 3-3



2016 EXISTING NOISE EXPOSURE CONTOUR



## Section 4: Environmental Consequences

### 4.1 INTRODUCTION

The following sections describe and disclose the potential environmental impacts resulting from the Proposed Action and the No Action alternatives. The analysis includes considerations of direct, indirect, and cumulative impacts including potential impacts from construction and demolition activities.

Direct impacts, as defined by 40 C.F.R. § 1508.8(a), are caused by the Proposed Action and occur at the same time and place. Indirect impacts per 40 C.F.R. § 1508.8(b) are caused by the Proposed Action and are later in time or farther removed in distance but are still reasonably foreseeable. Cumulative impacts per 40 C.F.R. § 1508.7 are the impacts on the environment that result from the incremental impact of the Proposed Action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

As discussed in Section 3.2, coastal resources; Department of Transportation, Section 4(f) resources; farmlands; land use; socioeconomics, environmental justice, and children's environmental health and safety risks; visual effects (i.e., light emissions and visual resources/visual character); and water resources (i.e., wetlands, surface waters, floodplains, and groundwater) are not present within the project Study Area or would not be affected by the Proposed Action. Therefore, these environmental categories are not discussed in this section.

### 4.2 AIR QUALITY

#### 4.2.1 *Methodology and Significance Thresholds*

The primary sources of guidance for assessing potential air quality impacts are FAA Orders 1050.1F and 5050.4B, and the *Aviation Emissions and Air Quality Handbook* (Airport Air Quality Handbook).<sup>1</sup> The evaluation of significance for air quality impacts involves identifying whether the Proposed Action would cause pollutant concentrations to exceed one or more of the NAAQS for any of the time periods analyzed. The entire State of Hawaii is listed as unclassifiable/attainment for all NAAQS. Therefore, the FAA is not required to make a conformity determination. Detailed information regarding methodologies and assumptions are provided in **Appendix C**.

FAA Order 1050.1F identifies the significance threshold for air quality: "The action would cause pollutant concentrations to exceed one or more of the NAAQS, as established by the Environmental Protection

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<sup>1</sup> U.S. Department of Transportation, Federal Aviation Administration, Office of Environment and Energy, *Aviation Emissions and Air Quality Handbook*, Version 3, Update 1, January 2015.

Agency under the Clean Air Act, for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations.”<sup>2</sup>

#### **4.2.2 Comparison of the No Action and Proposed Action Alternatives**

##### **NO ACTION**

The No Action alternative would not result in any construction activities or cause a change in the number or type of aircraft operations and would not result in any direct or indirect impacts to air quality not already occurring or expected to occur.

##### **PROPOSED ACTION**

If approved, construction of the Proposed Action is expected to occur between July 2019 and December 2020, which would result in short-term effects on air quality. For purposes of this analysis, construction was conservatively assumed to occur entirely within a 12-month period. Construction emissions would occur from the use of heavy construction equipment (e.g., backhoes, bulldozers), on and off-road vehicles to transport supplies and materials, and on-road vehicles by construction workers to get to and from the construction site (e.g., cars, pick-up trucks). Construction activities can also result in fugitive dust from construction materials staging, demolition, earthwork such as grading and digging, wind erosion from stockpiles, movement of trucks on unpaved surfaces, and evaporative emissions from asphalt paving operations.

The emissions inventory for construction activities associated with the Proposed Action is presented in **Table 4-1**. The construction-related pollutant emissions were compared against the General Conformity *de minimis* thresholds to gauge significance of the construction emissions. *De minimis* emissions thresholds are established by EPA and are emissions that are so minimal, they are considered to be too small to adversely affect the air quality status of the area. As shown in Table 4-1, criteria pollutant emissions during construction would not exceed federal *de minimis* thresholds, and thus construction of the Proposed Action would not exceed any of the NAAQS or otherwise adversely affect the air quality status of the area.

The Proposed Action would not result in a change in the number of aircraft operations at LNY. The increased runway length would prevent incoming aircraft from having to divert to HNL or outgoing aircraft from having to delay or decrease payload due to weather conditions; it would not increase the number or change the type of aircraft operating at LNY. Aircraft takeoffs, landings, and taxi routes would shift by up to 500 feet, but this would not result in any significant increase in aircraft operational emissions. As such, direct and indirect impacts under the Proposed Action would not exceed the NAAQS and would not adversely affect the air quality status of the area.

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<sup>2</sup> U.S. Department of Transportation, Federal Aviation Administration, Exhibit 4-1, “Significance Determination for FAA Actions,” in Order 1050.1F, *Environmental Impacts: Policies and Procedures*, July 16, 2015.

TABLE 4-1 ANNUAL EMISSIONS OF CRITERIA POLLUTANTS DUE TO CONSTRUCTION OF THE PROPOSED ACTION

	ESTIMATED ANNUAL EMISSIONS (TONS/YEAR)					
	CO	VOC <sup>1</sup>	NO <sub>x</sub> <sup>1</sup>	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub> <sup>2</sup>
Construction Activity	5.65	2.63	9.49	4.19	0.47	0.03
Federal <i>de minimis</i> Threshold	100	100	100	100	100	100
Difference (Under)/Over <i>de minimis</i> Threshold	(94.35)	(97.37)	(90.51)	(95.82)	99.53)	(99.97)

## NOTES:

Totals may not add due to rounding.

CO – Carbon Monoxide

VOC – Volatile Organic Compounds

NO<sub>x</sub> – Oxides of NitrogenPM<sub>10</sub> – Particulate MatterPM<sub>2.5</sub> – Fine ParticulatesSO<sub>2</sub> – Sulfur Dioxide1 VOCs and NO<sub>x</sub> are the primary precursor compounds that lead to the formulation of O<sub>3</sub>.2 For purposes of this analysis, it was assumed that estimates of SO<sub>x</sub> emissions are equal to calculated emissions of SO<sub>2</sub>.

SOURCE: Ricondo &amp; Associates, Inc., September 2018.

## 4.3 BIOLOGICAL RESOURCES

### 4.3.1 Methodology and Significance Thresholds

The potential for impacts to biological resources, including threatened and endangered species, designated critical habitat, and migratory birds, was assessed by: (1) determining the presence of protected species or critical habitat through terrestrial vegetation and wildlife surveys of the project Study Area, (2) reviewing databases of potentially present species maintained by the FWS and State of Hawaii Division of Forestry and Wildlife, (3) reviewing previous surveys and reports of biological resources conducted at the Airport, and (4) initiating informal consultation with the FWS pursuant to Section 7 of the ESA.

The FAA's significance threshold for impacts to biological resources (including fish, wildlife, and plants), as described in FAA Order 1050.1F, is as follows: a significant impact to biological resources would occur when the FWS determines that the action would be likely to jeopardize the continued existence of a federally listed threatened or endangered species, or would result in the destruction or adverse modification of federally designated critical habitat.

### 4.3.2 Comparison of the No Action and Proposed Action Alternatives

#### NO ACTION

Under the No Action alternative, no construction activities or changes to operation of the Airport would occur and there would be no direct or indirect impacts to biological resources not already occurring or expected to occur.

**PROPOSED ACTION**

As discussed in Section 3.4.2, four federally listed endangered species possibly occur in the vicinity of the project Study Area that are of concern. There is no critical habitat on the project site. The FAA has determined that the Proposed Action **may affect, but is not likely to adversely affect** the Hawaiian hoary bat, Hawaii petrel, Blackburn's sphinx moth, and Hawaiian stilt based on the following analysis. The FWS has concurred with the FAA determination in a letter dated April 25, 2018 (see Appendix A).<sup>3</sup>

- **Hawaiian hoary bat:** The FWS evaluated the potential for adverse effects to Hawaiian hoary bats from the use of barbed wire for the relocated perimeter Airport security fence and estimated the risk of take to be extremely unlikely to occur and would not result in take of the species. Pups of the Hawaiian hoary bat are often left unattended in trees and shrubs 15 feet or taller while the adults forage. If trees or shrubs 15 feet or taller are cleared during the pupping season, there is a risk of inadvertent take of young bats that are too young to fly. However, no trees or shrubs 15 feet or taller exist within the Proposed Action Area so disturbance of this habitat would not occur.
- **Hawaiian petrel:** Hawaiian petrel may traverse the project Study Area at night during breeding, nesting, and fledging seasons (i.e., March 1 to December 15). Artificial lights can confuse fledgling petrels, causing them to "fall-out" of the sky, which could result in an inadvertent take. In order to avoid and minimize potential effects on Hawaiian petrels, nighttime construction would not occur during the fledging season.
- **Blackburn's sphinx moth:** The Blackburn's sphinx moth uses the non-native tree tobacco (*Nicotiana glauca*) as larval host plants. There are currently no known Blackburn's sphinx moth or tree tobacco within the project Study Area. However, construction of the Proposed Action includes earth moving activities, which present the opportunity to introduce tree tobacco seeds in fill disturbed and/or added to the construction site. Therefore, all fill would be inspected to ensure it is free of tree tobacco or other noxious weed species to protect against introducing Blackburn's sphinx moth habitat to the project Study Area during construction of the Proposed Action.
- **Hawaiian stilt:** The Proposed Action would not include any temporary or permanent detention basins, and it is not expected that any areas will collect water after construction is complete. Therefore, any impacts to stilts are expected to be insignificant or discountable.

Table 3-3 identified a number of migratory bird species previously observed on Airport or in the areas surrounding the Airport. Foraging and nesting opportunities for these birds are restricted by ongoing wildlife hazard management activities to deter the development of wildlife habitat on and near the airfield. The Proposed Action would convert approximately 1.3 acres of sparsely vegetated open area adjacent to the existing runway to impervious surfaces. No bird nests were observed within the Proposed

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<sup>3</sup> Jodi Charrier, U.S. Fish and Wildlife Service, Pacific Island Fish and Wildlife Office, "Informal Consultation for the Lana'i Airport Runway Extension, City of Lana'i, Hawai'i," letter to Mr. Gordon K. Wong, FAA Western-Pacific Region, Airports Division, April 25, 2018.



Action Area during WHA site surveys. While migratory bird species have been observed in the Study Area vicinity, the underlying purpose of the Proposed Action would not involve any “intentional take” of migratory birds, their eggs, or nests.<sup>4</sup>

#### **4.3.3 Mitigation Measures**

While FAA has determined the Proposed Action may affect, but is not likely to adversely affect the Hawaiian petrel and Blackburn’s sphinx moth, the following mitigation measures will be implemented to avoid and minimize potential impact to the Hawaiian petrel and Blackburn’s sphinx moth during construction of the Proposed Action.

The following measure would be implemented to avoid and minimize potential impacts to the Hawaiian petrel is:

- No nighttime construction would occur during the fledging season (i.e., September 15 to December 15).

To avoid and minimize potential impacts to the Blackburn’s sphinx moth, the following measure would be implemented:

- All fill would be inspected to ensure it is free of tree tobacco or other noxious weed species.

## **4.4 CLIMATE**

### **4.4.1 Methodology and Significance Thresholds**

Consistent with the air quality analysis, short-term increases in GHG emissions would be expected during construction of the Proposed Action. Therefore, an inventory of GHG emissions associated with construction of the Proposed Action (e.g., construction equipment, construction haul trips, and construction worker commute trips) was conducted using the same methodology as the air quality analysis (defined in Section 4.2.1 and in Appendix C). GHGs of concern from construction sources are primarily CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O. GHG emissions are reported in metric tons of CO<sub>2</sub> equivalent (MT CO<sub>2</sub>e), a single metric that represents all GHGs, which provides a consistent methodology for comparing GHG emissions. The FAA has not established a significance threshold for climate and GHG emissions, nor has the FAA identified specific factors to consider in making a significance determination for GHG emissions.

### **4.4.2 Comparison of the No Action and Proposed Action Alternatives**

#### **NO ACTION**

No construction activities would occur and operations under the No Action alternative would not appreciably change. Therefore, consideration of effects on climate under the No Action alternative is not applicable.

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<sup>4</sup> U.S. Fish and Wildlife Service, *Memorandum: Guidance on the Recent M-Opinion Affecting the Migratory Bird Treaty Act*, April 11, 2018.

## **PROPOSED ACTION**

Annual GHG emissions were calculated based on the methodology documented in Section 4.2.1 and Appendix C. If approved, GHG emissions would temporarily increase by up to 5,293 MT CO<sub>2</sub>e during the assumed 12-month construction period of the Proposed Action. This temporary increase in GHG emissions, however, would not result in a significant regional increase in GHGs and therefore would not result in a significant climate effect.

The increased runway length avoids incoming aircraft from having to divert to HNL or outgoing aircraft from having to delay or decrease payload due to weather conditions, but it would not increase the number or change the type of aircraft operating at LNY. Aircraft takeoffs, landings, and taxi routes would increase by up to 500 feet, which would not result in any significant increase in aircraft operational emissions. Thus, GHG emissions resulting from operations under the Proposed Action would be similar to those under the No Action alternative.

## **4.5 HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION**

### ***4.5.1 Methodology and Significance Thresholds***

The Proposed Action and No Action alternative were evaluated for the potential to result in activities (including temporary construction activities) that would affect the generation and/or disposal of hazardous materials and municipal solid waste. Measures to prevent pollution were also identified. The FAA has not established a significance threshold for hazardous materials, solid waste, or pollution prevention. However, based on guidance in FAA Order 1050.1F, the FAA has identified factors to consider in evaluating the context and intensity of potential environmental impacts for hazardous materials, solid waste, or pollution prevention. These factors are whether an action would:

- Violate applicable federal, state, tribal, or local laws or regulations regarding hazardous materials and/or solid waste management;
- Involve a contaminated site (including, but not limited to, a site listed on the National Priorities List [NPL]);
- Produce an appreciably different quantity or type of hazardous waste;
- Generate an appreciably different quantity or type of solid waste or use a different method of collection or disposal and/or would exceed local capacity; or
- Adversely affect human health and the environment.

#### 4.5.2 Comparison of the No Action and Proposed Action Alternatives

##### NO ACTION

Under the No Action alternative, construction activities would not occur and Airport operations, including aircraft and ground vehicle use of the airfield infrastructure, would occur as in existing conditions. The No Action alternative would not change the quantity or use of hazardous substances or fuel, affect a contaminated site, or change the amount or type of solid waste generated at the Airport. Stormwater conveyance from the project Study Area would be maintained under the No Action alternative and existing pollution control measures to prevent pollutants in stormwater discharge would continue. Therefore, the No Action alternative would not adversely affect hazardous materials, solid waste, or human health or the environment as the result of pollution.

##### PROPOSED ACTION

The potential to encounter hazardous substances during construction activities within the project Study Area exists. As described in Section 3.6.2, the EDR radius map report identified one database-listed site—a UST that is permanently out of use—within the Proposed Action Area. No contamination or regulatory violations are listed in association with this site. The EDR radius map report indicates the UST is outside the proposed RSA grading area.<sup>5</sup> As such, ground disturbance in the vicinity of the listed UST would not occur.

Construction of the Proposed Action has the potential to affect previously unknown contaminated soil. Should any previously unknown contamination be discovered during construction, contractors would be required to stop work until the National Response Center is notified. Contamination would need to be addressed and disposed of in accordance with all federal, state, and local regulations. Should off-site disposal of soil be required, soil sampling and testing would be conducted in accordance with the appropriate disposal facility requirements.

Hazardous substances (e.g., fuel, waste oil, solvents, paint, and other hydrocarbon-based products) would be used during construction in quantities that are typical in the construction industry. All hazardous substances utilized during construction of the Proposed Action would be stored, labeled, and disposed of in accordance with federal, state, and local regulations. The DOH's *Guidance for Construction & Demolition (C&D) Waste Disposal*<sup>6</sup> provides guidance on determining whether the C&D waste stream (e.g., concrete, metal, asphalt, excavated soil) is hazardous (in accordance with HAR Section 11-262-11) and encourages reuse of wastes that can be reused on the job site and/or salvaged for recycling opportunities.

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<sup>5</sup> Environmental Data Resources, *EDR Radius Map Report with GeoCheck, Lanai Airport, Kamalapau Highway, Lanai City, HI 96763*, July 9, 2018.

<sup>6</sup> State of Hawaii, Department of Health, *Guidance for Construction & Demolition (C&D) Waste Disposal*, 2013, <https://health.hawaii.gov/shwb/files/2013/10/constdemguid.pdf> (accessed September 6, 2018).

Solid waste generated during construction of the Proposed Action would be recycled and unpaved areas would be backfilled with excavated soil to the extent practical. Airfield pavement would be tested and reused to the extent practical in accordance with FAA pavement standards outlined in FAA Advisory Circular 150/5320-6F, *Airport Pavement Design and Evaluation*.<sup>7</sup> Airfield pavement may be contaminated with aircraft rubber or fuel deposits and not acceptable for reuse. Construction debris that cannot be recycled or reused would be disposed of in accordance with all applicable federal, state, and local laws and regulations at a licensed disposal facility. As stated in Section 3.6.2, the Lanai landfill is projected to have capacity to support the region for 11 years (through 2029).

Potential water quality impacts would be addressed through compliance with the construction activity requirements specified in the Stormwater Pollution Prevention Plan (SWPPP) required by the DOH National Pollution Discharge Elimination System (NPDES) Construction General Permit. A NPDES Construction General Permit that regulates stormwater discharges associated with construction activities that disturb more than 1-acre of land would be required. Stormwater would be managed in accordance with the provisions and requirements of the DOH Construction General Permit for LNY, which requires a project-specific SWPPP for stormwater discharges associated with construction activities. BMPs identified in the project-specific SWPPP would ensure that construction of the Proposed Action would not affect stormwater. The construction contractor would also be required to conform to the Airport-wide SWPPP measures. These procedures are subject to review and approval by the DOH and County of Maui.<sup>8</sup> Therefore, construction of the Proposed Action would not adversely affect human health or the environment as the result of pollution.

Operation of the Airport under the Proposed Action would involve the same types and quantities of hazardous substances as under existing operations. Activities on the airfield (e.g., operation of aircraft and ground vehicles, stormwater collection) would be the same under the Proposed Action and No Action alternatives. Under the Proposed Action, as under the No Action alternative, the activities on the airfield (e.g., aircraft and ground vehicle movements, stormwater collection) would generate minimal solid waste. The Proposed Action would not produce an appreciably different quantity or type of hazardous substance or solid waste compared with the No Action alternative, nor would the quantity produced exceed local capacity. No significant hazardous or solid waste impact would result under the Proposed Action when compared to the No Action alternative.

Implementation of the Proposed Action would result in an increase in impervious surfaces on the airfield by 1.3 acres, which would result in an increase in stormwater runoff from the Proposed Action Area. Under the Proposed Action, the Airport would continue to utilize the existing stormwater conveyance system and existing pollution control measures as well as the proposed vegetated swale, to prevent pollutants in stormwater discharge. BMPs identified in the SWPPP for industrial activities would be

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<sup>7</sup> U.S. Department of Transportation, Federal Aviation Administration, *Advisory Circular 150/5320-6F, Airport Pavement Design and Evaluation*, November 10, 2016.

<sup>8</sup> Hawaii Department of Health, Clean Water Branch, *Standard NPDES Permit Conditions*, <http://health.Hawaii.gov/cwb/clean-water-branch-home-page/standard-npdes-permit-conditions/> (accessed August 24, 2018).

utilized in order to prevent pollutants in stormwater discharge. Therefore, no significant impacts related to hazardous materials, solid waste, and pollution would occur as a result of the Proposed Action.

#### **4.6 HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES**

##### **4.6.1 Methodology and Significance Thresholds**

The FAA has not established a significance threshold for historical, architectural, archeological, and cultural resources. However, a factor to consider in determining significance threshold is a finding of adverse effect through the Section 106 process in accordance with Section 106 of the National Historic Preservation implementing regulations, 36 C.F.R. part 800.<sup>9</sup> Based on the surveys and literature review discussed in Section 3.7.2, no historic, architectural, archaeological, or cultural resources are present within the APE. FAA reviewed this information, consulted with the State Historic Preservation Officer, and made a finding in compliance with Section 106 of the National Historic Preservation Act.

##### **4.6.2 Comparison of the No Action and Proposed Action Alternatives**

###### **NO ACTION**

Under the No Action alternative, no construction activities would occur and current land uses would be maintained. The No Action alternative would not affect any historic, archeological, architectural, or cultural resources because no resources are known to be present in the APE.

###### **PROPOSED ACTION**

As part of FAA efforts to identify historic properties and cultural resources, the FAA consulted with 29 NHOs regarding the proposed project. The Lanai Cultural & Heritage Center responded with no objections, and the remaining 28 organizations did not respond (see Appendix A).

As discussed in Section 3.7.2, the 2016 AAS did not identify evidence of archeological artifacts, buried layers of cultural significance, human remains, or potential archaeological sites within the Direct APE. Therefore, archeological resources would not be affected by the Proposed Action.<sup>10</sup>

The April 2018 Reconnaissance Level Architectural Survey concludes that no structures in the APE were eligible for inclusion in the Hawaii State Register of Historic Places or the NRHP, as discussed in Section 3.7.2. Based on these surveys and no NRHP-eligible or listed properties located within the APE, the FAA made a finding of “no historic properties affected” for the Proposed Action, per 36 C.F.R. § 800.4(d)(1). The SHPD concurred with FAA’s finding on August 30, 2018 (see Appendix A for Section 106 correspondence).

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<sup>9</sup> Title 36 Code of Federal Regulations (C.F.R.) Part 800, *Protection of Historic Properties*, incorporating amendments, effective July 1, 2012.

<sup>10</sup> T.S. Dye & Colleagues, Archeologists, Inc. *Archeological Assessment Survey for the Proposed Lānaʻi Airport Expansion Project. Lands of Kamoku and Kalulu, Lāhaina District, Lānaʻi Island, TMK: (2) 4-9-002:041 por.*, May 2, 2017.

In the event of unanticipated discovery, the FAA and SHPD would be notified and all ground-disturbing activities would be temporarily suspended until the find could be evaluated in accordance with applicable federal, state, and local requirements.

#### **4.7 NATURAL RESOURCES AND ENERGY SUPPLY**

##### **4.7.1 *Methodology and Significance Thresholds***

The FAA has not established a significance threshold for natural resources (e.g., water, oil, and coal) and energy supply (e.g., electricity and natural gas). However, a factor to consider in evaluating potential significant impacts includes whether an action would have the potential to cause demand to exceed available or future supplies of these resources.

##### **4.7.2 *Comparison of the No Action and Proposed Action Alternatives***

###### **NO ACTION**

The No Action alternative would require the use of electricity for airfield lighting and signage and operation of terminal activities, as well as fuel for aircraft and ground vehicle activities. Consumable natural resources and energy use would be similar to existing conditions and would not appreciably change under the No Action alternative. Thus, the demand for consumable natural resources and energy under the No Action alternative would not result in demand exceeding available supply.

###### **PROPOSED ACTION**

Construction of the Proposed Action would require use of commonly available consumable natural resources either available in the Lanai City area or that could be shipped to the island. Fossil fuels would also be consumed by construction equipment and vehicles, and electricity would be used for construction lighting and machinery. Construction activities for the Proposed Action would be carried out consistent with up-to-date industry standards and all applicable federal, state, and local regulations. Increased utility demands associated with construction of the Proposed Action are anticipated to be within the capacity of the respective utility systems. Therefore, the temporary increase in demand for consumable natural resources and energy from construction activities would not result in demand exceeding available supply.

Under the Proposed Action, operation of the Airport would be similar to the No Action alternative and would not significantly affect demand for consumable natural resources or energy. Airfield lighting electricity use would increase slightly to support lighting associated with the runway extension; however, this use would not result in a significant increase that would cause electricity demand to exceed available supply. Additionally, the Proposed Action would not result in any changes to the number or type of aircraft operating at LNY as compared to the No Action alternative, and an appreciable change in fuel use would not occur. The Proposed Action would include additional lighting to accommodate the 500-foot increase in runway length, however the additional lighting would not result in an appreciable increase in energy use. Therefore, the Proposed Action would not result in significant resources or energy consumption or result in demand exceeding available supplies of these resources.

#### 4.8 NOISE AND NOISE-COMPATIBLE LAND USE

##### 4.8.1 *Methodology and Significance Thresholds*

Detailed information regarding noise methodologies and assumptions are provided in Appendix B. In accordance with FAA Order 1050.1F, a proposed action would be considered to have a significant impact with regard to aviation noise, when compared to the no action alternative for the same timeframe, if it would:

- Cause noise-sensitive areas exposed to noise at or above the DNL 65 dB noise exposure level to experience a noise increase of at least DNL 1.5 dB, or
- Cause an increase of DNL 1.5 dB that introduces new noise-sensitive areas to exposure levels of DNL 65 dB or more.

FAA has not established a significance threshold for construction noise.

##### 4.8.2 *Comparison of the No Action and Proposed Action Alternatives*

###### **NO ACTION**

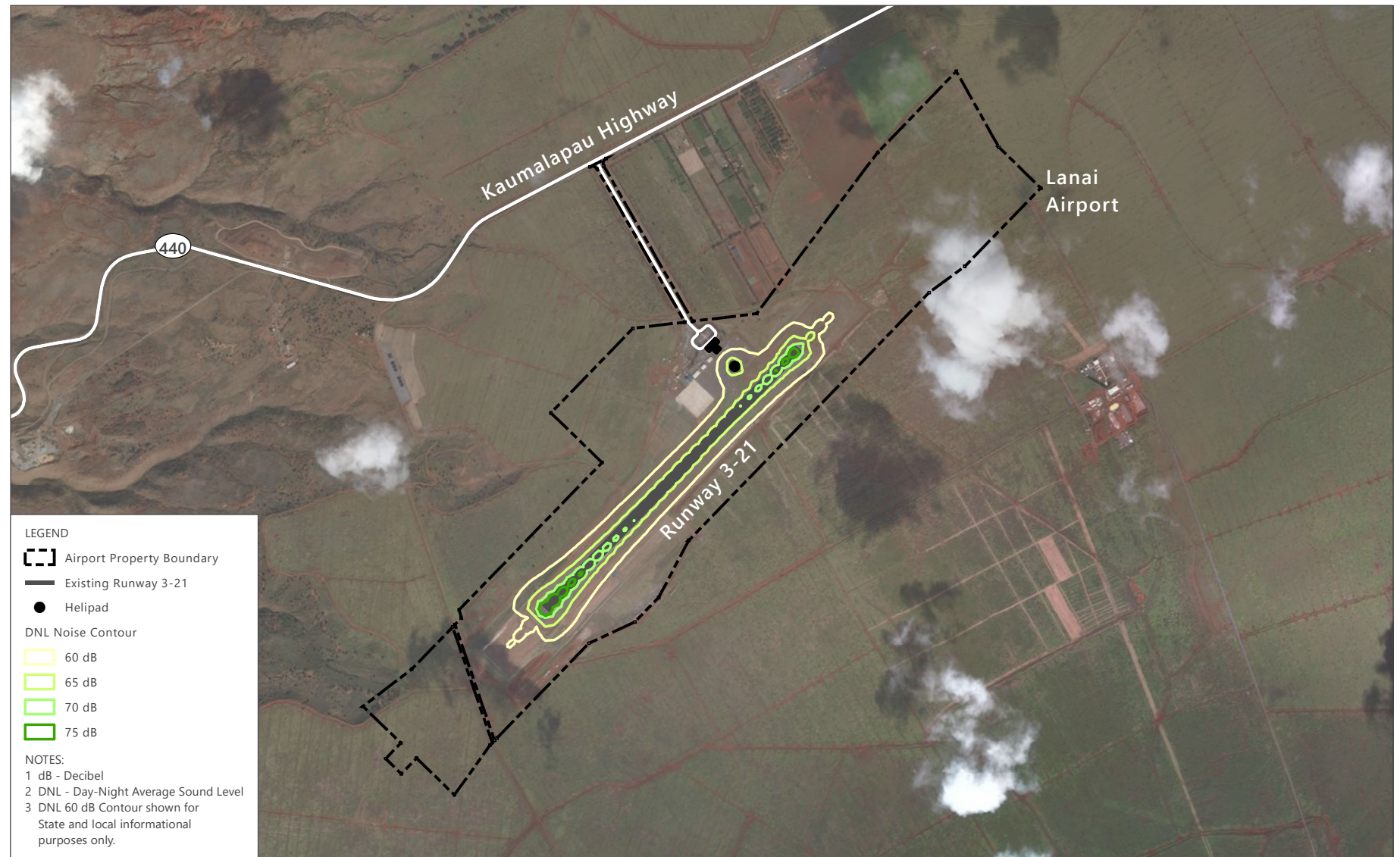
Under the No Action alternative, none of the proposed airfield changes would be constructed. The No Action alternative would result in no construction activities and would not affect (increase or decrease) the number of aircraft operations at LNY or the routing of aircraft in the air to and from LNY. The 2020 and 2025 No Action alternative DNL 65 dB noise contours are shown on **Figures 4-1** and **4-2**, respectively. The No Action alternative 2020 and 2025 DNL 65 dB contours would be confined to the airfield portion of the Airport. No houses, buildings, structures, or sensitive land uses are within the future DNL 65 dB or greater noise contours under the No Action alternative, and, as such, no significant aircraft noise impacts would occur as a result of the No Action alternative.

###### **PROPOSED ACTION**

Construction activities associated with implementation of the Proposed Action could result in the temporary exposure of LNY employees and patrons and surrounding land uses to the generation of ground-borne vibration and construction equipment noise. The Proposed Action Area is located in an active airfield and adjacent to local roadways; thus, construction noise would occur in an area that currently experiences aircraft and roadway noise, as described in Appendix B. The closest sensitive noise receptors are residences in Lanai City, located approximately 2 miles to the northeast. Construction noise levels are estimated to be Leq 47.5 dBA<sup>11</sup> at the nearest sensitive noise receptors. Construction of the Proposed Action would be in compliance with Maui County and State of Hawaii noise policies and would not have any significant noise or compatible land use impacts.

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<sup>11</sup> Leq, or equivalent sound level, is a method of describing sound levels that vary over time. It provides a single decibel value that takes into account the total sound energy over a period of time.



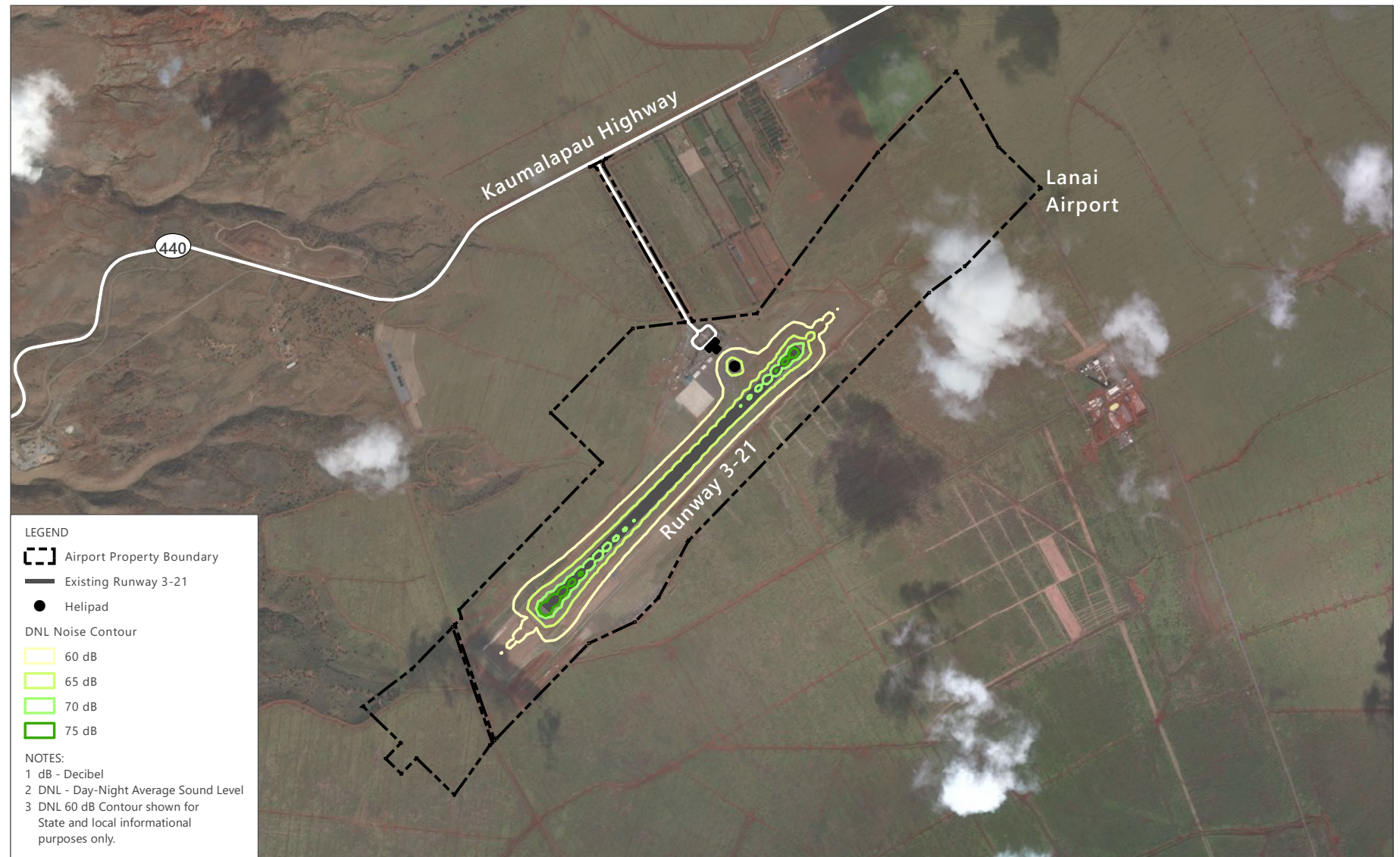
SOURCES: Hawaii, Department of Transportation, *Lanai Airport Layout Plan*, 2014 (airport linework); U.S. Census Bureau, TIGER/Line Shapefiles, 2017 (roads); Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, March 2018 (aerial basemap). Ricondo & Associates, Inc., August 2018 (noise contours).

FIGURE 4-1



2020 NO ACTION NOISE EXPOSURE CONTOUR





SOURCES: Hawaii, Department of Transportation, Lanai Airport Layout Plan, 2014 (airport linework); U.S. Census Bureau, TIGER/Line Shapefiles, 2017 (roads); Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, March 2018 (aerial basemap). Ricondo & Associates, Inc., August 2018 (noise contours).

FIGURE 4-2



2025 NO ACTION NOISE EXPOSURE CONTOUR

The number of aircraft operations under the Proposed Action would be the same as the No Action alternative. Operation of the Proposed Action would result in a slight change in landing and departure points on the runway and taxi routes with the proposed runway extension. Aircraft operational assumptions are documented in Appendix B. **Figures 4-3** and **4-4** illustrate that the 2020 and 2025 Proposed Action would result in minor changes in noise exposure, as compared with the 2020 and 2025 No Action alternative, respectively. The minor changes in noise exposure in both 2020 and 2025 would be contained entirely on Airport property. No residential areas or other sensitive land uses would experience an increase of DNL 1.5 dB within the DNL 65 dB noise contour, as compared with the No Action alternative. The Proposed Action would also not introduce new noise sensitive areas to DNL 65 dB noise levels due to a DNL 1.5 dB increase in aircraft noise. Therefore, the Proposed Action would not result in a significant noise impact.

#### 4.9 CUMULATIVE IMPACTS

The evaluation of cumulative impacts resulting from projects that are proposed, under construction, recently completed, or planned for implementation in the near future was considered. For purposes of this EA, cumulative projects are those implemented within the last 5 years, currently ongoing or under construction, or reasonably foreseeable within the next 5 years. The Past, Present, and Reasonably Foreseeable Future Actions evaluated for the EA are listed in **Table 4-2**.

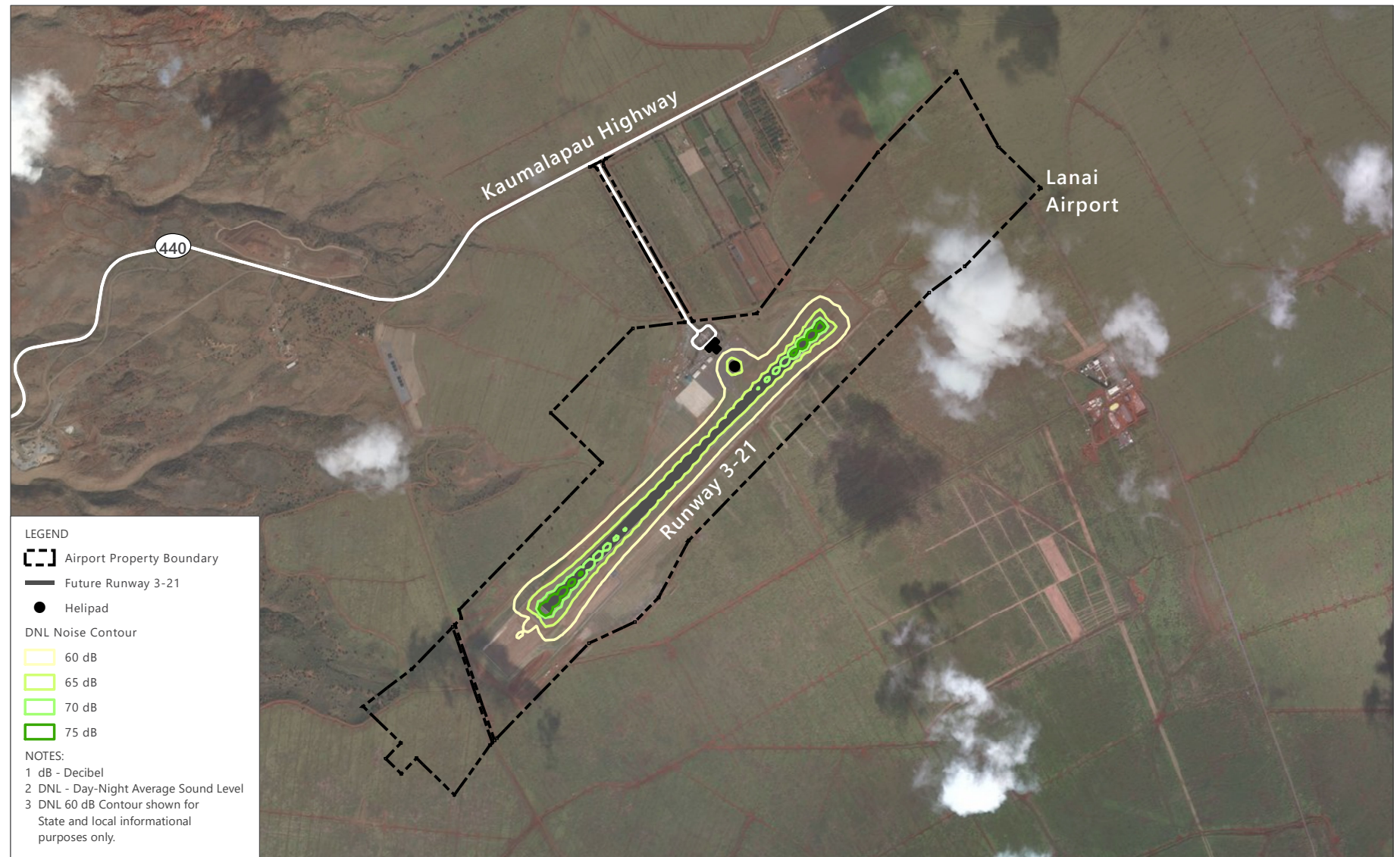
TABLE 4-2 PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS

Project Title	Description	Status
<b>Past Actions</b>		
Runway Safety Area Improvement Project	Excavation and grading to construct a runway safety area at the south end of Runway 3-21 that meets FAA runway design standards.	Completed 2015
<b>Future Actions</b>		
Airport Roadway Resurfacing	Resurface airport entrance roadway asphalt pavement (approximately 2,700 feet by 35 feet).	2018/2019
Airport Short-Term Parking Resurfacing	Resurface short-term parking asphalt pavement.	2019
Runway Resurfacing	Resurface 5,001-foot by 150-foot runway asphalt pavement.	Scheduled February 2019

SOURCE: R.M. Towill Corporation, *Final Environmental Assessment, Hawai'i Revised Statutes (HRS), Chapter 343, Lāna'i Airport Runway Safety Area Improvement Project (State Project No. AM-4022-15)*, July 2013.

