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JUN 08 2018

IN REPLY REFER TO:
AIR-EP
18.0084

June 15, 2018

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OFC. OF ENVIRONMENTAL QUALITY CONTROL

TO: THE HONORABLE SCOTT GLENN
DIRECTOR
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

FROM: JADE T. BUTAY for
DIRECTOR OF TRANSPORTATION

SUBJECT: JOINT HAWAII ENVIRONMENTAL POLICY ACT (HEPA) AND NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) FINAL ENVIRONMENTAL ASSESSMENT WITH FINDING OF NO SIGNIFICANT IMPACT (FEA-FONSI) FOR THE LIHUE AIRPORT RUNWAY 3-21 RUNWAY SAFETY IMPROVEMENTS, STATE PROJECT NO. AK1012-09, LIHUE AIRPORT, KAUAI, HAWAII, TMK (4)3-5-001:008

The State of Hawaii, Department of Transportation, Airports Division (HDOT-A), hereby transmits a joint HEPA/NEPA Final Environmental Assessment with Finding of No Significant Impact (FEA-FONSI) for the Lihue Airport Runway 3-21 Runway Safety Area Improvements, situated at TMK (4)3-5-001:008 in the Lihue District on the island of Kauai, for publication in the next available edition of The Environmental Notice. The publication is pursuant to Hawaii Revised Statutes (HRS), Sections 343-5(a) and (h), Hawaii Administrative Rules (HAR), Section 11-200-5 and Section 11-200-25.

Enclosed is a completed OEQC Publication Form, one copy of the FEA-FONSI, and a CD containing an Adobe Acrobat PDF file of the same. Simultaneous with this letter, our consultant has submitted the OEQC Publication Form in a MS Word file by electronic mail to your office.

Please contact Mr. Herman Tuiolosega, Head Planner, at (808) 838-8810, if there are any questions.

Enclosures: OEQC Publication Form
FEA-FONSI (one copy)
CD of Publication Form and FEA (PDF files)

c: Mr. Gordon K. Wong, Federal Aviation Administration
Mr. Steve Culberson, Ricondo & Associates, Inc.

18-672

AGENCY
PUBLICATION FORM

Project Name:	Lihue Airport Runway 3-21 Runway Safety Area Improvements
Project Short Name:	LIH Runway Safety Area Improvements
HRS §343-5 Trigger(s):	Use of State lands and funds
Island(s):	Kauai
Judicial District(s):	Lihue
TMK(s):	(4)3-5-001:008
Permit(s)/Approval(s):	Special Management Area
Proposing/Determining Agency:	State of Hawai'i, Department of Transportation, Airports Division
Contact Name, Email, Telephone, Address	Mr. Herman Tuiolosega Email: herman.tuiolosega@hawaii.gov Phone: (808) 838-8810 400 Rodgers Boulevard, 7th Floor Honolulu, Hawai'i 96819-1880
Accepting Authority:	(for EIS submittals only)
Contact Name, Email, Telephone, Address	
Consultant:	Ricondo & Associates, Inc.
Contact Name, Email, Telephone, Address	Steve Culberson, Vice President Email: sculberson@ricondo.com Phone: (808) 840-5249 3239 Ualena Street, Third Floor Honolulu, Hawai'i 96819

Status (select one)	**Submittal Requirements**
___ DEA-AFNSI	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEA, and 4) a searchable PDF of the DEA; a 30-day comment period follows from the date of publication in the Notice.
_X_ FEA-FONSI	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; no comment period follows from publication in the Notice.
____ FEA-EISPN	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; a 30-day comment period follows from the date of publication in the Notice.
____ Act 172-12 EISPN ("Direct to EIS")	Submit 1) the proposing agency notice of determination letter on agency letterhead and 2) this completed OEQC publication form as a Word file; no EA is required and a 30-day comment period follows from the date of publication in the Notice.
____ DEIS	Submit 1) a transmittal letter to the OEQC and to the accepting authority, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEIS, 4) a searchable PDF of the DEIS, and 5) a searchable PDF of the distribution list; a 45-day comment period follows from the date of publication in the Notice.
____ FEIS	Submit 1) a transmittal letter to the OEQC and to the accepting authority, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEIS, 4) a searchable PDF of the FEIS, and 5) a searchable PDF of the distribution list; no comment period follows from publication in the Notice.

18-672

____ FEIS Acceptance Determination	The accepting authority simultaneously transmits to both the OEQC and the proposing agency a letter of its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS; no comment period ensues upon publication in the Notice.
FEIS Statutory Acceptance	Timely statutory acceptance of the FEIS under Section 343-5(c), HRS, is not applicable to agency actions.
____ Supplemental EIS Determination	The accepting authority simultaneously transmits its notice to both the proposing agency and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is or is not required; no EA is required and no comment period ensues upon publication in the Notice.
____ Withdrawal	Identify the specific document(s) to withdraw and explain in the project summary section.
____ Other	Contact the OEQC if your action is not one of the above items.

Project Summary

Provide a description of the proposed action and purpose and need in 200 words or less.

The State of Hawai'i Department of Transportation – Airports Division (HDOT-A) is proposing improvements to the Lihue Airport Runway 3-21 Runway Safety Area (RSA) in accordance with Public Law 109-115 that requires all 14 Code of Federal Regulations, Part 139 certified airports to improve the airport's RSA to comply with Federal Aviation Administration (FAA) design standards. The primary components of the improvements include: shifting the Runway 3 end 855 feet to the southwest, resulting in an 855-foot Runway 3 displaced threshold; construction of a 200-foot blast pad; construction of a taxiway extension to the new Runway 3 end; construction of a retaining wall beyond the Runway 3 end; creation of a Departure End of Runway (DER) point on Runway 3; increasing the existing Runway 21 displaced threshold from 205 feet to 455 feet in order to provide a 600-foot arrival RSA to Runway 21; and construction of a retaining wall along the roadway beyond the Runway 21 end. The project implements the FAA's mission to ensure the safe and efficient use of navigable airspace in the United States.

18-672

Lihue Airport
Runway 3-21 Runway Safety Area Improvements

Final Environmental Assessment

State Project No. AK1012-09

VOLUME 1

PREPARED FOR:

State of Hawaii, Department of Transportation – Airports Division

This Environmental Assessment becomes a Federal document when evaluated, signed, and dated by the Responsible FAA Official.

MARCH 2018

3/30/2018

Responsible FAA Official. *Date*

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
WESTERN-PACIFIC REGION

FINDING OF NO SIGNIFICANT IMPACT AND RECORD OF DECISION

Runway 3-21 Runway Safety Area Improvements

Lihue Airport
Lihue, Kauai County, Hawaii

For further information

Gordon K. Wong
U.S. Department of Transportation
Federal Aviation Administration
Western-Pacific Region
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June 1, 2018

GENERAL INFORMATION ABOUT THIS DOCUMENT

WHAT'S IN THIS DOCUMENT? This document is the Federal Aviation Administration's (FAA) Finding of No Significant Impact (FONSI) and Record of Decision (ROD) for the proposed Runway 3-21 Runway Safety Area Improvements at Lihue Airport in Lihue, Hawaii. This document includes the agency determinations and approvals for those proposed Federal actions described in the Final Environmental Assessment dated February 2018. This document discusses all alternatives considered by FAA in reaching its decision, summarizes the analysis used to evaluate the alternatives, and briefly summarizes the potential environmental consequences of the Proposed Action and the No Action alternative, which are evaluated in detail in this FONSI and ROD. This document also identifies the environmentally preferred alternative and the agency preferred alternative. This document identifies applicable and required mitigation.

BACKGROUND. In August 2017, the State of Hawaii, Department of Transportation – Airports Division (HDOT-A) prepared a Draft Environmental Assessment (DEA). The DEA addressed the potential environmental effects of the proposed Runway 3-21 Runway Safety Area Improvements including various reasonable alternatives to that proposal. The DEA was prepared in accordance with the requirements of the National Environmental Policy Act (NEPA) [Public Law 91-190, 42 U.S.C. §§ 4321-4347], the implementing regulations of the Council on Environmental Quality (CEQ) [40 C.F.R. Parts 1500-1508], and FAA Orders 1050.1F, *Environmental Impacts: Policies and Procedures* and 5050.4B, *National Environmental Policy Act (NEPA), Implementing Instructions for Airport Actions*. The HDOT-A published the Notice of Availability for the DEA on August 23, 2017 and received comments on the document through September 22, 2017. FAA approved the Final EA on March 30, 2018.