Significant cumulative impacts are determined according to the same thresholds of significance used in the evaluation of each environmental resource category. As disclosed in this EA, the Proposed Action would not have significant impacts on the environment and would have effects on the environment similar to those that already exist. It is assumed reasonably foreseeable future projects would comply with all local, state, and federal standards. **Table 4-3** provides the potential cumulative impacts of the Proposed Action.





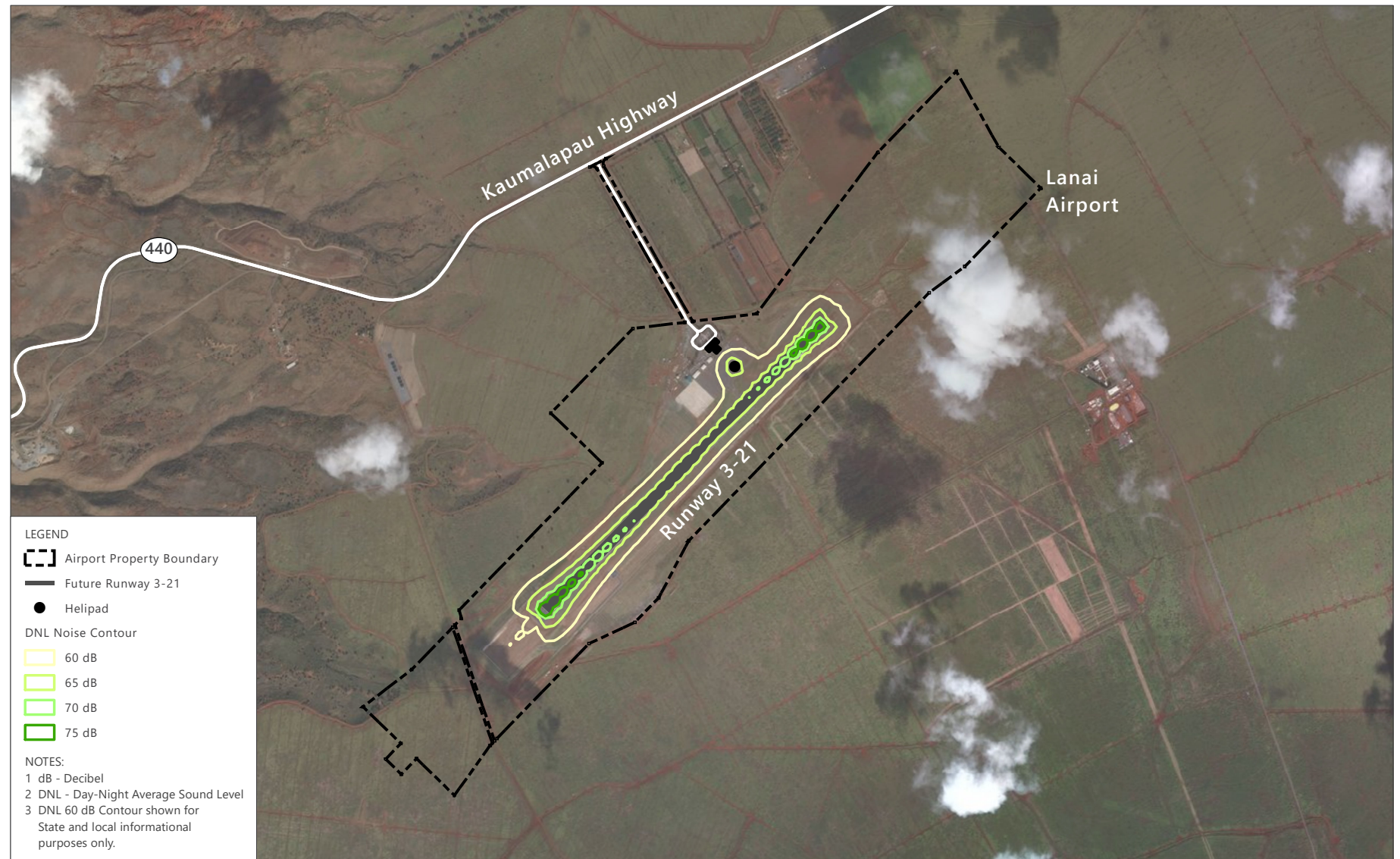
SOURCES: Hawaii, Department of Transportation, *Lanai Airport Layout Plan*, 2014 (airport linework); U.S. Census Bureau, TIGER/Line Shapefiles, 2017 (roads); Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, March 2018 (aerial basemap). Ricondo & Associates, Inc., August 2018 (noise contours).

FIGURE 4-3



2020 PROPOSED ACTION NOISE EXPOSURE CONTOUR





SOURCES: Hawaii, Department of Transportation, *Lanai Airport Layout Plan*, 2014 (airport linework); U.S. Census Bureau, TIGER/Line Shapefiles, 2017 (roads); Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, March 2018 (aerial basemap). Ricondo & Associates, Inc., August 2018 (noise contours).

FIGURE 4-4



2025 PROPOSED ACTION NOISE EXPOSURE CONTOUR

**TABLE 4-3 CUMULATIVE IMPACTS**

<b>RESOURCE CATEGORY</b>	<b>CUMULATIVE EFFECTS</b>
Air Quality	Construction of the Proposed Action would cause a temporary increase in emissions. The results of the air quality analysis completed for this EA show that implementation of the Proposed Action as compared to the No Action alternative would result in negligible and insignificant increases in air emissions during construction. Therefore, the emissions defined for the Proposed Action, when combined with the present and future projects would not have the potential to change the current status of the air quality in Maui County and would not result in significant cumulative impacts.
Biological Resources	The FWS recommendations for avoiding effects to federally listed species during construction of the Proposed Action are incorporated into the Proposed Action. Therefore, construction of the Proposed Action would not significantly affect biological resources. Past projects have included similar FWS recommendations to avoid effects to listed species. These recommendations would be incorporated into future projects and therefore cumulative projects would not significantly affect biological resources.
Climate	The potential increase in GHG emissions due to construction activities would be temporary. The cumulative impact of this Proposed Action on the global climate when added to the other past, present, and reasonably foreseeable future actions is not currently scientifically predictable; however, it would represent an extremely small percentage of U.S. and global GHG emissions.
Hazardous Materials, Solid Waste, and Pollution Prevention	The potential increase in hazardous materials and solid waste are not significant when compared to the No Action alternative. Therefore, combining the impacts of the past, present, or reasonably foreseeable projects with those of the Proposed Action would not result in additional impacts from hazardous materials or solid waste. Compliance with applicable federal, state, and local regulations and permits would reduce the potential for pollution; therefore, there would no cumulative impact on pollution prevention.
Historical, Architectural, Archaeological, and Cultural Resources	The Proposed Action would not impact historical, architectural, archaeological, and cultural resources. Past, present, and reasonably foreseeable future projects would be limited to previously disturbed areas of LNY, and no known historical, architectural, archaeological, or cultural resources are known to exist in the project Study Area. Therefore, combining the Proposed Action to the past, present, or reasonably foreseeable projects would not result in any additional impacts to these resources.
Natural Resources and Energy Supply	The assessment of natural resources and energy supply for the Proposed Action in this EA concluded that, while there would be relatively small increases in the need for building materials such as paving materials, soil, sand, gravel, or other materials, the necessary resources are not in low supply. Other projects may have the potential to increase demand for energy and consumption of natural resources. It is not anticipated that the cumulative demand for energy or natural resources would exceed capacity of the local energy suppliers or deplete the supply of natural resources.
Noise and Noise-Compatible Land Use	The difference in aircraft noise exposure as a result of the Proposed Action would be negligible compared with the No Action alternative. The DNL 65 dB contour for the Proposed Action would be contained entirely on LNY property and would not adversely affect any sensitive land uses. Construction of the Proposed Action would result in a temporary increase in noise. As discussed in the construction noise analysis for this EA, the nearest sensitive land uses are 2 miles away from construction activities associated with the Proposed Action; construction noise would be less than significant at sensitive noise receptors. The cumulative projects would also be constructed 2 miles away from sensitive land uses. Thus, cumulative noise from these projects and the Proposed Action would be less than significant.

**NOTES:**

EA – Environmental Assessment

DNL – Day-Night Average Sound Level

dB – Decibel

GHG – Greenhouse Gases

FWS – U.S. Fish and Wildlife Service

LNY – Lanai Airport

SOURCES: Ricondo & Associates, Inc., 2018; R.M. Towill Corporation, *Final Environmental Assessment, Hawai'i Revised Statutes (HRS), Chapter 343, Lāna'i Airport Runway Safety Area Improvement Project (State Project No. AM-4022-15)*, July 2013; Pulama Lanai, 2018.



## Section 5: Agency and Public Involvement

This chapter discusses outreach to various federal, state, and local agencies and the public conducted to obtain input on the Proposed Action and its alternatives, and the potential effects each would have on the environment.

### 5.1 AGENCY COORDINATION

**Table 5-1** lists the agencies and NHOs were contacted during scoping and coordinated and/or consulted with for preparation of the EA (see Appendix A).

TABLE 5-1 AGENCIES AND ORGANIZATIONS CONTACTED DURING SCOPING

Agency/Organization Name
<b>Federal Agencies</b>
Department of Agriculture, Natural Resources Conservation Service
Department of the Army, Honolulu District, United States Army Corps of Engineers
Department of the Interior, U.S. Fish & Wildlife Service, Pacific Island Fish and Wildlife Office
<b>State of Hawaii Agencies</b>
Civil Defense Agency
Department of Agriculture
Department of Health, Maui Division
Department of Health, Clean Water Branch
Department of Health, Environmental Management Division
Department of Land and Natural Resources
Department of Land and Natural Resources, State Historic Preservation Division
Office of Environmental Quality Control
Office of Hawaiian Affairs
Office of Planning
State Representative Lynn DeCoite
State Senator J. Kalani English
<b>County of Maui Agencies</b>
Civil Defense Agency
Department of Fire and Public Safety (DF&PS)
Department of Parks and Recreation (DPR)
Department of Planning
Department of Police (MPD)
Department of Public Works (DPW)
Department of Environmental Management (DEM)
Department of Transportation (MDOT)
Department of Water Supply (DWS)
Maui County Councilmember G. Riki Hokama
Office of the Mayor
<b>Local Organizations</b>
Maui Electric Company
Hawaiian Telecon
<b>Native Hawaiian Organizations</b>
29 Native Hawaiian Organizations (see Appendix A)

SOURCE: Pulama Lanai, October 2018.

## 5.2 PUBLIC INVOLVEMENT

During the planning process, the proposed runway extension was publicly discussed at eight Lanai Community Plan Advisory Council meetings, five Lanai Planning Commission meetings, and three Maui County Council meetings as part of an update to the Lanai Community Plan. Information concerning the project was also distributed at a public meeting on January 7, 2016. The only concern expressed during these meetings, and it was only at one meeting, was one of concern as to the runway extending toward Lanai City.

## 5.3 REVIEW OF THE DRAFT EA

The Draft EA has been made available for a 30-day public review and comment starting on December 24, 2018. The Notice of Availability (NOA) was published on December 24, 2018 in the *Maui News*, a newspaper with general circulation in the County of Maui, which includes the Island of Lanai. A copy of the Draft EA will be available for public review online at <http://airports.hawaii.gov/lny/airport-info/runway321ext/dea> and at the following locations during normal business hours through **January 25, 2019**:

- Lanai Airport Administrative Office, 1 Airport Road, Lanai City, Hawaii
- Lanai Public Library, 555 Fraser Avenue, Lanai City, Hawaii
- Kahului Library, 90 School Street, Kahului, Hawaii
- Hawaii Department of Transportation, Airports Division, 400 Rodgers Boulevard, Suite 700, Honolulu, Hawaii 96819
- Federal Aviation Administration, Honolulu Airports District Office, 300 Ala Moana Blvd. Rm 71-128, Honolulu, Hawaii 96850

Written comments, which must be received by **5:00 p.m., Friday, January 25, 2018**, may be submitted to:

Airports Division, Hawaii Department of Transportation  
Attention: Airports Planning  
400 Rodgers Boulevard, Suite 700  
Honolulu, Hawaii 96819  
Fax: 808/838-8751  
E-mail: [dot.air.planning@hawaii.gov](mailto:dot.air.planning@hawaii.gov)

All comments related to the Draft EA will be considered by the FAA and HDOT-A in preparing the Final EA. Based on the Final EA, the FAA will decide whether to issue a FONSI or to prepare an Environmental Impact Statement.



## Section 6: List of Preparers

This document was prepared under the direction of the HDOT-A, with oversight by the FAA. **Table 6-1** lists the individuals who contributed to the preparation of this EA.

**TABLE 6-1 LIST OF PREPARERS**

<b>Name/Organization</b>	<b>Responsibilities</b>	<b>Professional Expertise/Experience</b>
Dee Phan/FAA Environmental Protection Specialist	FAA Principal Reviewer	12 years of experience in detailed evaluation of NEPA documents, as well as coordination with various federal and state agencies in Arizona, Hawaii, and Nevada for FAA airport projects.
Herman Tuiolosega/Hawaii Department of Transportation-Airports Division	Review and Coordination	Senior Planner at Hawaii Department of Transportation, Airports Division.
Lynette Kawaoka/Hawaii Department of Transportation-Airports Division	Review and Coordination	Planner at Hawaii Department of Transportation, Airports Division.
Karlynn K. Fukuda/Munekiyo Hiraga	Project Management/NEPA Documentation	Over 14 years of experience in environmental planning, with significant experience in environmental assessment preparation and management.
Gwendolyn Rivera/Munekiyo Hiraga	NEPA Documentation/Processing	Over 2 years of experience in environmental planning, preparation and analysis of the NEPA EA. Experience in environmental consequences, mitigation, and project compliance with applicable plans, policies and regulations.
Chad McDonald/ Mitsunaga & Associates, Inc.	Review and Coordination	
Stephen Culberson/Ricondo & Associates, Inc.	Project Management/NEPA Documentation	Over 25 years of experience in airport environmental and planning studies, with significant experience in preparing and managing environmental assessments and environmental impact statements, airport master planning projects, and activity forecasts.
Brian Philiben/Ricondo & Associates, Inc.	NEPA Documentation/Processing	Over seven years of airport environmental and planning studies, with particular expertise in land-use planning.
Allison Sampson/Ricondo & Associates, Inc.	Air Quality Analysis	Over eight years of experience in airport planning and environmental analyses.
Julie Car/Ricondo & Associates, Inc.	Biological Resources Analysis	More than 10 years of experience in aviation and environmental planning, with expertise in protected species, sensitive habitat, wetlands, and wildlife management.
David Plakorus/Ricondo & Associates, Inc.	NEPA Documentation	Over 7 years of experience in environmental and planning studies, with experience in preparing and managing environmental assessments and environmental impact statements, with particular expertise in land-use and socioeconomics.
Delaney Johnston/Ricondo & Associates, Inc.	Biological Resources Analysis	B.S. in Biology and Environmental Studies from University of Wisconsin-Madison.



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## **Appendix A**

### *Agency Correspondence*

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Scoping Agency Contact List	
<b>Federal Agencies</b>	
U.S. Dept of Agriculture, NRCS	
U.S. Dept of the Army, U.S. Army Engineer District, Honolulu	
U.S. Fish & Wildlife Service	
<b>State Agencies</b>	
Dept of Agriculture (DOA)	
Dept of Health (DOH)	
DOH, Clean Water Branch	
DOH, Maui	
DOH, Environmental Management Division	
Dept of Land and Natural Resources (DLNR)	
DLNR, State Historic Preservation Division (SHPD)	
DLNR, SHPD, Maui	
Hawaii State Civil Defense	
Office of Environmental Quality Control (OEQC)	
Office of Hawaiian Affairs (OHA)	
Office of Planning	
State Senator J. Kalani English	
State House of Representatives Lynn DeCoite	
<b>County Agencies</b>	
Office of the Mayor	
Maui Civil Defense Agency	
Dept of Fire and Public Safety (DF&PS)	
Dept of Parks and Recreation (DPR)	
Dept of Planning	
Dept of Police (MPD)	
Dept of Public Works (DPW)	
Dept of Environmental Management (DEM)	
Dept of Transportation (MDOT)	
Dept of Water Supply (DWS)	
Maui County Councilmember G. Riki Hokama	
<b>Other Organizations</b>	
Maui Electric Company	
Hawaiian Telecon	



# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

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

In Reply Refer To:  
01EPIF00-2018-SL-0240  
01EPIF00-2018-I-0282

April 25, 2018

Mr. Gordon K. Wong  
Manager, Honolulu Airports District Office  
Federal Aviation Administration  
300 Ala Moana Boulevard, Room 7-128  
Honolulu, Hawaii 96813

Subject: Informal Consultation for the Lana'i Airport Runway Extension, City of Lana'i, Hawaii'i

Dear Mr. Wong:

The U.S. Fish and Wildlife Service (Service) received your letter on April 18, 2018, requesting our concurrence with your determination that the proposed Lana'i Airport runway extension project may affect, but is not likely to adversely affect the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), Hawaiian petrel (*Pterodroma sandwichensis*), Blackburn's sphinx moth (*Manduca blackburni*), and Hawaiian stilt (*Himantopus mexicanus knudseni*). This response was prepared in accordance with Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C 1531 *et seq.*).

The Federal Aviation Administration's proposed action includes extension of the existing runway by 500 feet (ft), installation of runway lighting, and construction of new fencing and a new access road. The addition of approximately 1,210 ft of perimeter fence will be an 8-ft-tall chain-link with 3-strand barbed wire across the top.

### *Effects to species*

#### Hawaiian hoary bat:

The Hawaiian hoary bat roosts in both exotic and native woody vegetation across all islands and will leave young unattended in trees and shrubs when they forage. If trees or shrubs 15 ft or taller are cleared during the pupping season, there is a risk that young bats could inadvertently be harmed or killed since they are too young to fly or may not move away. Additionally, Hawaiian hoary bats forage for insects from as low as 3 ft to higher than 500 ft above the ground and can become entangled in barbed wire used for fencing.

To avoid and minimize impacts to the endangered Hawaiian hoary bat you have agreed that no woody plants greater than 15 ft-tall will be disturbed, removed or trimmed during the bat birthing and pup rearing season (June 1 through September 15).

To evaluate the potential for adverse effects to Hawaiian hoary bats from the use of barbed wire, the Service uses a formula derived from the data gathered from known bat fatalities on barbed wire fencing. While this formula is based on a limited data set, it is used as an indication of the risk of taking a Hawaiian hoary bat by the use of barbed wire for the proposed project. The risk assessment is calculated using the following formula:

$$l \times s \times 0.013 \times e = r$$

Where  $l$  is the length of fence in miles,  $s$  is the number of strands of barbed wire in the fence (above 36 inches off of the ground), 0.013 is a predictive value derived from a limited data set,  $e$  is the expected life of the fence (usually 20 years), and  $r$  is the risk of bat take for the project.

By incorporating your project specific information into the Service's formula to estimate the risk of take from barbed wire fencing, this project's risk was calculated to be under the predetermined risk amount over the life of a project, and therefore considered a discountable effect (extremely unlikely to occur), and would not result in take of the species.

#### Hawaiian petrel:

Hawaiian petrels may traverse the project area at night during the breeding, nesting and fledging seasons (March 1 to December 15). Outdoor lighting could result in seabird disorientation, fallout, and injury or mortality. Seabirds are attracted to lights and after circling the lights they may become exhausted and collide with nearby wires, buildings, or other structures or they may land on the ground. Downed seabirds are subject to increased mortality due to collision with automobiles, starvation, and predation by dogs, cats, and other predators. Young birds (fledglings) traversing the project area between September 15 and December 15, in their first flights from their mountain nests to the sea, are particularly vulnerable.

The proposed runway lighting will not attract seabirds and no other outdoor lights are part of the project. In order to further avoid and minimize potential project impacts to seabirds you have agreed to incorporate the following applicable measure(s) into your project description:

- No nighttime construction will occur during the fledging season (September 15 through December 15).

#### Blackburn's sphinx moth:

There are currently no known Blackburn's sphinx moths or larval host plants, the non-native tree tobacco (*Nicotiana glauca*), in the vicinity of the proposed project area. However, the project includes earth moving and there is a chance that seeds of tree tobacco could be brought in with contaminated fill. If tree tobacco becomes established, it can quickly draw Blackburn's sphinx moths to the site.

In order to avoid and minimize potential impacts to the Blackburn's sphinx moth, you will require all fill to be free of tree tobacco or any other noxious weed species.

Hawaiian stilt:

Hawaiian stilts are found in fresh and brackish-water marshes and natural or man-made ponds. Hawaiian stilts may also be found wherever ephemeral or persistent standing water may occur. In particular, the Hawaiian stilt is known to nest in sub-optimal locations (e.g. any ponding water), if water is present. Stilts attracted to sub-optimal habitat may suffer adverse impacts, such as predation and reduced reproductive success, and thus the project may create an attractive nuisance.

The proposed project will not include any temporary or permanent detention basins, and it is not expected that any areas will collect water after construction is complete. Therefore, any impacts to stilts are expected to be insignificant or discountable.

*Conclusion*

Based on the inclusion of the above avoidance and minimization measures as part of your project description, the Service concurs with your determination that this project may affect, but is not likely to adversely affect, Hawaiian hoary bat, Hawaiian petrel, Blackburn's sphinx moth, or Hawaiian stilt. Unless the project description changes, or new information reveals that the proposed project may affect listed species in a manner or to an extent not considered, or a new species is listed or critical habitat designated that may be affected by the proposed action, no further action pursuant to section 7 of the ESA is necessary.

Thank you for your efforts to conserve listed species and native habitats. Please contact Endangered Species Biologist Jodi Charrier (jodi\_charrier@fws.gov or (808)792-9400) if you have any questions or for further guidance.

Sincerely,

**JODI  
CHARRIER**

Digitally signed  
by JODI CHARRIER  
Date: 2018.04.25  
08:59:51 -10'00'

Jodi Charrier  
Acting Island Team Leader  
Maui Nui and Hawaii Island



U.S Department  
of Transportation  
**Federal Aviation  
Administration**

Western-Pacific Region  
Honolulu Airports District Office

300 Ala Moana Blvd., Rm. 7-128  
Honolulu, HI 96813  
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Honolulu, HI 96850-0001  
T: (808) 312-6028  
F: (808) 312-6048

April 18, 2018

Mary Abrams  
Field Supervisor  
Pacific Islands Fish and Wildlife Service  
300 Ala Moana Boulevard, Room 3-122  
P.O. box 50088  
Honolulu, Hawaii 96850

**SUBJECT: 01EPIF00-2018-SL-0240**

**Request for informal consultation and concurrence pursuant to Section 7 of the  
Endangered Species Act and 50 CFR 40.13 for the Lanai Airport Runway Extension, Lanai  
Airport (LNY), City of Lanai, HI**

Dear Ms. Abrams:

In accordance with Section 7(a)2 of the Endangered Species Act of 197, as amended, the Federal Aviation Administration (FAA) requests concurrence from U.S. Fish and Wildlife Service (Service) on our determination of effect for Federally listed species related to the proposed Lanai Airport (LNY) Runway Extension project. The proposed project includes extension of the existing runway by 500 feet, installation of runway lighting, and construction of new fencing and a new access road (see enclosed exhibits for additional project details).

We reviewed the Service's Species List letter dated on March 6, 2018, which identifies four listed species possibly in the vicinity of the project area that are of concern: the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), Hawaiian petrel (*Pterodroma sandwichensis*), Blackburn's sphinx moth (*Manduca blackburni*), and Hawaiian stilt (*Himantopus mexicanus knudseni*). There is no critical habitat on the project site.

The FAA's determination of effect for each species is as follows:

**Endangered Hawaiian hoary bats (*Lasiurus cinereus semotus*):** The addition of approximately 1,210 feet of perimeter fence associated with the 500-foot runway extension will be similar to existing airport fencing (eight-foot tall chain-link with 3-strand barbed wire across). Based on wildlife strike records (2012-2017), daily runway and airfield inspections including perimeter fence line inspections at LNY, there has been no reported observations or "take" of this species at LNY (see enclosed USDA APHIS memo). The proposed project will not require any removal or trimming of trees or shrubs greater than 15 feet. As a result, the FAA has determined that the project *may affect, but is not likely to adversely affect* the Hawaiian hoary bats.

**Hawaii Petrel (*Pterodroma sandwichensis*):** The Lanai Airport may attracts Hawaiian seabirds during the fledging season due to lighting from existing terminal or buildings. However, based on conversations with Service Biologist Jonathan Sprague and Maui Nui Seabird Recovery Program Biologist Jay Penniman, the proposed runway edge lighting for the 500-foot extension should not pose additional distraction to seabirds including Hawaii Petrel after it is in place. No other outdoor lights are being proposed for this project. Furthermore, there has been no reported “take” on the Hawaii Petrel at LNY based on USDA APHIS strike reports from 2013 through 2017. The following measure will be implemented during the construction phase to avoid and minimize potential impacts to seabirds:

- No nighttime construction will occur during the fledging season (September 15 through December 15).

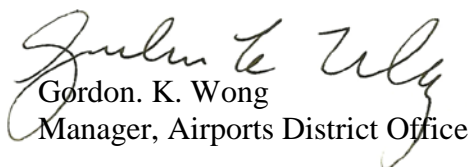
As a result, the FAA has determined that the proposed project *may affect, but is not likely to adversely affect* Hawaiian petrel.

**Hawaiian stilt (*Himantopus mexicanus knudseni*):** The proposed project will not include any temporary or permanent detention basin. To avoid and minimize potential impacts to the Hawaiian stilt, the project will incorporate compost filter socks to control erosion and sediment runoff from all disturbed/graded area. Therefore, the FAA has determined that the project *may affect, but is not likely to adversely affect* the Hawaiian stilt.

**Blackburn’s sphinx moth (*Manduca blackburni*):** To avoid and minimize potential impacts to the Blackburn’s sphinx moth, the project construction contract document will include requirements for fill to be free of tree tobacco or any other noxious weed species. Therefore, the FAA has determined the project *may affect, but is not likely to adversely affect* the Blackburn’s sphinx moth.

The FAA seeks your concurrence with our above determination for the proposed LNY runway extension project. Should you have any questions or require additional information, please contact Ms. Dee Phan, Environmental Protection Specialist, at 602-792-1066 or [dee.phan@faa.gov](mailto:dee.phan@faa.gov).

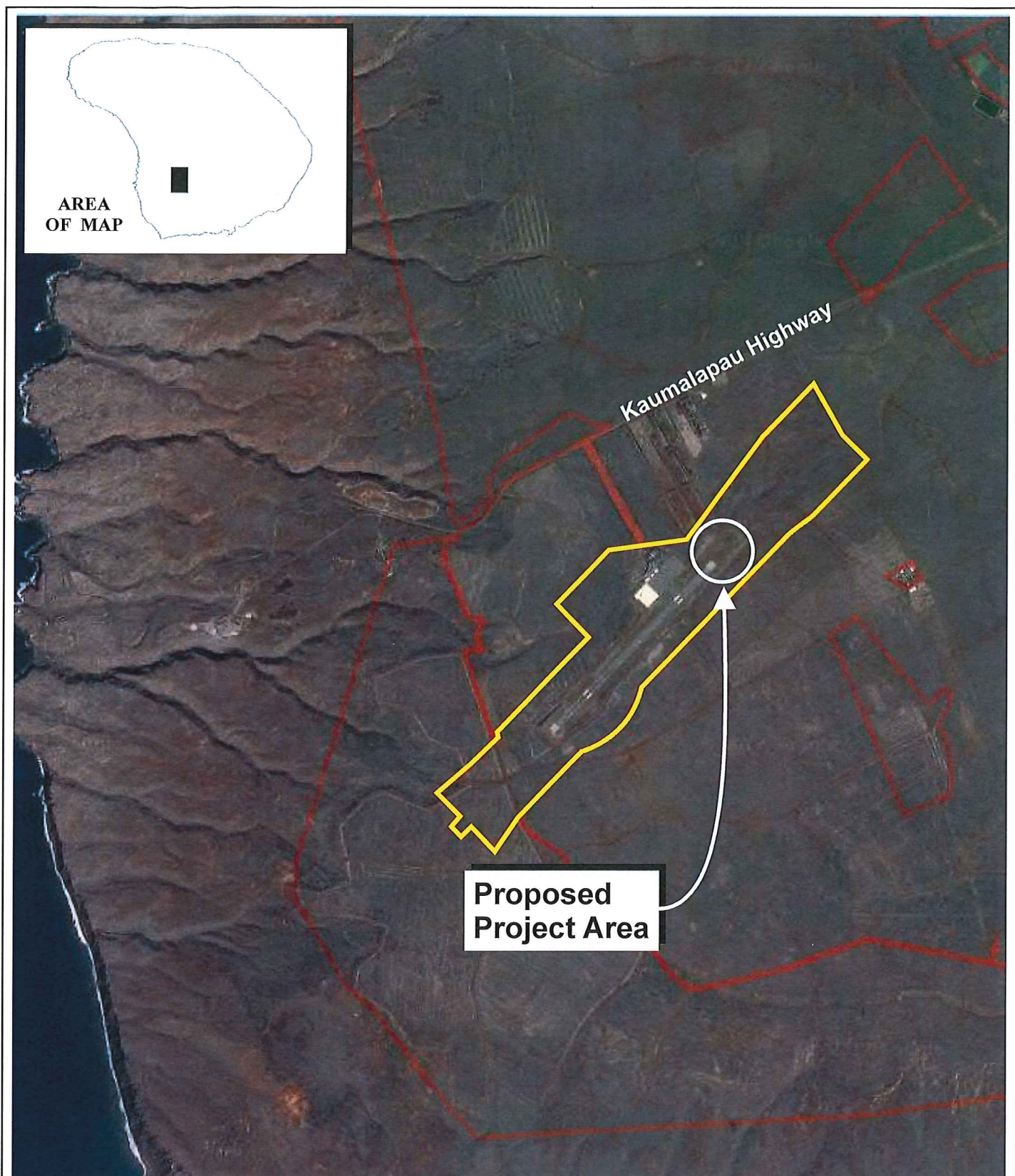
Sincerely,

  
Gordon K. Wong  
Manager, Airports District Office

Enclosures  
Figure 1- Project Location Map  
Project Exhibits  
USDA APHIS Strike Records and Memo

cc: (w/encls.)  
Herman Tuiolosega, HDOTA



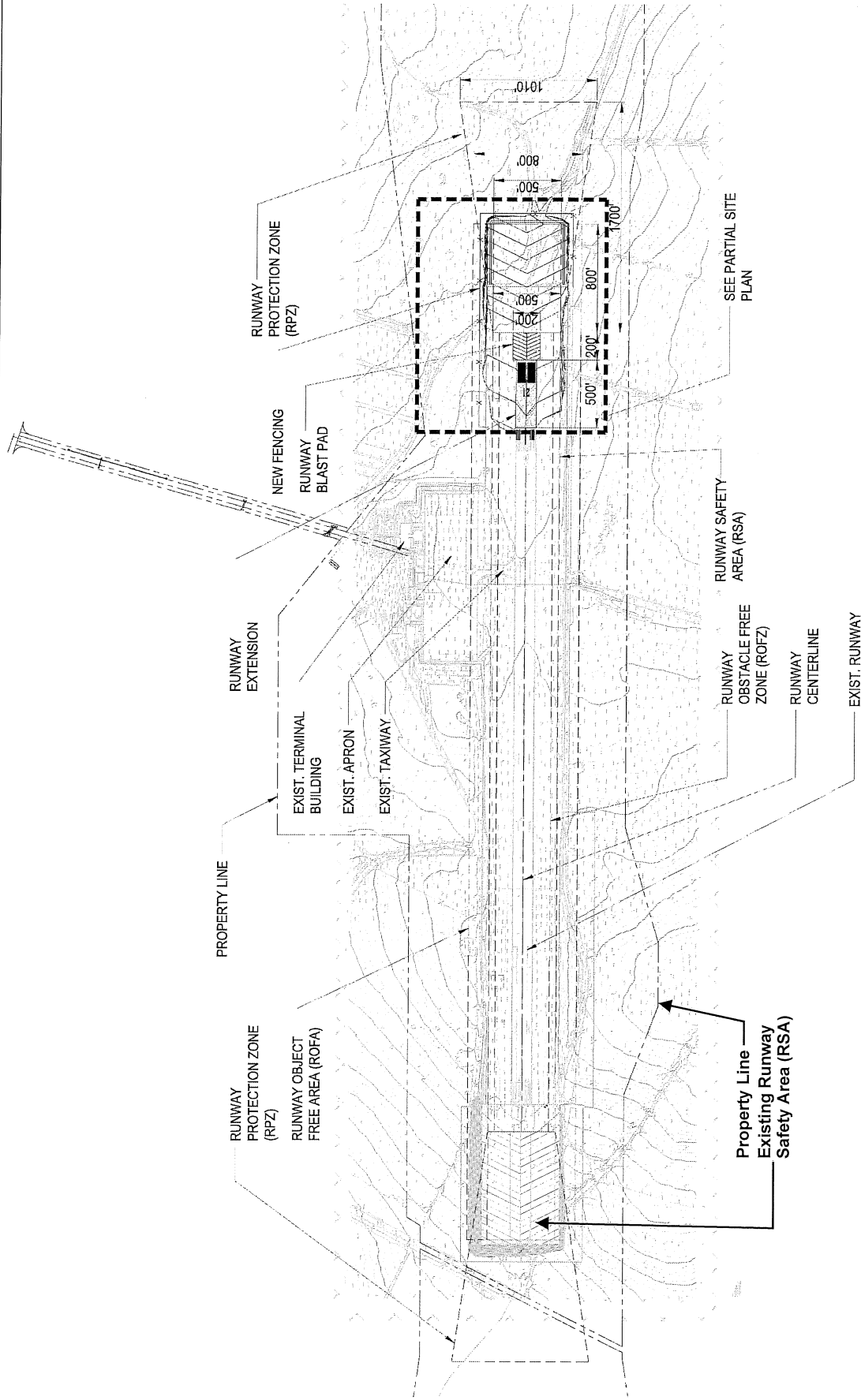


Source: Google Earth and County of Maui

Figure 1 Lānaʻi Airport Runway Extension  
Project Location Map

NOT TO SCALE





Source: Mitsunaga & Associates, Inc.

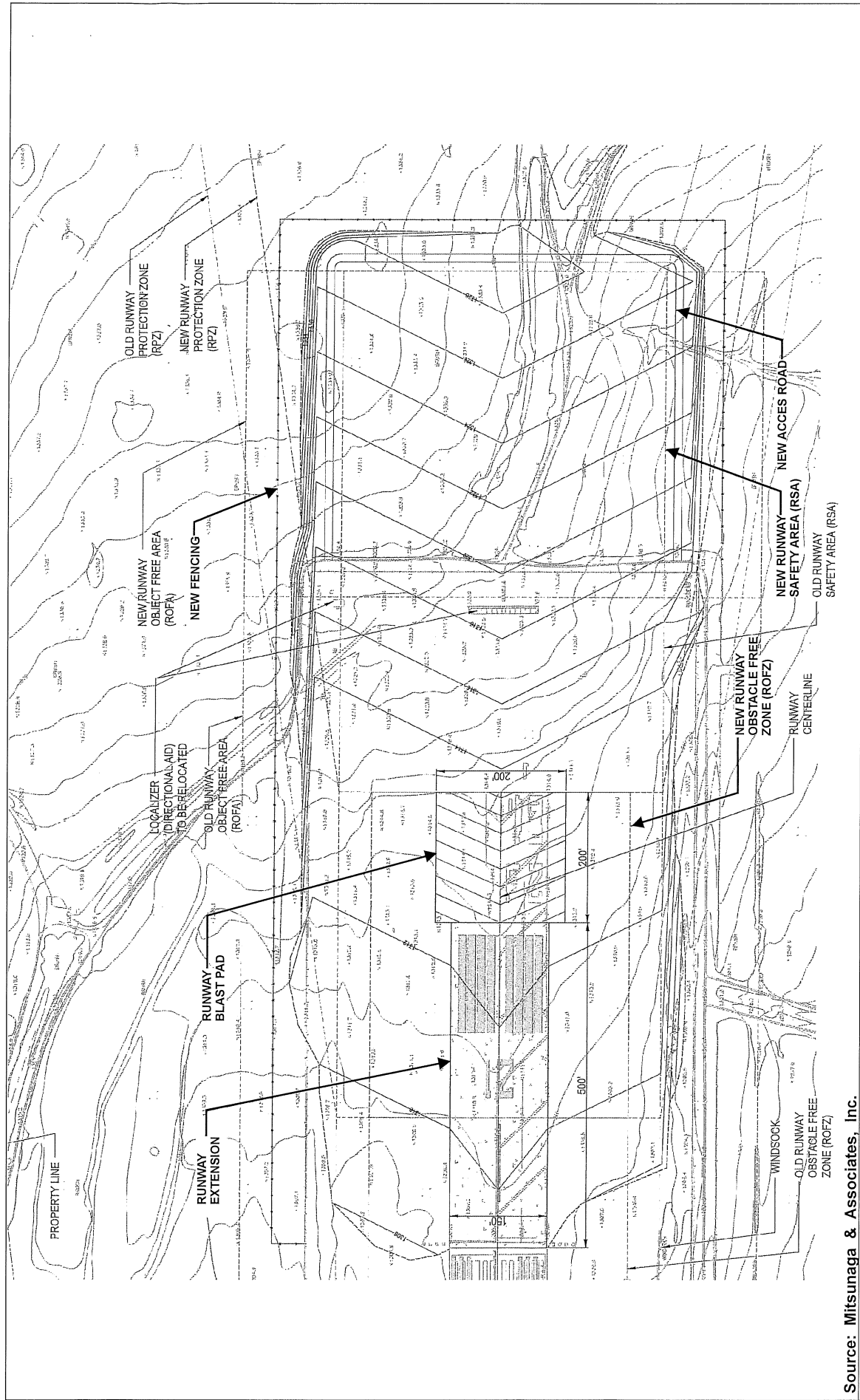
# Exhibit 1



## Lana'i Airport Runway Extension Overall Site Plan

NOT TO SCALE





Source: Mitsunaga & Associates, Inc.