WHAT SHOULD YOU DO? Read the Finding of No Significant Impact and Record of Decision to understand the actions that FAA intends to take relative to the proposed Runway 3-21 Runway Safety Area Improvements at Lihue Airport.

WHAT HAPPENS AFTER THIS? The HDOT-A may begin to implement the Proposed Action.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FINDING OF NO SIGNIFICANT IMPACT
AND
RECORD OF DECISION

PROPOSED RUNWAY 3-31 RUNWAY SAFETY AREA IMPROVEMENTS

LIHUE AIRPORT
LIHUE, KAUAI COUNTY, HAWAII

1. **Introduction.** This document is a Finding of No Significant Impact (FONSI) on the environment and Record of Decision (ROD) (FONSI/ROD) as a result of proposed Runway 3-21 Runway Safety Area Improvements at Lihue Airport (LIH), Kauai County, Hawaii. The State of Hawaii, Department of Transportation – Airports Division (HDOT-A) is the sponsor for Lihue Airport. The Federal Aviation Administration (FAA) must comply with the National Environmental Policy Act of 1969 (NEPA) before being able to take the federal actions of approval of those portions of the Airport Layout Plan (ALP) that depict the proposed improvements. Approval of the ALP is authorized by the Airport and Airway Improvement Act of 1982, as amended (Public Laws 97-248 and 100-223).

2. **Purpose and Need of the Proposed Action.** The purpose of the LIH's proposed action is to satisfy FAA Airport Design Standards for the Runway Safety Area (RSA) for Runway 3-21 at LIH. LIH is a commercial service airport that accommodates both air carrier aircraft as well as general aviation activity. The existing RSA for Runway 3-21 does not meet current FAA airport design standards as those standards are described in FAA Advisory Circular 150/5300-13A, *Airport Design*. The RSA at the Runway 21 northeast end is 855 feet short of meeting the RSA standard beyond the runway end for Runway 21 departures. The RSA 600-foot length requirement prior to the Runway 21 arrival threshold is 250 feet short of meeting the FAA standard.

   The FAA's statutory mission is to ensure the safe and efficient use of navigable airspace in the United States. Pursuant to Title 49 United States Code (USC), Subtitle VII, as amended, FAA must ensure the proposed project does not derogate the safety of aircraft and airport operations at LIH. Legislation under the *Transportation, Treasury, Housing and Urban Development, the Judiciary, the District of Columbia, and Independent Agencies Appropriations Act*, 2006 (Public Law [P.L.] 109-115), November 30, 2005, requires that the owner or operator of an airport certified under Title 14, Code of Federal Regulations (CFR), Part 139, *Certification of Airports* shall improve the airport's runway safety areas to comply with FAA design standards.

   This FONSI/ROD addresses HDOT-A's proposed improvements to the RSA for Runway 3-21 as described below. The proposed action would correct this design standard deficiency consistent with FAA Order 5200.8, *Runway Safety Area Program*. FAA recognizes that the RSA for Runway 3-21 would be improved to the maximum extent practicable, but would not fully meet FAA RSA design standards. In order to maintain the existing Runway 21 Landing Distance Available (LDA) of 6,295 feet, a non-standard RSA (935 feet) is proposed on the Runway 3 end. The non-standard RSA on the Runway 3 end has been agreed upon by HDOT-A and FAA as a means of meeting RSA design standards to the maximum extent practicable, since this RSA would provide the

required 600-foot arrival RSA and no take-offs by commercial passenger airplanes would occur towards the non-standard Runway 3 end 935-foot RSA.

3. **Proposed Project and Federal Actions.** The proposed action includes site preparation, grading, as needed, installation of drainage structures, paving, marking and lighting of various airfield pavement (see Exhibit 1-4 and descriptions of the project components in Section 1.3 of the Final EA).

   The proposed action evaluated in this FONSI/ROD includes the following actions:

   - Runway 3 (Southwest End)
     - Shift of the Runway 3 end 855 feet to the southwest; the landing threshold would remain in the same location, resulting in an 855-foot Runway 3 displaced threshold. To accommodate the runway shift, 855 feet of pavement would be constructed at the Runway 3 end. This shift of the Runway end would allow aircraft to take off from the new runway end, 855 feet southwest of where aircraft can takeoff under existing conditions (discussed in Section 1.3.1 below). As noted in Section 1.2.2 of the Final EA, approximately 89 percent of aircraft departures occur from Runway 3.
     - Construction of a 200-foot blast pad.
     - Construction of a taxiway extension to the new Runway 3 end.
     - Construction of a retaining wall beyond the Runway 3 end. The land between the runway and the retaining wall would be filled and graded to meet RSA standards.
     - In order to mitigate the Runway Protection Zone (RPZ) penetrations on the Runway 3 end resulting from Alternative 1, a Departure End of Runway (DER) point would be created, limiting the extent of the Runway 21 Take-off Run Available (TORA) and Take-off Distance Available (TODA). The DER would coincide with the Runway 3 displaced threshold, which is also the existing Runway 3 end.

   - Runway 21 (Northeast End):
     - The existing Runway 21 displaced threshold would increase from the current displacement of 205 feet to a 455-foot displaced threshold in order to provide a 600-foot arrival RSA to Runway 21.
     - Construction of a retaining wall along the public road beyond the Runway 21 end. The land between the runway and the retaining wall would be filled and graded to meet RSA standards. The public road would remain open.

   - Implement declared distances.

   - Construction, installation, relocation and/or upgrade of various FAA National Airspace System (NAS) facilities (navigational and visual aids) including but not limited to Runway End Identifier Lights (REIL), Precision Approach Path Indicator (PAPI), runway threshold and edge lights, and taxiway edge lighting and signage and associated utility lines. This equipment is necessary to ensure the safety of air navigation for aircraft operations at the airport.

The federal actions necessary to carry out the proposed projects include:

- Unconditional approval of the Airport Layout Plan (ALP) for LIH depicting the proposed improvements pursuant to 49 U.S.C. §§ 40103(b), 44718, and 47107(a)(16); 14, C.F.R. Part 77, *Objects Affecting Navigable Airspace*; and 14 C.F.R. Part 157, *Notice of Construction, Alteration, Activation, and Deactivation of Airports.*

    - 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)].

- Determinations under 49 U.S.C §§ 47106 and 47107 relating to the eligibility of the Proposed Action and similar action for federal funding under the Airport Improvement Program (AIP).

4. **Reasonable Alternatives Considered.** Chapter 2 of the Final EA used a three step alternatives analysis screening process including:

    Step 1: Would the proposed Alternative enhance the Runway 3-21 RSAs consistent with FAA Advisory Circular 150/5300-13A, *Airport Design*?

    Step 2: Would the Alternative be practicable and consistent with FAA Order 5200.8, *Runway Safety Area Program*, considering existing technology and logistics?

    Step 3: Would the Alternative result in a safe and efficient use of navigable airspace and minimize airfield operational impacts?

The Final EA evaluated two off-airport alternatives, one operational alternative, and 17 on-airport alternatives, in addition to the No Action Alternative to the proposed action. Analysis of the No Action Alternative is required pursuant to 40 CFR § 1502.14(d). Paragraph 6.2-1 of FAA Order 1050.1F states in part: *"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 Alternative and No Action Alternative 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 Alternative and agency experience with the environmental issues involved."*

Section 2.4.1 of the Final EA evaluated the two off-airport non-construction alternatives of "Use of Alternative Modes of Transportation" and "Use of Other Public Airports." There are no feasible off-airport alternatives for the location of the Runway 3-21 Runway Safety Area Improvements because compliance with P.L. 109-115 requires the airport sponsor meet the FAA's standards for RSAs to the extent practicable. Therefore, off-airport alternatives were eliminated from consideration as they would not meet the purpose and need of the proposed action because the RSA for Runway 3-21 at LIH would still fail to satisfy applicable FAA airport design standards and safety would not be enhanced as required by P.L. 109-115.

Section 2.4.1 of the Final EA also evaluated one operational alternative, "Use of Alternative Aircraft." However, FAA and HDOT-A do not have the authority to compel airlines to use alternative aircraft at LIH. This alternative was eliminated from consideration as it would not meet the purpose and need of the proposed action because the RSA for Runway 3-21 at LIH would still fail to satisfy applicable FAA airport design standards and safety would not be enhanced as required by P.L. 109-115 as airlines may still continue to use the same fleet of aircraft.

Section 2.4.2 evaluates the 17 on-airport RSA improvement alternatives for Runway 3-21 at LIH. Table 2-4 of the Final EA summarizes the screening evaluation of the 17 on-airport RSA improvement alternatives. Additional description and analysis of these alternatives are provided in Appendix B of the Final EA. Three of the on-airport RSA improvement alternatives failed the Step 1 screening criteria as they would not meet the purpose and need because the RSA for Runway 3-21 at LIH would still fail to satisfy applicable FAA airport design standards and safety would not be enhanced as required by P.L. 109-115. Six of the on-airport RSA improvement alternatives failed the Step 2 screening criteria as they were not practicable to implement. Seven of the on-airport RSA improvement alternatives failed the Step 3 screening criteria as they would significantly impact airport operations. The only alternative that satisfied all screening criteria was Alternative 1, Refinement 3, which was then identified as the Proposed Action Alternative in the Final EA. Thus, only the Proposed Action Alternative and No Action Alternative were retained for analysis in the Environmental Consequences chapter of the Final EA for detailed impact analysis.

5. **Assessment.** The potential environmental impacts and possible adverse effects were identified and evaluated in a Final EA prepared in February 2018. The Final EA has been reviewed by the FAA and found to be adequate for the purpose of the proposed Federal action. The FAA determined that the Final EA for the proposed project adequately describes the potential impacts of the proposed action. No new issues surfaced as a result of the public review process.

   The Final EA examined the following environmental impact categories: Air Quality; Biological Resources; Climate; Coastal Resources; Department of Transportation Act Section 4(f); Farmlands; Hazardous Materials, Solid Waste, and Pollution Prevention; Historic, Architectural, Archeological, and Cultural Resources; Land Use; Natural Resources and Energy Supply; Noise and Compatible Land Use; Socioeconomics, Environmental Justice, and Children's Health and Safety Risks; Visual Effects; Water Resources; and Cumulative Impacts.

   A. **Air Quality.** Section 4.2.3 of the Final EA provides construction emissions inventory for the Proposed Action Alternative. Construction emissions for the Proposed Action Alternative were evaluated and were determined to be below the *de minimis* thresholds for all applicable pollutants, and therefore not significant. Table 4-1 provides the emissions inventories for the Proposed Action Alternative with the applicable *de minimis* thresholds.

      Section 4.2 of the Final EA, states the proposed action will not change aircraft operations at LIH. Operation of the Proposed Action Alternative would result in a minor shift of Runway 3-21 and a minor increase in aircraft taxi routes. The runway shift and increased taxi distance for operations for departures from Runway 3 would result in a minor change to aircraft emissions (*de minimus*). A minimal change in emissions would be anticipated from the Proposed Action Alternative as compared

with the No Action Alternative. Therefore, operation of the Proposed Action is not anticipated to have significant impacts to air quality.

B. **Biological Resources.** As discussed in Section 4.3 of the Final EA, a Biological Resources Study was conducted to assess critical habitat within the Study Area (Appendix E of the Final EA). According to the Biological Resources Study, while not observed during site surveys, the federally endangered native Hawaiian goose, also known as the Nēnē goose, Hawaiian duck, and Hawaiian stilt have been known to forage along runway margins from time to time. Additionally, two species of protected seabirds, the endangered 'ua'u or Hawaiian petrel and the threatened 'a'o or Newell's shearwater nest in burrows high in the Kauai mountains. These species would not physically land in the ground disturbance portion of the Study Area but do fly over the coastal lowlands to and from their burrows at dusk and at dawn respectively. Young fledglings, in particular, can be drawn to and confused by bright lights and crash into or around light structures with fatal results. Due to airport operational constraints, it is anticipated that construction work for the Proposed Action Alternative would occur during nighttime hours in order to mitigate impacts to air carrier operations. I t is recommended that the use of any significant outdoor flood lights that may be associated with this project be avoided during the fledging season (from September 15 through December 15) and hooded to direct the light downward to minimize this threat. FAA determined the proposed action would not affect any federally listed threatened or endangered species. While FAA has determined no effect on federally listed species or designated critical habitat, Section 4.3.5 of the Final EA does include implementation of minimization measures for construction of the Proposed Action in accordance with U.S. Fish and Wildlife Service (USFWS) recommendations. These minimization measures include those to limit construction lighting exposure to sensitive wildlife and surveys of construction areas by certified airport wildlife biologists. In addition to these measures, further coordination may be conducted with USFWS prior to construction in order to develop an acceptable project phasing plan.

LIH has a Wildlife Hazard Management Plan (WHMP) with measures designed to minimize impact to wildlife resources – at, and surrounding LIH – while maximizing safety of airport operations. Construction and operation of the Proposed Action Alternative would comply with the current WHMP for LIH. Since FAA made a no-effect determination, no Section 7 consultation with the USFWS was required pursuant to the Endangered Species Act of 1973, as amended.

C. **Climate.** Section 4.4 of the Final EA states the Proposed Action Alternative would result in a slight increase in GHG emissions. However, when compared to the No Action Alternative, the emissions associated with the Proposed Action Alternative would not substantially be different. There are currently no significance GHG emissions thresholds in accordance with FAA Order 1050.1F. Construction and operations of the Proposed Action Alternative would not significantly contribute to global climate change. The coastal area adjacent to the Study Area consists of coastal bluffs with significant elevation changes. This coastal area would not be sensitive to sea level rise. Therefore, the Proposed Action Alternative is not anticipated to result in any significant climate impacts.

D. **Coastal Resources.** Section 4.5 of the Final EA states that in accordance with FAA Order 1050.1F, Paragraph 4-3.3, the components of the Proposed Action Alternative would be consistent with the Hawaii Coastal Zone Management Program (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. Based on the evaluation of the Proposed Action relative to the objectives of the State of Hawai'i's CZM Program, no short or long term, secondary or cumulative adverse impacts are anticipated. Upon the termination of construction there will be no further inducement or need for further actions with regard to coastal resources. Therefore, the Proposed Action is consistent with the State of Hawaii CZM Program. Existing storm water management practices at LIH in compliance with the 2016 LIH SWPCP and NPDES permit would minimize any significant impacts of storm water runoff to Kauai's coastal areas. Additionally, the Proposed Action Alternative would be in compliance with coastal zone management considerations, as set forth in Chapter 205A of the Hawaii Revised Statutes (HRS).

E. **Department of Transportation Act Section 4(f).** Section 4.6 of the Final EA states construction of the Proposed Action Alternative would be restricted to the ground disturbance portion of the Study Area within the airport airfield. Since the Proposed Action Alternative would be implemented entirely on LIH property, there would be no physical taking or even temporary occupancy of a DOT Act Section 4(f) resource. Therefore, no physical use of 4(f) resources would occur as a result of operation and construction of the Proposed Action Alternative. The ground disturbance portion of the Study Area is adjacent to the proposed Nawiliwili-Ahukini Shared-Use recreational path that is currently undergoing environmental review. However, given the nature of the Study Area setting, 4(f) resources within the Study Area are already subject to emissions and noise from existing airport operations. Temporary construction activities would not represent a significant change in noise or air quality for nearby 4(f) resources when compared to the No Action Alternative. Construction and operation of the Proposed Action Alternative would not constitute a constructive use because there are no impacts that are so severe that the activities, features, or attributes that contribute to the significance of the proposed Nawiliwili-Ahukini Shared-Use recreational path or its enjoyment would be substantially diminished. The Proposed Action Alternative is not anticipated to result in any significant impacts to Section 4(f) resources.