## Exhibit 2



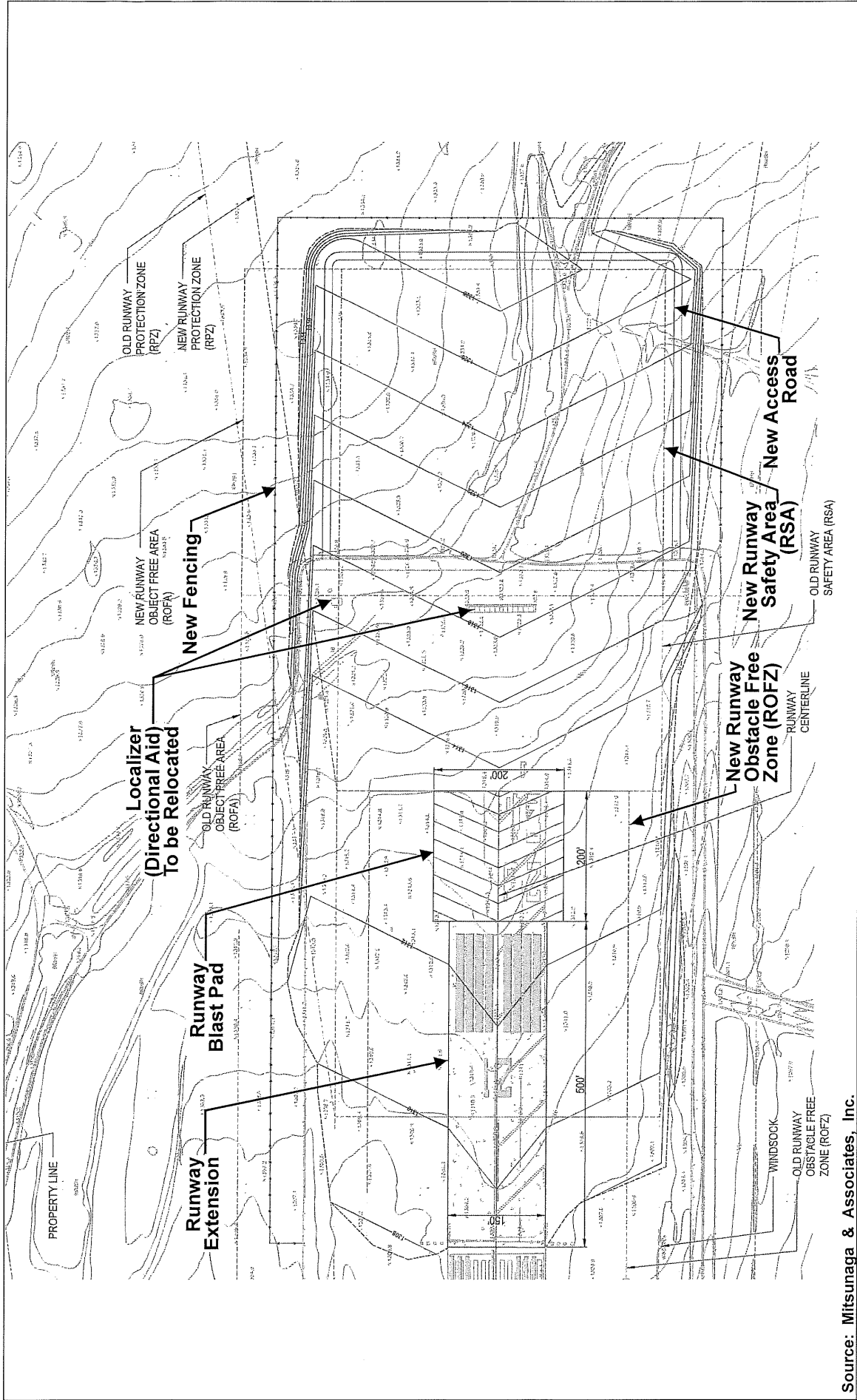
## Lanai Airport Runway Extension Proposed Improvement Plan

NOT TO SCALE



MUNEKIYO HIRAGA

Prepared for: State of Hawai'i, Department of Transportation



Source: Mitsunaga & Associates, Inc.

## Exhibit 3

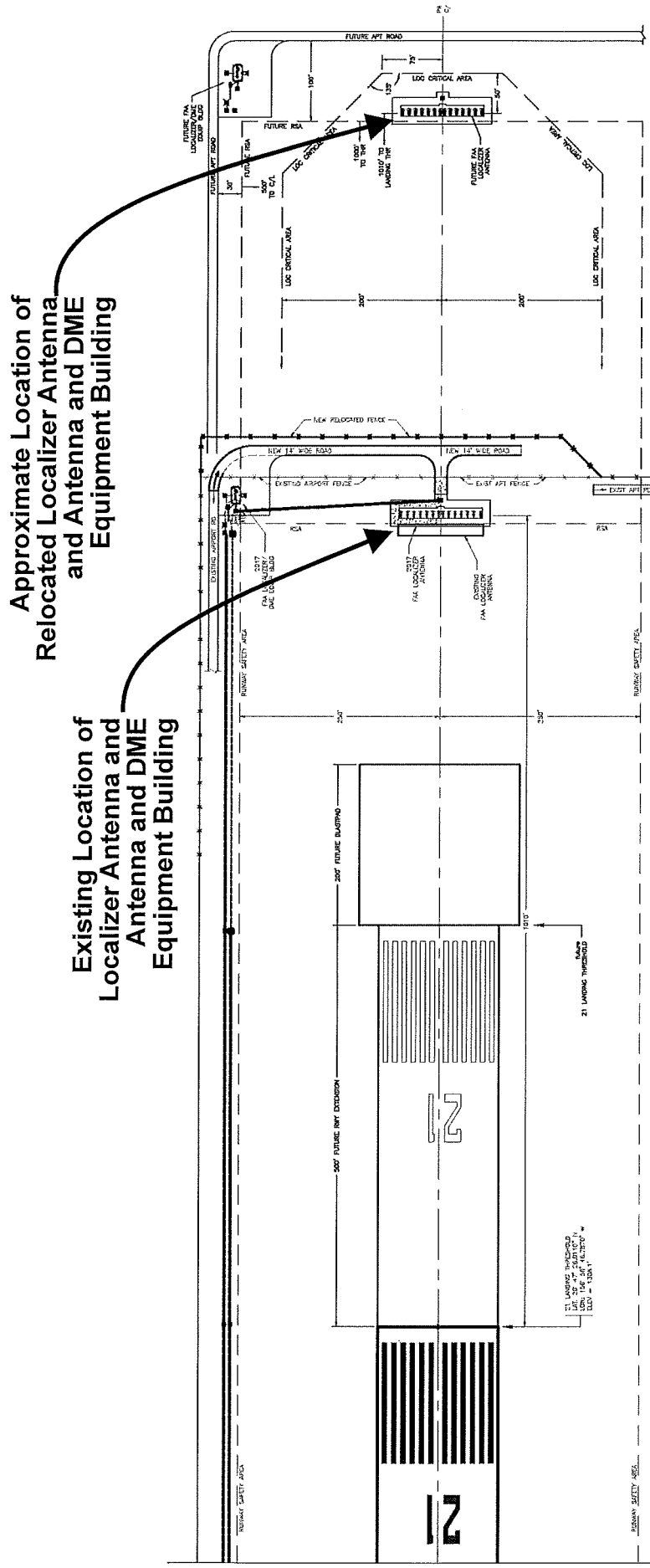


## Lana'i Airport Runway Extension Proposed Action Overview

NOT TO SCALE



Prepared for: State of Hawai'i, Department of Transportation



**Source: Mitsunaga & Associates, Inc.**

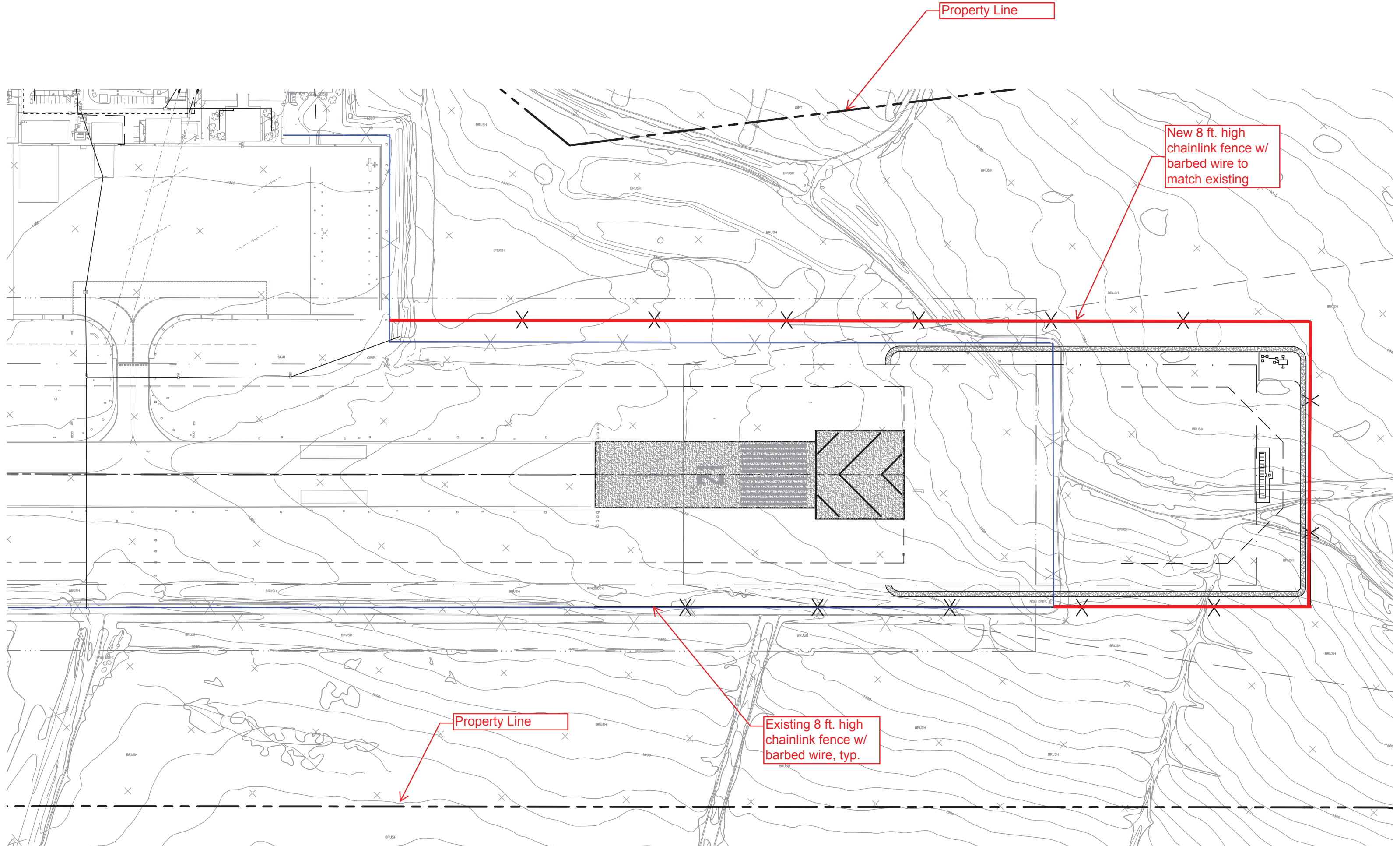
## Exhibit 4



# Lana'i Airport Runway Extension Existing and Proposed Locations of Localizer Antenna and Antenna and DME Equipment Building

**NOT TO SCALE**





Property Line

New 8 ft. high chainlink fence w/ barbed wire to match existing

Property Line

Existing 8 ft. high chainlink fence w/ barbed wire, typ.





Animal and Plant  
Health Inspection  
Service

March 22, 2018

Wildlife Services

Mr. Marvin Moniz, Maui District Airport Manager

1 Kahului Airport Rd. Unit 5

Kahului, HI 96732

3375 Koapaka Street  
Suite H-420  
Honolulu, HI 96819  
Voice 808.838.2840  
Fax 808.838.2860

Marvin Moniz:

Please see below in response to Mr. Gordon K. Wong's, FAA Honolulu ADO Manager, 3/19/18, 1109 hr. email request for LNY Hawaiian hoary bat (*Lasiurus cinereus semotus*) strike data.

A search of the National Wildlife Strike Database (NWSD) as well as our local strike records from January 1, 2012 to January 31, 2017, 5 year period, resulted in no strike reports involving this species. Additionally, as the WS Airport Biologist assigned to the Maui District Airports since 2008 to present; I have not received any reports of Hawaiian hoary bat observations on or around LNY.

WS' frequency of LNY inspections average four (4) daily RWY and airfield inspections, including but not limited to perimeter fence line inspections.

Should you need any further information or have any concerns/questions, please do not hesitate to contact me.

Mahalo,

Trevor D. Lu

Maui District Supervisor

USDA/APHIS/ WILDLIFE SERVICES

1 Kahului Airport Rd. Bld. 109

Kahului, HI 96732

PH.: (808) 877-7191

CL.: (808) 870-7385

Email: trevor.d.lu@aphis.usda.gov

CC:

Larry Miller, Maui District Assistant Airport Superintendent

Kathy Wade, Maui District Assistant Airport Superintendent

Brian Kamimoto, Maui District Assistant Airport Superintendent

Martinez Jacobs, DOTA Division Fire Chief

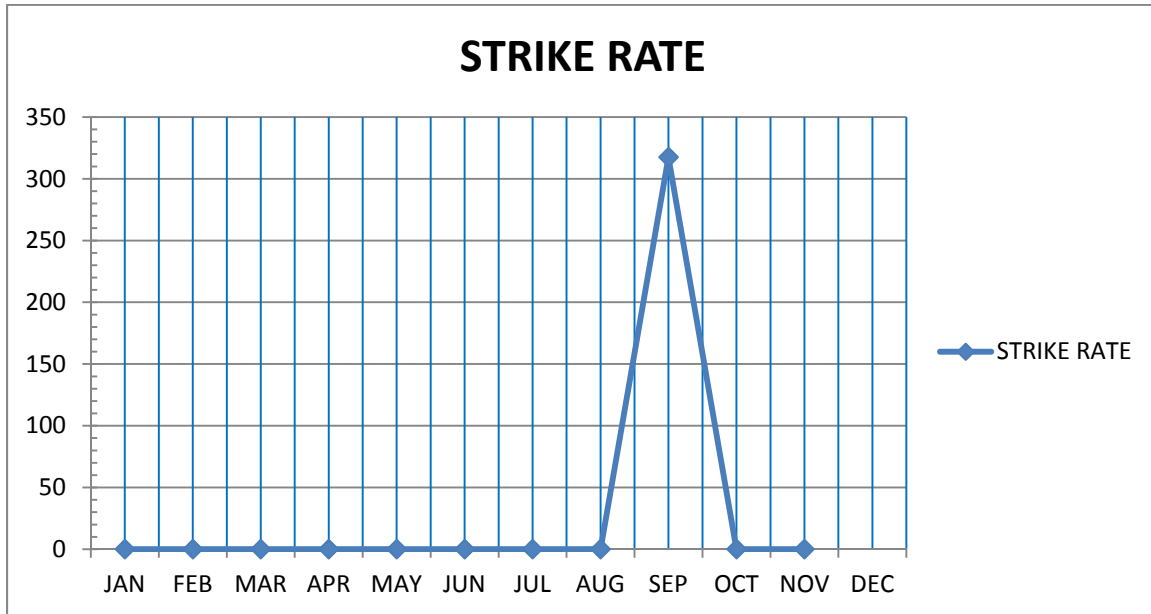
Craig Clark, WS SD HI Pacific Islands

Darrin Phelps, WS ASD, HI Pacific Islands

# Wildlife Services Monthly Activity Report

## LNy November 2017

Figure 1: Strike Rate (Per 100,000 Operations)



Strike rate =  $\frac{\text{Number of strikes in a period} \times 100,000}{\text{Number of air operations (take off and landings) in the same period}}$

Table 1: Airport Operations at LNY, 2017

MONTH 2017	OPERATIONS
JAN	630
FEB	633
MAR	634
APR	*632
MAY	*632
JUNE	*632
JULY	*632
AUG	*632
SEPT	*632
OCT	*632
NOV	*632
DEC	

\*=approximate monthly operations total based on average of 1<sup>st</sup> 3 months of the year as actual monthly operations totals are not available



**Table 2: Strikes at LNY, November 2017**

	DATE	TIME	#STRUCK	SPECIES	PHASE OF FLIGHT	RUNWAY	CARRIER	REPORTED?
	<b>JANUARY</b>		No Strikes					
	<b>FEBRUARY</b>		No Strikes					
	MARCH		No Strikes					
	APRIL		No Strikes					
	<b>MAY</b>		No Strikes					
	JUNE		No Strikes					
	JULY		No Strikes					
	AUGUST		No Strikes					
1	9/14/17	3:45PM	1	Skylark	Descent	3	Empire Airlines	yes
2	9/16/17	10:43AM	1	Unknown	Take-off run	3	Empire Airlines	yes
	OCTOBER		No Strikes					
	NOVEMBER		No Strikes					

**Table 3: \*Total Migratory Species Taken in Maui County**

Migratory Species	November Take	Totals	
Northern Cardinal	0	0	
Mourning Doves	26	374	
Eurasian Skylark	1	90	
House Finch	0	0	YTD
Common Barn Owl	0	0	464

\*Take limit according to Migratory Bird Permit MB052256-0  
(Effective 01/01/2017 – 12/31/2017)

- 1000 Migratory Birds not native to Hawaii

**Table 4: \*Total Cattle Egret Taken in Maui District Airports & KPWS**

Migratory Species	November Take	YTD Total
Cattle Egrets	15	318

\*Take limit according to Migratory Bird Permit MB052256-0  
(Effective 01/01/2017 – 12/31/2017)

- 1000 Cattle Egrets

#### **AIRFIELD OBSERVATIONS & SPECIES SPECIFIC CONTROL OPERATIONS:**

On 11/15/17 and 11/18/17 two live Hawaiian Petrels (HAPE) were recovered from near the Lanai Airport Rescue & Fire Fighting (ARFF) station and Guest Parking Lot, respectively. The 11/15/17 HAPE was recovered by Airport Rescue & Fire Fighting (ARFF) personnel and the 11/18/17 HAPE by H.T. Harvey & Associates, Ecological Consultants representative, respectively. Both birds were provided to LNY WS personnel. LNY WS personnel then informed DOFAW and USFWS of both incidences. DOFAW dispatched a Maui Nui Seabird Recovery Program representative to Lanai, whom took custody of both birds for further data collection, banding and release evaluation. According to the Maui Nui Seabird Recovery representative, both birds were released on island, however only the 11/15/17 HAPE release was successful. The 11/18/17 HAPE released failed due to the bird not flying off and it was sent to the Hawaii Wildlife Center on 11/19/17 for rehabilitation, where it later died.

## **HABITAT MODIFICATION RECOMMENDATION:**

WSSs observed that grasses on the western slope of approach of RWY 3, near the Wind Sock #3 was approximately 24 – 36 inches tall for the 1<sup>st</sup> half of the month. WS is aware that increased rainfall and AOM staffing issues contributed to the attractant. As a result, LNY WSSs assisted AOMs with manual grass cutting operations on slope, see below photos for before and after conditions. WS recommends that AOMs monitors this site, and other sites that provide hazardous wildlife attractants within the AOA at least twice monthly in order to address these types of attractants and ensure that they are addressed in a timely manner.



LNY Appr. RWY 3 western slope abeam Windsock #3.

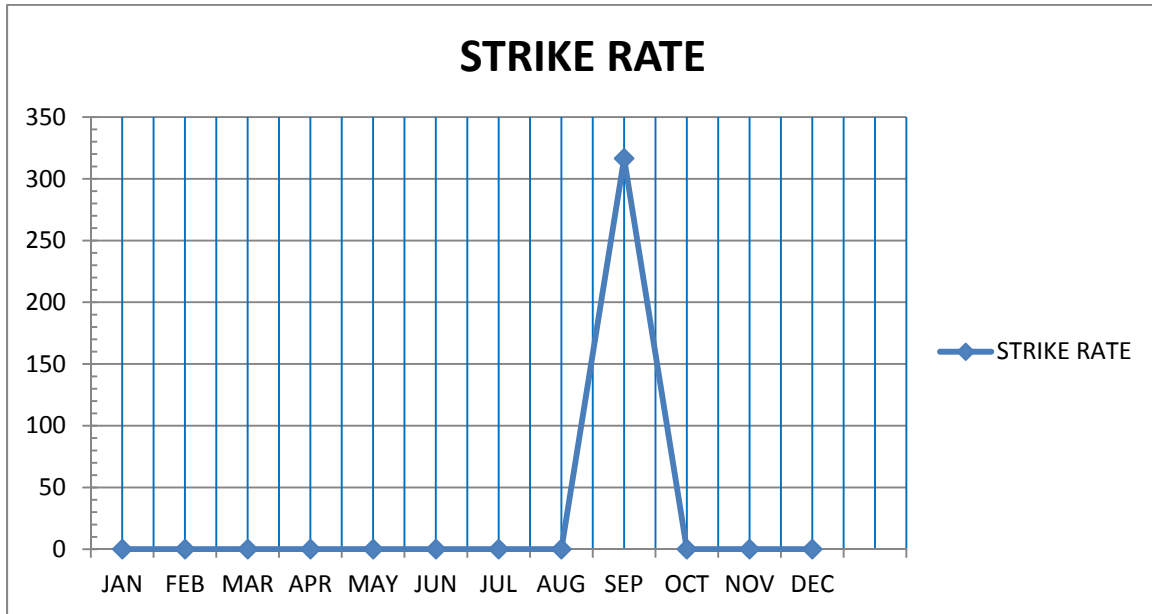
Submitted By: LNY WSSs

Distribution: Marvin Moniz, MADM  
Larry Miller, Assistant Airport Manager  
Kathy Wade, Maui District Assistant Airport Superintendent  
Martinez Jacobs, DOTA/ Fire Chief  
Stacey Kaopuiki, FAA Maui Tower Manager  
William Brown, FAA Certification Inspector  
Craig Clark, WS State Director – HI/Pacific Islands

# Wildlife Services Monthly Activity Report

## LNY December 2017

Figure 1: Strike Rate (Per 100,000 Operations)



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AUG	*632
SEPT	*632
OCT	*632
NOV	*632
DEC	*632

\*=approximate monthly operations total based on average of 1<sup>st</sup> 3 months of the year as actual monthly operations totals are not available

**Table 2: Strikes at LNY, November 2017**

	DATE	TIME	#STRUCK	SPECIES	PHASE OF FLIGHT	RUNWAY	CARRIER	REPORTED?
	<b>JANUARY</b>		No Strikes					
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	APRIL		No Strikes					
	<b>MAY</b>		No Strikes					
	JUNE		No Strikes					
	JULY		No Strikes					
	AUGUST		No Strikes					
1	9/14/17	3:45PM	1	Skylark	Descent	3	Empire Airlines	yes
2	9/16/17	10:43AM	1	Unknown	Take-off run	3	Empire Airlines	yes
	OCTOBER		No Strikes					
	NOVEMBER		No Strikes					
	DECEMBER		No Strikes					

**Table 3: \*Total Migratory Species Taken in Maui County**

Migratory Species	December Take	Totals	
Northern Cardinal	0	0	
Mourning Doves	8	383	
Eurasian Skylark	7	98	
House Finch	0	0	YTD
Common Barn Owl	1	1	482

\*Take limit according to Migratory Bird Permit MB052256-0  
(Effective 01/01/2017 – 12/31/2017)

- 1000 Migratory Birds not native to Hawaii

**Table 4: \*Total Cattle Egret Taken in Maui District Airports & KPWS**

Migratory Species	December Take	YTD Total
Cattle Egrets	20	338

\*Take limit according to Migratory Bird Permit MB052256-0  
(Effective 01/01/2017 – 12/31/2017)

- 1000 Cattle Egrets

#### **AIRFIELD OBSERVATIONS & SPECIES SPECIFIC CONTROL OPERATIONS:**

On 12/11/17 a Hawaiian Petrel (HAPE) was recovered from the passenger gate fronting the terminal building. According to the H.T. Harvey & Associates, Ecological Consultants representative the bird was observed flying into the flood light mounted to the terminal building and falling to the ramp below. The bird was provided to LNY WS personnel, whom in turn informed DOFAW and USFWS of the incident and provided the HAPE safe harbor. DOFAW dispatched a Maui Nui Seabird Recovery Program representative to Lanai the following morning, whom took custody of the HAPE for further data collection, banding and release evaluation. According to the Maui Nui Seabird Recovery representative, the HAPE was successfully released at Hulopoe Beach Park on the morning of 12/12/17 and it flew west over Manele Four Seasons resort and out of sight.

Submitted By: LNY WSSs

Distribution: Marvin Moniz, MADM  
Larry Miller, Assistant Airport Manager  
Kathy Wade, Maui District Assistant Airport Superintendent  
Martinez Jacobs, DOTA/ Fire Chief  
Stacey Kaopuiki, FAA Maui Tower Manager  
William Brown, FAA Certification Inspector  
Craig Clark, WS State Director – HI/Pacific Islands



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

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



In Reply Refer to:  
01EPIF00-2018-SL-0240

March 6, 2018

Ms. Dee Phan  
Environmental Protection Specialist  
FAA, Western-Pacific Region, Airports Division  
3800 North Central Avenue  
Suite 1025, 10<sup>th</sup> Floor  
Phoenix, Arizona 85012

Subject: Species List for proposed Lanai Airport runway extension

Dear Ms. Phan:

The U.S. Fish and Wildlife Service (Service) received your correspondence on January 12, 2018 requesting a species list under section 7 of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 *et seq.*) for a proposed runway extension at the Lanai Airport (LNY). The runway extension will add 500 feet to the existing runway, and include installation of associated runway lights and approximately 1,000 feet of security fencing beyond what is already in place on the property. The security fencing is eight-feet tall and includes three-strand barbed wire on top. The extension is not expected to lead to an increase in air traffic to the island.

Based on information you provided, follow up email and phone communication between you and Service Biologist Jon Sprague, and pertinent information in our files, including data compiled by the Hawaii Biodiversity Program, there are 4 listed species possibly in the vicinity of the project area that are of concern: the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), Hawaiian petrel (*Pterodroma sandwichensis*), Blackburn's sphinx moth (*Manduca blackburni*), and Hawaiian stilt (*Himantopus mexicanus knudseni*). There is no critical habitat on the project site.

**Endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*):**

The Hawaiian hoary bat roosts in both exotic and native woody vegetation across all islands and will leave young unattended in trees and shrubs when they forage. If trees or shrubs 15 feet or taller are cleared during the pupping season, there is a risk that young bats could inadvertently be harmed or killed since they are too young to fly or may not move away. Additionally, Hawaiian hoary bats forage for insects from as low as three feet to higher than 500 feet above the ground and can become entangled in barbed wire used for fencing.



To avoid and minimize impacts to the endangered Hawaiian hoary bat we recommend incorporating the following applicable measures into your project description:

- Do not disturb, remove, or trim woody plants greater than 15 feet tall during the bat birthing and pup rearing season (June 1 through September 15).
- Do not use barbed wire for fencing.

**Hawaiian petrel (*Pterodroma sandwichensis*):**

Hawaiian seabirds may traverse the project area at night during the breeding season (March 1 to December 15). Outdoor lighting could result in seabird disorientation, fallout, and injury or mortality. Seabirds are attracted to lights and after circling the lights they may become exhausted and collide with nearby wires, buildings, or other structures or they may land on the ground. Downed seabirds are subject to increased mortality due to collision with automobiles, starvation, and predation by dogs, cats, and other predators. Young birds (fledglings) traversing the project area between September 15 and December 15, in their first flights from their mountain nests to the sea, are particularly vulnerable.

To avoid and minimize potential project impacts to seabirds we recommend incorporating the following applicable measures into your project description:

- Fully shield all outdoor lights so the bulb can only be seen from below bulb height and only use when necessary.
- Install automatic motion sensor switches and controls on all outdoor lights or turn off lights when human activity is not occurring in the lighted area.
- Avoid nighttime construction during the seabird fledging period, September 15 through December 15.

**Hawaiian stilt, *Himantopus mexicanus knudseni***

Listed Hawaiian waterbirds are found in fresh and brackish-water marshes and natural or man-made ponds. Hawaiian stilts may also be found wherever ephemeral or persistent standing water may occur. On Lanai, stilt are found around the wastewater treatment plant and water features near the golf course. To date we are not aware of any record of stilt at LNY. However, because they can be attracted to ephemeral water sources, we recommend that your project description include BMPs to minimize standing water during construction and avoid the creation of any ponding sites that could collect water after construction is complete.

**Endangered Blackburn's sphinx moth (*Manduca blackburni*):**

The Blackburn's sphinx moth may be in the vicinity of the proposed project area. Adult moths feed on nectar from native plants, including beach morning glory (*Ipomoea pes-caprae*), iliee (*Plumbago zeylanica*), and maiapilo (*Capparis sandwichiana*); larvae feed upon non-native tree tobacco (*Nicotiana glauca*) and native aiea (*Nothocestrum* sp.). To pupate, the larvae burrow into the soil and can remain in a state of torpor for up to a year (or more) before emerging from the soil. Soil disturbance can result in death of the pupae.

At this time, there are no known host plants in the immediate vicinity of LNY, and the likelihood of take is therefore minimal. However, as the project includes earth moving, there is a chance that seeds of tree tobacco could be brought in with contaminated fill which could draw Blackburn's sphinx moth to the site. Therefore, we recommend that your project description

included BPMs that unsure the use of fill from an area that is free of tree tobacco or any other noxious weed species including using a biologist to survey the fill source site prior to fill transport if necessary.

Thank you for your continued efforts to protect Hawaii's native and endangered species and habitat. If you have questions regarding these comments, please contact Fish and Wildlife Biologist Jonathan Sprague (406-370-8045, [jonathan\\_sprague@fws.gov](mailto:jonathan_sprague@fws.gov)). When referring to this project, please include this reference number: 01EPIF00-2018-SL-0240.

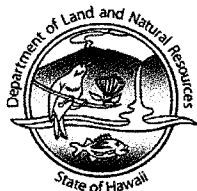
Sincerely,

**JODI  
CHARRIER**

Digitally signed by  
JODI CHARRIER  
Date: 2018.03.06  
09:20:19 -10'00'

Jodi Charrier  
Acting Island Team Leader  
Maui Nui and Hawaii Island

DAVID Y. IGE  
GOVERNOR OF HAWAII



**STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES**

STATE HISTORIC PRESERVATION DIVISION  
KAKUHIHEWA BUILDING  
601 KAMOKILA BLVD, STE 555  
KAPOLEI, HAWAII 96707

SUZANNE D. CASE  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA  
FIRST DEPUTY

W. ROY HARDY  
ACTING 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

August 30, 2018

IN REPLY REFER TO:  
**LOG: 2018.01506**  
**DOC: 1809KN03**  
Architecture

Gordon K. Wong, Manager  
Airports District Office  
USDOT, FAA  
PO Box 50244  
Honolulu, HI 96850  
via: gordon.wong@faa.gov

Russel Y. Tsuji, Administrator  
Land Division  
Department of Land and Natural Resources  
P.O. Box 621  
Honolulu, HI 96809  
via: russell.y.tsuji@hawaii.gov

Dear Sirs:

RE: **Historic Preservation Review - Section 106, NHPA and Chapter 6E-8, HRS**  
**Lānaʻi Airport Runway Improvements**  
**Lānaʻi Ave. Lanai City, HI 96763**  
**Kaimoku Ahupuaʻa, Lahaina District, Island of Lānaʻi**  
**TMK: (2) 4-9-002:041**

Thank you for the opportunity to comment on this request from the Department of Land and Natural Resources Land Division (DLNR Land) and the Federal Aviation Administration Western-Pacific Region Airports Division Honolulu Airports District Office (ADO) for Chapter 6E-8, HRS, and Section 106, NHPA, review. The State Historic Preservation Division (SHPD) received this submittal on July 12, 2018. The submittal included a Lānaʻi Airport architectural survey and an Intensive Level Survey (ILS) of the Airport's Administration Building in response to previous SHPD review letters (LOG NO. 2017.01843, DOC NO. 1709GC12; LOG NO. 2017.02258, DOC NO. 1710MBF19).

SHPD accepts the architectural survey reports and agrees that the Lānaʻi Airport and Administration Building are ineligible for inclusion on the Hawaiʻi and National Registers of Historic Places given significant additions and alteration over time.

Per §13-275-7, HAR, the project will have no effect on significant historic properties and therefore **"no historic properties affected"**.

Wong & Tsuji  
09/05/18

Per 36 CFR 800.4, there are no historic properties present, and therefore the State Historic Preservation Officer (SHPO) **concurs** with ADO's effect determination of "**no historic properties affected**".

SHPD's part of the review process is complete.

Please contact Kaiwi Yoon, Architecture Branch Chief at (808) 692-8032, or at [Kaiwi.N.Yoon@hawaii.gov](mailto:Kaiwi.N.Yoon@hawaii.gov) for questions regarding architectural resources, or Susan Lebo, Archaeology Branch Chief, at (808) 692- 8019, or at [Susan.A.Lebo@hawaii.gov](mailto:Susan.A.Lebo@hawaii.gov) for questions regarding archaeological resources or this letter.

Mahalo,

*Alan Downer*

Alan Downer, PhD.  
Deputy State Historic Preservation Officer  
Administrator, State Historic Preservation Division

cc: [dee.phan@faa.gov](mailto:dee.phan@faa.gov); [Darlene.k.nakamura@hawaii.gov](mailto:Darlene.k.nakamura@hawaii.gov); [herman.tuiolosega@hawaii.gov](mailto:herman.tuiolosega@hawaii.gov); [lmccrory@pulamalanai.com](mailto:lmccrory@pulamalanai.com)



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Western-Pacific Region  
Airports District Office

300 Ala Moana Blvd., Rm. 7-128  
Honolulu, HI 96850  
Mail: Box 50244  
Honolulu, HI 96850-0001  
Telephone: (808) 312-6028  
Facsimile: (808) 312-6048

May 30, 2018

Alan Downer, Ph.D.  
State Historic Preservation Officer  
Department of Land and Natural Resources  
State Historic Preservation Division  
601 Kamokila Boulevard, Suite 555  
Kapolei, Hawai'i 96707

Dear Dr. Downer:

**SUBJ: Continuing Section 106 Consultation/36 CFR Part 800  
Chapter 6E-8 Historic Preservation Review  
Lānaʻi Airport Runway Improvements; Lānaʻi Airport at Lānaʻi City, Island of Lānaʻi  
Tax Map Key: (2) 4-9-002:041  
Log No. 2017.02258, Doc No. 1710MBF19/ Log NO. 2017.01843, Doc No. 1709GC12**

As you are aware, the State of Hawaii Department of Transportation, Airports Division (HDOT-A), in cooperation with the Federal Aviation Administration (FAA), is proposing construction of a 500-foot extension to Runway 3-21 and associated improvements at the Lānaʻi Airport. The FAA reviewed your comment letter dated October 31 2017 in response to FAA Section 106 initiation letter dated October 10, 2017. Subsequently, the project's area of potential effects (APE) has been revised to account for potential direct and indirect effects. The APE now comprises of an approximately 160-acre area within the Lānaʻi Airport; approximately 56 acres of which is Direct APE or where all actual construction activities would occur (see enclosed APE exhibit). As part of the identification of historic properties process [36 CFR 800.4 (b) (1)], the FAA consulted with 29 Native Hawaiian Organizations on the revised APE. Only the Lānaʻi Culture & Heritage Center responded with no objections to the proposed project (see enclosures). In addition, there were multiple public meetings in which the Lānaʻi Airport runway extension was discussed with the Lānaʻi community during the planning and project development phase (see enclosed public meeting list and local planning documents). To date, the FAA and HDOT-A are not aware of any major project concerns or controversy from the public related to protection of historic properties.

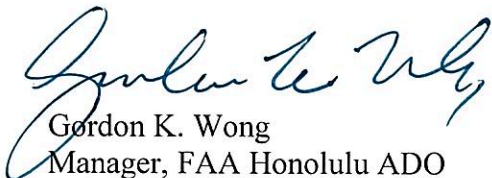
Previous archeological survey and assessment resulted in the identification of no archeological sites within the Direct APE. Therefore, the proposed undertaking will have no impacts to archeological resources.

A reconnaissance level architectural survey was conducted in April 2018 for the revised APE to evaluate for National Register of Historic Places (NRHP) eligibility status and any potential direct and indirect effect to architectural resources. The Lānaʻi Airport Administration Building

(formerly the Terminal Building) and the Lānaʻi Airport itself are both historic-age resources. However, both of these built resources have been deemed ineligible for inclusion in the Hawaii State and NRHP due to extensive additions and/or alternations over the years. There are no other structures or resources within the APE that meet historic-age requirements nor do they possess unique architectural features to be considered eligible for the Hawaii State or NRHP. (Refer to the enclosed architectural survey report for additional details.)

Based on the above and because there are no NRHP eligible or listed properties located within the APE, the FAA has made a finding of “*no historic properties affected*” for this undertaking [36 CFR 800.4 (d) (1)]. Please review the information provided in this letter and the enclosed supporting documentation. If you agree with the FAA’s above eligibility and effect determinations, please respond with a concurrence within 30 days of receipt. Should you have any questions or require additional information, please contact Ms. Dee Phan, FAA Environmental Protection Specialist, at 602-792-1066 or [dee.phan@faa.gov](mailto:dee.phan@faa.gov).