F. **Farmlands.** As discussed in Section 4.7 of the Final EA, Hawaii State Land Use Districts designate areas within the Study Area as agricultural. However, these areas are currently vacant land and the Kauai Marriott Resort golf course. As discussed in Section 3.7 of the Final EA, there are no prime or unique farmlands within the Study Area. The nearest farmlands are located approximately 350 feet to the northwest of the Study Area. Additionally, there are no prime or unique farmlands located within the Study Area. No development outside of the existing airfield or change in land use would occur. As such, no direct or indirect impacts from construction or operation of the Proposed Action Alternative would occur to farmlands.

G. **Hazardous Materials, Solid Waste, and Pollution Prevention.** Section 4.8 of the Final EA notes construction associated with the Proposed Action Alternative would involve shallow excavation in the areas where the runway and taxiway pavements

are to be reconstructed, the RSA graded, and retaining walls constructed. This section of the Final EA states that no known or listed hazardous material or clean-up sites are located within areas of the Study Area that would be excavated or graded during the construction activities for the Proposed Action Alternative. Implementation of Best Management Practices (BMPs) to avoid spillage of fuels, greases, and oils, would reduce potential impacts. The Proposed Action Alternative would not significantly increase or decrease the production of solid waste at LIH. Any existing solid waste collection facilities would continue to remain following completion of the Proposed Action Alternative. No additional solid waste generation beyond that created under existing conditions is expected to result from the Proposed Action Alternative. Construction of the Proposed Action Alternative would result in the generation of construction and demolition debris, which is discussed in Section 4.8.3 of the Final EA. Implementation of the Proposed Action Alternative would not result in significant impacts. Storm water runoff would be maintained through the existing 2016 LIH SWPCP as well as a NPDES permit, which would mitigate any impacts of hazardous materials, solid waste, and pollution prevention from storm water runoff.

H. **Historic, Architectural, Archeological, and Cultural Resources.** Section 4.9 of the Final EA notes that the FAA submitted a Section 106 Consultation letter for the Proposed Action Alternative to the State of Hawaii Historic Preservation Division (SHPD) on November 22, 2016. The letter stated that there are no historic properties listed or eligible for listing on the National Register of Historic Places (NRHP) within the Area of Potential Effects (APE). Consequently, the FAA found that the proposed undertaking would not affect any historic properties. The FAA determined the APE by using the boundaries of the entire area that would have a physical disturbance (see Exhibit 3-2 of the Final EA). Since the proposed undertaking will not affect the number and type of aircraft using LIH, the FAA delineated a direct effects APE only. There would be no change in the indirect effects from aircraft noise resulting from the proposed undertaking. The SHPD did not respond to the FAA's November 22, 2016 consultation letter, seeking concurrence with FAA's determination of eligibility and finding of effect. Pursuant to 36 CFR 800.4(d)(1), FAA may consider a lack of objection within 30 days of receipt of the adequately documented finding as satisfying FAA's obligations under Section 106.

The FAA also sent letters dated January 6, 2017 (see Appendix F of the Final EA) to Native Hawaiian Organizations to determine if they had any comments about the proposed undertaking. Responses were received from the Office of Hawaiian Affairs (OHA), dated February 13, 2017 and September 22, 2017. These letters expressed concern that previous historic sites near the APE have been destroyed and/or only fragments remain. OHA has requested "*utmost care be taken in all of these sensitive areas*" to avoid any further destruction of historic sites. The FAA consultation letter as well as the subsequent correspondence is included in Appendix F of the Final EA. As detailed in Section 3.9 of the Final EA, previous site historical record searches and on-site surveys have found no indication of historic or cultural resources located within the APE. While the Proposed Action Alternative would not have any significant impacts, the unanticipated discovery plan was included in Section 4.9.5 of the Final EA, to be followed during construction in order to minimize any potential impact in the event unanticipated resources should be discovered during construction:

- In the event an unanticipated discovery of previously unidentified archeological resources is made during construction of the Proposed Action Alternative, the FAA and the HDOT-A will require the construction activities in the vicinity of the discovery to stop, and take all reasonable measures to avoid or minimize harm to the property until the FAA and the HDOT-A conclude consultation with the SHPD.
- If the project's construction-related activities unearth human remains, ground-disturbing activities in the area of the discovery would immediately be halted by the FAA and the HDOT-A while a temporary construction exclusion zone surrounding the site is established to allow for further examination and treatment of the find.
- The FAA and the HDOT-A would also immediately notify the Kauai County Coroner's Office should any remains be discovered. If the Coroner recognizes the remains to be Native Hawaiian, he or she would contact the SHPD, by telephone. The SHPD would then appoint a Most Likely Descendant of the human remains, and a burial treatment plan would be negotiated and implemented. The FAA and the HDOT-A would be responsible for restricting all construction activity from the immediate vicinity of the human remains until treatment is complete.

I. **Land Use.** Section 4.10 of the Final EA notes that construction of the RSA improvements would be consistent with current land use designations, as well as with the previously disturbed nature of the ground disturbance portion of the Study Area. This area of LIH is within the airfield and it is actively managed per FAA regulations to ensure safe airport operations at LIH. Operations of the Proposed Action Alternative would occur completely within the existing airfield portion of the Study Area. Implementation of the Proposed Action Alternative would result in a minor change in aircraft operations due to the runway shift. The minor modifications in operations at LIH would not result in a significant change in noise exposure to residents and sensitive land uses, as compared with the No Action Alternative. Therefore, no impacts to existing land uses or land use designations would occur with implementation of the Proposed Action Alternative. Section 4.10.1 of the Final EA states that FAA received a land use assurance letter prepared under 49 U.S.C. 47107(a)(10). A copy of this letter is presented in Appendix H of the Final EA.

J. **Natural Resources and Energy Supply.** Section 4.11 of the Final EA states that construction activities using natural resources and energy would be temporary and would not be in a quantity that would significantly impact supplies. Additionally, changes in Airport operations due to implementation of the Proposed Action Alternative would be minimal compared to the overall natural resource and energy consumption of LIH operations. Therefore, no significant impacts related to natural resources or energy supply under the Proposed Action Alternative are anticipated.

K. **Noise and Compatible Land Use.** Section 4.12 of the Final EA notes that any ground-borne vibration or noise impacts resulting from construction activities would be temporary and would not have a significant impact, due to the distance and private golf course buffer between the ground disturbance portion of the Study Area and the closest sensitive noise receptor. Therefore, construction of the Proposed

Action Alternative is not anticipated to have any significant noise and compatible land use impacts. The Proposed Action Alternative and the No Action Alternative would not result in any change in the number or frequency of aircraft operations. While operation of the Proposed Action Alternative would result in a minor shift to the location of the ends of Runway 3-21, operation of the Proposed Action Alternative for years 2019 and 2024 were found to have no significant difference in noise as compared with the No Action Alternative. No noise sensitive land uses would be within the DNL 65 dB aircraft noise contour for the Proposed Action Alternative operational years.

L. **Socioeconomics, Environmental Justice, and Children's Health and Safety Risks.** Section 4.13 of the Final EA states the proposed RSA and associated improvements would occur entirely on airport property. Therefore, the Proposed Action Alternative would not create any adverse off-airport socioeconomic, environmental justices, or children's health and safety risk impacts. The Proposed Action Alternative would not cause disproportionately high or adverse human health or environmental effects on minority and low-income populations. The Proposed Action Alternative would not create disproportionate risks to children because all project components are within the LIH boundaries, where there are no schools or daycare centers.

M. **Visual Effects.** As discussed in Section 4.14 of the Final EA, construction of the Proposed Action Alternative would result in light emissions from nighttime construction and visible construction equipment. However, construction would occur within the airfield portion of the airport, with limited views from adjacent property. Additionally, light shielding methods for biological resources discussed in Section 4.3.5 of the Final EA would be implemented to limit light spillover and glare from nighttime construction lights. Operation of the Proposed Action Alternative would result in minor changes to the airfield with additional runway pavement at the Runway 3 end and retaining walls constructed at either end of the runway. Fencing would be constructed along the top of the retaining walls. However, fencing would be similar to the existing security fencing surrounding the LIH airfield. The proposed retaining walls would be adjacent to airfield facilities and would not interrupt any viewsheds of unique or critical value. Therefore, the development of the retaining walls and fencing would have a less than significant impact to visual resources. The proposed improvements are not anticipated to have a substantial visual impact.