Sincerely,



Gordon K. Wong  
Manager, FAA Honolulu ADO

Enclosures: Revised APE map  
Architectural Survey Report for Lānaʻi Airport Improvements  
Native Hawaiian Organization Consultation & Response Letters  
Section 106 Consultation List  
List of Public Meetings and Local Planning Documents

cc: Herman Tuiolosega, HDOT-A

DAVID Y. IGE  
GOVERNOR OF  
HAWAII



**STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES**

STATE HISTORIC PRESERVATION DIVISION  
KAKUHIHEWA BUILDING  
601 KAMOKILA BLVD, STE 555  
KAPOLEI, HAWAII 96707

SUZANNE D. CASE  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA  
FIRST DEPUTY

JEFFREY T. PEARSON, P.E.  
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

October 31, 2017

Gordon K. Wong  
Acting Manager, Airports District Office  
USDOT, FAA  
[Gordon.Wong@faa.gov](mailto:Gordon.Wong@faa.gov)

Aloha Mr. Wong:

IN REPLY REFER TO:  
Log No. 2017.02258  
Doc No. 1710MBF19  
Archaeology  
Architecture  
History & Culture

**SUBJECT: National Historic Preservation Act (NHPA), Section 106 Consultation –  
Lānaʻi Airport Runway Improvements; Lānaʻi Airport  
Lānaʻi City, Island of Lānaʻi  
TMK: (2) 4-9-002:041**

Thank you for the opportunity to review the subject request from the State of Hawaiʻi Department of Transportation Airports Division (HDOT Airports) to initiate consultation with the State Historic Preservation Division (SHPD), received on October 10, 2017. The HDOT Airports as the lead agency under the Federal Aviation Administration (FAA) has evaluated this project and determined that this project is an “undertaking,” as defined in 36 CFR 800.16(y). The federal undertaking is triggered by the FAA approval of the Airport Layout Plan (ALP) Change.

The HDOT Airports is proposing to construct a 500-foot runway extension and conduct related improvements at the Lānaʻi Airport (LNY) located in Lānaʻi City, Hawaiʻi. The airport is situated on approximately 504 acres, but the approximate acreage of the direct APE is not indicated in the consultation letter. The HDOT Airports seeks concurrence from the State Historic Preservation Officer’s (SHPO) for a proposed area of potential effect (APE) and effect determination of “no adverse effect” to historic properties per 36 CFR 800.5(b).

Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires Federal agencies to consider the effects of their undertakings on historic properties. If the agency's undertaking could affect historic properties, the agency determines the scope of appropriate identification efforts and then proceeds to identify historic properties in the area of potential effects. The agency reviews background information, consults with the State and Tribal Historic Preservation Officers and others, seeks information from knowledgeable parties, and conducts additional studies as necessary. At the October 30, 2017 meeting with the Lanai Archaeological Committee (LAC) it was indicated that to date no consultation with the LAC has been conducted regarding this project.

The SHPD has reviewed the submittal materials, and while an archaeological inventory survey (AIS) has been conducted, and submitted to the SHPD for review as an archaeology assessment (AA), the SHPD finds: 1) architectural documentation of the airport is inadequate; and 2) the appropriate level of consultation has not been conducted. **The SHPO does not concur at this time.**

The SHPD looks forward to receiving more information regarding the architecture and consultation efforts.

Please contact Dr. Matthew Barker Fariss at (808) 243-4626, or at [matthew.b.fariss@hawaii.gov](mailto:matthew.b.fariss@hawaii.gov), if you have any questions about this letter.



Mr. Wong  
October 31, 2017  
Page 2

Aloha,

A handwritten signature in black ink, appearing to read 'Alan S. Downer', followed by a long horizontal line extending to the right.

Alan S. Downer, PhD  
Administrator, State Historic Preservation Division  
Deputy State Historic Preservation Officer

cc: Lynn McCrory  
Senior Vice President of Government Affairs  
Pūlama Lānaʻi  
733 Bishop Street, Suite 2000  
Honolulu, Hawaiʻi 96813  
[lmccrory@pulamalanai.com](mailto:lmccrory@pulamalanai.com)





U.S Department  
of Transportation  
**Federal Aviation  
Administration**

Western-Pacific Region  
Honolulu Airports District Office

300 Ala Moana Blvd., Rm. 7-128  
Honolulu, HI 96813  
MAIL: Box 50244  
Honolulu, HI 96850-0001  
T: (808) 312-6028  
F: (808) 312-6048

CERTIFIED MAIL

October 10, 2017

Alan Downer, Ph.D.  
State Historic Preservation Officer  
Department of Land and Natural Resources  
State Historic Preservation Division  
601 Kamokila Boulevard, Suite 555  
Kapolei, Hawai'i 96707

**SUBJECT: National Historic Preservation Act, Section 106 Consultation  
(36 CFR Part 800); Lānaʻi Airport Runway Improvements; Lānaʻi Airport at  
Lānaʻi City, Island of Lānaʻi; Tax Map Key: (2)4-9-002:041**

Dear Mr. Downer:

The State of Hawai'i Department of Transportation Airports Division (HDOTA) is proposing to construct an approximately 500-foot runway extension and related improvements at the Lānaʻi Airport (LNY) located in Lānaʻi City, Hawai'i. The airport is situated on approximately 504 acres located within Tax Map Key (TMK) parcel (2)4-9-002:041.

HDOTA and the Federal Aviation Administration (FAA) are preparing an Environmental Assessment (EA) for the proposed project pursuant to the National Environmental Policy Act of 1969. The federal action is the FAA approval of the Airport Layout Plan (ALP) Change.

The FAA is the lead federal agency charged with conducting Section 106 consultation with the State Historic Preservation Division (SHPD). The purpose of this consultation effort is to seek SHPD concurrence of the Area of Potential Effect (APE), identification of historic properties, and finding of effect.

### **Description of the Undertaking (Proposed Action)**

Detailed project information is provided in the enclosed Project Summary document including **Exhibit 1**, APE map. The proposal includes construction of primary components of the proposed Runway Improvements project as shown in **Exhibit 2**, include:

1. Installation of 200-foot blast pad and extending the northeast end of the existing runway (Runway 21) by 500 feet so that the runway would be 5,500 feet and remain a single runway.
2. The existing 500-foot long by 80 feet wide existing asphalt concrete in the project area will be removed to accommodate the new 500-foot runway extension.
3. Improvements also include a new access road, fencing, runway lighting and electrical utility improvements for the relocation of navigational aids.
4. The dimensions of the Runway Safety Area must also be extended to meet safety and airspace requirements. Runway Safety Area will extend 1,000 feet beyond the end of the new runway extension.
5. New fencing will be installed around the 500-foot runway extension including Runway Safety Area required by the FAA.
6. Relocate Localizer Antenna and Localizer/Distance Measuring Equipment (DME) equipment building beyond the new RSA, approximately 535 feet to the northwest from the existing location. See **Exhibit 3** and **Exhibit 4**.

The above noted improvements are hereafter collectively referred to as the “Proposed Action”.

### **Description of the Area of Potential Effect (APE) for the Proposed Undertaking**

For the purposes of this Section 106 Consultation, the FAA has identified an APE consisting of an approximate area of 32 acres at LNY identified on the enclosed Location Map (**Exhibit 1**).

### **Identification of Historic Properties and Assessment of Effects**

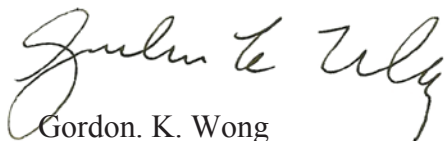
Enclosed is the Archaeological Assessment Survey for the Proposed Lāna‘i Airport Expansion Project (Report) dated May 2017, that has been prepared for these proposed improvements at LNY. See **Exhibit 5**.

The FAA has determined there are no historic properties listed or eligible for listing on the National Register of Historic Places within the APE. Therefore, the FAA finds “***no historic properties affected***” for the proposed undertaking under 36 CFR Part 800.4(d)(1).

Please review the information provided in this letter, enclosed project information and report. If you agree with the above determinations, please respond within 30 days of receipt of this letter. If we do not hear from your office within 30 days, we will consider a no-reply as a “concurrence”.

Please do not hesitate to contact me at 808-312-6029 or by email at [Gordon.Wong@faa.gov](mailto:Gordon.Wong@faa.gov) if you have any questions or require additional information.

Sincerely,



Gordon. K. Wong  
Acting Manager, Airports District Office

Enclosures

Project Summary

Area of Potential Effect Location Map

Airport Overview Map

Proposed Action Overview Map

Existing and Proposed Locations of Localizer Antenna and Antenna and DME Equipment

Building Map

Archaeological Assessment Survey for the Proposed Lānaʻi Airport, Expansion Project dated May 2017

cc: (w/encls.)

Herman Tuiolosega, HDOTA

Karlynn Fukuda, Munekiyo Hiraga



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

July 24, 2018

**SUBJECT: Determination of No Permit Required, Lanai Airport Runway Improvements Project, Island of Lanai, Hawaii, DA File No. 2013-00125**

Mr. Herman Tuiolosega  
Head Planner  
State of Hawaii, Department of Transportation  
Airports Division  
400 Rodgers Boulevard, Suite 700  
Honolulu, Hawaii 96819

Mr. Tuiolosega:

The Honolulu District, U.S. Army Corps of Engineers (Corps), Regulatory Office has received your request for a jurisdictional determination and clarification whether a Department of the Army (DA) permit is required for the Kalamaki Gulch/Stream located on the Island of Lanai, Hawaii (TMK: (2)4-9-002:041). Your request has been assigned DA file number POH-2013-00125. Please reference this number in all future correspondence with our office relating to this action.

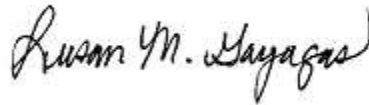
Based on our review of the information you provided and the enclosed approved jurisdictional determination (AJD), dated July 19, 2018, Lanai Airport Runway Improvements project site does not contain waters of the U.S., including wetlands or navigable waters of the U.S., as defined by 33 CFR Parts 328 and 329, respectively. Therefore, a DA permit under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act of 1899 is not required. The basis for our jurisdictional determination is on the enclosed AJD Form.

While a DA permit is not required for your proposed project, you are responsible for obtaining all other applicable Federal, state, or local authorizations required by law.

Thank you for your cooperation with the Honolulu District Regulatory Program. If you have any questions related to this determination, please contact me at (808) 835-4599 or via e-mail at [susan.a.meyer@usace.army.mil](mailto:susan.a.meyer@usace.army.mil). You are encouraged to provide

comments on your experience with the Honolulu District Regulatory Office by accessing our web-based customer survey form at [http://corpsmapu.usace.army.mil/cm\\_apex/f?p=regulatory\\_survey](http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey). For additional information about our Regulatory Program, please visit our web site at <http://www.poh.usace.army.mil/Missions/Regulatory.aspx>.

Sincerely,

A handwritten signature in black ink, reading "Susan A. M. Gayagas". The signature is written in a cursive, flowing style.

Susan A. M. Gayagas  
Senior Project Manager

Enclosure

**APPROVED JURISDICTIONAL DETERMINATION FORM**  
**U.S. Army Corps of Engineers**

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

**SECTION I: BACKGROUND INFORMATION**

**A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):** July 19, 2018

**B. DISTRICT OFFICE, FILE NAME, AND NUMBER:** Honolulu District, Lanai Airport Runway Improvements Project, Kalamaiki Gulch/Stream, DA File No. POH-2013-00125

**C. PROJECT LOCATION AND BACKGROUND INFORMATION:**

State: Hawaii County: Lanai City: Lanai Airport  
Center coordinates of site (lat/long in degree decimal format): Lat. 20.786 ° N, Long. -156.959 ° W  
Universal Transverse Mercator: [Click here to enter text.](#)  
Name of nearest waterbody: Kalamaiki Gulch/Stream to Pacific Ocean  
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Pacific Ocean  
Name of watershed or Hydrologic Unit Code (HUC): [Click here to enter text.](#)

- ☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.  
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc.) are associated with this action and are recorded on a different JD form

**D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):**

- ☒ Office (Desk) Determination. Date: July 19, 2018  
☐ Field Determination. Date(s): [Click here to enter a date.](#), [Click here to enter a date.](#)

**SECTION II: SUMMARY OF FINDINGS**

**A. RHA SECTION 10 DETERMINATION OF JURISDICTION.**

There [Choose an item.](#) “navigable waters of the U.S.” within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

- ☐ Waters subject to the ebb and flow of the tide.  
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.  
Explain: [Click here to enter text.](#)

**B. CWA SECTION 404 DETERMINATION OF JURISDICTION.**

There are no “waters of the U.S.” within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area.

**1. Waters of the U.S.**

**a. Indicate presence of waters of U.S. in review area (check all that apply):<sup>1</sup>**

- ☐ TNWs, including territorial seas  
☐ Wetlands adjacent to TNWs  
☐ Relatively permanent waters<sup>2</sup> (RPWs) that flow directly or indirectly into TNWs  
☐ Non-RPWs that flow directly or indirectly into TNWs  
☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs  
☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs  
☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs  
☐ Impoundments of jurisdictional waters  
☐ Isolated (interstate or intrastate) waters, including isolated wetlands

**b. Identify (estimate) size of waters of the U.S. in the review area:**

Non-wetland waters: # linear feet: # width (ft) and/or # acres.

Wetlands: # acres.

**c. Limits (boundaries) of jurisdiction based on: [Choose an item.](#)**

Elevation of established OHWM (if known): [Click here to enter text.](#)

**2. Non-regulated waters/wetlands (check if applicable):<sup>3</sup>**

- ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.  
Explain: The aquatic feature in the JD review area, referred to as the Kalamaiki Gulch/Stream, contained no bed and banks and no ordinary high water mark. Therefore, in accordance with the 2008 Rapanos guidance and 33 CFR 328.3, by definition this drainage feature is not considered a waters of the United States. Refer to section IV.A for supporting data and information

<sup>1</sup> Boxes checked below shall be supported by completing the appropriate sections in Section III below.

<sup>2</sup> For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least “seasonally” (e.g., typically 3 months).

<sup>3</sup> Supporting documentation is presented in Section III.F.

## **SECTION III: CWA ANALYSIS**

### **A. TNWs AND WETLANDS ADJACENT TO TNWs**

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

#### **1. TNW**

Identify TNW: [Click here to enter text.](#)

Summarize rationale supporting determination: [Click here to enter text.](#)

#### **2. Wetland adjacent to TNW**

Summarize rationale supporting conclusion that wetland is “adjacent”: [Click here to enter text.](#)

### **B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):**

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are “relatively permanent waters” (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody<sup>4</sup> is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

#### **1. Characteristics of non-TNWs that flow directly or indirectly into TNW**

##### **(i) General Area Conditions:**

Watershed size: # [Choose an item.](#)

Drainage area: # [Choose an item.](#)

Average annual rainfall: # inches

Average annual snowfall: # inches

##### **(ii) Physical Characteristics:**

###### **(a) Relationship with TNW:**

☐ Tributary flows directly into TNW.

☐ Tributary flows through [Choose an item.](#) tributaries before entering TNW.

Project waters are [Choose an item.](#) river miles from TNW.

Project waters are [Choose an item.](#) river miles from RPW.

Project waters are [Choose an item.](#) aerial (straight) miles from TNW.

Project waters are [Choose an item.](#) aerial (straight) miles from RPW.

Project waters cross or serve as state boundaries. Explain: [Click here to enter text.](#)

Identify flow route to TNW<sup>5</sup>: [Click here to enter text.](#)

Tributary stream order, if known: [Click here to enter text.](#)

###### **(b) General Tributary Characteristics (check all that apply):**

**Tributary is:** ☐ Natural

☐ Artificial (man-made). Explain: [Click here to enter text.](#)

☐ Manipulated (man-altered). Explain: [Click here to enter text.](#)

<sup>4</sup> Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

<sup>5</sup> Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

**Tributary** properties with respect to top of bank (estimate):

Average width: # feet

Average depth: # feet

Average side slopes: [Choose an item.](#)

Primary tributary substrate composition (check all that apply):

- |  |  |                                   |
|--|--|-----------------------------------|
| <input type="checkbox"/> Silts   | <input type="checkbox"/> Sands   | <input type="checkbox"/> Concrete |
| <input type="checkbox"/> Cobbles   | <input type="checkbox"/> Gravel  | <input type="checkbox"/> Muck     |
| <input type="checkbox"/> Bedrock   | <input type="checkbox"/> Vegetation. Type/% cover: <a href="#">Click here to enter text.</a> |                                   |
| <input type="checkbox"/> Other. Explain: <a href="#">Click here to enter text.</a> |  |                                   |

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: [Click here to enter text.](#)

Presence of run/riffle/pool complexes. Explain: [Click here to enter text.](#)

Tributary geometry: [Choose an item.](#)

Tributary gradient (approximate average slope): #%

(c) Flow:

Tributary provides for: [Choose an item.](#)

Estimate average number of flow events in review area/year: [Choose an item.](#)

Describe flow regime: [Click here to enter text.](#)

Other information on duration and volume: [Click here to enter text.](#)

Surface flow is: [Choose an item.](#) Characteristics: [Click here to enter text.](#)

Subsurface flow: [Choose an item.](#) Explain findings: [Click here to enter text.](#)

- ☐ Dye (or other) test performed: [Click here to enter text.](#)

Tributary has (check all that apply):

- ☐ Bed and banks
- ☐ OHWM<sup>6</sup> (check all indicators that apply):
- |  |   |
|--|---|
| <input type="checkbox"/> clear, natural line impressed on the bank               | <input type="checkbox"/> the presence of litter and debris  |
| <input type="checkbox"/> changes in the character of soil                        | <input type="checkbox"/> destruction of terrestrial vegetation                                      |
| <input type="checkbox"/> shelving  | <input type="checkbox"/> the presence of wrack line   |
| <input type="checkbox"/> vegetation matted down, bent, or absent                 | <input type="checkbox"/> sediment sorting   |
| <input type="checkbox"/> leaf litter disturbed or washed away                    | <input type="checkbox"/> scour  |
| <input type="checkbox"/> sediment deposition                                     | <input type="checkbox"/> multiple observed or predicted flow events                                 |
| <input type="checkbox"/> water staining  | <input type="checkbox"/> abrupt change in plant community <a href="#">Click here to enter text.</a> |
| <input type="checkbox"/> other (list): <a href="#">Click here to enter text.</a> |   |
- ☐ Discontinuous OHWM.<sup>7</sup> Explain: [Click here to enter text.](#)

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

- |  |  |
|--|--|
| <input type="checkbox"/> High Tide Line indicated by:                            | <input type="checkbox"/> Mean High Water Mark indicated by:            |
| <input type="checkbox"/> oil or scum line along shore objects                    | <input type="checkbox"/> survey to available datum;                    |
| <input type="checkbox"/> fine shell or debris deposits (foreshore)               | <input type="checkbox"/> physical markings;                            |
| <input type="checkbox"/> physical markings/characteristics                       | <input type="checkbox"/> vegetation lines/changes in vegetation types. |
| <input type="checkbox"/> tidal gauges  |  |
| <input type="checkbox"/> other (list): <a href="#">Click here to enter text.</a> |  |

(iii) **Chemical Characteristics:**

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain: [Click here to enter text.](#)

Identify specific pollutants, if known: [Click here to enter text.](#)

<sup>6</sup>A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

<sup>7</sup>Ibid.



**(iv) Biological Characteristics. Channel supports (check all that apply):**

- ☐ Riparian corridor. Characteristics (type, average width): [Click here to enter text.](#)
- ☐ Wetland fringe. Characteristics: [Click here to enter text.](#)
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: [Click here to enter text.](#)
  - ☐ Fish/spawn areas. Explain findings: [Click here to enter text.](#)
  - ☐ Other environmentally-sensitive species. Explain findings: [Click here to enter text.](#)
  - ☐ Aquatic/wildlife diversity. Explain findings: [Click here to enter text.](#)

**2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW**

**(i) Physical Characteristics:**

**(a) General Wetland Characteristics:**

Properties:

Wetland size: # acres

Wetland type. Explain: [Click here to enter text.](#)

Wetland quality. Explain: [Click here to enter text.](#)

Project wetlands cross or serve as state boundaries. Explain: [Click here to enter text.](#)

**(b) General Flow Relationship with Non-TNW:**

Flow is: [Choose an item.](#) Explain: [Click here to enter text.](#)

Surface flow is: [Choose an item.](#)

Characteristics: [Click here to enter text.](#)

Subsurface flow: [Choose an item.](#) Explain findings: [Click here to enter text.](#)

☐ Dye (or other) test performed: [Click here to enter text.](#)

**(c) Wetland Adjacency Determination with Non-TNW:**

☐ Directly abutting

☐ Not directly abutting

☐ Discrete wetland hydrologic connection. Explain: [Click here to enter text.](#)

☐ Ecological connection. Explain: [Click here to enter text.](#)

☐ Separated by berm/barrier. Explain: [Click here to enter text.](#)

**(d) Proximity (Relationship) to TNW**

Project wetlands are [Choose an item.](#) river miles from TNW.

Project waters are [Choose an item.](#) aerial (straight) miles from TNW.

Flow is from: [Choose an item.](#)

Estimate approximate location of wetland as within the [Choose an item.](#) floodplain.

**(ii) Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: [Click here to enter text.](#)

Identify specific pollutants, if known: [Click here to enter text.](#)

**(iii) Biological Characteristics. Wetland supports (check all that apply):**

- ☐ Riparian buffer. Characteristics (type, average width): [Click here to enter text.](#)
- ☐ Vegetation type/percent cover. Explain: [Click here to enter text.](#)
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: [Click here to enter text.](#)
  - ☐ Fish/spawn areas. Explain findings: [Click here to enter text.](#)
  - ☐ Other environmentally-sensitive species. Explain findings: [Click here to enter text.](#)
  - ☐ Aquatic/wildlife diversity. Explain findings: [Click here to enter text.](#)

**3. Characteristics of all wetlands adjacent to the tributary (if any)**

All wetland(s) being considered in the cumulative analysis: [Choose an item.](#)

Approximately (#) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

<u>Directly abuts? (Y/N)</u>	<u>Size (in acres)</u>	<u>Directly abuts? (Y/N)</u>	<u>Size (in acres)</u>
<a href="#">Y/N</a>	<a href="#">#</a>	<a href="#">Y/N</a>	<a href="#">#</a>
<a href="#">Y/N</a>	<a href="#">#</a>	<a href="#">Y/N</a>	<a href="#">#</a>
<a href="#">Y/N</a>	<a href="#">#</a>	<a href="#">Y/N</a>	<a href="#">#</a>
<a href="#">Y/N</a>	<a href="#">#</a>	<a href="#">Y/N</a>	<a href="#">#</a>

Summarize overall biological, chemical and physical functions being performed: [Click here to enter text.](#)

### C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

*Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:*

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: [Click here to enter text.](#)
2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: [Click here to enter text.](#)
3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: [Click here to enter text.](#)

### D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:

- ☐ TNWs: # linear feet # width (ft), Or, # acres.
- ☐ Wetlands adjacent to TNWs: # acres.

2. **RPWs that flow directly or indirectly into TNWs.**

- ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: [Click here to enter text.](#)
- ☐ Tributaries of TNW where tributaries have continuous flow “seasonally” (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: [Click here to enter text.](#)

Provide estimates for jurisdictional waters in the review area (check all that apply):

- ☐ Tributary waters: # linear feet # width (ft).
- ☐ Other non-wetland waters: # acres.

Identify type(s) of waters: [Click here to enter text.](#)

**3. Non-RPWs<sup>8</sup> that flow directly or indirectly into TNWs.**

- ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

- ☐ Tributary waters: # linear feet # width (ft).  
☐ Other non-wetland waters: # acres.

Identify type(s) of waters: [Click here to enter text.](#)

**4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**

- ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.  
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: [Click here to enter text.](#)  
☐ Wetlands directly abutting an RPW where tributaries typically flow “seasonally.” Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: [Click here to enter text.](#)

Provide acreage estimates for jurisdictional wetlands in the review area: # acres.

**5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**

- ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: # acres.

**6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**

- ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: # acres.

**7. Impoundments of jurisdictional waters.<sup>9</sup>**

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

- ☐ Demonstrate that impoundment was created from “waters of the U.S.,” or  
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or  
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

**E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):<sup>10</sup>**

- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.  
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.  
☐ which are or could be used for industrial purposes by industries in interstate commerce.  
☐ Interstate isolated waters. Explain: [Click here to enter text.](#)  
☐ Other factors. Explain: [Click here to enter text.](#)

**Identify water body and summarize rationale supporting determination:** [Click here to enter text.](#)

Provide estimates for jurisdictional waters in the review area (check all that apply):

- ☐ Tributary waters: # linear feet # width (ft).  
☐ Other non-wetland waters: # acres.

Identify type(s) of waters: [Click here to enter text.](#)

- ☐ Wetlands: # acres.

<sup>8</sup>See Footnote # 3.

<sup>9</sup>To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

<sup>10</sup>Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

**F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):**

- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- ☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  - ☐ Prior to the Jan 2001 Supreme Court decision in “SWANCC,” the review area would have been regulated based solely on the “Migratory Bird Rule” (MBR).
- ☐ Waters do not meet the “Significant Nexus” standard, where such a finding is required for jurisdiction. Explain: [Click here to enter text.](#)
- ☐ Other: (explain, if not covered above): [Click here to enter text.](#)

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): # linear feet # width (ft).
- ☐ Lakes/ponds: # acres.
- ☐ Other non-wetland waters: # acres. List type of aquatic resource: [Click here to enter text.](#)
- ☐ Wetlands: # acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the “Significant Nexus” standard, where such a finding is required for jurisdiction (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): # linear feet # width (ft).
- ☐ Lakes/ponds: # acres.
- ☐ Other non-wetland waters: # acres. List type of aquatic resource: [Click here to enter text.](#)
- ☐ Wetlands: # acres.

**SECTION IV: DATA SOURCES.**

**A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):**

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: “Assessment of the Aquatic Resources of the Upper Kalamaiiki Stream Tributaries for the Lanai Airport Runway Improvements Project”, dated March 2018
- ☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☐ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: [Click here to enter text.](#)
- ☐ Corps navigable waters’ study: [Click here to enter text.](#)
- ☐ U.S. Geological Survey Hydrologic Atlas: [Click here to enter text.](#)
  - ☐ USGS NHD data.
  - ☐ USGS 8 and 12 digit HUC maps.
- ☐ Honolulu District’s Approved List of Navigable Waters
- ☐ U.S. Geological Survey map(s). Cite scale & quad name: [Click here to enter text.](#)
- ☐ USDA Natural Resources Conservation Service Soil Survey. Citation: [Click here to enter text.](#)
- ☐ National wetlands inventory map(s). Cite name: [Click here to enter text.](#)
- ☐ State/Local wetland inventory map(s): [Click here to enter text.](#)
- ☐ FEMA/FIRM maps: [Click here to enter text.](#)
- ☐ 100-year Floodplain Elevation is: [Click here to enter text.](#) (National Geodetic Vertical Datum of 1929)
- ☒ Photographs: ☐ Aerial (Name & Date): [Click here to enter text.](#)  
☐ or ☒ Other (Name & Date): Undated photos, on-the-ground photos and figures 1-19
- ☒ Previous determination(s). File no. and date of response letter: POH-2013-00125, Comment Letter on the Draft EA and conclusion that no permit would be required letter (dated October 8, 2013)
- ☐ Applicable/supporting case law: [Click here to enter text.](#)
- ☐ Applicable/supporting scientific literature: [Click here to enter text.](#)
- ☐ Other information (please specify): [Click here to enter text.](#)

**B. ADDITIONAL COMMENTS TO SUPPORT JD: [Click here to enter text.](#)**

DAVID Y. IGE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF HEALTH  
P. O. BOX 3378  
HONOLULU, HI 96801-3378

VIRGINIA PRESSLER, M.D.  
DIRECTOR OF HEALTH

In reply, please refer to:  
EMD/CWB

08059PMHK.17

August 30, 2017

Mr. Herman Tuiolosega  
Airports Division  
Department of Transportation  
400 Rodgers Boulevard, 7th Floor  
Honolulu, Hawaii 96819

Dear Mr. Tuiolosega:

**SUBJECT: Comments on the Pre-Assessment Consultation for the  
Environmental Assessment for the Proposed Lanai  
Airport Runway Improvements  
TMK: (2) 4-9-002:041  
Lanai City, Island of Lanai, Hawaii**

The Department of Health (DOH), Clean Water Branch (CWB), acknowledges receipt of your letter, dated August 15, 2017, requesting comments on your project. The DOH-CWB has reviewed the subject document and offers these comments. Please note that our review is based solely on the information provided in the subject document and its compliance with the 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://health.hawaii.gov/epo/files/2013/05/Clean-Water-Branch-Std-Comments.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).
2. You may be required to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55).

For NPDES general permit coverage, a Notice of Intent (NOI) form must be submitted at least 30 calendar days before the commencement of the discharge. An application for an NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. To request NPDES permit coverage, you must submit the applicable form ("CWB Individual NPDES Form" or "CWB NOI Form") through the e-Permitting Portal and the hard copy certification statement with the respective filing fee (\$1,000 for an individual NPDES permit or \$500 for a Notice of General Permit Coverage). Please open the e-Permitting Portal website located at: <https://eha-cloud.doh.hawaii.gov/epermit/>. You will be asked to do a one-time registration to obtain your login and password. After you register, click on the Application Finder tool and locate the appropriate form. Follow the instructions to complete and submit the form.

3. If your project involves work in, over, or under waters of the United States, it is highly recommended that you contact the Army Corp of Engineers, Regulatory Branch (Tel: 835-4303) regarding their permitting requirements.

Pursuant to Federal Water Pollution Control Act [commonly known as the "Clean Water Act" (CWA)], Paragraph 401(a)(1), a Section 401 Water Quality Certification (WQC) is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters..." (emphasis added). The term "discharge" is defined in CWA, Subsections 502(16), 502(12), and 502(6); Title 40 of the Code of Federal Regulations, Section 122.2; and HAR, Chapter 11-54.

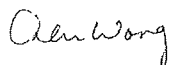
4. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 WQC are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of \$25,000 per day per violation.
5. It is the State's position that all projects must reduce, reuse, and recycle to protect, restore, and sustain water quality and beneficial uses of State waters. Project planning should:
  - a. Treat storm water as a resource to be protected by integrating it into project planning and permitting. Storm water has long been recognized as a source of irrigation that will not deplete potable water resources. What is often overlooked is that storm water recharges ground water supplies and feeds streams and estuaries; to ensure that these water cycles are not disrupted, storm water cannot be relegated as a waste product of impervious surfaces. Any project planning must recognize storm water as an asset that sustains and protects

natural ecosystems and traditional beneficial uses of State waters, like community beautification, beach going, swimming, and fishing. The approaches necessary to do so, including low impact development methods or ecological bio-engineering of drainage ways must be identified in the planning stages to allow designers opportunity to include those approaches up front, prior to seeking zoning, construction, or building permits.

- b. Clearly articulate the State's position on water quality and the beneficial uses of State waters. The plan should include statements regarding the implementation of methods to conserve natural resources (e.g., minimizing potable water for irrigation, gray water re-use options, energy conservation through smart design) and improve water quality.
- c. Consider storm water Best Management Practice (BMP) approaches that minimize the use of potable water for irrigation through storm water storage and reuse, percolate storm water to recharge groundwater to revitalize natural hydrology, and treat storm water which is to be discharged.
- d. Consider the use of green building practices, such as pervious pavement and landscaping with native vegetation, to improve water quality by reducing excessive runoff and the need for excessive fertilization, respectively.
- e. Identify opportunities for retrofitting or bio-engineering existing storm water infrastructure to restore ecological function while maintaining, or even enhancing, hydraulic capacity. Particular consideration should be given to areas prone to flooding, or where the infrastructure is aged and will need to be rehabilitated.

If you have any questions, please visit our website at: <http://health.hawaii.gov/cwb>, or contact the Engineering Section, CWB, at (808) 586-4309.

Sincerely,



ALEC WONG, P.E., CHIEF  
Clean Water Branch

MHK

- c: DOH-EPO [via e-mail [Noella.Narimatsu@doh.hawaii.gov](mailto:Noella.Narimatsu@doh.hawaii.gov) only]  
Ms. Karlynn Fukuda, Munekiyo Hiraga  
[via e-mail [planning@munekiyohiraga.com](mailto:planning@munekiyohiraga.com) only]

DAVID Y. IGE  
GOVERNOR OF HAWAII



SEP 04 2017

VIRGINIA PRESSLER, 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, HAWAII 96793-3378

August 31, 2017

Mr. Herman Tuiolosega  
Airports Division  
Department of Transportation  
State of Hawaii  
400 Rodgers Boulevard, 7<sup>th</sup> Floor  
Honolulu, Hawaii 96819

Dear Mr. Tuiolosega:

**Subject: Environmental Assessment for proposed Lanai Airport Runway  
Improvements  
TMK: (2) 4-9-002:041, Island of Lanai, Hawaii**

Thank you for the opportunity to review this project. We have no comments to offer.  
Should you have any questions, please contact me at 808 984-8230 or email me at  
[patricia.kitkowski@doh.hawaii.gov](mailto:patricia.kitkowski@doh.hawaii.gov).

Sincerely,

A handwritten signature in cursive script that reads "Patti Kitkowski".

Patti Kitkowski  
District Environmental Health Program Chief

c Karlynn Fukuda  
EPO



DAVID Y. IGE  
GOVERNOR OF HAWAII



SUZANNE D. CASE  
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

September 15, 2017

State of Hawaii  
Department of Transportation  
Airports Division  
Attention: Mr. Herman Tuiolosega  
400 Rodgers Boulevard, 7<sup>th</sup> Floor  
Honolulu, Hawaii 96819

via email: [herman.tuiolosega@hawaii.gov](mailto:herman.tuiolosega@hawaii.gov)

Dear Mr. Tuiolosega:

SUBJECT: Environmental Assessment for Proposed Lanai Airport Runway  
Improvements, Island of Lanai; TMK: (2) 4-9-002:041 (AIR EP 17.0085)

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comments.

At this time, enclosed are comments from the Engineering Division on the subject matter. Should you have any questions, please feel free to call Darlene Nakamura at (808) 587-0417. Thank you.

Sincerely,

A handwritten signature in black ink, appearing to read "Russell Y. Tsuji".

Russell Y. Tsuji  
Land Administrator

Enclosure

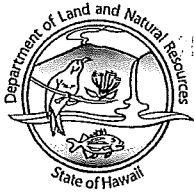
cc: Central Files  
Munekio Hiraga (w/copy)  
Attn: Ms. Karlynn Fukuda (via email: [planning@mhplanning.com](mailto:planning@mhplanning.com))

DAVID Y. IGE  
GOVERNOR OF HAWAII

RECEIVED  
LAND DIVISION

17 AUG 25 AM 11:54 ENGINEERING

SUZANNE D. CASE  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE  
MANAGEMENT



2017 AUG 29 AM 11:21

DEPT. OF LAND &  
NATURAL RESOURCES  
STATE OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

August 25, 2017

MEMORANDUM

TO:

**DLNR Agencies:**

- ☐ Div. of Aquatic Resources
- ☐ Div. of Boating & Ocean Recreation
- ☒ Engineering Division
- ☐ Div. of Forestry & Wildlife
- ☐ Div. of State Parks
- ☒ Commission on Water Resource Management
- ☒ Office of Conservation & Coastal Lands
- ☒ Land Division – Maui District
- ☒ Historic Preservation

FROM:

*R* Russell Y. Tsuji, Land Administrator

SUBJECT:

Environmental Assessment for Proposed Lanai Airport Runway  
Improvements

LOCATION:

Island of Lanai; TMK: (2) 4-9-002:041

APPLICANT:

State Department of Transportation, Airports Division

Transmitted for your review and comment is information on the above-referenced subject matter. We would appreciate your comments by **September 14, 2017**.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Darlene Nakamura at 587-0417. Thank you.

Attachments

- ☐ We have no objections.
- ☐ We have no comments.
- ☒ Comments are attached.

Signed:

Print Name:

Carty S. Chang, Chief Engineer

Date:

8/25/17

cc: Central Files

**DEPARTMENT OF LAND AND NATURAL RESOURCES  
ENGINEERING DIVISION**

**LD/Russell Y. Tsuji**

**Ref: Environmental Assessment for Proposed Lanai Airport Runway  
Improvements, Island of Lanai; TMK: (2) 4-9-002:041**

**COMMENTS**

The rules and regulations of the National Flood Insurance Program (NFIP), Title 44 of the Code of Federal Regulations (44CFR), are in effect when development falls within a designated Flood Hazard.

The owner of the project property and/or their representative is responsible to research the Flood Hazard Zone designation for the project. Flood Hazard Zone designations can be found using the Flood Insurance Rate Map (FIRM), which can be accessed through the Flood Hazard Assessment Tool (FHAT) (<http://gis.hawaiiinfip.org/FHAT>).

Be advised that 44CFR reflects the minimum standards as set forth by the NFIP. Local community flood ordinances may take precedence over the NFIP standards as local designations prove to be more restrictive. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

- o Oahu: City and County of Honolulu, Department of Planning and Permitting (808) 768-8098.
- o Hawaii Island: County of Hawaii, Department of Public Works (808) 961-8327.
- o Maui/Molokai/Lanai County of Maui, Department of Planning (808) 270-7253.
- o Kauai: County of Kauai, Department of Public Works (808) 241-4846.

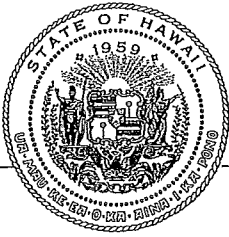
**The applicant should include water demands and infrastructure required to meet project needs.** Please note that the projects within State lands requiring water service from their local Department/Board of Water Supply system will be required to pay a resource development charge, in addition to Water Facilities Charges for transmission and daily storage.

**The applicant is required to provide water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update projections.**

Signed: \_\_\_\_\_

CARTY S. CHANG, CHIEF ENGINEER

Date: \_\_\_\_\_



## OFFICE OF PLANNING STATE OF HAWAII

235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813  
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-2846  
Fax: (808) 587-2824  
Web: <http://planning.hawaii.gov/>

SEP 29 2017


DAVID Y. IGE  
GOVERNOR

LEO R. ASUNCION  
DIRECTOR  
OFFICE OF PLANNING

Ref. No. P-15756

September 27, 2017

To: Ford N. Fuchigami, Director  
State of Hawaii Department of Transportation

From: Leo R. Asuncion, Director  
Office of Planning 

Attention: Herman Tuiolosega, Head Planner  
Airports Division

Subject: Environmental Assessment for the Proposed Lanai Airport Runway  
Improvements, Island of Lanai  
TMK: (2) 4-9-002: 041

Thank you for the opportunity to provide comments on the preparation of an Environmental Assessment (EA) for the Runway Safety Area (RSA) for Runway 3-21, Lanai Airport. The EA review material was transmitted to our office via letter dated August 15, 2017.