N. **Water Resources.** Section 4.15 of the Final EA states the Proposed Action Alternative would not create a significant impact to water resources. The Proposed Action includes shifting Runway 3-21 and connecting the associated taxiway which would result in minor changes to storm water discharges by slightly increasing the total amount of impervious surfaces at the airport. Section 4.15.3.1 of the Final EA states for stormwater treatment and discharge the Proposed Action Alternative would not alter the drainage patterns on the airport. This section of the Final EA also states the Proposed Action Alternative would have no effect on potable water sources used at the airport. No wetlands or floodplains would be impacted as a result of the Proposed Action Alternative. Storm water runoff would be maintained through the existing 2016 LIH SWPCP as well as a NPDES permit. Increased runoff as a result of the Proposed Action Alternative would be mitigated by existing measures

stipulated in the SWPCP and NPDES. Existing storm water management practices at LIH in compliance with the 2016 LIH Storm Water Pollution Control Plan (SWPCP) and National Pollution Discharge Elimination System (NPDES) permit would mitigate any significant impacts of the Proposed Action Alternative to Kauai's coastal areas. Through compliance with these existing measures in place, no significant impacts related to water resources are anticipated.

O. **Cumulative Impacts.** The past, present, and reasonably foreseeable actions (Cumulative Impact Projects) considered in the Final EA are identified in Table 3-7 in Section 3.16. The potential for the Proposed Action Alternative to cumulatively contribute to effects on resource categories discussed above with other past, present, and reasonably foreseeable future projects are described in Table 4-6 of the Final EA. None of the various action alternatives would result in significant operational changes to the airport or would increase the type or amount of aircraft operations at the airport compared to the No Action Alternative. As shown in Table 4-6, the implementation of the Proposed Action Alternative is not anticipated to be cumulatively significant when considered with other past, present and reasonably foreseeable actions.

6. **Environmentally Preferred Alternative and FAA Preferred Alternative.** In connection with its decision to approve the proposed ALP revisions, the FAA considered the environmental impacts from the Proposed Action Alternative and the No Action Alternatives. The FAA determined that all practicable means to avoid or minimize environmental harm under the Proposed Action Alternative have been adopted and there would be no significant environmental impacts from the proposed Runway 3-21 Runway Safety Area Improvements at LIH and that the project would not jeopardize the safe and efficient operations at the Airport. The No Action alternative has fewer environmental effects than the Proposed Action alternative and thus would be the environmentally preferred alternative. However, the No Action alternative does not meet the Purpose and Need for the proposed project and does not allow HDOT-A to comply with the provisions of Public Law 109-115. Thus, the FAA's preferred alternative is the Proposed Action Alternative, because it meets the Purpose and Need of the proposed project with no significant impacts. Further, it meets FAA's statutory mission to ensure the safe and efficient use of navigable airspace by enhancing aviation safety through improved RSAs at LIH and complies with Public Law 109-115.

7. **Public Participation**. The public was encouraged to review and comment on the Draft EA which was released for public review on August 23, 2017. HDOT-A published a notice of availability of the Draft EA in the *Star Advertiser* and *The Garden Island*, local newspapers in the vicinity of the Airport. Notification of the document's availability was also accomplished through the State of Hawaii Office of Environmental Quality Control's "The Environmental Notice" and the Draft EA document was available in their online library for review. The Draft EA was distributed to federal, state, and local agencies and organizations having an interest and/or jurisdictional responsibility in the study. Copies of the document were also available for review at two libraries, one in Honolulu and the other in Lihue, the administrative offices of HDOT-A, at FAA's office in Honolulu, Hawaii, and at the airport offices in Lihue. The public review of the Draft EA ended on September 22, 2017. The comment letters that were received during the comment period and responses to the comments are included in Appendix F. Four comment letters from various State of Hawaii Governmental offices were received on the Draft EA.

Responses to comments received are provided in Appendix F of the Final EA. No issues were raised as a result of these comments.

8. **Inter-Agency Coordination.** In accordance with 49 U.S.C. § 47101(h), the FAA has determined that no further coordination with the U.S. Department of Interior or the U.S. Environmental Protection Agency is necessary because the Proposed Action does not involve construction of a new airport, new runway or major runway extension that has a significant impact on natural resources including fish and wildlife; natural, scenic, and recreational assets; water and air quality; or another factor affecting the environment.

9. **Reasons for the Determination that the Proposed Action will have No Significant Impacts.** The attached Final EA examines each of the various environmental resources that were deemed present at the project location, or had the potential to be impacted by the Proposed Action. The proposed Runway 3-21 Runway Safety Area Improvements at Lihue Airport would not involve any environmental impacts after mitigation that would exceed the threshold of significance, as defined by FAA Orders 1050.1F and 5050.4B. Based on the information contained in the Final EA, the FAA has determined that the Proposed Action is the most feasible and prudent alternative. The FAA has decided to implement the Proposed Action as described in Section 3 of this FONSI/ROD.

10. **Agency Findings.** The FAA makes the following determination for this project based on information and analysis set forth in the Final EA and other portions of the administrative record.

    a. **The project is reasonably consistent with existing plans of public agencies for development of the area [49 U.S.C. 47106(a)].** The proposed project is consistent with the plans, goals and policies for the area, including the County of Kauai's Lihue Community Plan. The proposed project is also consistent with the applicable regulations and policies of federal, State, and local agencies.

    b. **Archaeological, Architectural, Cultural and Historic Resources**. The FAA provided the Hawaii State Historic Preservation Division (SHPD) with the Area of Potential Effect, determination of eligibility and findings of effect pursuant to 36 CFR Part 800. FAA determined the proposed undertaking would not affect any properties listed or eligible for listing on the National Register of Historic Places. The site of the proposed undertaking has been extensively disturbed by past agricultural activities and conversion of that land to an airfield. FAA has fulfilled its obligations pursuant to the National Historic Preservation Act of 1966, as amended.

    c. **Independent and Objective Evaluation.** As required by the Council on Environmental Quality (40 C.F.R. § 1506.5), the FAA has independently and objectively evaluated this proposed project. As described in the Final EA, the Proposed Action and the No Action alternatives were studied extensively to determine the potential impacts and appropriate mitigation measures for those impacts. The FAA provided input, advice, and expertise throughout the analysis, along with administrative and legal review of the project.

11. Decision and Orders. Based on the information in this FONSI/ROD and supported by detailed discussion in the Final EA, the FAA has selected the proposed Runway 3-21 Runway Safety Area Improvements as the FAA's Preferred Alternative. The FAA must select one of the following choices:

- Approve agency actions necessary to implement the Proposed Action, or
- Disapprove agency actions to implement the Proposed Action.

Approval signifies that applicable federal requirements relating to the proposed airport development and planning have been met. Approval permits the Hawaii Department of Transportation - Airports Division to proceed with implementation of the Proposed Action and associated mitigation measures. Disapproval would prevent HDOT-A from implementing the Proposed Action elements within Lihue Airport.

Under the authority delegated to me by the Administrator of the Federal Aviation Administration, I find that the project is reasonably supported. I, therefore, direct that action be taken to carry out the agency actions discussed more fully in Section 3 of this FONSI/ROD.

1. Unconditional approval of the portion of the Airport Layout Plan (ALP) that depicts the proposed Runway 3-21 Runway Safety Area Improvements submitted by HDOT-A for Lihue Airport, pursuant to 49 U.S.C. §§ 40103(b), 44718 and 47101(a)(16) and 14 CFR Part 77. The approval of the ALP is based on determinations through the aeronautical study process regarding obstructions to navigable airspace, and the Airport development proposal is acceptable from an airspace perspective.

2. 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 CFR Part 139 (49 USC § 44706)].

3. Approval of determinations under 49 U.S.C § 47106 and 47107 relating to the eligibility of the Proposed Action and similar action for federal funding under the Airport Improvement Program (AIP)

This order is issued under applicable statutory authorities, including 49 U.S.C. §§ 40101(d), 40103(b), 40113(a), 44701, 44706, 44718(b), and 47101 et seq.