It is our understanding that the State of Hawaii, Department of Transportation, Airports Division is preparing an EA to comply with Federal Aviation Administration (FAA) requirements under the National Environmental Policy Act (NEPA). The purpose of this project is to construct an RSA to comply with safety standards set forth by FAA Advisory Circular 150/5300-13A.

The Office of Planning has reviewed the enclosed material and has the following comment to offer on this proposed action:

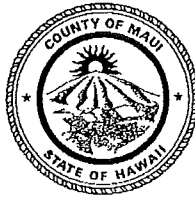
Pursuant to the Land Use Commission's Decision and Order in Docket No. A90-659, dated August 26, 1991 (Petitioner - State of Hawaii, Department of Transportation, Airports Division), Condition No. 15 states "Unless prior consultation occurs between the County of Maui and the Petitioner no runway expansion at Lanai Airport shall be allowed."

Please document your compliance with this condition in the Draft Environmental Assessment.

We have no further comments at this time. If you have any questions regarding this comment letter, please contact Joshua Hekekie of our office at (808) 587-2845.

c: ✓Ms. Karlynn Fukuda, Munekiyo Hiraga

ALAN M. ARAKAWA  
Mayor



SEP 15 2017

KA'ALA BUENCONSEJO  
Director

BRIANNE L. SAVAGE  
Deputy Director

**DEPARTMENT OF PARKS & RECREATION**

700 Hali'a Nakoa Street, Unit 2, Wailuku, Hawaii 96793

(808) 270-7230  
FAX (808) 270-7934

September 7, 2017

Mr. Herman Tuiolosega  
Airports Division  
Department of Transportation  
400 Rodgers Boulevard, 7<sup>th</sup> Floor  
Honolulu, HI 96819

Dear Mr. Tuiolosega:

**SUBJECT: ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED LANAI  
AIRPORT RUNWAY IMPROVEMENTS, TMK (2) 4-9-002:041, ISLAND  
OF LANAI, HAWAII**

Thank you for the opportunity to review and comment on the proposed Lanai Airport Runway Improvements project. The Department of Parks and Recreation has no comments on the proposed action at this time. Please provide a copy of the Draft Environmental Assessment.

Feel free to contact me, or Robert Halvorson, Chief of Planning and Development, at 270-7387 or [Robert.Halvorson@co.maui.hi.us](mailto:Robert.Halvorson@co.maui.hi.us), should you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Ka'ala Buenconsejo", is written over the typed name.

KA'ALA BUENCONSEJO  
Director of Parks & Recreation

c: Robert Halvorson, Chief  
Karlynn Fukuda, Munekiyo Hiraga

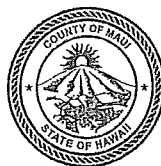
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20-17.0154

ALAN M. ARAKAWA  
Mayor

WILLIAM R. SPENCE  
Director

MICHELE CHOUTEAU McLEAN  
Deputy Director



COUNTY OF MAUI  
**DEPARTMENT OF PLANNING**

September 5, 2017

Mr. Herman Tuiolosega  
Department of Transportation  
Airports Division  
400 Rodgers Boulevard, 7<sup>th</sup> Floor  
Honolulu, Hawaii 96819

Dear Mr. Tuiolosega:

**SUBJECT: AIR-EP 17.0084 REQUEST FOR COMMENT ON THE PREPARATION OF A DRAFT ENVIRONMENTAL ASSESSMENT (EA) PREPARED FOR PROPOSED LANAI AIRPORT RUNWAY IMPROVEMENTS, ISLAND OF LANAI, HAWAII; TMK: (2) 4-9-002:041 (RFC 2017/0089)**

The Department of Planning (Department) is in receipt of a request for comments for the proposed Lanai Airport runway improvements (Project). The State of Hawaii Department of Transportation – Airports Division (HDOT-A) is in the process of developing the EA and intends to release the Draft EA for public and agency review in the fall of 2017 in order to comply with the National Environmental Policy Act (NEPA) EA process.

Based on the foregoing, the Department provides the following comments with regards to the scope of work for the proposed Project application:

1. The Department understands from the Consultation Letter from the HDOT-A dated August 17, 2017, that the Lanai Airport (LNY) runway improvements project:
  - Will improve safety of the runway at LNY
  - Will not change takeoff and arrival schedules
  - Will not increase LNY's capacity
  - Will not change the types of aircraft that can land or take off at LNY
  - Implements one (1) component of the existing approved HDOT-A LNY Master Plan

Please explain in detail each of these conclusions and how they were arrived at. Be specific on how this Project will enhance the safety of airport operations and consequently the safety of passenger travel in and out of LNY. Also, is the Project "necessary" for continued safe operations at LNY?

2. The Department understands that a primary component of the Project will be the installation of a 200 foot blast pad and extending the northeast end of the existing runway (Runway 21) by 500 feet (ft.) so that the runway length would be 5,500 feet (ft.) and remain a single runway. Please describe this component in detail in the EA.
3. Clearly outline how the Project is consistent with and meets the policies, goals, objectives, and implementing actions of the Maui County General Plan with an in-depth review of the Maui Island Plan, the Lanai Community Plan (LCP), and County Zoning, and explain if there are any inconsistencies with the Project in regards to these policy documents.

Evaluate this Project against the Issues and Strategies, Goals and Policies and Actions, and Land Use Maps noted in the LCP, specifically commenting on the following:

#### **ISSUES AND STRATEGIES**

- From LCP page 6-3: "Issue 3: Limited and expensive transportation options contribute to the high cost of goods and services and the low number of visitors to the island. Strategy 3: Advocate for improved passenger and cargo service to and from Lanai via airline and ferry."
- From LCP page 7-20: "Issue 3: The current airport runway is unable to accommodate larger planes. Strategy 3: Work with Pulama Lanai, HDOT-A, and the community to access options to accommodate some larger airplanes via airport runway expansion."
- From LCP page 7-20: "Issue 4: There are very few limited direct flights between Lanai and other Maui county airports. Strategy 4: Work with airlines to improve air transportation between the islands of Maui County."

#### **GOAL, POLICIES, ACTIONS**

- From LCP page 6-4: "Policies: 5 Advocate for Lanai's interests with shippers, airlines, and regulators."
- From LCP page 6-5: "Actions: 6.06 Work with inter-island airlines to keep airfares affordable and service frequently adequate to accommodate the needs of Lanai visitors, residents, and businesses."

- From LCP page 6-5: "Actions: 6.09 Work with HDOT-A to expedite enhancement and improvement of the airport."
- From LCP page 7-21: "GOAL: A completed, integrated, safe, and reliable system of transportation networks that serves the needs of Lanai's businesses, residents, and visitors."
- From LCP page 7-21: "Policies: 4 Advocate for expanded air service between Lanai and other islands."
- From LCP page 7-22: "Policies: 8 Support the improvement of the airport, including enhancement of the existing runway and possible addition of a second runway. Prohibit the extension of LNY's runway in the direction of Lanai City. Prohibit aircraft flight patterns over Lanai City as a means of noise mitigation. Identify and implement other aircraft noise mitigation measures such as the prohibition of late-night aircraft operations."
- From LCP page 7-22: "Policies: 9 Encourage the continuance of regularly scheduled direct flights between Maui and Lanai."
- From LCP page 7-22: "Policies: 10 Encourage competitive pricing for inter-island airfares to provide increased opportunity for inter-island mobility."
- From LCP page 9-11: "Policies: 3 Manage LNY lands to include commercial and industrial airport facility development within airport boundaries on the LCP land use maps. Expand airport boundaries to allow enhancement of existing runway."
- From LCP page 9-13: "Action: 9.03 Evaluate and establish zoning for airport land expansion, when needed, for runway improvements consistent with the community plan. Evaluate lands between the airport and Lanai City for compatible land uses, particularly with respect to sound attenuation."

#### **LAND USE MAPS**

- From LCP page 9-8 "Airport Area – Map 9.4 The Airport Area conceptual plan's goals are to improve the experience of flying into Lanai by improving transportation facilities.

9.4A Airport Enhancement: The enhancement of present airport facilities will add approximately 46 acres to the existing airport to increase its life capacity. The runway will be extended by 500 ft. for a total runway of 5,500 ft. In addition, facilities to airplane operations and an anticipated increase air transportation will include a new taxiway, hangar area, and fueling station."

NOTE: Map 9.4 Airport Land Use Detail is attached for reference as the Department requests review of this proposed runway expansion in relation to this LCP Map 9.4.

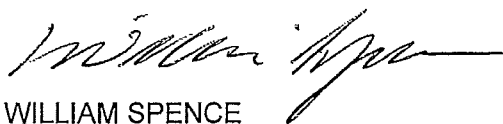


Mr. Herman Tuiolosega  
September 5, 2017  
Page 4

4. Describe possible alternatives to the proposed Project as noted in the Consultation Letter and also comment on the feasibility of a potential expansion of the airport runway from the south toward the ocean (opposite of that proposed).
5. Show photos of existing areas proposed for enhancement and runway extension.
6. Comment on both State of Hawaii and County of Maui permits necessary for this Project.
7. Provide a noise study regarding the potential runway extension and its effect on surrounding areas.

Thank you for the opportunity to comment on this Project. Should you have any questions about the comments in this letter, please contact the Planning Department by email at [planning@mauicounty.gov](mailto:planning@mauicounty.gov) or by phone at (808) 270-8205.

Sincerely,



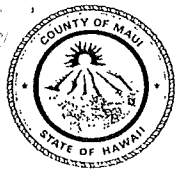
WILLIAM SPENCE  
Planning Director

Attachment

xc: Clayton I. Yoshida, Planning Program Administrator (PDF)  
John S. Rapacz, Planning Program Administrator (PDF)  
Kurt F. Wollenhaupt (PDF)  
Karllynn Fukuda, Munekiyo Hiraga (PDF)  
Project File  
General File

WRS:CIY:KFW:ela

K:\WP\_DOCS\PLANNING\RFC\2017\0089\_LanaiAirportRunway\_Imprvmts\LanaiAirportEA\_Comments.doc



ALAN M. ARAKAWA  
MAYOR

OUR REFERENCE

YOUR REFERENCE

# POLICE DEPARTMENT

## COUNTY OF MAUI

55 MAHALANI STREET  
WAILUKU, HAWAII 96793  
(808) 244-6400  
FAX (808) 244-6411



TIVOLI S. FAAUMU  
CHIEF OF POLICE

DEAN M. RICKARD  
DEPUTY CHIEF OF POLICE

September 12, 2017

Mr. Ford N. Tuiolosega  
Director of Transportation  
State of Hawaii Department of Transportation  
869 Punchbowl Street  
Honolulu, Hawaii 96813-5097

Dear Mr. Tuiolosega:

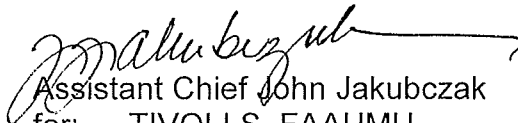
SUBJECT: Environmental Assessment for Proposed Lanai Airport Runway  
Improvements, TMK: (2) 4-9-002:041, Island of Lanai, Hawaii

This is in response to your letter dated August 15, 2017, requesting comments on the  
above subject.

We have received the information submitted and have enclosed a copy of our comments  
and recommendations.

Thank you for giving us the opportunity to comment on this project.

Sincerely,

  
Assistant Chief John Jakubczak  
for: TIVOLI S. FAAUMU  
Chief of Police

Enclosure

c: Karlynn Fukuda, Munekiyo Hiraga

**TO :** TIVOLI FAAUMU, CHIEF OF POLICE, MAUI COUNTY  
POLICE DEPARTMENT

**VIA :** CHANNELS - NOTED. CONCUR WITH  
ASSESSMENT. RESPONSE ON MPD  
LETTERHEAD TO BE DRAFTED AND SENT  
TO DEPT. OF TRANSPORTATION.

**FROM :** PIUS TAIWERPIY, SERGEANT, DISTRICT II, LANAI  
PATROL

**SUBJECT :** RESPONSE TO REQUEST FOR COMMENTS AND  
RECOMMENDATIONS REGARDING THE PROPOSED LANAI  
AIRPORT RUNWAY SAFETY AND RELATED IMPROVEMENTS  
TMK: (2) 4-9-002:041

John Jakubczak  
Assistant Chief  
9.12.17

This communication is submitted as a response to a request for comments and recommendations by The Hawaii State Department of Transportation, Airports Division (HDOT-A), Director of Transportation, Ford N. Fuchigami, regarding the following.

Project Name : Lanai Airport Runway Improvements.  
Applicant : Hawaii State Department of Transportation, Airports Division.  
TMK : (2) 4-9-002:041  
Consultant : Munekiyo & Hiraga, Inc.

In review of the submitted documents, concerns from the police perspective are upon the safety of pedestrian and vehicular movement.

This project entails the installation of a 200 foot blast pad and extending the northeast end of the existing runway by 500 feet, improvements also include a new access road, fencing, runway lighting and electrical utility improvement and relocation of the Localizer Antenna and Localizer/DME equipment building and some other safety and regulatory standards.

**RESPONSE:**

During the course of this project, ingress and egress of required equipment and vehicles may impact vehicular traffic on Kaunapali Highway, two-lane, undivided, two-way roadway, that runs parallel to the Lanai Airport Runway. Adequate signage and traffic control personnel must be utilized to minimize this impact and ensure pedestrian safety. Also measures must be taken to minimize the dust, debris, odors or other elements which may cause health and safety issues for the owners of the farms and plant nurseries in the area.

Much of the lands surrounding the Lanai Airport Runway are rural areas and agricultural areas. Due to the rural nature of the area, traffic is generally light and with minimal traffic congestion.

ALAN M. ARAKAWA  
Mayor

DAVID C. GOODE  
Director

ROWENA M. DAGDAG-ANDAYA  
Deputy Director

Telephone: (808) 270-7845  
Fax: (808) 270-7955



SEP 06 2017

GLEN A. UENO, P.E., P.L.S.  
Development Services Administration

CARY YAMASHITA, P.E.  
Engineering Division

JOHN R. SMITH, P.E.  
Highways Division

COUNTY OF MAUI  
**DEPARTMENT OF PUBLIC WORKS**  
200 SOUTH HIGH STREET, ROOM NO. 434  
WAILUKU, MAUI, HAWAII 96793

August 31, 2017

Mr. Herman Tuiolosega  
Airports Division  
Department of Transportation  
400 Rodgers Boulevard, 7<sup>th</sup> Floor  
Honolulu, Hawaii 96819

Dear Mr. Tuiolosega:

**SUBJECT: ENVIRONMENTAL ASSESSMENT FOR PROPOSED LANAI  
AIRPORT RUNWAY IMPROVEMENTS, ISLAND OF LANAI;  
TMK: 4-9-002:041**

We reviewed the subject application and have no comments at this time.

If you have any questions regarding this memorandum, please call Rowena Dagdag-Andaya at (808) 270-7845.

Sincerely,

A handwritten signature in black ink, appearing to read "D. Goode", is written over a horizontal line.

DAVID C. GOODE  
Director of Public Works

DCG:RMDA:da

xc: Engineering Division  
Karlynn Fukuda

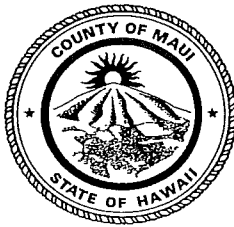
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SEP 07 2017

ALAN M. ARAKAWA  
Mayor

STEWART STANT  
Director

MICHAEL M. MIYAMOTO  
Deputy Director



MICHAEL RATTE  
Solid Waste Division

ERIC NAKAGAWA, P.E.  
Wastewater Reclamation Division

**COUNTY OF MAUI  
DEPARTMENT OF  
ENVIRONMENTAL MANAGEMENT**

2050 MAIN STREET, SUITE 2B  
WAILUKU, MAUI, HAWAII 96793

August 28, 2017

Mr. Herman Tuiolosega  
Airports Division  
Department of Transportation  
400 Rodgers Boulevard, 7<sup>th</sup> Floor  
Honolulu, Hawaii 96819

**SUBJECT: LANAI AIRPORT RUNWAY IMPROVEMENTS  
ENVIRONMENTAL ASSESSMENT  
TMK (2) 4-9-002:041, LANAI**

We reviewed the subject application and have the following comments:

1. Solid Waste Division comments:
  - a. Developer shall apply to the Lanai Landfill to dispose of construction and demolition waste generated by the project.
2. Wastewater Reclamation Division (WWRD) comments:
  - a. The County does not have a wastewater system in the area of the subject project.

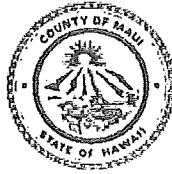
If you have any questions regarding this letter, please contact Michael Miyamoto at 270-8230.

Sincerely,

MICHAEL M. MIYAMOTO  
Deputy Director of Environmental Management

xc: Ms. Karlynn Fukuda

ALAN M. ARAKAWA  
Mayor



DAVID TAYLOR, P.E.  
Director

GLADYS C. BAISA  
Deputy Director

**DEPARTMENT OF WATER SUPPLY**  
**COUNTY OF MAUI**  
200 SOUTH HIGH STREET  
WAILUKU, MAUI, HAWAII 96793-2155  
[www.mauiwater.org](http://www.mauiwater.org)

September 11, 2017

Herman Tuiolosega  
Airports Division  
Department of Transportation  
400 Rogers Boulevard, 7<sup>th</sup> Floor  
Honolulu, Hawaii 96819

Re: Draft Environmental Assessment (DEA) Pre-Consult for Proposed Lana'i Airport Runway Improvements Project  
TMK: (2) 4-9-002:041

Dear Mr. Tuiolosega,

Thank you for the opportunity to pre-consult on the DEA for the Lana'i Airport Runway Improvements Project. The entire island of Lana'i is served by the Lana'i Water Company, a privately owned water utility company regulated by the Public Utilities Commission. The Department of Water Supply has no jurisdiction over projects served by private water systems.

Lana'i relies on a single aquifer sector with two aquifer systems. Potable groundwater occurs in only the Central sector. In order to protect water resources, we recommend that the following mitigation measures be included in the DEA and implemented during construction:

- Evaluate the runway and site for best demolition method that will create the least amount of debris and sediment loss.
- Reclaimed water should be used for dust control and landscaping during construction if available.
- Before demolition, install temporary silt fences.
- No part of the demolition material should be allowed to fall into the stream at the North East end of the runway.
- Minimize disturbed area, ensuring that only the smallest amount of bare ground is exposed for the shortest time possible.
- Methods to minimize soil erosion and trap sediments should be used. Properly install

*"By Water All Things Find Life"*

and maintain erosion control barriers such as silt fencing or straw bales and other appropriate erosion control devices to contain sediment before they reach any surface water feature in the work area. Inspect silt fences on a regular basis and after each rainfall. Make any required repairs immediately. Remove and dispose of sediment accumulations when depth reaches one-half the height of the filter fabric. Replace silt fence removed for access at the end of each day's operation.

- Fill or excavated material must not be placed in a manner that creates an unstable slope.
- Stabilize stream banks with indigenous vegetation or riprap, if required.
- Properly and promptly dispose of all loosened and excavated soil and debris material.
- Prevent cement products, oil, fuel and other toxic substances from falling or leaching into the ground. Remove all construction debris and toxic substances daily.
- Maintain vehicles and equipment to prevent oil or other fluids from leaking. Concrete trucks and tools used for construction should be rinsed off-site.
- Construction debris and sediment should be removed from construction areas each day that construction occurs to prevent the accumulation of sediment and other debris which may be discharged into the stream.
- Retain ground cover until the last possible date. Stabilize denuded areas by sodding or planting native species as soon as possible. Use high seeding rates to ensure rapid stand establishment. Apply biocides only during dry periods of low rainfall to minimize chemical run-off.
- Keep run-off on site.

Should you have questions, please contact Audrey Dack, staff planner, at (808) 463-3109 or [audrey.dack@co.maui.hi.us](mailto:audrey.dack@co.maui.hi.us).

Sincerely,



David S. Taylor, P.E.  
Director

apd

AUG 30 2017



August 28, 2017

Department of Transportation – Airport Division  
Attn: Mr. Herman Tuiolosega  
400 Rodgers Boulevard, 7<sup>th</sup> Floor  
Honolulu, HI 96819

Subject: Environmental Assessment for Proposed Lanai Airport Runway Improvements  
Tax Map Key: (2) 4-9-002:041  
Island of Lanai, Hawaii

Dear Mr. Tuiolosega,

Thank you for allowing us to comment on the Environmental Assessment for the subject project.

In reviewing our records and the information received, Maui Electric Company, Limited (Maui Electric) would encourage the State of Hawaii's consultant to contact us if there are potential conflicts with our existing facilities.

While I do not anticipate any conflicts, please be advised that Maui Electric has existing overhead facilities beyond the planned project boundaries along Miki Road.

Should you have any questions or concerns, please contact me at 871-2340.

Sincerely,

Ray Okazaki  
Distribution Engineering Supervisor

c: Ms. Karlynn Fukuda, Munekiyo & Hiraga, Inc





EP 17.0164

Hawaiian Telcom

August 22, 2017

State of Hawaii  
Department of Transportation  
Airports Division  
400 Rodgers Boulevard, 7<sup>th</sup> Floor  
Honolulu, Hawaii 96819

ATTN: Mr. Herman Tuiolosega

SUBJECT: ENVIRONMENTAL ASSESSMENT  
PROPOSED LANAI AIRPORT RUNAWAY IMPROVEMENTS  
ISLAND OF LANAI, HAWAII  
TMK: (2) 4-9-002:041

Dear Mr. Tuiolosega:

Thank you for providing Hawaiian Telcom Inc., the opportunity to comment on the Environmental Assessment for the State of Hawaii Department of Transportation, Airports Division, for the proposed Lanai Airport Runway Improvements, on the Island of Lanai.

Hawaiian Telcom Inc. has no comments on this project at this time.

If there are any questions, please call Sheri Tihada at (808) 242-5258.

Sincerely,

Cassandra Yamamoto  
Section Manager –  
Network Development

C: K. Fukuda, Munekiyo Hiraga  
File (6005 1708-015)  
S. Tihada

Always on.<sup>SM</sup>

PO Box 2200, Honolulu, HI 96841 hawaiiantel.com



**Section 106 Consultation Mailing List  
for Lanai Airport Runway Improvements Project**

FINAL DRAFT

	Phone	Agency	Individual	Title	Address	City/Zip	Salutation
1	None listed	Association of Hawaiian Civic Clubs	Annelle Amaral	President	P.O. Box 1135	Honolulu, Hawaii 96807	Ms. Amaral
2	(808) 446-5572	Association of Hawaiians for Homestead Lands	Blossom Feiteira	President	2149 Lauwiliwili St., Ste 200	Kapolei, Hawaii 96707	Ms. Feiteira
3	(808) 315-2141	Au Puni O Hawaii	Samson L. Brown	President	21 Pohai Street	Hilo, Hawaii 96720	Mr. Brown
4	(808) 596-8155	Council for Native Hawaiian Advancement	Napali Woode	Senior Vice President	2149 Lauwiliwili St., Ste 200	Kapolei, Hawaii 96707	Mr. Woode
5	(808) 522-0822	Friends of 'Iolani Palace	Kippen de Alba Chu	Executive Director	P.O. Box 2259	Honolulu, HI 96804-2259	Mr. de Alba Chu
6	(808) 565-6871	Hau'ouiwi Homestead Association on Lanai	Winifred Basques	Director	P.O. Box 630521	Lanai City, HI 96746	Ms. Basques
7	(808) 895-5139	Hawaiian Civic Club of Hilo	Antoinette K. Mallow	Pelekikena	P.O. Box 592	Hilo, Hawaii 96721	Ms. Mallow
8	(808) 587-7886	Hawaiian Community Assets, Inc.	Jeff Gilbreath	Executive Director	200 N. Vineyard Blvd, #A300	Honolulu, Hawaii 96817	Mr. Gilbreath
9	(808) 216-4241	Hui Huliau, Inc.	Adrian Nakea Silva	Chairman	P.O. Box 587	Waianae, Hawaii 96792	Mr. Silva
10	None listed	Imua Hawaii	Kealii Lopez	President	P.O. Box 1811	Honolulu, Hawaii 96805	Ms. Lopez
11	(808) 523-6368	Kamehameha Schools - Community Relations and Communication Group	Piilani Hanohano	Government Relations Coordinator	567 S. King St, Ste 400	Honolulu, HI 96813	Ms. Hanohano
12	(808) 887-1117	Kanu o ka Aina Learning Ohana	Taffi Wise	Executive Director	P.O. Box 6511	Kamuela, HI 96743	Ms. Wise
13	(808) 235-2425	Kingdom of Hawaii	Dennis W. Ragsdale	Advocate General	1777 Ala Moana Blvd, #142-102	Honolulu, Hawaii 96815-1603	Mr. Ragsdale
14	(808) 226-4195	Koolau Foundation	Mahelani Cypher	Secretary	P.O. Box 4749	Kaneohe, Hawaii 96744	Ms Cypher
15	(801) 230-5109	Mainland Council Association of Hawaiian Civic Clubs	Charlene Lui	President	766 North 900 West	Orem, Utah 84057	Ms. Lui
16	(808) 961-4811	Na Koa Ikaika Ka Lahui Hawaii	Mililani B. Trask	Convenor	P.O. Box 6377	Hilo, Hawaii 96720	Ms. Trask
17	(808) 778-5598	Na Ku'auha'o Kahiwakaneikopolei	H. Kanoekalani Cheek	Vice President	P.O. Box 5411	Kaneohe, Hawaii 96744	Ms. Cheek
18	(808) 842-0770	Nanakuli Housing Corporation	Paige Kapiolani Barber		P.O. Box 17489	Honolulu, Hawaii 96817	Ms. Barber
19	(808) 596-8155	Native Hawaiian Economic Alliance	Napali Woode	Director	2149 Lauwiliwili St., Ste 200	Kapolei, HI 96707	Mr. Woode
20	(808) 523-6432	Native Hawaiian Education Council	Sylvia M. Hussey	Executive Director	735 Bishop Street, Suite 224	Honolulu, Hawaii 96813	Ms. Hussey
21	(808) 594-1835	Office of Hawaiian Affairs	Kamana'opono M. Crabbe	Chief Executive Officer	560 N. Nimitz Highway, Suite 200	Honolulu, Hawaii 96817	Dr. Crabbe
22	(808) 235-2425	Order of Kamehameha I	Dennis W. Ragsdale	Advocate General	1777 Ala Moana Blvd, #142-102	Honolulu, Hawaii 96815-1603	Mr. Ragsdale
23	(808) 597-6550	Papa Ola Lokahi	Sharlene Chun-Lum	Executive Director	894 Queen Street	Honolulu, Hawaii 96813	Ms. Chun-Lum
24	(808) 595-2752	Partners in Development Foundation	Jan E. Hanohano Dill	President and COB	2040 Bachelot Street	Honolulu, Hawaii 96817	Mr. Hanohano Dill
25	(808) 377-5611	Royal Hawaiian Academy of Traditional Arts	L. Laakea Suganuma	President	835 Ahuwale Street	Honolulu, Hawaii 96821	Mr. Suganuma
26	(808) 652-0140	Sovereign Councils of the Hawaiian Homelands Assembly	Robin Puanani Danner	Chairman	2149 Lauwiliwili St., Ste 200	Kapolei, Hawaii 96707	Ms. Danner
27	(808) 542-7869	The I Mua Group	Melvin Soong	President	422 Iliaina Street	Kailua, Hawaii 96734	Mr. Soong
28	(808) 565-7177	Lanai Culture and Heritage Center	Kepa Maly	Executive Director	P.O. Box 631500	Lanai City, Hawaii 96763	Mr. Maly
29	(877) 585-2432 (803) 524-8220	KAHEA	Jonathan Osorio, Ph.D.		P.O. Box 37368	Honolulu, Hawaii 96837	Dr. Osorio



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## LĀNA'I CULTURE & HERITAGE CENTER

E Ho'ohanohano 'ana i ka wā mamua, a e Ho'olako 'ana i ka mua aku!  
(Honoring the Past, and Enriching the Future!)

A Non-Profit Charitable, Museum, Research and Educational Organization  
P.O. Box 631500 · Lāna'i City, Hawai'i 96763 (808) 565-7177 · [info@LanaiCHC.org](mailto:info@LanaiCHC.org) · [www.LanaiCHC.org](http://www.LanaiCHC.org)

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Keahiakawelo—  
ka lama o Lāna'i

March 1, 2018

Mr. Gordon K. Wong  
Acting Manager, Airports District Office  
300 Ala Moana Blvd. Rm. 7-128  
Box 50244  
Honolulu, Hawai'i 96850-001

Via email: [gordon.wong@faa.gov](mailto:gordon.wong@faa.gov)

Subject: Proposed Lāna'i Airport Runway Improvements – Lāna'i City, Hawai'i  
NHO Consultation Letter - No Objections Offered

Aloha Mr. Wong

In response to your letter dated October 13, 2017, and conversations on Feb.  
28<sup>th</sup> and Mar. 1<sup>st</sup> with Ms. Dee Phan, I would like to share the following comments with you.

I was raised on Lāna'i, and am considered well-versed in the history of Lāna'i and the larger Hawaiian Island group. I have spent over 40 years conducting historical-ethnographic studies, oral history interviews and in development of Hawaiian heritage programs and museums. I am the founding executive director of the Lāna'i Culture & Heritage Center, and have access to tens-of-thousands of historical documents, photos and maps from Lāna'i. Of particular interest to the project site, we have a collection of photos (ground and aerial) which depict project areas and level of work done there since the 1940s.

The proposed 500-foot long by 80-wide extension to the northeast end of the existing runway is situated in an area of the early 1947-48 earthen runway originally build on Lāna'i by the Territory of Hawai'i. There are no specific sites recorded from the immediate and nearby areas through historical records or the earliest archaeological field done on Lāna'i in 1921.

Please accept this letter confirming that I have not had, and do not have any concerns with the proposed 500-foot extension, which is the subject of your Oct. 13<sup>th</sup>, 2017 letter. I apologize for not responding at the time your initially wrote. I was out in the hospital and out of state.

Humbly,

Kepā Maly

cc. Ms. Dee Phan via email: [dee.phan@faa.gov](mailto:dee.phan@faa.gov)

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Onaona Maly

Operations Assistant-  
Interpreter:  
Mikala Enfield



U.S Department  
of Transportation  
**Federal Aviation  
Administration**

Western-Pacific Region  
Honolulu Airports District Office

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Honolulu, HI 96813  
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April 19, 2018

Dr. Kamana'opono Crabbe  
Chief Executive Officer  
Office of Hawaiian Affairs  
560 Nimitz Highway, Suite 200  
Honolulu, Hawaii 96817

Dear Dr. Crabbe:

**SUBJECT: Proposed Lānaʻi Airport Runway Improvements; Lānaʻi Airport,  
Lānaʻi City, Island of Lānaʻi; Native Hawaiian Organization Consultation - Notification of  
APE Change and Request for Input**

On October 13, 2017, the Federal Aviation Administration (FAA) sent your organization a letter notifying you of our federal undertaking and seeking your input related to the proposed Lānaʻi Airport Improvement project. Subsequent to this letter, the FAA has revised the project's Area of Potential Effects (APE) to account for the direct and indirect effects (see enclosed APE exhibit). The project's scope of work remains the same. (Please refer to October 2017 enclosures for project details.)

The purpose of this letter is to notify you of the APE change and again, FAA is seeking input or concerns that uniquely or significantly affect Native Hawaiians due to the proposed project. Your identification of Native Hawaiian concerns will allow the FAA to consider ways to avoid and minimize potential impacts to Native Hawaiians resources and practices as project planning and alternatives are developed and refined. We are available to discuss details of the proposed project with you.

Your timely response will greatly assist us in incorporating your concerns into this environmental review process. We respectfully request that comments be submitted in writing (letter or email) by May 19, 2018.

Please do not hesitate to contact me at 808-312-6028 or by email at [Gordon.Wong@faa.gov](mailto:Gordon.Wong@faa.gov) if you have any questions or require additional information.

Sincerely,

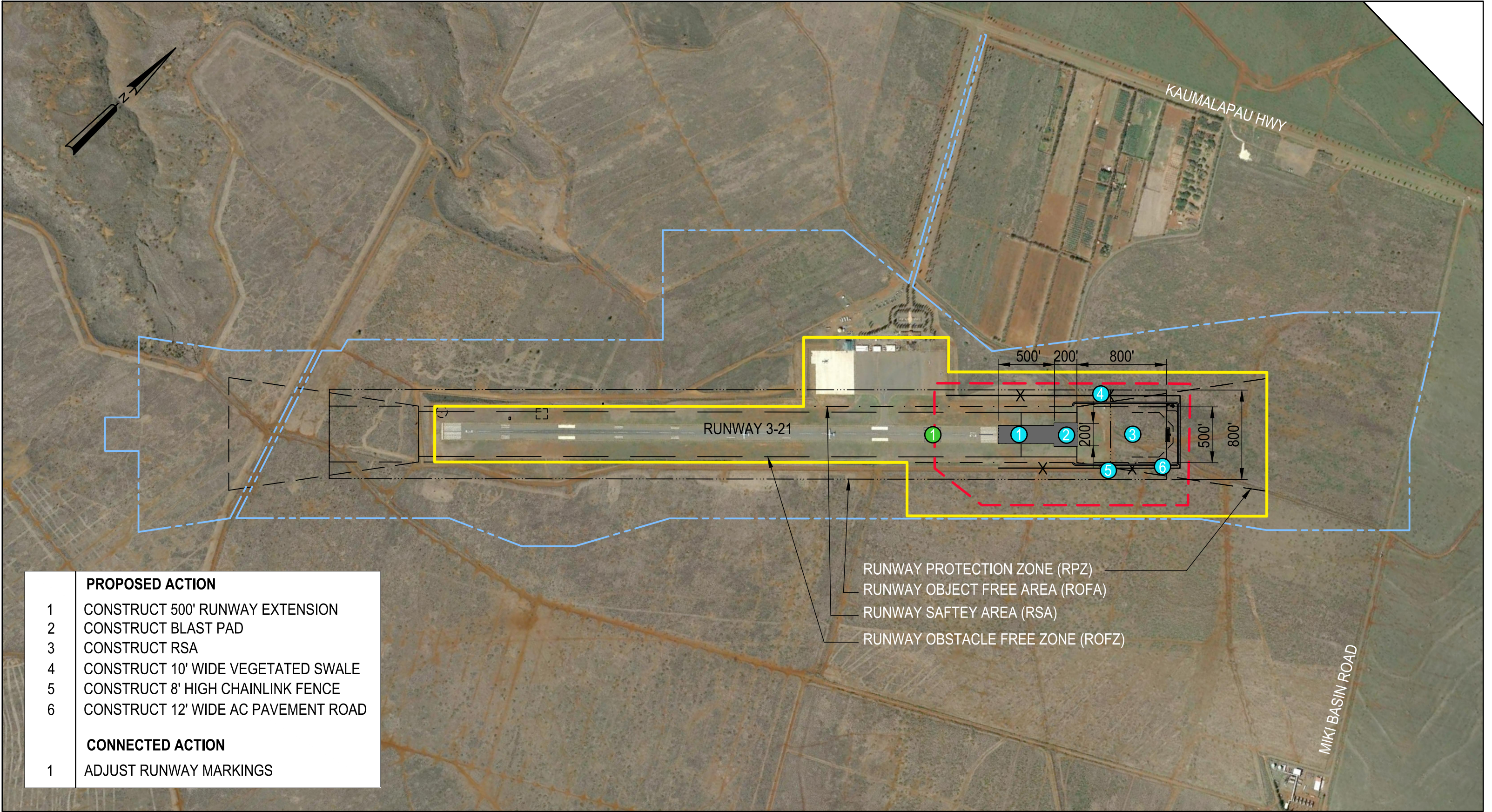


Gordon K. Wong  
Manager, Airports District Office

Enclosure

cc: (w/encl.)  
Herman Tuiolosega, HDOTA





LEGEND

- AIRPORT PROPERTY
- INDIRECT AREA OF POTENTIAL EFFECT
- DIRECT AREA OF POTENTIAL EFFECT
- PROPOSED ACTION
- CONNECTED ACTION

AREA OF POTENTIAL EFFECT

SCALE: 1" = 800'

GRAPHIC SCALE









---

## LĀNA'I CULTURE & HERITAGE CENTER

**E Ho'ohanohano 'ana i ka wā mamua, a e Ho'olako 'ana i ka mua aku!  
(Honoring the Past, and Enriching the Future!)**

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P.O. Box 631500 • Lāna'i City, Hawai'i 96763 (808) 565-7177 • [info@LanaiCHC.org](mailto:info@LanaiCHC.org) • [www.LanaiCHC.org](http://www.LanaiCHC.org)

---



Keahiakawelo—  
ka lāma o Lāna'i

April 29, 2018

Gordon K. Wong, Manager  
Honolulu Airports District Office  
300 Ala Moana Blvd., Rm. 7-128  
Honolulu, HI 96850-0001  
(via email: [Gordon.Wong@faa.gov](mailto:Gordon.Wong@faa.gov))

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John Schaumburg  
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Kēhau Watson, Ph.D.

**Executive Director:**  
Kepā Maly

**Administrative  
Volunteer:**  
Onaona Maly

**Subject: Proposed Lāna'i Airport Runway Improvements; Lāna'i Airport,  
Lāna'i City, Island of Lāna'i; Native Hawaiian Organization Consultation –  
Notification of APE Change and Request for Input. No Objections Offered.**

Dear Mr. Wong,

Thank you for the opportunity to respond to your consultation letter dated April 19, 2018. While the APE has been expanded to take in both direct and indirect effects, I remain of the same opinion expressed in my letter of March 1, 2018. As always, proper care and orientation for contractors to the laws pertaining to preservation of cultural properties should be made a part of the orientation and work practices.

Beginning in the 1860s, the Kalulu-Kamoku ahupua'a project area fell under Kingdom leases as pasture for grazing goats and sheep, leaving most of the area stripped of once highly valued native vegetation. Also, due to an alarming decrease in the native population of Lāna'i during the 1800s, no native tenant landholdings were recorded in the APE. While an ancient foot trail and heiau, "Ili o Lono" were recorded for the study area, both were completely removed from the landscape. This is largely because by the late 1920s, the entire project area came to be extensively bulldozed and used for cultivation of pineapple. Then in 1947-1948, the immediate APE was again bulldozed and further leveled for development of the current airport complex. Subsequently, improvements and extensions of the airport terminal facilities and runway (both tarmac and safety zones) further changed the landscape. Details of this history, and that of traditional-customary practices as recorded in native Hawaiian language accounts, and historical land use records may be found in a study I compiled and integrated into Dye and Maly (November 23, 2016).

I may add that of particular interest to the project site, the Lāna'i Culture & Heritage Center has a collection of photos (ground and aerial) that could be made available for interpretive displays to provide those who travel through the airport terminal with a visual history of air travel on Lāna'i. These resources would greatly add to the experience of travelers and also help prepare them explore Lāna'i's storied landscape.

Sincerely,

Kepā Maly

SEP 08 2017



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

September 1, 2017

SUBJECT: Request for Comments for Lanai Airport Runway Improvements, Island of Lanai, Hawaii, DA File No. POH-2013-00125

Ms. Karlynn Fukuda  
Munekiyo Hiraga  
305 High Street, Suite 104  
Wailuka, Hawaii 96793

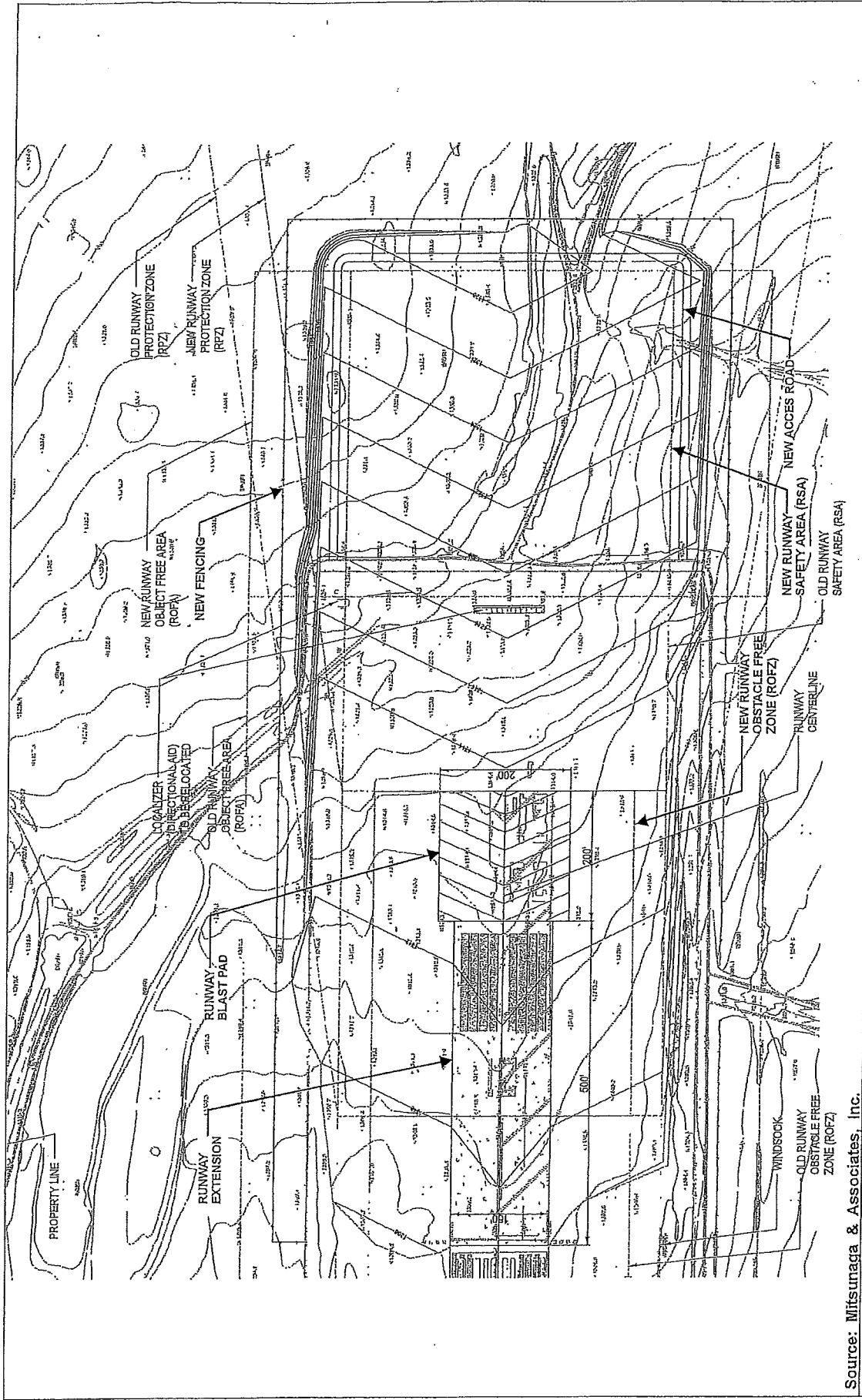
Dear Ms. Fukuda:

The U.S. Army Corps of Engineers, Honolulu District (Corps), is in receipt of your letter dated August 15, 2017 for the proposed Lanai Airport Runway Improvements located on the Island of Lanai, Hawaii. Your project has been assigned Department of the Army (DA) file number POH-2013-00125. Please reference this number in all future correspondence concerning this determination. The project area reviewed by the Corps and addressed in this letter and accompanying documentation is shown in Enclosure 1.

We have completed a preliminary review of your submittal pursuant to Section 404 of the Clean Water Act (Section 404) and Section 10 of the Rivers and Harbors Act of 1899 (Section 10). Section 404 requires authorization prior to the discharge and/or placement of dredged or fill material into waters of the U.S., including adjacent wetlands. Section 10 requires authorization prior to installing structures or conducting work in, over, under, and affecting navigable waters.

Based on our review of your submittal, including the written explanation of work as well as the Site Plans, it appears that the Lanai Airport runway may cross one or more streams, which may be water of the U.S. under the regulatory jurisdiction of the Corps. In accordance with Section 404, a Department of the Army (DA) permit will be required for any activity resulting in the discharge and/or placement of dredged or fill material into a water of the U.S. Therefore, a DA permit may be required for your proposed project.

Thank you for your cooperation with the Honolulu District Regulatory Program.



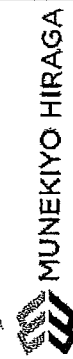
Source: Mitsunaga & Associates, Inc.

## Exhibit 2

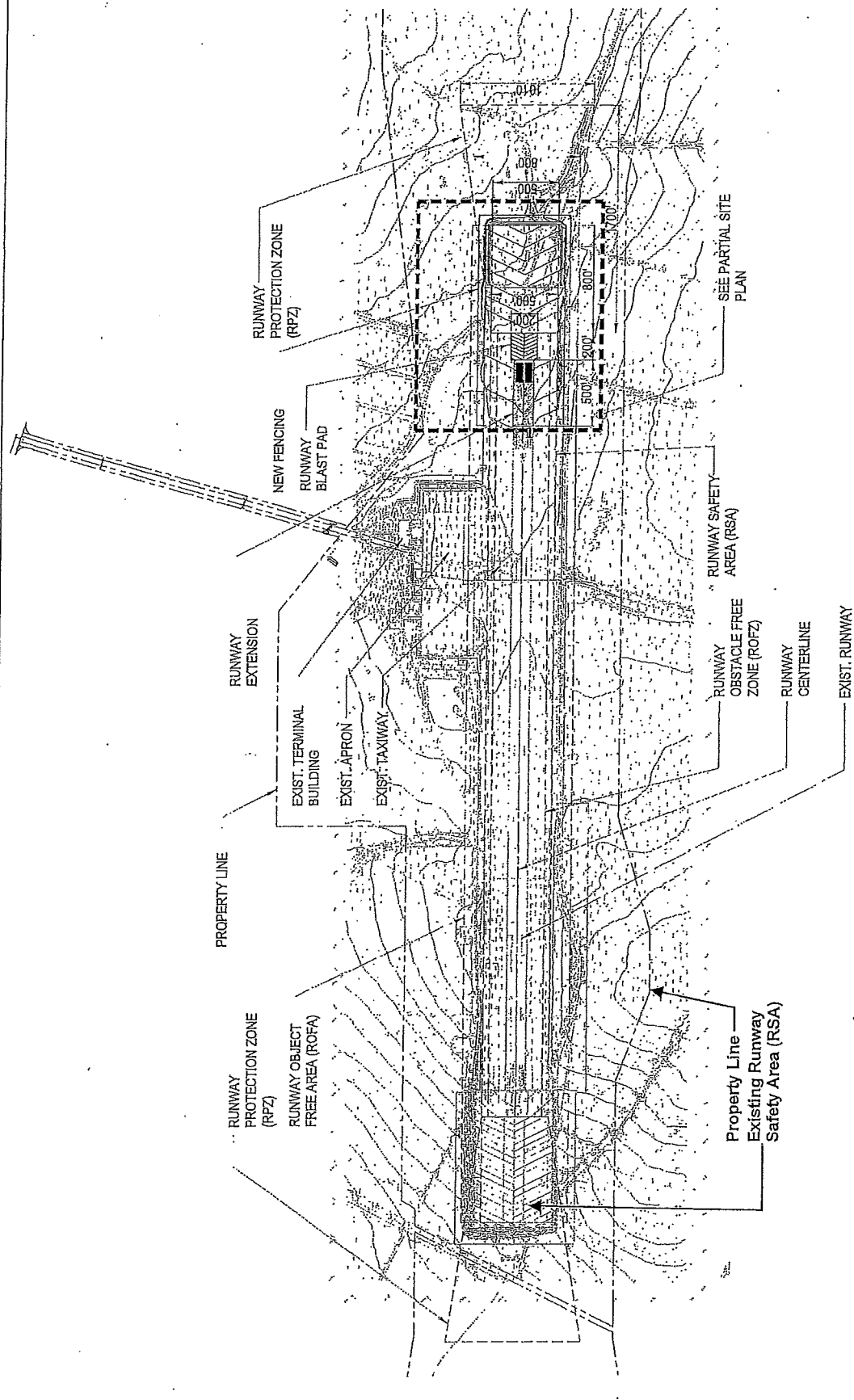


# Lana'i Airport Runway Extension Proposed Improvement Plan

NOT TO SCALE



Prepared for: State of Hawai'i, Department of Transportation



Source: Mitsunaga & Associates, Inc.

## Exhibit 1



# Lana'i Airport Runway Extension Overall Site Plan

NOT TO SCALE



MUNEKIYO HIRAGA

Prepared for: State of Hawai'i, Department of Transportation

DAVID Y. IGE  
GOVERNOR



**STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
AIRPORTS DIVISION**

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EDWIN H. SNIFFEN  
DARRELL T. YOUNG

IN REPLY REFER TO:

**AIR-EP  
18.0052**

April 11, 2018

Ms. Rebecca Frager, Biologist  
U.S. Army Corps of Engineers  
Honolulu District Regulatory Office  
Building 230  
Fort Shafter, Hawaii 96858-5440

Dear Ms. Frager:

Subject: Proposed Lanai Airport Runway Improvements, POH-2013-00125,  
TMK (2)4-9-002:041, Island of Lanai, Hawaii

As a follow up to a telephone conference with staff and your email comments dated March 2, 2018, regarding the subject project, please find attached for your review and use, a copy of the "Assessment of the Aquatic Resources of the Upper Kalamaiki Stream Tributaries for the Lanai Airport Runway Improvements Project". The report was prepared by Robert Hobdy and is dated March 2018. We are submitting this report and requesting a determination from your office regarding the Ordinary High Water Mark (OHWM) for the Kalamaiki Gulch. As noted in the study, no OHWM was observable during the field investigation of the site and the field work was completed after two days of steady rain on Lanai.

Should you have any questions or need further information, please contact Mr. Herman Tuiolosega, Head Planner, at (808) 838-8810.

Sincerely,

A handwritten signature in black ink, appearing to read "Ross M. Higashi".

ROSS M. HIGASHI  
Deputy Director – Airports

Attachment: Lanai Airport Aquatics Resources Assessment

c: Karlynn Fukuda, Munekiyo Hiraga (w/o Attachment)



**Appendix B**  
*Noise Analysis*

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## APPENDIX B NOISE ANALYSIS

### B.1 AIRCRAFT NOISE

#### B.1.1 METHODOLOGY

This noise analysis addresses the future aircraft noise environment and potential noise impacts related to the No Action and Proposed Action alternatives in the area surrounding the Lanai Airport (LNY). On May 15, 2015, the FAA published a policy statement in the Federal Register regarding the required use of models for noise and air emissions for FAA actions.<sup>1</sup> The notice states that effective May 29, 2015, the Aviation Environmental Design Tool (AEDT) Version 2b replaces AEDT Version 2a, Integrated Noise Model (INM), and Emissions and Dispersion Modeling System (EDMS) as the required tool for noise, fuel burn, and emissions modeling of FAA actions. The Aviation Environmental Design Tool (AEDT) Version 2d, released in September 2017, is the latest version of the model used for this analysis. Noise exposure levels are calculated from airport-specific data input into the model. The year used to establish existing noise conditions was 2016, which was the last full year of available data at the time the Environmental Assessment (EA) was initiated. The No Action Alternative and the Proposed Action Alternative were compared for the operational years of 2020 (first full year of operation post-construction) and 2025 (fifth year of operation post-construction).

The FAA has determined that the cumulative aircraft noise exposure experienced by individuals must be established in terms of the yearly day-night average sound level (DNL) metric. The AEDT incorporates the number of annual average daily daytime and nighttime aircraft operations, flight paths, and flight profiles of aircraft, along with its extensive internal database of aircraft noise and performance information, to calculate the DNL around an airport. From a grid of points, the AEDT contouring program draws contours of equal DNL that can be superimposed onto land use maps. For this EA, four standard ranges of DNL noise contours are presented: DNL 60 – 64 decibels (dB), DNL 65 – 69 dB, DNL 70 – 75 dB, and DNL 75 dB and above. FAA guidance for the preparation of noise contours specifies that noise contours for the DNL 65 dB, DNL 70 dB, and DNL 75 dB must be prepared; additional noise contours can be provided on a case-by-case basis.<sup>2</sup> The State of Hawaii Department of Transportation, Airports Division (HDOT-A) provides the DNL 60 dB noise contour for State and local informational planning purposes.

The flight tracks modeled in the AEDT are based on the assumptions developed for the 14 C.F.R. Part 150 study (Part 150 study) conducted in 1999, and are consistent with the current published Standard Instrument Departures (SIDS) and Standard Terminal Arrival Routes (STARs). Aircraft operations and fleet mix data used for this noise analysis are based on the following sources: FAA's Traffic Flow Enhanced Traffic Management System Counts (ETFMSC), June 2015 FAA approved Aviation Demand Forecasts, FAA's Terminal Area Forecast (TAF) data, and the Airport Operations records.

---

<sup>1</sup> U.S. Department of Transportation, Federal Aviation Administration 14 C.F.R. Chapter I, "Noise, Fuel Burn, and Emissions Modeling Using the Aviation Environmental Design Tool Version 2b," *Federal Register* 80, no. 94 (May 15, 2015).

<sup>2</sup> U.S. Department of Transportation, Federal Aviation Administration, Office of Environment and Energy, *1050.1F Desk Reference*, Section 11, Noise and Noise-Compatible Land Use, July 2015.

## B.1.2 INPUT DATA

### B.1.2.1 ACTIVITY LEVEL AND TIME OF DAY

The existing activity level is based on the Traffic Flow Management System Counts (TFMSC) and the future activity level was estimated using the 2015 Master Plan Update Aviation Demand Forecasts. The calculation of DNL includes a weighting of 10 decibels for operations occurring at night (from 10:00 p.m. to 7:00 a.m.). The day and night distributions were based on the 1999 Part 150 study. The time of day percentages were rounded and equalized between arrivals and departures. The difference in the percentage of nighttime arrivals and departures was maintained for the air carrier category to reflect scheduling practices that may continue into the future. **Tables B-1** through **B-7** present annual arrivals and departures by day and night aircraft operations for existing (2016) and future (2020 and 2025) scenarios.

TABLE B-1 TOTAL ANNUAL AIRCRAFT OPERATIONS

YEAR	ANNUAL AIRCRAFT OPERATIONS
HISTORICAL	
2016	8,586
FORECAST	
2020	8,741
2025	9,041

SOURCES: Ricondo, May 2018. FAA's Traffic Flow Management System Counts (Historical 2016 operations), <https://aspm.faa.gov/tfms/sys/main.asp> (date accessed: May 11, 2018). FAA approved Aviation Demand Forecasts, Ricondo & Associates, June 2015.

TABLE B-2 ANNUAL ARRIVALS AND DEPARTURES BY DAY AND NIGHT – 2016

AIRCRAFT CATEGORY	ARRIVALS			DEPARTURES			GRAND TOTAL
	DAY <sup>1</sup>	NIGHT <sup>2</sup>	TOTAL	DAY <sup>1</sup>	NIGHT <sup>2</sup>	TOTAL	
ITINERANT OPERATIONS							
Jets	144.38	0.00	144.38	144.38	0.00	144.38	288.76
Turboprops	2,983.06	331.45	3,314.51	2,983.06	331.45	3,314.51	6,629.02
Pistons	382.92	42.55	425.46	382.92	42.55	425.46	850.93
Helicopters	138.19	0.00	138.19	138.19	0.00	138.19	276.38
ITINERANT TOTAL	3,648.54	374.00	4,022.54	3,648.54	374.00	4,022.54	8,045.08
LOCAL OPERATIONS							
Jets	31.12	0.00	31.12	31.12	0.00	31.12	62.24
Turboprops	115.99	0.00	115.99	115.99	0.00	115.99	231.98
Pistons	121.54	0.00	121.54	121.54	0.00	121.54	243.07
Helicopters	1.81	0.00	1.81	1.81	0.00	1.81	3.62
LOCAL TOTAL	270.46	0.00	270.46	270.46	0.00	270.46	540.92
GRAND TOTAL	3,919	374	4,293	3,919	374	4,293	8,586

NOTES: Columns and rows may not add to totals due to rounding.

1 DAY = 7:00 a.m. to 10:00 p.m.

2 NIGHT = 10:00 p.m. to 7:00 a.m.

SOURCES: Ricondo & Associates, Inc., May 2018. FAA's Traffic Flow Management System Counts (aircraft category mix) based on 2016 reported operations), <https://aspm.faa.gov/tfms/sys/main.asp> (date accessed: May 11, 2018). Itinerant and local operations distributions based on the FAA's Terminal Area Forecast (TAF).

TABLE B-3 PERCENTAGES OF ANNUAL OPERATIONS BY DAY AND NIGHT – 2016

AIRCRAFT CATEGORY	ARRIVALS			DEPARTURES		
	DAY <sup>1</sup>	NIGHT <sup>2</sup>	TOTAL	DAY <sup>1</sup>	NIGHT <sup>2</sup>	TOTAL
ITINERANT OPERATIONS						
Jets	100.0%	0.0%	100.0%	100.0%	0.0%	100.0%
Turboprops	90.0%	10.0%	100.0%	90.0%	10.0%	100.0%
Pistons	90.0%	10.0%	100.0%	90.0%	10.0%	100.0%
Helicopters	100.0%	0.0%	100.0%	100.0%	0.0%	100.0%
<b>ITINERANT TOTAL</b>	<b>90.7%</b>	<b>9.3%</b>	<b>100.0%</b>	<b>90.7%</b>	<b>9.3%</b>	<b>100.0%</b>
LOCAL OPERATIONS						
Jets	100.0%	0.0%	100.0%	100.0%	0.0%	100.0%
Turboprops	100.0%	0.0%	100.0%	100.0%	0.0%	100.0%
Pistons	100.0%	0.0%	100.0%	100.0%	0.0%	100.0%
Helicopters	100.0%	0.0%	100.0%	100.0%	0.0%	100.0%
<b>LOCAL TOTAL</b>	<b>100.0%</b>	<b>0.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.0%</b>	<b>100.0%</b>
<b>GRAND TOTAL</b>	<b>91.3%</b>	<b>8.7%</b>	<b>100.0%</b>	<b>91.3%</b>	<b>8.7%</b>	<b>100.0%</b>

## NOTES:

Columns and rows may not add to totals due to rounding.

1 DAY = 7:00 a.m. to 10:00 p.m.

2 NIGHT = 10:00 p.m. to 7:00 a.m.

SOURCES: Ricondo &amp; Associates, Inc., May 2018.

TABLE B-4 ANNUAL ARRIVALS AND DEPARTURES BY DAY AND NIGHT – 2020

AIRCRAFT CATEGORY	ARRIVALS			DEPARTURES			GRAND TOTAL
	DAY <sup>1</sup>	NIGHT <sup>2</sup>	TOTAL	DAY <sup>1</sup>	NIGHT <sup>2</sup>	TOTAL	
ITINERANT OPERATIONS							
Jets	146.98	0.00	146.98	146.98	0.00	146.98	293.97
Turboprops	3,036.83	337.43	3,374.25	3,036.83	337.43	3,374.25	6,748.50
Pistons	389.82	43.31	433.13	389.82	43.31	433.13	866.26
Helicopters	140.68	0.00	140.68	140.68	0.00	140.68	281.36
ITINERANT TOTAL	3,714.31	380.74	4,095.05	3,714.31	380.74	4,095.05	8,190.09
LOCAL OPERATIONS							
Jets	31.68	0.00	31.68	31.68	0.00	31.68	63.36
Turboprops	118.08	0.00	118.08	118.08	0.00	118.08	236.17
Pistons	123.73	0.00	123.73	123.73	0.00	123.73	247.45
Helicopters	1.84	0.00	1.84	1.84	0.00	1.84	3.69
LOCAL TOTAL	275.33	0.00	275.33	275.33	0.00	275.33	550.67
GRAND TOTAL	3,990	381	4,370	3,990	381	4,370	8,741

## NOTES:

Columns and rows may not add to totals due to rounding.

1 DAY = 7:00 a.m. to 10:00 p.m.

2 NIGHT = 10:00 p.m. to 7:00 a.m.

SOURCES: Ricondo &amp; Associates, Inc., May 2018. Annual operations based on the FAA approved Aviation Demand Forecasts, Ricondo &amp; Associates, June 2015. FAA's Traffic Flow Management System Counts (aircraft category mix percentages) for 2016 applied to 2020 forecasted operations.

TABLE B-5 PERCENTAGES OF ANNUAL OPERATIONS BY DAY AND NIGHT – 2020

AIRCRAFT CATEGORY	ARRIVALS			DEPARTURES		
	DAY <sup>1</sup>	NIGHT <sup>2</sup>	TOTAL	DAY <sup>1</sup>	NIGHT <sup>2</sup>	TOTAL
<b>ITINERANT OPERATIONS</b>						
Jets	100.0%	0.0%	100.0%	100.0%	0.0%	100.0%
Turboprops	90.0%	10.0%	100.0%	90.0%	10.0%	100.0%
Pistons	90.0%	10.0%	100.0%	90.0%	10.0%	100.0%
Helicopters	100.0%	0.0%	100.0%	100.0%	0.0%	100.0%
<b>ITINERANT TOTAL</b>	<b>90.7%</b>	<b>9.3%</b>	<b>100.0%</b>	<b>90.7%</b>	<b>9.3%</b>	<b>100.0%</b>
<b>LOCAL OPERATIONS</b>						
Jets	100.0%	0.0%	100.0%	100.0%	0.0%	100.0%
Turboprops	100.0%	0.0%	100.0%	100.0%	0.0%	100.0%
Pistons	100.0%	0.0%	100.0%	100.0%	0.0%	100.0%
Helicopters	100.0%	0.0%	100.0%	100.0%	0.0%	100.0%
<b>LOCAL TOTAL</b>	<b>100.0%</b>	<b>0.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.0%</b>	<b>100.0%</b>
<b>GRAND TOTAL</b>	<b>91.3%</b>	<b>8.7%</b>	<b>100.0%</b>	<b>91.3%</b>	<b>8.7%</b>	<b>100.0%</b>

## NOTES:

1 Columns and rows may not add to totals due to rounding.

2 DAY = 7:00 a.m. to 10:00 p.m.

3 NIGHT = 10:00 p.m. to 7:00 a.m.

SOURCES: Ricondo &amp; Associates, Inc., May 2018.

TABLE B-6 ANNUAL ARRIVALS AND DEPARTURES BY DAY AND NIGHT – 2025

AIRCRAFT CATEGORY	ARRIVALS			DEPARTURES			GRAND TOTAL
	DAY <sup>1</sup>	NIGHT <sup>2</sup>	TOTAL	DAY <sup>1</sup>	NIGHT <sup>2</sup>	TOTAL	
ITINERANT OPERATIONS							
Jets	152.03	0.00	152.03	152.03	0.00	152.03	304.07
Turboprops	3,141.20	349.02	3,490.23	3,141.20	349.02	3,490.23	6,980.45
Pistons	403.22	44.80	448.02	403.22	44.80	448.02	896.04
Helicopters	145.52	0.00	145.52	145.52	0.00	145.52	291.03
ITINERANT TOTAL	3,841.97	393.82	4,235.80	3,841.97	393.82	4,235.80	8,471.59
LOCAL OPERATIONS							
Jets	32.77	0.00	32.77	32.77	0.00	32.77	65.54
Turboprops	122.14	0.00	122.14	122.14	0.00	122.14	244.28
Pistons	127.98	0.00	127.98	127.98	0.00	127.98	255.96
Helicopters	1.91	0.00	1.91	1.91	0.00	1.91	3.81
LOCAL TOTAL	284.80	0.00	284.80	284.80	0.00	284.80	569.59
GRAND TOTAL	4,126.77	393.82	4,520.59	4,126.77	393.82	4,520.59	9,041.19

## NOTES:

Columns and rows may not add to totals due to rounding.

1 DAY = 7:00 a.m. to 10:00 p.m.

2 NIGHT = 10:00 p.m. to 7:00 a.m.

SOURCES: Ricondo &amp; Associates, Inc., May 2018. Annual operations based on the FAA approved Aviation Demand Forecasts, Ricondo &amp; Associates, June 2015. FAA's Traffic Flow Management System Counts (aircraft category mix percentages) for 2016 applied to 2025 forecasted operations.

TABLE B-7 PERCENTAGES OF ANNUAL OPERATIONS BY DAY AND NIGHT – 2025

AIRCRAFT CATEGORY	ARRIVALS			DEPARTURES		
	DAY <sup>1</sup>	NIGHT <sup>2</sup>	TOTAL	DAY <sup>1</sup>	NIGHT <sup>2</sup>	TOTAL
<b>ITINERANT OPERATIONS</b>						
Jets	100.0%	0.0%	100.0%	100.0%	0.0%	100.0%
Turboprops	90.0%	10.0%	100.0%	90.0%	10.0%	100.0%
Pistons	90.0%	10.0%	100.0%	90.0%	10.0%	100.0%
Helicopters	100.0%	0.0%	100.0%	100.0%	0.0%	100.0%
<b>ITINERANT TOTAL</b>	<b>90.7%</b>	<b>9.3%</b>	<b>100.0%</b>	<b>90.7%</b>	<b>9.3%</b>	<b>100.0%</b>
<b>LOCAL OPERATIONS</b>						
Jets	100.0%	0.0%	100.0%	100.0%	0.0%	100.0%
Turboprops	100.0%	0.0%	100.0%	100.0%	0.0%	100.0%
Pistons	100.0%	0.0%	100.0%	100.0%	0.0%	100.0%
Helicopters	100.0%	0.0%	100.0%	100.0%	0.0%	100.0%
<b>LOCAL TOTAL</b>	<b>100.0%</b>	<b>0.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.0%</b>	<b>100.0%</b>
<b>GRAND TOTAL</b>	<b>91.3%</b>	<b>8.7%</b>	<b>100.0%</b>	<b>91.3%</b>	<b>8.7%</b>	<b>100.0%</b>

## NOTES:

1 Columns and rows may not add to totals due to rounding.

2 DAY = 7:00 a.m. to 10:00 p.m.

3 NIGHT = 10:00 p.m. to 7:00 a.m.

SOURCES: Ricondo &amp; Associates, Inc., May 2018.

**B.1.2.2 AIRCRAFT FLEET**

The AEDT includes a database of noise-thrust-distance data for most aircraft operating in the United States. AEDT users must select the specific types of aircraft forecast to operate at LNY. The AEDT then uses the appropriate noise-thrust-distance data for each aircraft type in calculating the overall noise exposure. The aircraft fleet was developed based on the aircraft operations at LNY obtained from the FAA's ETMISC for the existing conditions. The aircraft fleet for future years was developed by applying the future growth factor as per the future forecasted document.

**Tables B-8 through B-10** present the number of itinerant and local operations by arrivals and departures, daytime and nighttime activity, and aircraft type for the years 2016, 2020, and 2025

TABLE B-8 (1 OF 2) AVERAGE ANNUAL DAY (AAD) AIRCRAFT FLEET – 2016

AIRCRAFT CATEGORY	AIRCRAFT ID	ARRIVALS			DEPARTURES			AAD TOTAL
		DAY <sup>1</sup>	NIGHT <sup>2</sup>	TOTAL	DAY <sup>1</sup>	NIGHT <sup>2</sup>	TOTAL	
ITINERANT OPERATIONS								
Jets	737700	0.0055	0.0000	0.0055	0.0055	0.0000	0.0055	0.0109
	C17	0.0232	0.0000	0.0232	0.0232	0.0000	0.0232	0.0464
	CL600	0.0377	0.0000	0.0377	0.0377	0.0000	0.0377	0.0753
	CL601	0.0270	0.0000	0.0270	0.0270	0.0000	0.0270	0.0539
	CNA500	0.0307	0.0000	0.0307	0.0307	0.0000	0.0307	0.0613
	CNA55B	0.0877	0.0000	0.0877	0.0877	0.0000	0.0877	0.1755
	CNA750	0.0063	0.0000	0.0063	0.0063	0.0000	0.0063	0.0127
	GIV	0.0796	0.0000	0.0796	0.0796	0.0000	0.0796	0.1592
	GV	0.0798	0.0000	0.0798	0.0798	0.0000	0.0798	0.1595
	LEAR35	0.0171	0.0000	0.0171	0.0171	0.0000	0.0171	0.0342
	JETS TOTAL	0.3945	0.0000	0.3945	0.3945	0.0000	0.3945	0.7890
Turboprops	HS748A	0.5742	0.0638	0.6380	0.5742	0.0638	0.6380	1.2760
	CNA208	2.7554	0.3062	3.0616	2.7554	0.3062	3.0616	6.1232
	CNA441	0.4944	0.0549	0.5494	0.4944	0.0549	0.5494	1.0988
	DHC6	0.0563	0.0063	0.0625	0.0563	0.0063	0.0625	0.1251
	DHC8	4.0586	0.4510	4.5096	4.0586	0.4510	4.5096	9.0191
	C130E	0.2115	0.0235	0.2350	0.2115	0.0235	0.2350	0.4699
	TURBOPROPS TOTAL	8.1504	0.9056	9.0560	8.1504	0.9056	9.0560	18.1121
Pistons	CNA182	0.0799	0.0089	0.0888	0.0799	0.0089	0.0888	0.1777
	GASEPV	0.2812	0.0312	0.3125	0.2812	0.0312	0.3125	0.6249
	BEC58P	0.3436	0.0382	0.3817	0.3436	0.0382	0.3817	0.7635
	CNA172	0.1712	0.0190	0.1902	0.1712	0.0190	0.1902	0.3805
	CNA206	0.0114	0.0013	0.0127	0.0114	0.0013	0.0127	0.0254
	GASEPF	0.0067	0.0007	0.0074	0.0067	0.0007	0.0074	0.0148
	PA31	0.1522	0.0169	0.1691	0.1522	0.0169	0.1691	0.3382
	PISTONS TOTAL	1.0462	0.1162	1.1625	1.0462	0.1162	1.1625	2.3249
Helicopters	S65	0.2869	0.0000	0.2869	0.2869	0.0000	0.2869	0.5738
	S70	0.0363	0.0000	0.0363	0.0363	0.0000	0.0363	0.0725
	R44	0.0148	0.0000	0.0148	0.0148	0.0000	0.0148	0.0296
	CH47D	0.0396	0.0000	0.0396	0.0396	0.0000	0.0396	0.0792
	HELICOPTERS TOTAL	0.3776	0.0000	0.3776	0.3776	0.0000	0.3776	0.7551
	ITINERANT TOTAL	9.9687	1.0219	10.9905	9.9687	1.0219	10.9905	21.9811



TABLE B-8 (2 OF 2) AVERAGE ANNUAL DAY (AAD) AIRCRAFT FLEET – 2016

AIRCRAFT CATEGORY	AIRCRAFT ID	ARRIVALS			DEPARTURES			AAD TOTAL
		DAY <sup>1</sup>	NIGHT <sup>2</sup>	TOTAL	DAY <sup>1</sup>	NIGHT <sup>2</sup>	TOTAL	
LOCAL OPERATIONS								
Jets	CL600	0.0074	0.0000	0.0074	0.0074	0.0000	0.0074	0.0148
	CL601	0.0031	0.0000	0.0031	0.0031	0.0000	0.0031	0.0062
	GIV	0.0133	0.0000	0.0133	0.0133	0.0000	0.0133	0.0266
	GV	0.0213	0.0000	0.0213	0.0213	0.0000	0.0213	0.0427
	LEAR35	0.0034	0.0000	0.0034	0.0034	0.0000	0.0034	0.0068
	CNA500	0.0090	0.0000	0.0090	0.0090	0.0000	0.0090	0.0179
	CNA55B	0.0257	0.0000	0.0257	0.0257	0.0000	0.0257	0.0513
	CNA750	0.0019	0.0000	0.0019	0.0019	0.0000	0.0019	0.0037
	JETS TOTAL	0.0850	0.0000	0.0850	0.0850	0.0000	0.0850	0.1701
Turboprops	CNA208	0.1939	0.0000	0.1939	0.1939	0.0000	0.1939	0.3877
	CNA441	0.1227	0.0000	0.1227	0.1227	0.0000	0.1227	0.2455
	DHC6	0.0003	0.0000	0.0003	0.0003	0.0000	0.0003	0.0006
	TURBOPROPS TOTAL	0.3169	0.0000	0.3169	0.3169	0.0000	0.3169	0.6338
Pistons	CNA182	0.0232	0.0000	0.0232	0.0232	0.0000	0.0232	0.0464
	GASEPV	0.0878	0.0000	0.0878	0.0878	0.0000	0.0878	0.1756
	BEC58P	0.1595	0.0000	0.1595	0.1595	0.0000	0.1595	0.3191
	CNA172	0.0557	0.0000	0.0557	0.0557	0.0000	0.0557	0.1113
	CNA206	0.0037	0.0000	0.0037	0.0037	0.0000	0.0037	0.0074
	GASEPF	0.0022	0.0000	0.0022	0.0022	0.0000	0.0022	0.0043
	PISTONS TOTAL	0.3321	0.0000	0.3321	0.3321	0.0000	0.3321	0.6641
	S70	0.0006	0.0000	0.0006	0.0006	0.0000	0.0006	0.0012
	R44	0.0043	0.0000	0.0043	0.0043	0.0000	0.0043	0.0087
	HELICOPTERS TOTAL	0.0049	0.0000	0.0049	0.0049	0.0000	0.0049	0.0099
	LOCAL TOTAL	0.7390	-	0.7390	0.7390	-	0.7390	1.4779
	GRAND TOTAL	10.7077	1.0219	11.7295	10.7077	1.0219	11.7295	23.4590

## NOTES:

Columns and rows may not add to totals due to rounding.

1 DAY = 7:00 a.m. to 10:00 p.m.

2 NIGHT = 10:00 p.m. to 7:00 a.m.

SOURCES: Ricondo & Associates, Inc., May 2018. FAA's Traffic Flow Management System Counts (aircraft category mix) based on 2016 reported operations), <https://aspm.faa.gov/tfms/sys/main.asp> (date accessed: May 11, 2018). Itinerant and local operations distributions based on the FAA's Terminal Area Forecast (TAF).