I have carefully and thoroughly considered the facts contained in the attached EA. Based on that information, I find the proposed Federal action is consistent with existing national environmental policies and objectives of Section 101 (a) of the National Environmental Policy Act of 1969 (NEPA). I also find the proposed Federal action will not significantly affect the quality of the human environment or include any condition requiring any consultation pursuant to section 102(2)(C) of NEPA. As a result, FAA will not prepare an Environmental Impact Statement (EIS) for this action.

APPROVED:

6-1-2018

Dennis E. Roberts
Regional Administrator, AWP-1
Western-Pacific Region

Date

DISAPPROVED:

Dennis E. Roberts
Regional Administrator, AWP-1
Western-Pacific Region

Date

RIGHT OF APPEAL

This FONSI/ROD constitutes a final order of the FAA Administrator and is subject to exclusive judicial review under 49 U.S.C. § 46110 by the U.S. Circuit Court of Appeals for the District of Columbia or the U.S. Circuit Court of Appeals for the circuit in which the person contesting the decision resides or has its principal place of business. Any party having substantial interest in this order may apply for review of the decision by filing a petition for review in the appropriate U.S. Court of Appeals no later than 60 days after the order is issued in accordance with the provisions of 49 U.S.C. § 46110.

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List of Abbreviations and Acronyms

A

AAC – Aircraft Approach Category

AC – Advisory Circular

ACCRI – Aviation Climate Change Research Initiative

ADO– Airports District Office

ADG – Airplane Design Group

AEDT – Aviation Environmental Design Tool

AIP – Airport Improvement Program

ALP – Airport Layout Plan

ALS – Approach Lighting System

AOA – Air Operations Area

APE – Area of Potential Effect

ARC – Airport Reference Code

ARFF – Aircraft Rescue and Fire Fighting

ASDA – Accelerate-Stop Distance Available

B

BMPs – Best Management Practices

C

CAA – Clean Air Act

CAAA – Clean Air Act Amendments of 1990

CEQ – Council on Environmental Quality

CERCLA – Comprehensive Environmental Response, Compensation and Liability Act

CFR – Code of Federal Regulations

CIA – Cultural Impact Assessment

CO – Carbon Monoxide

CO_2 – Carbon Dioxide

CWA – Clean Water Act

CZM – Coastal Zone Management

CZMA – Coastal Zone Management Act

CZMP – Coastal Zone Management Program

D

dB – decibel

dBA – A-weighted decibel

DBEDT– Department of Business, Economic Development and Tourism

DER – Departure End of Runway

DLNR – Department of Land and Natural Resources

DNL – Day-Night Average Sound Level

DOE – Department of Energy

DOH – Department of Health

DOT – U.S. Department of Transportation

E

EA – Environmental Assessment

EDMS – Emissions and Dispersion Modeling System

EIS – Environmental Impact Statement

EMAS – Engineered Materials Arresting Systems

EPA – Environmental Protection Agency

EPCRA – Emergency Planning & Community Right to Know Act

ESA – Endangered Species Act

F

FAA – Federal Aviation Administration

FEMA – Federal Emergency Management Agency

FIRMs – Flood Insurance Rate Maps

FONSI – Finding of No Significant Impact

FY – Fiscal Year

G

GAO – Government Accountability Office

GHGs – Greenhouse Gases

GSE – Ground Support Equipment

H

HAR – Hawaii Administrative Rules

HDFW – Hawaii Division of Forestry and Wildlife

HDOT – Hawaii Department of Transportation

HDOT-A – Hawaii Department of Transportation - Airports Division

HEER - Hazard Evaluation and Emergency Response

HMTA – Hazardous Materials Transportation Act

HRS – Hawaii Revised Statutes

I

ICAC – Interagency Climate Adaptation Commitee

ICAO – International Civil Aviation Organization

INM – Integrated Noise Model

K

KvD – Koloa Stony Silty Clay

L

LDA – Landing Distance Available

LhB – Lihue Silty Clay

LhC – Lihue Silty Clay

LIB – Lihue Gravelly Silty Clay

LIH – Lihue Airport

LWCF – Land & Water Conservation Fund

M

MOA – Memorandum of Agreement

msl – mean sea level

MSWLF – Municipal Solid Waste Landfill

ug/m^3 - Micrograms Per Cubic Meter

N

N.A. – not available

N/A – not applicable

NAAQS – National Ambient Air Quality Standards

NASA – National Aeronautics and Space Administration

NEPA – National Environmental Policy Act

NHO – Native Hawaiian Organization

NHPA – National Historic Preservation Act

NMFS – National Marine Fisheries Service

NO_2 – Nitrogen Dioxide

NO_X – Nitrogen Oxides

NOAA – National Oceanic and Atmospheric Administration

NPDES – National Pollution Discharge Elimination System

NPL – National Priorities List

NPS – National Park Service

NRHP – National Register of Historic Places

NWI – National Wetlands Inventory

O

O_3 – Ozone

OEQC – Office of Environmental Quality Control

OSWM – Office of Solid Waste Management

P

PAPI – Precision Approach Path Indicator

PARTNER – Partnership for AiR Transportation Noise & Emissions Reduction

Pb – Lead

PCBs – polychlorinated biphenyls

P.L. – Public Law

PM_{10} – Particulate Matter

$PM_{2.5}$ – Fine Particulates

ppm – Parts Per Million

Q

R

RCRA – Resource Conservation and Recovery Act

REIL – Runway End Identifier Lights

ROD – Record of Decision

RPZ – Runway Protection Zone

RSA-Runway Safety Area

S

SHPD – State Historic Preservation Division

SIHP – State Inventory of Historical Places

SIP – State Implementation Plan

SMA – Special Management Area

SMP – Special Management Area Use Permit

SO_2 – Sulfur Dioxide

SWPCP – Stormwater Polllution Control Plan

T

TAF- Terminal Area Forecast

TMK – Tax Map Key

TODA – Take-Off Distance Available

TORA – Take-Off Run Available

U

USACE – U.S. Army Corps of Engineers

U.S.C. – U.S. Code

USFWS – U.S. Fish and Wildlife Service

USGS – U.S. Geological Survey

UST – underground storage tank

V

VFR – Visual Flight Rules

VOCs – Volatile organic compounds

W

WHA – Wildlife Hazard Assessment

WHMP – Wildlife Hazard Management Plan

X

Y

Z

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1. Purpose and Need

1.1 Introduction

The State of Hawaii, Department of Transportation - Airports Division (HDOT-A), as owner and operator of Lihue Airport (LIH) proposes to make practicable and permanent Runway Safety Area (RSA) improvements to Runway 3-21 in order to comply with the requirements of the *Transportation, Treasury, Housing and Urban Development, the Judiciary, the District of Columbia, and Independent Agencies Appropriations Act, 2006* (Public Law [P.L.] 109-115), November 30, 2005. This Act requires that the owner or operator of an airport certified under Title 14, Code of Federal Regulations (CFR), Part 139, *Certification of Airports* shall improve the airport's runway safety areas to comply with Federal Aviation Administration (FAA) design standards.[1]

This Environmental Assessment (EA) is intended to identify and consider potential environmental impacts related to the proposed permanent RSA improvements to Runway 3-21. The EA for Runway 3-21 RSA Improvements has been prepared pursuant to the requirements of Section 102(2) of the *National Environmental Policy Act of 1969* (NEPA), and Section 509(b)(5) of the *Airport and Airway Improvement Act of 1982*, as amended.

NEPA requires federal agencies to prepare environmental documentation that discloses to decision-makers and the interested public a clear, accurate description of potential environmental effects resulting from proposed federal actions and reasonable alternatives to those actions. Through NEPA, the U.S. Congress directs federal agencies to integrate environmental factors in their planning and decision-making processes and to encourage and facilitate public involvement in decisions that affect the quality of the human environment. Federal agencies are required to consider the environmental impacts of the proposed action, alternatives to the proposed action, and a no action alternative (assessing the potential environmental effects of not undertaking the proposed action).

[1] U.S. National Archives and Records Administration. *Code of Federal Regulations*, Title 14, Part 139, Subpart D, Section 309, Safety Areas, June 9, 2004.

This EA has also been prepared in accordance with FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*[2] and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*.[3] 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 construction and operation of the Runway 3-21 RSA improvements which constitute the "Proposed Action" evaluated in this EA.

In addition to the federal directives regarding environmental impacts, this action is subject to the state of Hawaii regulations relative to environmental impacts. The State's Revised Statutes (HRS) Chapter 343, *Environmental Impact Statements* states that the environmental review process will "integrate the review of environmental concerns with existing planning processes of the State and Counties and alert decision makers to significant environmental effects which may result from the implementation of certain actions."[4] Implementing rules for the statute are published in Hawaii Administrative Rules, Chapters 11-200; these rules require early consultation; evaluation of the technical, economic, social, and environmental effects of the proposed action; description of the affected environment; identification of direct, indirect, and cumulative impacts and any alternatives considered; and formulation of measures to mitigate adverse direct, indirect, and cumulative impacts of the proposed action.[5]

This section includes a brief description of LIH, a description of the Proposed Action, a discussion of the purpose and need of the Proposed Action, a description of the requested federal actions; a summary of applicable federal EA processes and procedures, and a description/outline of the Runway 3-21 EA format.

1.2 Background Information

1.2.1 DESCRIPTION OF EXISTING AIRPORT

LIH is located on the southeast coast of the island of Kauai, in Hawaii, east of the city of Lihue, as depicted on **Exhibit 1-1**. Access to LIH is via Ahukini Road or Kapule Highway. A small hub airport,[6,7] LIH accommodates commercial air service to other Hawaiian islands as well as to the U.S. mainland.

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

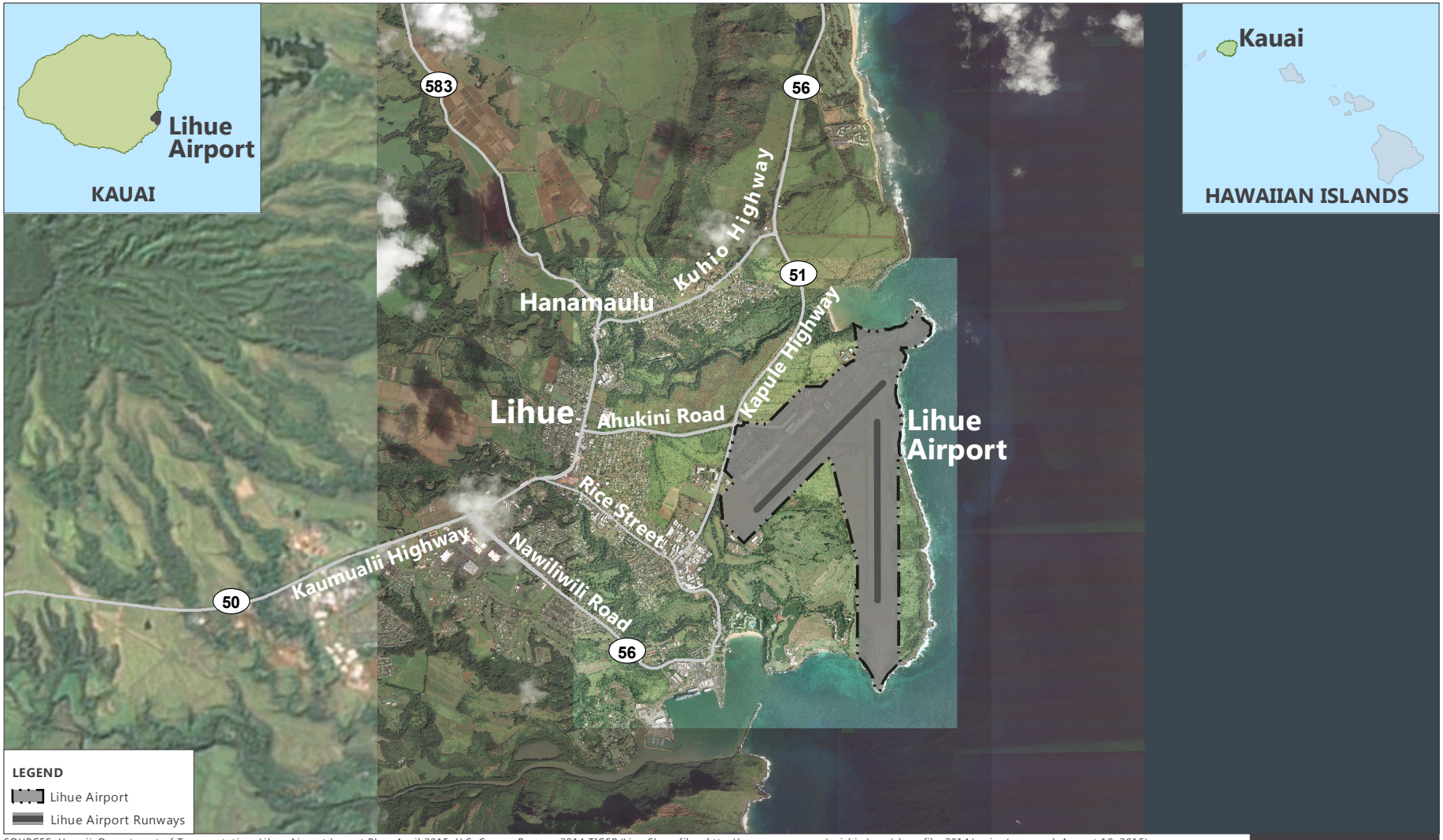
3 U.S. Department of Transportation, Federal Aviation Administration, Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, effective April 28, 2006.

4 Hawaii Revised Statutes, Chapter 343, Section 343-1, *Environmental Impact Statements*, 2011.

5 Hawaii Administrative Rules, Title 11, Chapter 200, Environmental Impact Statement Rules, April 2008.

6 Hub classification is based on the number of passengers enplaned at an airport, and a "small hub" classification means that the airport accommodates between 0.05 percent to 0.25 percent of total U.S. enplaned passengers.

7 U.S. Department of Transportation, Federal Aviation Administration, Report to Congress: National Plan of Integrated Airport Systems (NPIAS), 2015-2019.



SOURCES: Hawaii, Department of Transportation, Lihue Airport Layout Plan, April 2015; U.S. Census Bureau, 2014 TIGER/Line Shapefiles, http://www.census.gov/cgi-bin/geo/shapefiles2014/main, (accessed: August 10, 2015); Google Imagery, Aerial Imagery, February 2013; Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, October 2017 (aerial basemap).
PREPARED BY: Ricondo & Associates, Inc., April 2016.

EXHIBIT 1-1

NORTH 0 5,500 ft.

Airport Location

W:\Projects\LIH\RSA EA\MXD\LIH_RSA_EA_1-1_Location_2017-10-25.mxd

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The FAA's Terminal Area Forecast (TAF)[8] reports 129,421 aircraft operations at LIH in fiscal year (FY) 2016 (an aircraft operation is defined as a landing or a takeoff).[9] Passenger enplanements (passengers boarding) at LIH in 2016 were 1,412,735 in FY2016.[10]

An overview of the LIH layout and facilities is provided on **Exhibit 1-2**. There are two runways at LIH, Runway 3-21 and Runway 17-35. LIH houses a passenger terminal, an air cargo terminal, helicopter operations, and general aviation facilities, all located on the northwest side of Runway 3-21.

1.2.2 EXISTING RUNWAYS AND RUNWAY SAFETY AREAS

The existing runways at LIH are located southwest of the terminal facilities, as shown on Exhibit 1-2.