TABLE B-9 (1 OF 2) AVERAGE ANNUAL DAY (AAD) AIRCRAFT FLEET – 2020

AIRCRAFT CATEGORY	AIRCRAFT ID	ARRIVALS			DEPARTURES			AAD TOTAL
		DAY <sup>1</sup>	NIGHT <sup>2</sup>	TOTAL	DAY <sup>1</sup>	NIGHT <sup>2</sup>	TOTAL	
ITINERANT OPERATIONS								
Jets	737700	0.0056	0.0000	0.0056	0.0056	0.0000	0.0056	0.0111
	C17	0.0236	0.0000	0.0236	0.0236	0.0000	0.0236	0.0473
	CL600	0.0383	0.0000	0.0383	0.0383	0.0000	0.0383	0.0767
	CL601	0.0274	0.0000	0.0274	0.0274	0.0000	0.0274	0.0549
	CNA500	0.0312	0.0000	0.0312	0.0312	0.0000	0.0312	0.0624
	CNA55B	0.0893	0.0000	0.0893	0.0893	0.0000	0.0893	0.1786
	CNA750	0.0065	0.0000	0.0065	0.0065	0.0000	0.0065	0.0129
	GIV	0.0810	0.0000	0.0810	0.0810	0.0000	0.0810	0.1621
	GV	0.0812	0.0000	0.0812	0.0812	0.0000	0.0812	0.1624
	LEAR35	0.0174	0.0000	0.0174	0.0174	0.0000	0.0174	0.0348
	JETS TOTAL	0.4016	0.0000	0.4016	0.4016	0.0000	0.4016	0.8032
Turboprops	HS748A	0.5845	0.0649	0.6495	0.5845	0.0649	0.6495	1.2990
	CNA208	2.8051	0.3117	3.1168	2.8051	0.3117	3.1168	6.2336
	CNA441	0.5034	0.0559	0.5593	0.5034	0.0559	0.5593	1.1186
	DHC6	0.0573	0.0064	0.0637	0.0573	0.0064	0.0637	0.1273
	DHC8	4.1318	0.4591	4.5908	4.1318	0.4591	4.5908	9.1817
	C130E	0.2153	0.0239	0.2392	0.2153	0.0239	0.2392	0.4784
	TURBOPROPS TOTAL	8.2973	0.9219	9.2193	8.2973	0.9219	9.2193	18.4385
Pistons	CNA182	0.0814	0.0090	0.0904	0.0814	0.0090	0.0904	0.1809
	GASEPV	0.2863	0.0318	0.3181	0.2863	0.0318	0.3181	0.6362
	BEC58P	0.3498	0.0389	0.3886	0.3498	0.0389	0.3886	0.7772
	CNA172	0.1743	0.0194	0.1937	0.1743	0.0194	0.1937	0.3874
	CNA206	0.0116	0.0013	0.0129	0.0116	0.0013	0.0129	0.0258
	GASEPF	0.0068	0.0008	0.0075	0.0068	0.0008	0.0075	0.0151
	PA31	0.1549	0.0172	0.1722	0.1549	0.0172	0.1722	0.3443
	PISTONS TOTAL	1.0651	0.1183	1.1834	1.0651	0.1183	1.1834	2.3668
Helicopters	S65	0.2921	0.0000	0.2921	0.2921	0.0000	0.2921	0.5841
	S70	0.0369	0.0000	0.0369	0.0369	0.0000	0.0369	0.0738
	R44	0.0151	0.0000	0.0151	0.0151	0.0000	0.0151	0.0301
	CH47D	0.0403	0.0000	0.0403	0.0403	0.0000	0.0403	0.0807
	HELICOPTERS TOTAL	0.3844	0.0000	0.3844	0.3844	0.0000	0.3844	0.7687
	ITINERANT TOTAL	10.1484	1.0403	11.1887	10.1484	1.0403	11.1887	22.3773

TABLE B-9 (2 OF 2) AVERAGE ANNUAL DAY (AAD) AIRCRAFT FLEET – 2020

AIRCRAFT CATEGORY	AIRCRAFT ID	ARRIVALS			DEPARTURES			AAD TOTAL
		DAY <sup>1</sup>	NIGHT <sup>2</sup>	TOTAL	DAY <sup>1</sup>	NIGHT <sup>2</sup>	TOTAL	
LOCAL OPERATIONS								
Jets	CL600	0.0076	0.0000	0.0076	0.0076	0.0000	0.0076	0.0151
	CL601	0.0031	0.0000	0.0031	0.0031	0.0000	0.0031	0.0063
	GIV	0.0135	0.0000	0.0135	0.0135	0.0000	0.0135	0.0271
	GV	0.0217	0.0000	0.0217	0.0217	0.0000	0.0217	0.0434
	LEAR35	0.0035	0.0000	0.0035	0.0035	0.0000	0.0035	0.0069
	CNA500	0.0091	0.0000	0.0091	0.0091	0.0000	0.0091	0.0183
	CNA55B	0.0261	0.0000	0.0261	0.0261	0.0000	0.0261	0.0523
	CNA750	0.0019	0.0000	0.0019	0.0019	0.0000	0.0019	0.0038
	JETS TOTAL	0.0866	0.0000	0.0866	0.0866	0.0000	0.0866	0.1731
Turboprops	CNA208	0.1974	0.0000	0.1974	0.1974	0.0000	0.1974	0.3947
	CNA441	0.1250	0.0000	0.1250	0.1250	0.0000	0.1250	0.2499
	DHC6	0.0003	0.0000	0.0003	0.0003	0.0000	0.0003	0.0006
	TURBOPROPS TOTAL	0.3226	0.0000	0.3226	0.3226	0.0000	0.3226	0.6453
Pistons	CNA182	0.0236	0.0000	0.0236	0.0236	0.0000	0.0236	0.0472
	GASEPV	0.0894	0.0000	0.0894	0.0894	0.0000	0.0894	0.1788
	BEC58P	0.1624	0.0000	0.1624	0.1624	0.0000	0.1624	0.3248
	CNA172	0.0567	0.0000	0.0567	0.0567	0.0000	0.0567	0.1133
	CNA206	0.0038	0.0000	0.0038	0.0038	0.0000	0.0038	0.0076
	GASEPF	0.0022	0.0000	0.0022	0.0022	0.0000	0.0022	0.0044
	PISTONS TOTAL	0.3381	0.0000	0.3381	0.3381	0.0000	0.3381	0.6761
Helicopters	S70	0.0006	0.0000	0.0006	0.0006	0.0000	0.0006	0.0013
	R44	0.0044	0.0000	0.0044	0.0044	0.0000	0.0044	0.0088
	HELICOPTERS TOTAL	0.0050	0.0000	0.0050	0.0050	0.0000	0.0050	0.0101
	LOCAL TOTAL	0.7523	-	0.7523	0.7523	-	0.7523	1.5046
	GRAND TOTAL	10.9007	1.0403	11.9409	10.9007	1.0403	11.9409	23.8819

## NOTES:

Columns and rows may not add to totals due to rounding.

1 DAY = 7:00 a.m. to 10:00 p.m.

2 NIGHT = 10:00 p.m. to 7:00 a.m.

SOURCES: Ricondo &amp; Associates, Inc., May 2018. Annual operations based on the FAA approved Aviation Demand Forecasts, Ricondo &amp; Associates, June 2015.

Aircraft Fleet mix developed for the Baseline scenario applied to 2020 forecasted operations.

TABLE B-10 (1 OF 2) AVERAGE ANNUAL DAY (AAD) AIRCRAFT FLEET – 2025

AIRCRAFT CATEGORY	AIRCRAFT ID	ARRIVALS			DEPARTURES			AAD TOTAL
		DAY <sup>1</sup>	NIGHT <sup>2</sup>	TOTAL	DAY <sup>1</sup>	NIGHT <sup>2</sup>	TOTAL	
ITINERANT OPERATIONS								
Jets	737700	0.0058	0.0000	0.0058	0.0058	0.0000	0.0058	0.0115
	C17	0.0245	0.0000	0.0245	0.0245	0.0000	0.0245	0.0490
	CL600	0.0398	0.0000	0.0398	0.0398	0.0000	0.0398	0.0795
	CL601	0.0285	0.0000	0.0285	0.0285	0.0000	0.0285	0.0569
	CNA500	0.0324	0.0000	0.0324	0.0324	0.0000	0.0324	0.0647
	CNA55B	0.0926	0.0000	0.0926	0.0926	0.0000	0.0926	0.1853
	CNA750	0.0067	0.0000	0.0067	0.0067	0.0000	0.0067	0.0134
	GIV	0.0841	0.0000	0.0841	0.0841	0.0000	0.0841	0.1681
	GV	0.0842	0.0000	0.0842	0.0842	0.0000	0.0842	0.1684
	LEAR35	0.0180	0.0000	0.0180	0.0180	0.0000	0.0180	0.0361
	JETS TOTAL	0.4165	0.0000	0.4165	0.4165	0.0000	0.4165	0.8331
Turboprops	HS748A	0.6063	0.0674	0.6736	0.6063	0.0674	0.6736	1.3473
	CNA208	2.9095	0.3233	3.2327	2.9095	0.3233	3.2327	6.4655
	CNA441	0.5221	0.0580	0.5801	0.5221	0.0580	0.5801	1.1602
	DHC6	0.0594	0.0066	0.0660	0.0594	0.0066	0.0660	0.1321
	DHC8	4.2855	0.4762	4.7616	4.2855	0.4762	4.7616	9.5233
	C130E	0.2233	0.0248	0.2481	0.2233	0.0248	0.2481	0.4962
	TURBOPROPS TOTAL	8.6060	0.9562	9.5623	8.6060	0.9562	9.5623	19.1245
Pistons	CNA182	0.0844	0.0094	0.0938	f	0.0094	0.0938	0.1876
	GASEPV	0.2969	0.0330	0.3299	0.2969	0.0330	0.3299	0.6599
	BEC58P	0.3628	0.0403	0.4031	0.3628	0.0403	0.4031	0.8061
	CNA172	0.1808	0.0201	0.2009	0.1808	0.0201	0.2009	0.4018
	CNA206	0.0121	0.0013	0.0134	0.0121	0.0013	0.0134	0.0268
	GASEPF	0.0070	0.0008	0.0078	0.0070	0.0008	0.0078	0.0156
	PA31	0.1607	0.0179	0.1786	0.1607	0.0179	0.1786	0.3571
	PISTONS TOTAL	1.1047	0.1227	1.2274	1.1047	0.1227	1.2274	2.4549
Helicopters	S65	0.3029	0.0000	0.3029	0.3029	0.0000	0.3029	0.6058
	S70	0.0383	0.0000	0.0383	0.0383	0.0000	0.0383	0.0766
	R44	0.0156	0.0000	0.0156	0.0156	0.0000	0.0156	0.0312
	CH47D	0.0418	0.0000	0.0418	0.0418	0.0000	0.0418	0.0837
	HELICOPTERS TOTAL	0.3987	0.0000	0.3987	0.3987	0.0000	0.3987	0.7973
	ITINERANT TOTAL	10.5259	1.0790	11.6049	10.5259	1.0790	11.6049	23.2098

TABLE B-10 (2 OF 2) AVERAGE ANNUAL DAY (AAD) AIRCRAFT FLEET – 2025

AIRCRAFT CATEGORY	AIRCRAFT ID	ARRIVALS			DEPARTURES			AAD TOTAL
		DAY <sup>1</sup>	NIGHT <sup>2</sup>	TOTAL	DAY <sup>1</sup>	NIGHT <sup>2</sup>	TOTAL	
LOCAL OPERATIONS								
Jets	CL600	0.0078	0.0000	0.0078	0.0078	0.0000	0.0078	0.0157
	CL601	0.0033	0.0000	0.0033	0.0033	0.0000	0.0033	0.0065
	GIV	0.0140	0.0000	0.0140	0.0140	0.0000	0.0140	0.0281
	GV	0.0225	0.0000	0.0225	0.0225	0.0000	0.0225	0.0451
	LEAR35	0.0036	0.0000	0.0036	0.0036	0.0000	0.0036	0.0072
	CNA500	0.0095	0.0000	0.0095	0.0095	0.0000	0.0095	0.0189
	CNA55B	0.0271	0.0000	0.0271	0.0271	0.0000	0.0271	0.0542
	CNA750	0.0020	0.0000	0.0020	0.0020	0.0000	0.0020	0.0039
	JETS TOTAL	0.0898	0.0000	0.0898	0.0898	0.0000	0.0898	0.1796
Turboprops	CNA208	0.2047	0.0000	0.2047	0.2047	0.0000	0.2047	0.4094
	CNA441	0.1296	0.0000	0.1296	0.1296	0.0000	0.1296	0.2592
	DHC6	0.0003	0.0000	0.0003	0.0003	0.0000	0.0003	0.0007
	TURBOPROPS TOTAL	0.3346	0.0000	0.3346	0.3346	0.0000	0.3346	0.6693
Pistons	CNA182	0.0245	0.0000	0.0245	0.0245	0.0000	0.0245	0.0490
	GASEPV	0.0927	0.0000	0.0927	0.0927	0.0000	0.0927	0.1854
	BEC58P	0.1685	0.0000	0.1685	0.1685	0.0000	0.1685	0.3369
	CNA172	0.0588	0.0000	0.0588	0.0588	0.0000	0.0588	0.1175
	CNA206	0.0039	0.0000	0.0039	0.0039	0.0000	0.0039	0.0078
	GASEPF	0.0023	0.0000	0.0023	0.0023	0.0000	0.0023	0.0046
	PISTONS TOTAL	0.3506	0.0000	0.3506	0.3506	0.0000	0.3506	0.7013
	S70	0.0007	0.0000	0.0007	0.0007	0.0000	0.0007	0.0013
	R44	0.0046	0.0000	0.0046	0.0046	0.0000	0.0046	0.0091
	HELICOPTERS TOTAL	0.0052	0.0000	0.0052	0.0052	0.0000	0.0052	0.0104
	LOCAL TOTAL	0.7803	-	0.7803	0.7803	-	0.7803	1.5605
	GRAND TOTAL	11.3062	1.0790	12.3852	11.3062	1.0790	12.3852	24.7704

## NOTES:

Columns and rows may not add to totals due to rounding.

1 DAY = 7:00 a.m. to 10:00 p.m.

2 NIGHT = 10:00 p.m. to 7:00 a.m.

SOURCES: Ricondo & Associates, Inc., May 2018. Annual operations based on the FAA approved Aviation Demand Forecasts, Ricondo & Associates, June 2015.  
Aircraft Fleet mix developed for the Baseline scenario applied to 2025 forecasted operations.

### B.1.2.3 RUNWAY USE

The variation in the use of the runways influences the pattern of noise exposure off the runway ends. Runway use at an airport is typically driven by prevailing wind and weather conditions, the lengths and widths of the runways, runway instrumentation, and the effects of other airports or air facilities in the area. Runway use may also be influenced by the location of the aircraft parking positions on the airfield.

**Table B-11** summarizes the current and future pattern of runway use at LNY, based on an analysis of climate data between 2005 and 2014.<sup>3</sup> Runway-use percentages are provided and broken down by type of operation (arrival and departure). These percentages are expected to remain the same in the future with or without the proposed runway extension.

TABLE B-11 RUNWAY USE PERCENTAGES

RUNWAY	ARRIVAL	DEPARTURE
3	67%	67%
21	33%	33%
<b>Total</b>	<b>100%</b>	<b>100%</b>

SOURCES: National Climatic Data Center, *3505 Format Surface Hourly Observations (January 1, 2005 - December 31, 2014)*, February 2015; Ricondo & Associates, Inc., July 2015.

### B.1.2.4 GENERALIZED FLIGHT TRACKS

The location of flight routes to and from LNY is a required input to the AEDT. **Exhibit B-1** depicts generalized flight tracks to Runway 3-21 at LNY in 2016 and the No Action scenario for future years 2020 and 2025. **Exhibit B-2** depicts generalized flight tracks to Runway 3-21 at LNY for future years 2020 and 2025 under the Proposed Action scenario.

The generalized flight tracks were developed based on discussions with Airport personnel and the assumptions developed for the 1999 Part 150 study, and are consistent with the current published SIDS and STARS.

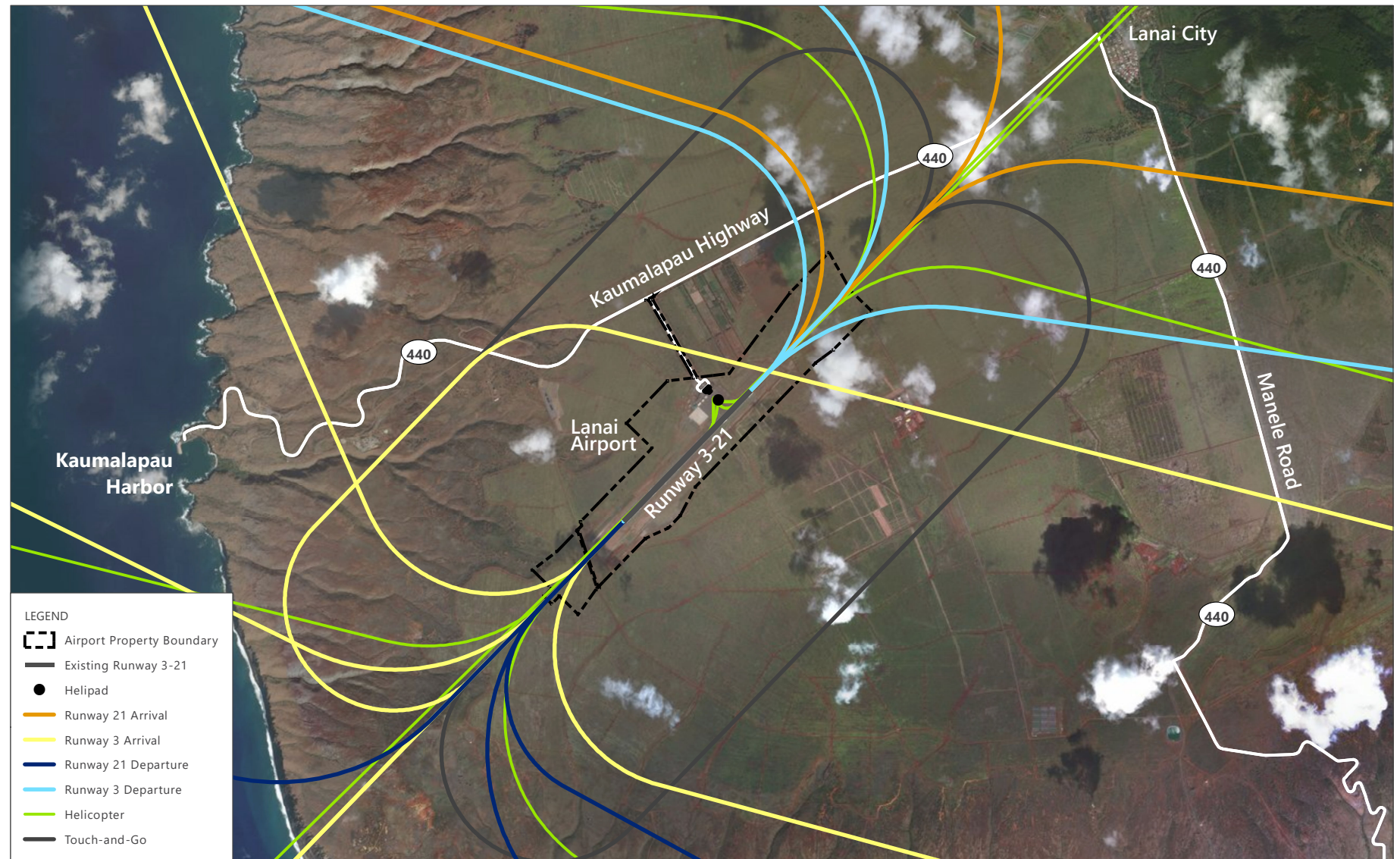
### B.1.3 MODELED NOISE CONTOURS

**Exhibit B-3** depicts modeled aircraft noise contours at LNY in 2016. **Exhibits B-4** through **B-7** depict modeled aircraft noise contours at LNY for future years 2020 and 2025 under the No Action and Proposed Action scenarios. All 2016, 2020, and 2025 modeled noise contours (DNL 60 dB and greater) for the existing, No Action, and Proposed Action scenarios are confined to LNY property.<sup>4</sup>

<sup>3</sup> National Climatic Data Center, *3505 Format Surface Hourly Observations (January 1, 2005 - December 31, 2014)*, February 2015.

<sup>4</sup> DNL 60 dB contour shown for State and local informational purposes only.





SOURCES: Hawaii, Department of Transportation, *Lanai Airport Layout Plan*, 2014; U.S. Census Bureau, TIGER/Line Shapefiles, 2017 (roads); Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, March 2018 (aerial basemap).

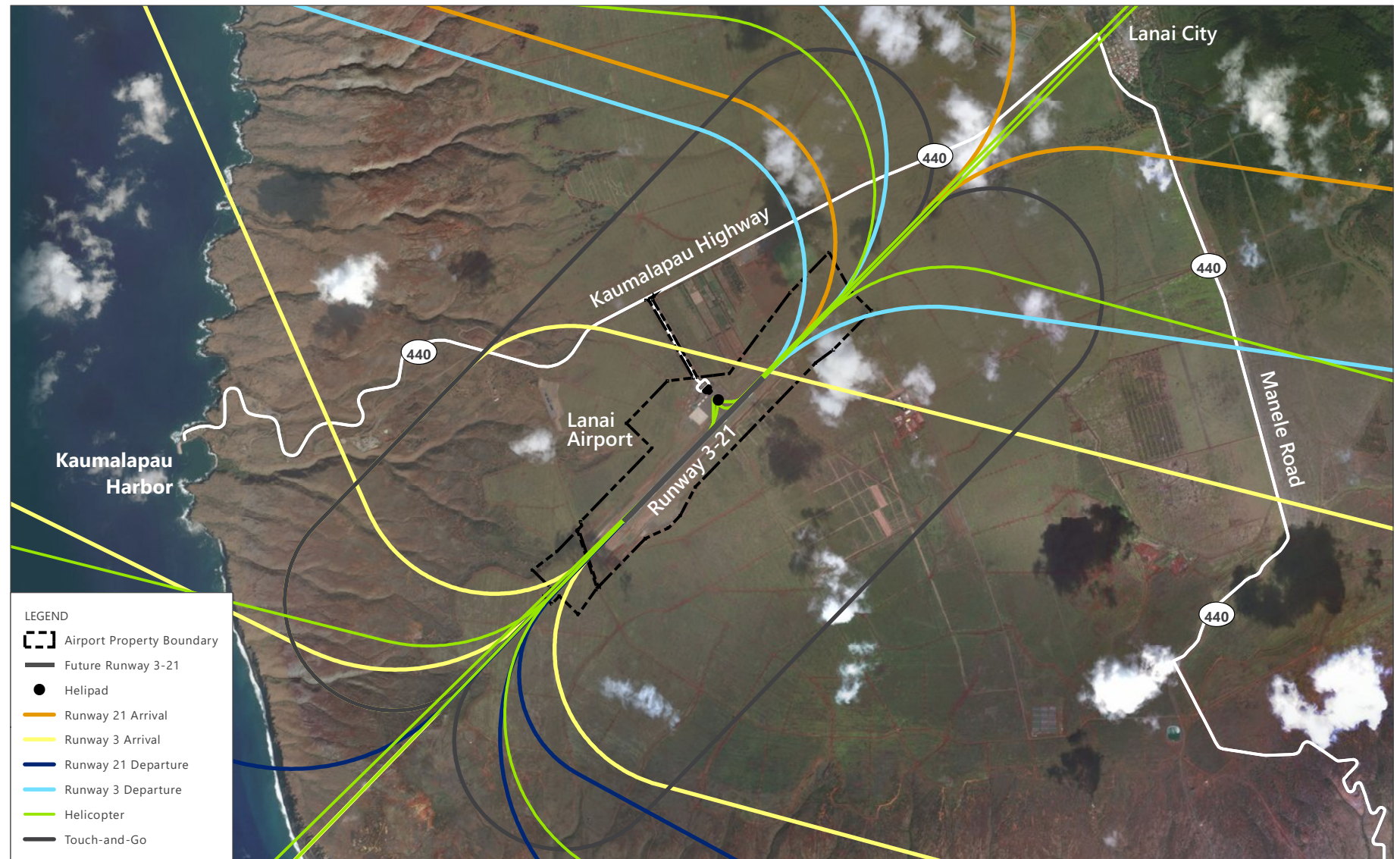
**EXHIBIT B-1**

EXISTING (2016) AND FUTURE YEARS (2020 AND 2025)  
NO ACTION MODELED FLIGHT TRACKS



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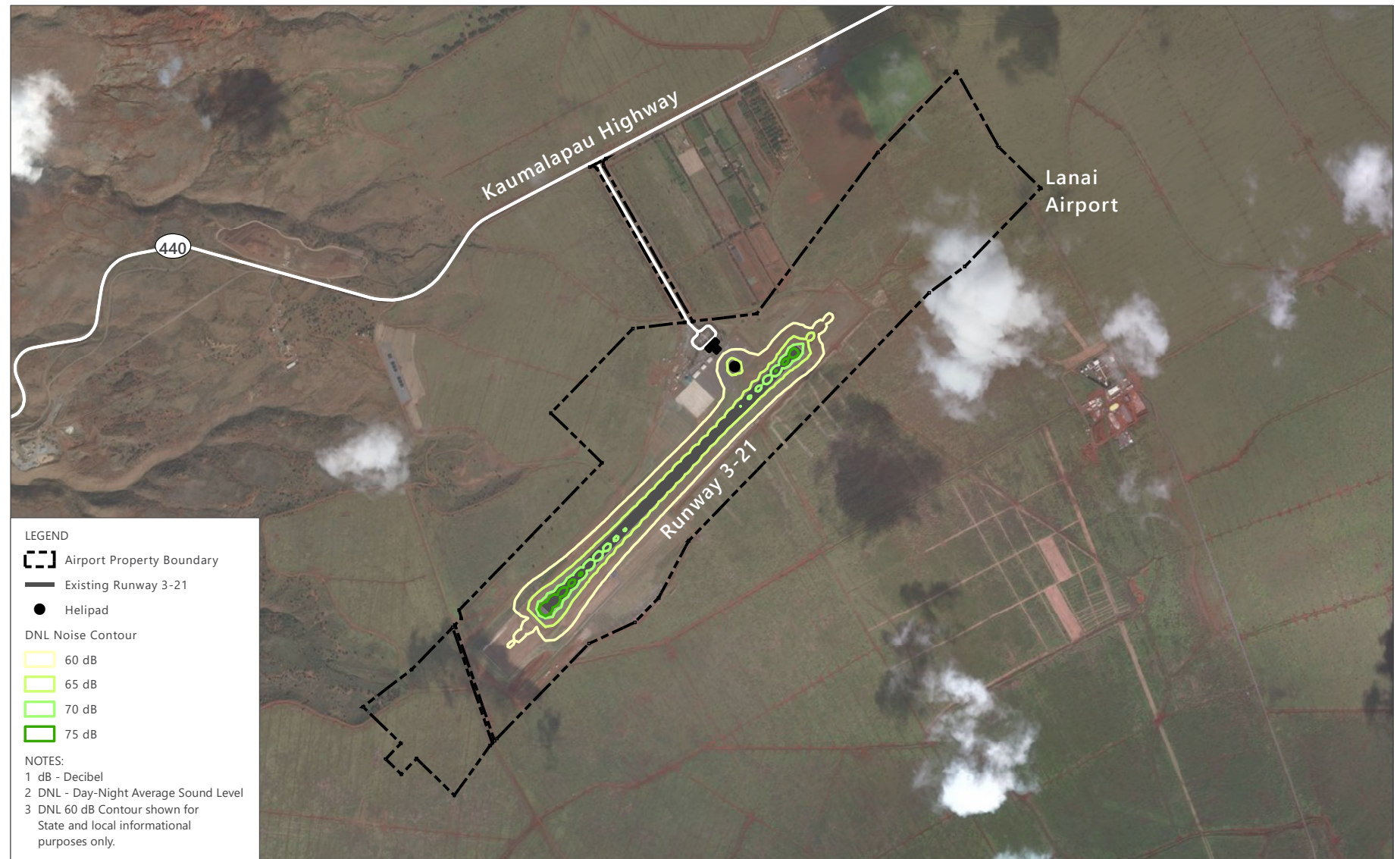
SOURCES: Hawaii, Department of Transportation, *Lanai Airport Layout Plan*, 2014; U.S. Census Bureau, TIGER/Line Shapefiles, 2017 (roads); Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, March 2018 (aerial basemap).



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SOURCES: Hawaii, Department of Transportation, *Lanai Airport Layout Plan*, 2014 (airport linework); U.S. Census Bureau, TIGER/Line Shapefiles, 2017 (roads); Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, March 2018 (aerial basemap); Ricondo & Associates, Inc., August 2018 (noise contours).

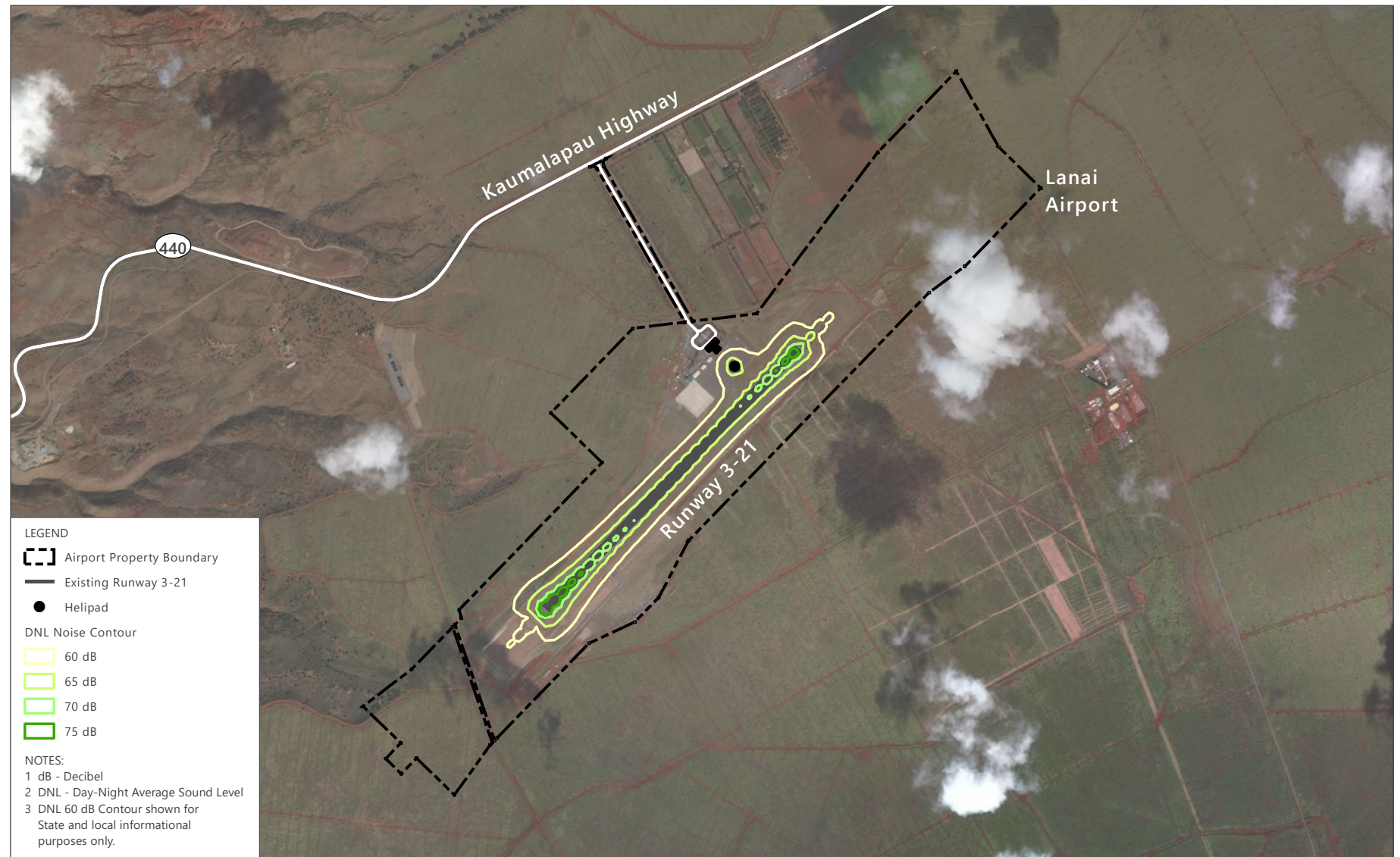
EXHIBIT B-3



2016 EXISTING DNL NOISE CONTOURS

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SOURCES: Hawaii, Department of Transportation, Lanai Airport Layout Plan, 2014 (airport linework); U.S. Census Bureau, TIGER/Line Shapefiles, 2017 (roads); Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, March 2018 (aerial basemap); Ricondo & Associates, Inc., August 2018 (noise contours).

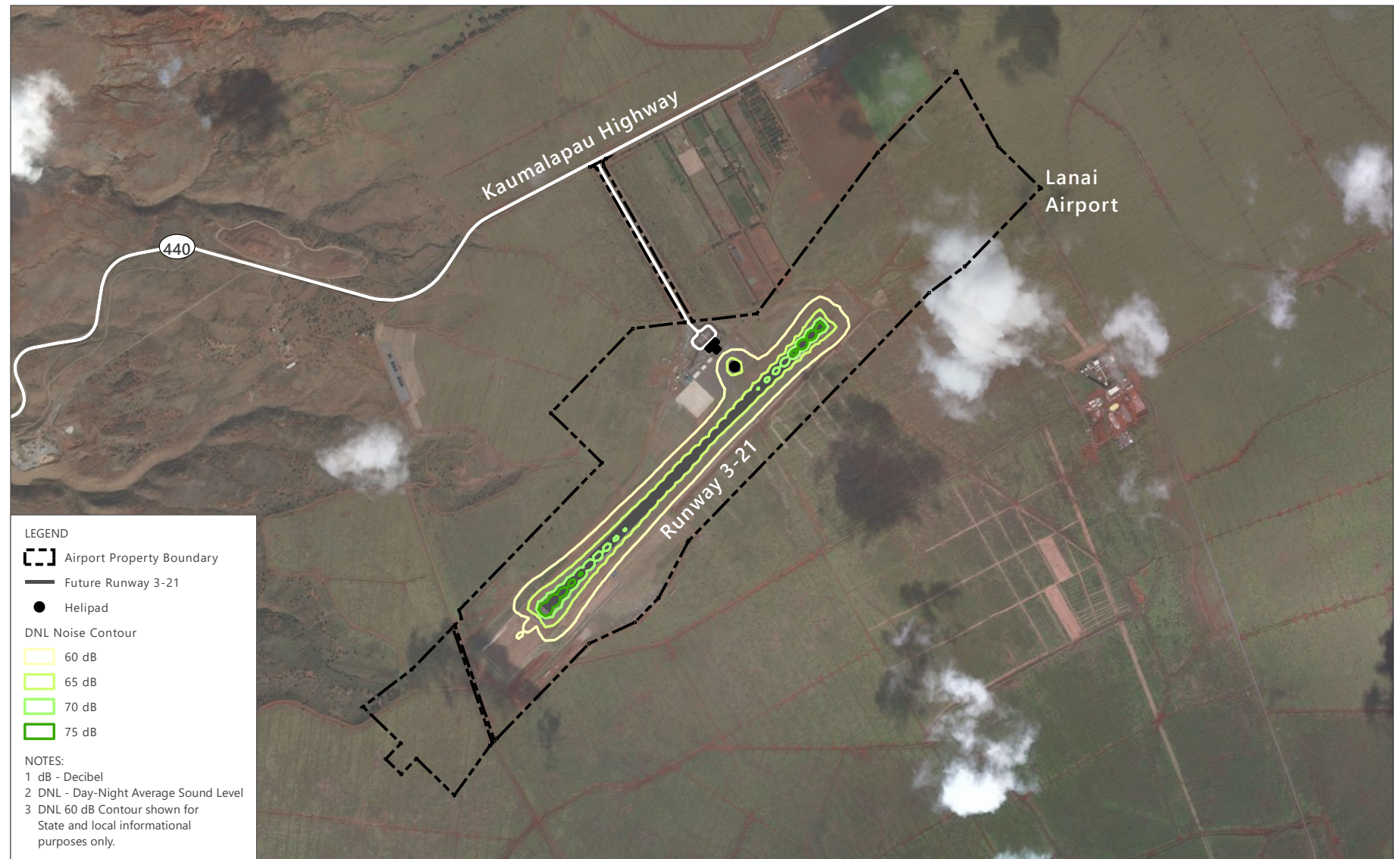
EXHIBIT B-4



2020 NO ACTION DNL NOISE CONTOURS

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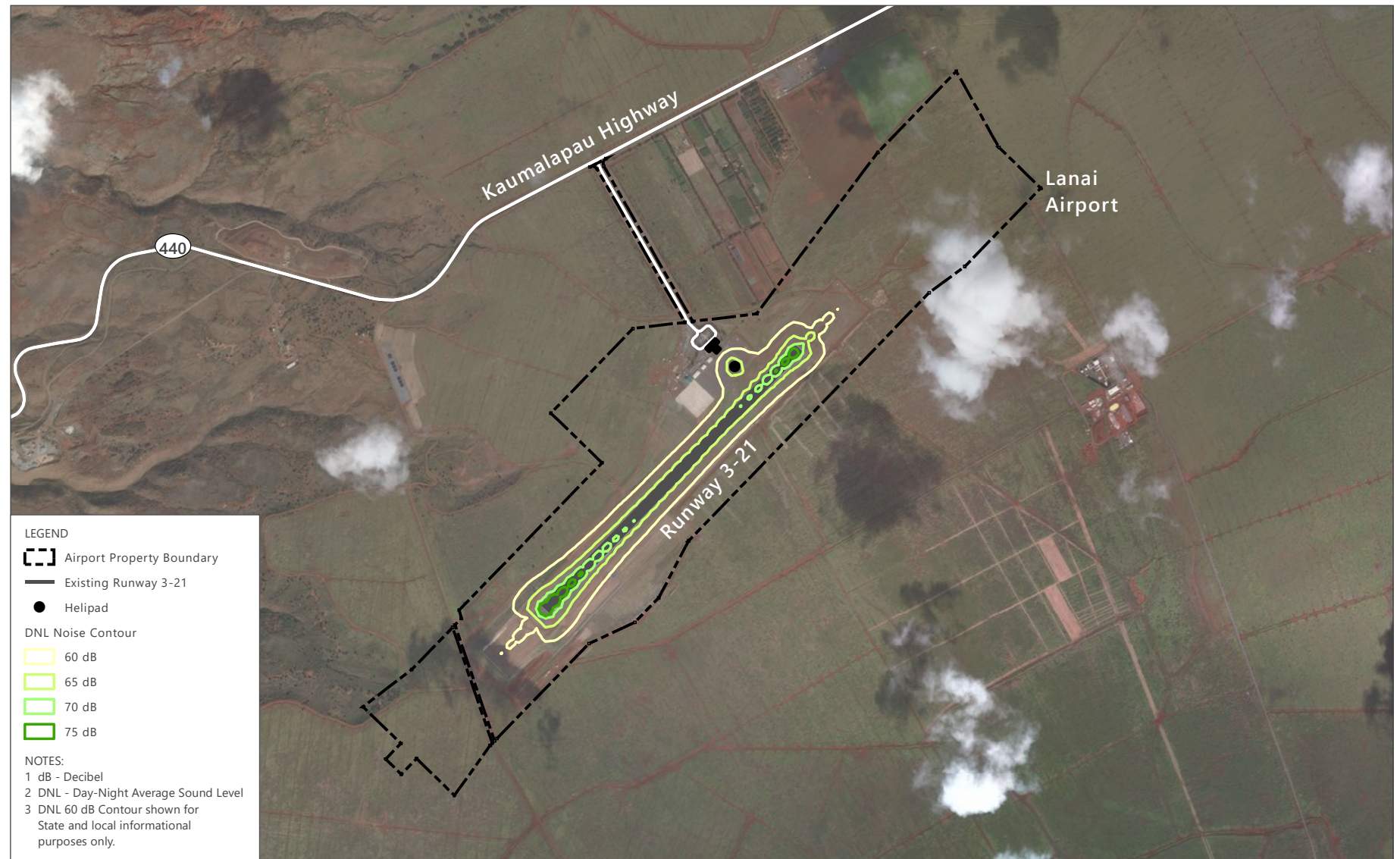


SOURCES: Hawaii, Department of Transportation, *Lanai Airport Layout Plan*, 2014 (airport linework); U.S. Census Bureau, TIGER/Line Shapefiles, 2017 (roads); Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, March 2018 (aerial basemap); Ricondo & Associates, Inc., August 2018 (noise contours).

**EXHIBIT B-5****2020 PROPOSED ACTION DNL NOISE CONTOURS**

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SOURCES: Hawaii, Department of Transportation, Lanai Airport Layout Plan, 2014 (airport linework); U.S. Census Bureau, TIGER/Line Shapefiles, 2017 (roads); Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, March 2018 (aerial basemap); Ricondo & Associates, Inc., August 2018 (noise contours).

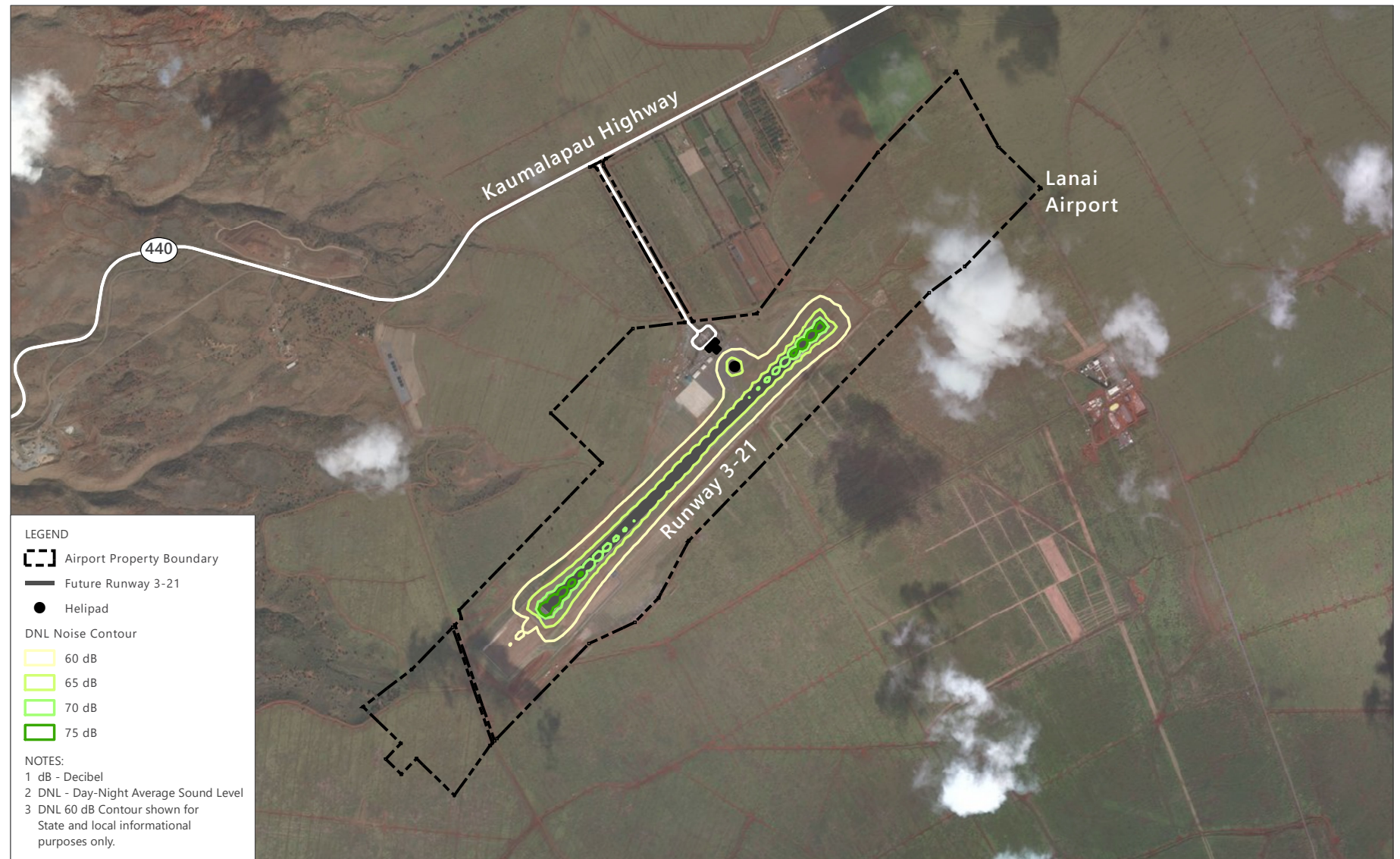
EXHIBIT B-6



2025 NO ACTION DNL NOISE CONTOURS

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SOURCES: Hawaii, Department of Transportation, *Lanai Airport Layout Plan*, 2014 (airport linework); U.S. Census Bureau, TIGER/Line Shapefiles, 2017 (roads); Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, March 2018 (aerial basemap); Ricondo & Associates, Inc., August 2018 (noise contours).

EXHIBIT B-7



2025 PROPOSED ACTION DNL NOISE CONTOURS

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## B.1.4 AIRCRAFT NOISE IMPACTS

In accordance with FAA Order 1050.1F, a proposed action would be considered to have a significant impact with regard to aviation noise, when compared to the no action alternative for the same timeframe, if it would:

- Cause noise-sensitive areas exposed to noise at or above the DNL 65 dB noise exposure level to experience a noise increase of at least DNL 1.5 dB, or
- Cause an increase of DNL 1.5 dB that introduces new noise-sensitive areas to exposure levels of DNL 65 dB or more.

As shown on Exhibits B-4 through B-7, the DNL 65 dB contours and greater (as are the DNL 60 dB contours) are limited to the airfield portion of the airport. No houses, buildings, structures, or sensitive land uses are within the existing or future DNL 65 dB or greater contours (or within the DNL 60 dB contours) for both the No Action and Proposed Action scenarios. No aircraft noise impacts would occur from either the No Action or Proposed Action alternatives.

## B.2 CONSTRUCTION NOISE

### B.2.1 METHODOLOGY

Noise analysis guidance defined in FAA Order 1050.1F states that: “surface transportation impacts, including construction noise, should be conducted using accepted methodologies from the appropriate modal administration, such as the FHWA for highway noise.”<sup>5</sup> Because FAA’s approved model for noise analyses, AEDT, does not model construction noise, FHWA guidance has been used to assess construction noise.<sup>6</sup>

The FHWA Roadway Construction Noise Model (RCNM) was used to calculate the noise level of construction equipment that would potentially be used during construction of the Proposed Action Alternative. This tool enables the prediction of construction noise levels for a variety of construction operations based on a compilation of empirical data and the application of acoustical propagation formulas.<sup>7</sup> A list of the construction equipment used is provided in **Table B-12**. Cumulative construction noise levels were calculated assuming a worst-case scenario with all equipment used at the same time.

For conservative purposes, construction of the Proposed Action Alternative was assumed to occur entirely within the year 2020. Construction activities generate noise from the operation of equipment required for demolition and construction of runway pavement. Noise effects from on-site construction and staging of construction equipment were evaluated by determining the noise levels generated by different types of construction activity and calculating the construction-related noise level at the closest noise-sensitive receptor locations.

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<sup>5</sup> U.S. Department of Transportation, Federal Aviation Administration, Order 1050.1F, *Environmental Impacts: Policies and Procedures*, effective July 16, 2016.

<sup>6</sup> U.S. Department of Transportation, Federal Highway Administration, *Highway Traffic Noise: Analysis and Abatement Guidance*, December 2011.

<sup>7</sup> U.S. Department of Transportation, Federal Highway Administration, *Roadway Construction Noise Model – RCNM*, [https://www.fhwa.dot.gov/Environment/noise/construction\\_noise/rcnm/](https://www.fhwa.dot.gov/Environment/noise/construction_noise/rcnm/), (accessed: January 2018).

TABLE B-12 (1 OF 2) TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVELS

EQUIPMENT	ACOUSTICAL USAGE FACTOR (%)	ACTUAL MEASURES LMAX (DBA) @ 50 FEET
All Other Equipment > 5 HP	50	-- N/A --
Auger Drill Rig	20	84
Backhoe	40	78
Boring Jack Power Unit	50	83
Chain Saw	20	84
Clam Shovel (dropping)	20	87
Compactor (ground)	20	83
Compressor (air)	40	78
Concrete Batch Plant	15	-- N/A --
Concrete Mixer Truck	40	79
Concrete Pump Truck	20	81
Concrete Saw	20	90
Crane	16	81
Dozer	40	82
Drill Rig Truck	20	79
Drum Mixer	50	80
Dump Truck	40	76
Excavator	40	81
Flat Bed Truck	40	74
Front End Loader	40	79
Generator	50	81
Generator (<25KVA, VMS signs)	50	73
Gradall	40	83
Grader	40	-- N/A --
Grapple (on backhoe)	40	87
Horizontal Boring Hydr. Jack	25	82
Impact Pile Driver	20	101
Jackhammer	20	89
Man Lift	20	75
Mounted Impact Hammer (hoe ram)	20	90
Pavement Scarafier	20	90
Paver	50	77
Pickup Truck	40	75

TABLE B-12 (2 OF 2) TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVELS

EQUIPMENT	ACOUSTICAL USAGE FACTOR (%)	ACTUAL MEASURES LMAX (DBA) @ 50 FEET
Pneumatic Tools	50	85
Pumps	50	81
Refrigerator Unit	100	73
Rivit Buster/chipping gun	20	79
Rock Drill	20	81
Roller	20	80
Sand Blasting (Single Nozzle)	20	96
Scraper	40	84
Shears (on backhoe)	40	96
Slurry Plant	100	78
Slurry Trenching Machine	50	80
Soil Mix Drill Rig	50	-- N/A --
Tractor	40	-- N/A --
Vacuum Excavator (VaA-truck)	40	85
Vacuum Street Sweeper	10	82
Ventilation Fan	100	79
Vibrating Hopper	50	87
Vibratory Concrete Mixer	20	80
Vibratory Pile Driver	20	101
Warning Horn	5	83
Welder/Torch	40	74

## NOTE:

1 Spec. 721.560 Lmax @ 50 feet.

SOURCE: U.S. Department of Transportation, Federal Highway Administration, FHWA Road Construction Noise Model User's Guide, January 2006.

Noise levels from outdoor construction activities, independent of background ambient noise levels, indicate that the noisiest phases of construction are typically during excavation and grading, and that noise levels from equipment with mufflers are typically 86 dBA Leq at 50 feet from the noise source. This type of sound typically dissipates at a rate of 4.5 dBA to 6 dBA for each doubling of distance. The sound drop-off rate does not take into account any intervening shielding (including landscaping or trees) or barriers, such as structures or hills between the noise source and noise receptor. 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. A higher barrier may provide as much as 20 dB of noise reduction.

Ambient noise levels were determined for sensitive noise-receptors nearest to the Proposed Action Alternative. The following steps were undertaken to calculate construction-period noise levels:

1. Ambient noise levels at surrounding noise-sensitive receptor locations were modeled based on a grid-point analysis using AEDT, which was used to determine the existing aircraft noise levels at the sensitive receptors, as shown in **Table B-13**.
2. Typical noise levels for each type of construction equipment were obtained from FHWA's RCNM (see Table B-12). Construction equipment, including number and type of equipment, was identified for each component of construction.
3. Distances between construction site and staging area locations (noise source), and surrounding noise-sensitive receptors were measured using Proposed Action Alternative plans and aerial imagery.
4. Construction equipment noise levels were calculated for noise-sensitive receptor locations based on the conventional standard point source noise-distance attenuation factor of 4.5 to 6.0 dBA for each doubling of distance. Construction noise levels were quantified at predetermined distances from the site using the Leq metric.
5. Calculated noise levels associated with Proposed Action Alternative construction at noise-sensitive receptor locations were then compared to estimated existing noise levels and the construction noise significance thresholds identified above.

The RCNM assumed several types of construction equipment working at the same time and calculated the cumulative Hourly Equivalent Sound (Leq) levels of all the equipment at the sensitive noise receptors.

**TABLE B-13 LIMITS OF PHYSICAL DISTURBANCE NEAREST SENSITIVE NOISE RECEPTORS**

RECEPTOR	DISTANCE TO PROPOSED ACTION COMPONENTS (FEET)	2020 $L_{EQ}$ AIRCRAFT NOISE (DBA)	2020 DNL AIRCRAFT NOISE LEVEL (DB)
Animal Shelter	5,173	31.7	33.0
Residential Properties	11,458	33.3	35.9

SOURCE: Ricondo & Associates, Inc. June 2018.

## B.2.2 CONSTRUCTION NOISE REGULATIONS

The analysis of potential noise construction impacts utilized the FHWA December 2011 "Highway Traffic Noise: Analysis and Abatement Guidance". According to this guidance, "The analyst should identify sensitive receivers, existing noise levels, predicted construction noise levels and evaluate impacts to indicate their severity."<sup>8</sup> Because construction is a temporary condition and normally conducted during daylight hours, FHWA does not specify a threshold for construction noise, but defers to the local authority to provide specific guidance.

Lanai is within Maui County, which defers to State of Hawaii Department of Health Noise Permitting for construction projects.<sup>9,10</sup> In accordance with Hawaii Department of Health permitting an approved Community Noise Permit may

<sup>8</sup> U.S. Department of Transportation, Federal Highway Administration, *Highway Traffic Noise: Analysis and Abatement Guidance*, December 2011.

<sup>9</sup> Maui County, *Noise Reference Manual, Maui County Edition*, July 2017.

<sup>10</sup> Hawaii, Department of Health, Indoor and Radiological Health Branch, *Noise-Forms and Links*, <http://health.hawaii.gov/irhb/noiseforms/>, (accessed June 22, 2018).



be required for construction projects exceeding the noise code and has a total cost of more than \$250,000. Construction will be allowed from 7:00 a.m. to 6:00 p.m., Monday through Friday, and 9:00 a.m. to 6:00 p.m. on Saturdays. The use of certain demolition and construction equipment (such as pile drivers, hydraulic hammers, jackhammers, etc.) shall be limited to 9:00 a.m. to 5:30 p.m., Monday through Friday. Construction projects exceeding the maximum permissible sound levels before 7:00 a.m. and after 6:00 p.m., Monday through Friday, or before 9:00 a.m. and after 6:00 p.m. on Saturdays, or anytime on Sundays & holidays are allowed only with an approved Community Noise Variance. Community Noise Variance applications should be sent to the Hawaii State Department of Health.<sup>11</sup>

### B.2.3 CONSTRUCTION IMPACTS

As shown in Table B-12, noise levels from outdoor construction activities, independent of background ambient noise levels, indicate that the noisiest construction activities would include the use of pile drivers, if used for the Proposed Alternative, which are typically 101 dB(A) at 50 feet from the noise source.

The nearest residential populations to the limits of physical disturbance (LOPD) are located in Lanai City, approximately 11,500 feet to the northeast. An animal shelter is located approximately 5,200 feet to the southwest of the LOPD. Using the RCNM tool, the construction noise levels from construction equipment (cumulative total noise) would be Leq 47.5 dBA at residential receptors without considering any existing shielding, barriers, or hills. Construction noise at the animal shelter would be Leq 57.2 dBA without considering any existing shielding, barriers, or hills.

Construction noise would be in compliance with Maui County and State of Hawaii policies, and thus, would not be significant.

**Tables B-14** and **B-15** list the construction noise levels from a select group of construction equipment that may be used for the Proposed Action Alternative, the noise levels at the sensitive noise receptors, and the cumulative noise at the receptors calculated using the RCNM. Cumulative construction noise at the residential noise receptor would be Leq 47.5 dBA; and cumulative construction noise at the animal shelter receptor would be Leq 57.2 dBA.

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<sup>11</sup> Maui County, *Noise Reference Manual, Maui County Edition*, July 2017.

TABLE B-14 RESIDENTIAL RECEPTOR CONSTRUCTION NOISE LEVELS

DESCRIPTION	IMPACT DEVICE	USAGE PERCENTAGE	DEVICE LMAX AT 50 FT. (DBA)	DISTANCE TO RECEPTOR (FEET)	LEQ NOISE LEVEL AT RECEPTOR (DBA)
Grader	No	40	85	11,458	33.1
Impact Pile Driver	Yes	20	101.3	11,458	46.3
Pneumatic Tools	No	50	85.2	11,458	34.2
Pickup Truck	No	40	75	11,458	23.1
Jackhammer	Yes	20	88.9	11,458	33.9
Generator	No	50	80.6	11,458	29.7
Front End Loader	No	40	79.1	11,458	27.2
Dump Truck	No	40	76.5	11,458	24.5
Concrete Batch Plant	No	15	83	11,458	26.8
Concrete Mixer Truck	No	40	78.8	11,458	26.9
Concrete Pump Truck	No	20	81.4	11,458	26.5
Vacuum Street Sweeper	No	10	81.6	11,458	23.6
Man Lift	No	20	74.7	11,458	19.8
Flat Bed Truck	No	40	74.3	11,458	23.1
Backhoe	No	40	77.6	11,458	28.1
Crane	No	16	80.6	11,458	24.6
Flat Bed Truck	No	40	74.3	11,458	22.3
Roller	No	20	80	11,458	25.1
Pickup Truck	No	40	75	11,458	28.8
<b>Cumulative Device Level at Receptor</b>					<b>47.5</b>

SOURCE: Ricondo &amp; Associates, Inc. June 2018.

TABLE B-15 ANIMAL SHELTER RECEPTOR CONSTRUCTION NOISE LEVELS

DESCRIPTION	IMPACT DEVICE	USAGE PERCENTAGE	DEVICE LMAX AT 50 FT. (DBA)	DISTANCE TO RECEPTOR (FEET)	LEQ NOISE LEVEL AT RECEPTOR (DBA)
Grader	No	40	85	5,173	42.7
Impact Pile Driver	Yes	20	101.3	5,173	56
Pneumatic Tools	No	50	85.2	5,173	43.9
Pickup Truck	No	40	75	5,173	32.7
Jackhammer	Yes	20	88.9	5,173	43.6
Generator	No	50	80.6	5,173	39.3
Front End Loader	No	40	79.1	5,173	36.9
Dump Truck	No	40	76.5	5,173	34.2
Concrete Batch Plant	No	15	83	5,173	36.5
Concrete Mixer Truck	No	40	78.8	5,173	36.5
Concrete Pump Truck	No	20	81.4	5,173	36.1
Vacuum Street Sweeper	No	10	81.6	5,173	33.3
Man Lift	No	20	74.7	5,173	29.4
Flat Bed Truck	No	40	74.3	5,173	32.7
Backhoe	No	40	77.6	5,173	37.7
Crane	No	16	80.6	5,173	34.3
Flat Bed Truck	No	40	74.3	5,173	32
Roller	No	20	80	5,173	34.7
Pickup Truck	No	40	75	5,173	38.5
<b>Cumulative Device Level at Receptor</b>					<b>57.2</b>

SOURCE: Ricondo &amp; Associates, Inc. June 2018.

## **Appendix C**

### *Air Quality Analysis*

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## APPENDIX C AIR QUALITY ANALYSIS

### C.1 INTRODUCTION

This document describes the methods used to calculate emissions of carbon monoxide (CO), volatile organic compounds (VOCs), oxides of nitrogen (NO<sub>x</sub>), particulate matter less than ten microns in diameter (PM<sub>10</sub>), particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>), and carbon dioxide equivalent (CO<sub>2</sub>e) for the construction of a 500-foot extension to Runway 3-21 and associated improvements (Proposed Action) at Lanai Airport (LNY or the Airport).

The emissions analysis was conducted to develop emissions inventories pursuant to the National Environmental Policy Act of 1969 (NEPA), and to determine whether emissions associated with the Proposed Action would exceed applicable *de minimis* thresholds as documented in the U.S. Environmental Protection Agency (USEPA) general conformity regulations. If approved, construction of the Proposed Action is expected to occur between July 2019 and December 2020, which would result in short-term effects on air quality. For purposes of this analysis, construction was conservatively assumed to occur entirely within a 12-month period.

### C.2 REGULATORY SETTING

Under the federal Clean Air Act (CAA), as amended, the USEPA has developed National Ambient Air Quality Standards (NAAQS) for the following air pollutants, referred to as criteria air pollutants: CO, nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), sulfur dioxide (SO<sub>2</sub>), lead (Pb), PM<sub>10</sub>, and PM<sub>2.5</sub>. The CAA defines the need to establish two standards—primary standards, which define maximum concentrations of criteria air pollutants to protect public health, and secondary standards, which define maximum concentrations of criteria air pollutants to protect public welfare.<sup>1</sup>

Individual states are required to identify general geographic areas where the NAAQS for these criteria air pollutants are not met. The USEPA designates such areas as nonattainment areas and qualifies the nonattainment status by severity of nonattainment ranging from marginal to moderate to serious to extreme nonattainment. Areas that were in nonattainment but have since attained the NAAQS are considered to be an attainment/maintenance area for several years before being designated as being in attainment. A state with a nonattainment or maintenance area must prepare a State Implementation Plan (SIP) that describes the programs and requirements that the state will implement to attain or maintain the NAAQS by the deadlines specified in the CAA, as well as subsequent related documents promulgated by the USEPA.

The CAA requires federal agencies to ensure that actions proposed to occur in a designated nonattainment or maintenance area conform to the appropriate SIP, also known as General Conformity. The General Conformity Rule establishes the *de minimis* levels by which a proposed action may show that it complies with the SIP's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of such standards. Pursuant to FAA Order 1050.1F, a proposed action would generally be considered in compliance if it would not cause emissions that exceed NAAQS *de minimis* levels. If the proposed action's emissions exceed the *de minimis* levels, a conformity determination would be required.

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<sup>1</sup> Title 40 C.F.R. Part 50, *National Primary and Secondary Ambient Air Quality Standards*, Section 2(b).

In Hawaii, ambient air quality standards are set by the Department of Health in accordance with Hawaii Administrative Rules (HAR) Title 11, Chapter 59. Based on data collected by the State Department of Health (DOH), the State of Hawaii standards and NAAQS for all pollutants are being met; thus, no areas of Hawai'i are listed as nonattainment.<sup>2</sup>

## C.3 METHODOLOGY

### C.3.1 MODELS

The Airport Construction Emissions Inventory Tool (ACEIT) was used to estimate the construction emissions associated with the project components. ACEIT was developed in conjunction with the Transportation Research Board's Airport Cooperative Research Program Report 102, which provides guidance in developing airport construction emissions inventories. ACEIT provides default values for most input data required to produce construction emissions inventories, including activity data and emission factors, and allows for the manipulation of various parameters to better define and refine a project analysis.

ACEIT calculates emissions for CO, VOC, NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O) for both on-road and off-road construction sources. The model uses the USEPA's nonroad equipment emissions model (NONROAD2008a) for nonroad construction vehicle/equipment emissions and the Motor Vehicle Emissions Simulator (MOVES2010b) for on-road vehicle emissions. In addition to exhaust emissions, MOVES estimates fugitive emissions related to non-exhaust and non-equipment sources, including evaporative (VOC) emissions and brake and tire wear (PM) emissions. Fugitive emissions from other sources, including asphalt drying, soil handling, and material movement, are also included in the model, using methodologies from the USEPA's AP-42.

### C.3.2 SIGNIFICANCE THRESHOLDS

The evaluation of significance involves identifying if the Proposed Action would cause pollutant concentrations to exceed one or more of the NAAQS for any of the time period(s) analyzed or would increase the frequency or severity of any such existing violations. Established under the CAA, the General Conformity Rule applies to proposed federal actions in a nonattainment or maintenance area if the total of direct and indirect emissions of the relevant criteria air pollutants and precursor pollutants caused by the Proposed Action would equal or exceed defined *de minimis* amounts. If the project would cause an exceedance of *de minimis*, then the federal agency would need to make a determination of General Conformity. If project emissions would not exceed the *de minimis* thresholds, the federal agency can determine that the Proposed Action conforms with the SIP and no further analysis or documentation is required.

The *de minimis* thresholds used to evaluate the applicability of the General Conformity Rule to the Proposed Action are 100 tons per year for CO, NO<sub>x</sub>, VOCs, PM<sub>10</sub>, PM<sub>2.5</sub> and SO<sub>2</sub>.

## C.4 ASSUMPTIONS

Construction of the Proposed Action would result in short-term changes in air emissions from sources such as: exhaust emissions from nonroad construction equipment, haul trucks, and construction worker vehicles; fugitive

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<sup>2</sup> U.S. Environmental Protection Agency, Nonattainment Areas for Criteria Pollutants (Green Book), <https://www.epa.gov/green-book> (accessed: August 31, 2018).



VOC emissions from paving; and fugitive dust emissions from grading, materials handling, and vehicles traveling on paved and unpaved roads.

### C.4.1 PROPOSED ACTION COMPONENTS

For purposes of this analysis, the Proposed Action was assumed to consist of the following components. Area estimates were used to scale construction activity in ACEIT and were estimated from construction drawings.

- Pavement demolition – Demolition of approximately 67,000 square feet of old concrete pavement within the project area was assumed to be exported from the site.
- Runway extension – Extension of Runway 3-21 by 500 feet to the northeast (Runway 21 end), approximately 75,000 square feet of new pavement.
- Blast pad construction – Construction of a 200-foot blast pad on the extended Runway 21 end, approximately 40,000 square feet of new pavement.
- Runway safety area – Grading and fill as necessary to meet FAA RSA standards, assumed to be approximately 300,000 cubic yards of material exported from the site.
- Perimeter fencing – Relocation and installation of perimeter fencing around the RSA, approximately 4,400 linear feet.
- Service road relocation – Relocation and installation of perimeter airport service road around the RSA, approximately 30,000 square feet of pavement.
- Vegetated swale – Construction of a vegetated swale approximately 2,000 feet in length.

### C.4.2 CONSTRUCTION ACTIVITY

Construction emissions analyses generally require information such as the type of construction equipment to be used, the amount of time the equipment will operate, estimates of required construction material, areas to be paved, and the number of employees anticipated to be on site. Such data was largely unavailable for purposes of conducting this analysis. The use of the ACEIT was particularly appropriate for this analysis due to the model's ability to estimate nonroad and onroad activity data for a variety of standard airport projects, including associated activity types and the equipment used in each activity. Based on project dimensions, ACEIT scales these activities.

**Table C-1** shows the construction activities that were assumed to comprise each project component.

For each construction activity, default construction equipment and usage hours were assumed, as assigned by ACEIT. Default equipment usage hours are estimated in ACEIT based on the overall size of the project and activity rates based on expert engineering judgment. A summary of equipment types and usage hours is presented in **Table C-2**.

TABLE C-1: PROPOSED ACTION PROJECT ACTIVITIES

CONSTRUCTION ACTIVITY BY PROJECT COMPONENT	
<b>Demo Existing Pavement</b>	<b>Runway Extension/Blast Pad</b>
Asphalt Demolition	Clearing and Grubbing
	Drainage - 24 inch Corrugated Pipe
<b>Service Road</b>	Drainage - 6 inch Perforated Underdrain
Asphalt Placement	Dust Control
Clearing and Grubbing	Excavation (Cut to Fill)
Drainage - 24 inch Corrugated Pipe	Excavation (Topsoil Stripping)
Drainage - 6 inch Perforated Underdrain	Grading
Dust Control	Hydroseeding
Excavation (Cut to Fill)	Markings
Excavation (Topsoil Stripping)	Subbase Placement
Grading	Topsoil Placement
Hydroseeding	Concrete Placement
Markings	Lighting
Soil Erosion/Sediment Control	Soil Erosion/Control
Subbase Placement	
Topsoil Placement	<b>Vegetated Swale</b>
	Hydroseeding
<b>Runway Safety Area</b>	Soil Erosion/Sediment Control
Clearing and Grubbing	Topsoil Placement
Drainage - 24 inch Corrugated Pipe	Drainage Structures
Dust Control	
Excavation (Borrow)	<b>Fencing</b>
Excavation (Cut to Fill)	Clearing and Grubbing
Excavation (Topsoil Stripping)	Excavation (Cut to Fill)
Hydroseeding	Fencing
Soil Erosion/Sediment Control	Grading
Topsoil Placement	Hydroseeding
Drainage	Soil Erosion/Sediment Control
	Topsoil Placement

SOURCE: Airport Construction Emissions Inventory Tool (ACEIT), based on project selections by Ricondo & Associates, Inc., September 2018.

TABLE C-2: NONROAD EQUIPMENT AND HOURS OF OPERATION

EQUIPMENT	HOURS
Air Compressor	43
Asphalt Paver	4
Chain Saw	196
Chipper/Stump Grinder	196
Concrete Saws	43
Concrete Truck	226
Dozer	3,571
Dump Truck	9,078
Excavator	2,703
Flatbed Truck	330
Grader	22
Hydroseeder	73
Loader	220
Off-Road Truck	73
Other General Equipment	938
Pickup Truck	4,123
Pumps	67
Roller	2,679
Rubber Tired Loader	43
Scraper	3,067
Skid Steer Loader	208
Slip Form Paver	43
Surfacing Equipment (Grooving)	48
Tractors/Loader/Backhoe	324
Water Truck	2,880

SOURCE: Airport Construction Emissions Inventory Tool (ACEIT), based on project selections by Ricondo & Associates, Inc., September 2018.

On-road construction vehicle trips include construction worker vehicle trips to and from the job site, off-site hauling trips, and material delivery trips. The number of roundtrips for each type of on-road activity was calculated within ACEIT based on project dimensions and required quantities of various construction materials. Default roundtrip distances were assumed. Vehicle miles traveled for each on-road activity was calculated by multiplying the total number of vehicle trips by the roundtrip distance. **Table C-3** summarizes the on-road activity for the Proposed Action.

TABLE C-3: ONROAD VEHICLE ACTIVITY ASSUMPTIONS

EQUIPMENT	FUEL	ROUNDTRIP DISTANCE (MILES)	ROUNDTRIPS PER YEAR	VEHICLE MILES TRAVELED
Asphalt 18 Wheeler	Diesel	40	11	428
Cement Mixer	Diesel	40	918	36,723
Dump Truck	Diesel	40	15,387	615,496
Dump Truck Subbase Material	Diesel	40	446	17,824
Passenger Car	Gasoline	30	15,387	461,619
<b>Total</b>			<b>31,762</b>	<b>1,132,090</b>

NOTE:

Totals may not add due to rounding.

SOURCE: Airport Construction Emissions Inventory Tool (ACEIT), based on project selections by Ricondo &amp; Associates, Inc., September 2018.

### C.4.3 EMISSION FACTORS

Along with activity data, emission factors are key inputs for the estimation of construction emissions. ACEIT is able to produce emission factors for nonroad and on-road construction equipment, as well as fugitive sources, using USEPA-approved and industry standard models and methodologies. The integration of the USEPA's MOVES and NONROAD emissions models allows ACEIT to determine emission factors for all onroad and nonroad construction vehicles for which activity data for the Proposed Action was developed. The following assumptions were used to develop appropriate emission factors for use in estimating construction emissions for the Proposed Action:

- Construction years—Vehicle age affects the emission factors assigned to a specific vehicle or piece of equipment. Emission factors were derived for an assumed 2019 construction year.
- Project location—Emission factors can be derived on a national or local basis. National average emission factors were assumed in this analysis.
- Seasons—Seasonal variation in fuel characteristics can affect nonroad and on-road vehicle/equipment emissions. For each project component, the total number of months of construction in each year was distributed using ACEIT into "summer" (May-October) and "winter" (November-April). These distributions were used by ACEIT to more accurately estimate nonroad emissions using the integrated NONROAD2008 model.
- Equipment type—Default nonroad construction equipment was selected based on construction activities specific to each project component. Default on-road vehicles were assumed to include light-duty, gasoline passenger cars for construction worker trips, and heavy-duty, diesel long-haul trucks for material transport (i.e., 18-wheeler, tractor trailer, cement mixer, and dump truck).
- Fuel type—By default, all nonroad construction equipment was assumed to be diesel. Default fuel types for on-road vehicles were based on equipment type, as noted above.
- Fugitive emissions—Equipment-related emission factors for sources of fugitive emissions were derived from ACEIT for evaporative emissions, brake and tire-dust emissions, and re-suspended dust emissions. Dust emission factors in the analysis included dust emissions associated with activities such as earth moving, wind erosion, material handling, travel on paved and unpaved roads, demolition, and material batching.

**Table C-4** presents the default nonroad equipment specifications assumed in the analysis, while **Table C-5** shows the nonroad emission factors for each piece of construction equipment.

TABLE C-4: NONROAD CONSTRUCTION EQUIPMENT SPECIFICATIONS

EQUIPMENT	HORSEPOWER	LOAD FACTOR
Air Compressor	100	0.43
Asphalt Paver	175	0.59
Chain Saw	11	0.70
Chipper/Stump Grinder	100	0.43
Concrete Saws	40	0.59
Concrete Truck	600	0.59
Dozer	175	0.59
Dump Truck	600	0.59
Excavator	175	0.59
Flatbed Truck	600	0.59
Grader	300	0.59
Hydroseeder	600	0.59
Loader	175	0.59
Off-Road Truck	600	0.59
Other General Equipment	175	0.43
Pickup Truck	600	0.59
Pumps	11	0.43
Roller	100	0.59
Rubber Tired Loader	175	0.59
Scraper	600	0.59
Skid Steer Loader	75	0.21
Slip Form Paver	175	0.59
Surfacing Equipment (Grooving)	25	0.59
Tractors/Loader/Backhoe	100	0.21
Water Truck	600	0.59

SOURCE: Airport Construction Emissions Inventory Tool (ACEIT).

TABLE C-5: NONROAD CONSTRUCTION EQUIPMENT EMISSION FACTORS

EQUIPMENT	EMISSION FACTORS (GRAMS PER HORSEPOWER-HOUR)						
	CO	VOC	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2e</sub>
Air Compressor	1.241	0.224	2.040	0.003	0.182	0.167	589.691
Asphalt Paver	0.509	0.166	1.176	0.003	0.115	0.105	536.329
Chain Saw	293.535	61.888	1.323	0.140	9.748	8.968	685.996
Chipper/Stump Grinder	1.814	0.372	3.240	0.004	0.318	0.293	589.241
Concrete Saws	0.600	0.176	3.398	0.003	0.086	0.079	595.625
Concrete Truck	0.243	0.142	0.727	0.003	0.030	0.027	536.399
Dozer	0.432	0.158	1.005	0.003	0.094	0.086	536.352
Dump Truck	0.243	0.142	0.727	0.003	0.030	0.027	536.399
Excavator	0.336	0.151	0.820	0.003	0.067	0.062	536.399
Flatbed Truck	0.243	0.142	0.727	0.003	0.030	0.027	536.374
Grader	0.277	0.150	0.880	0.003	0.045	0.041	536.399
Hydroseeder	0.243	0.142	0.727	0.003	0.030	0.027	536.375
Loader	0.557	0.171	1.298	0.003	0.127	0.117	536.399
Off-Road Truck	0.243	0.142	0.727	0.003	0.030	0.027	536.313
Other General Equipment	0.437	0.183	1.599	0.003	0.107	0.099	536.399
Pickup Truck	0.243	0.142	0.727	0.003	0.030	0.027	530.488
Pumps	4.462	0.651	4.651	0.004	0.433	0.398	536.399
Roller	1.516	0.186	1.528	0.003	0.191	0.176	588.396
Rubber Tired Loader	0.557	0.171	1.298	0.003	0.127	0.117	595.595
Scraper	0.625	0.158	1.537	0.003	0.094	0.086	536.313
Skid Steer Loader	4.603	0.906	4.825	0.004	0.680	0.626	536.353
Slip Form Paver	0.509	0.166	1.176	0.003	0.115	0.105	693.253
Surfacing Equipment (Grooving)	2.387	0.472	4.459	0.004	0.353	0.325	536.329
Tractors/Loader/Backhoe	4.264	0.675	3.350	0.004	0.599	0.551	594.725

SOURCE: Airport Construction Emissions Inventory Tool (ACEIT).

On-road vehicle emission factors by year are presented in **Table C-6**. Key assumptions and notes regarding the modeling of these factors are as follows:

- CO emission factors were modeled for winter; all other pollutant factors were modeled for summer
- Road type: urban unrestricted
- Fuel type: passenger car (gasoline); trucks (diesel)
- CO emission factors include running exhaust, crankcase running exhaust, and crankcase start exhaust
- VOC emission factors include running exhaust, evaporative permeation and fuel vapor venting, crankcase running exhaust, refueling displacement vapor loss, and refueling spillage loss

- NO<sub>x</sub> emission factors include running exhaust and crankcase start exhaust
- SO<sub>x</sub> emission factors include running exhaust and start exhaust
- PM emission factors include running exhaust, brakewear, tirewear, and crankcase running exhaust
- CO<sub>2</sub>e emission factors include running exhaust

TABLE C-6: ONROAD CONSTRUCTION VEHICLE EMISSION FACTORS

EQUIPMENT CATEGORY	EMISSION FACTORS (GRAMS PER MILE)					
	CO	VOC	NO <sub>x</sub>	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Asphalt 18 Wheeler	1.405	0.003	4.815	0.017	0.248	0.241
Cement Mixer	0.866	0.003	2.137	0.009	0.084	0.082
Dump Truck	0.866	0.003	2.137	0.009	0.084	0.082
Dump Truck Subbase Material	0.866	0.003	2.137	0.009	0.084	0.082
Passenger Car	1.408	0.002	0.110	0.002	0.005	0.005

SOURCE: Airport Construction Emissions Inventory Tool (ACEIT).

## C.5 SUMMARY OF CONSTRUCTION EMISSIONS

The emissions inventory for construction activities associated with each individual project component is presented in **Table C-7**. A summary of emissions is presented in **Table C-8**. The annual construction-related pollutant emissions were compared against the General Conformity *de minimis* thresholds to gauge conformance to the SIP. As shown in Table C-8, construction emissions would not exceed federal *de minimis* thresholds.

TABLE C-7: CONSTRUCTION EMISSIONS ESTIMATES BY COMPONENT

	CO	VOC	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>
Demolish Existing Pavement	0.068	0.012	0.090	0.044	0.004	0.000
Runway Extension/Blast Pad	1.313	0.302	1.271	0.258	0.056	0.005
Runway Safety Area	3.567	1.065	7.434	3.780	0.372	0.024
Vegetated Swale	0.054	0.008	0.029	0.007	0.001	0.000
Perimeter Fencing	0.213	0.052	0.241	0.040	0.014	0.001
Service Road	0.433	1.193	0.423	0.056	0.021	0.002

## NOTES:

CO—carbon monoxide

VOC—volatile organic compounds

NO<sub>x</sub>—oxides of nitrogenPM<sub>2.5</sub>—fine particulate matterPM<sub>10</sub>—particulate matter

SOURCE: Ricondo &amp; Associates, Inc., September 2018.

TABLE C-8: ANNUAL EMISSIONS COMPARED TO DE MINIMIS THRESHOLDS

	ESTIMATED ANNUAL EMISSIONS (TONS/YEAR)					
	CO	VOC	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>
<b>Construction Activity</b>	5.649	2.632	9.488	4.185	0.468	0.033
<b>Federal <i>De Minimis</i> Threshold</b>	100	100	100	100	100	100
Difference (Under)/Over <i>De Minimis</i> Threshold	(94.35)	(97.37)	(90.51)	(95.82)	(99.53)	(99.97)
Exceedance?	No	No	No	No	No	No

## NOTES:

Totals may not add due to rounding.

CO—carbon monoxide

VOC—volatile organic compounds

NO<sub>x</sub>—oxides of nitrogenPM<sub>2.5</sub>—fine particulate matterPM<sub>10</sub>—particulate matter

SOURCE: Ricondo &amp; Associates, Inc., September 2018.