- Runway 3-21 is 6,500 feet long and 150 feet wide and is oriented northeast-southwest. There is a 205-foot displaced threshold on the Runway 21 end. The Runway 3 end elevation is approximately 153 feet above mean sea level (msl) while the Runway 21 end elevation is approximately 80 feet above msl. The Runway 3-21 surface is covered with grooved asphalt. Blast pads are located beyond both runway ends. Runway 3 is primarily used for departures (89 percent of all aircraft), while only 0.1 percent of aircraft operations depart from Runway 21. Less than 8 percent of arrivals occur on Runway 21 and only 0.1 percent of arrivals occur on Runway 3.
- Runway 17-35 is 6,500 feet long and 150 feet wide and is oriented north-south. The Runway 17 end elevation is approximately 92 feet above msl and the Runway 35 end elevation is approximately 92 feet above msl. The Runway 17-35 surface is covered with grooved asphalt. Blast pads are located beyond both runway ends. Runway 35 is utilized for nearly 90 percent of aircraft arrivals, while Runway 17 is utilized for only 2.2 percent of aircraft arrivals. Nearly 10 percent of aircraft departures occur from Runway 17, while only 1 percent of aircraft departures occur from Runway 35.

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8 U.S. Department of Transportation, Federal Aviation Administration, Terminal Area Forecast, http://taf.faa.gov/ (accessed December 2016).

9 U.S. Department of Transportation, Federal Aviation Administration, APO Terminal Area Forecast Detail Report- Lihue Airport, January 2017.

10 U.S. Department of Transportation, Federal Aviation Administration, APO Terminal Area Forecast Detail Report- Lihue Airport, January 2017.

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NOTES: msl = Above Mean Sea Level.

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.

PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 1,800 ft.

EXHIBIT 1-2

Airport Overview

Drawing: Z:\Hawaii\LIH\04-RSA EA\12-CAD\LIH_RSA_EA_Airport Overview_20171030.dwg Layout: Exh 1-2 Plotted: Mar 7, 2018, 01:52PM

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As detailed in FAA Advisory Circular (AC) 150/5300-13A (Change 1), *Airport Design*, a RSA is defined as "a defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft in the event of an undershoot, overshoot, or excursion from the runway."[11] The RSA has dimensional requirements as well as clearing, grading, and drainage requirements. An additional safety-related function is to provide greater accessibility for firefighting and emergency rescue vehicles during such incidents.

Certification under 14 CFR Part 139 is required for all airports that serve any scheduled or unscheduled passenger operation of an air carrier conducted with aircraft having seating capacities of more than 9 passengers. LIH currently holds a 14 CFR Part 139 Certificate and must comply with the requirements of the 14 CFR Part 139 regulations. Under these regulations, each certificate holder is required to provide and maintain safety areas for runways and taxiways. FAA Order 5200.8, *Runway Safety Area Program*, establishes procedures to ensure that all RSAs at federally obligated airports and Part 139 certificated airports conform to the standards in FAA AC 150/5300-13, *Airport Design*, to the extent practicable.[12] In addition, Public Law 109-115 requires airport sponsors that hold a certificate under 14 CFR Part 139 to improve runway safety areas to comply with FAA design standards for RSAs.[13]

The dimensional requirements for an RSA are based on the aircraft the runway is designed to accommodate. The Airport Reference Code (ARC) is a coding system used to relate airport design criteria to the operational and physical characteristics of the aircraft intended to operate on a particular runway. **Table 1-1** lists the FAA ARC and corresponding restrictions. The first part of a runway's ARC is a letter that represents the Aircraft Approach Category (AAC) and relates to the aircraft approach speed (operational characteristics). The second component of the ARC, depicted by a Roman numeral, is the Airplane Design Group (ADG) and relates to either the aircraft wingspan or tail height (physical characteristics), whichever is most restrictive to an aircraft's safe movement on the airport. The ADG and the AAC together are the basis for establishing RSA dimensions.

The AAC and ADG for Runway 3-21 at LIH are C-IV respectively. Examples of Approach Category C aircraft are the Boeing 737, 757, and 767 aircraft. RSA dimension requirements for approach category C aircraft are outlined in **Table 1-2**.

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[11] U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13A, *Airport Design*, September 28, 2012, Change 1, effective February 26, 2014.

[12] U.S. Department of Transportation, Federal Aviation Administration, Order 5200.8, *Runway Safety Area Program*, effective date: October 1, 1999.

[13] *Transportation, Treasury, Housing and Urban Development, the Judiciary, the District of Columbia, and Independent Agencies Appropriations Act, 2006*, Pub. L. No. 109-115, 109th Cong., 1st Sess. (November 30, 2005).

Table 1-1: FAA Airport Reference Code Classifications

AIRCRAFT APPROACH CATEGORY	AIRCRAFT APPROACH SPEED	AIRPLANE DESIGN GROUP	AIRCRAFT WINGSPAN
A	Up to 91 knots	I	Up to 49 feet
B	Greater than or equal to 91 knots but less than 121 knots	II	Greater than or equal to 49 feet but less than 79 feet
C	Greater than or equal to 121 knots but less than 141 knots	III	Greater than or equal to 79 feet but less than 118 feet
D	Greater than or equal to 141 knots but less than 166 knots	IV	Greater than or equal to 118 feet but less than 171 feet
E	Greater than or equal to 166 knots	V	Greater than or equal to 171 feet but less than 214 feet
		VI	Greater than or equal to 214 feet but less than 262 feet

SOURCE: U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13A, *Airport Design*, September 28, 2012, Change 1, effective February 26, 2014.
PREPARED BY: Ricondo & Associates, Inc., March 2016.

Table 1-2: RSA Dimensional Requirements

RUNWAY SAFETY AREA (RSA) DIMENSIONS AND GRADE LIMITATIONS	APPROACH CATEGORY C & D (FT)
RSA Width	500
RSA Length Prior to Landing	600
RSA Length Beyond the Runway	1,000

SOURCE: U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13A, *Airport Design*, September 28, 2012, Change 1, effective February 26, 2014.
PREPARED BY: Ricondo & Associates, Inc., March 2016.

In addition to dimensional requirements, the FAA has established specific design standards for RSAs[14] which include:

- Areas shall be cleared and graded with no potentially hazardous ruts, humps, depressions, or other surface variations;

[14] U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13A, Change 1, *Airport Design*, February 26, 2014.

- RSA grading must allow adequate drainage to prevent the accumulation of water. The installation of storm sewers is permissible within the RSA, but the elevation of the storm water inlets may not vary more than three inches from the surrounding surface elevation. The RSA limits for longitudinal and transverse grading are also outlined in Table 1-2.
- Capable, under dry conditions, of supporting snow removal equipment, Aircraft Rescue and Fire Fighting (ARFF) equipment, and the occasional passage of aircraft without causing damage to the aircraft; and
- Free of objects, except for objects that need to be located in the runway safety area because of their function.

In accordance with FAA AC 150/5300-13A, a standard RSA for runways accommodating C-IV aircraft must have a minimum of 1,000 feet beyond the runway end for departures and 600 feet prior to the runway threshold for arrivals.[15] The function of the RSA is to create a buffer between the runway pavement and non-movement areas. Takeoffs and landings are generally regarded as the most critical phases of flight; during these segments, aircraft are subject to a variety of controls and operational factors including a runway's usable operating dimensions. A growing list of RSA-related accidents contributed to the concern that airports do not provide adequate safety areas to reduce injury to persons and property. As a result, state and federal legislation was enacted in an effort to standardize safety area requirements. Recognizing the significant safety enhancement afforded by RSA improvements, the FAA issued Order 5200.8, *Runway Safety Area Program*, as an effort to guide the improvement process by identifying potential alternatives to the traditional cleared and graded safety areas.

At LIH, Runway 17-35 meets FAA RSA design standards at the Runway 35 end. The RSA at the Runway 17 end is constrained by the FAA localizer facility, which is located 500 feet north of the end of Runway 17. The *2008 Lihue Airport RSA Practicability Study* identified a preferred alternative of relocating the localizer outside the RSA.[16] The Runway 17-35 RSA will meet FAA design standards once FAA relocates the localizer, a project that is currently in the procurement process.

Runway 3-21 meets FAA RSA design standards at the Runway 3 end. The RSA at the Runway 21 northeast end is 855 feet short of meeting the RSA standard beyond the runway end for Runway 21 departures. The RSA 600-foot length requirement prior to the Runway 21 arrival threshold is 250 feet short of meeting the FAA standard. **Exhibit 1-3** depicts the Runway 3-21 existing conditions and RSA deficiencies.

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15 U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13A, Change 1, *Airport Design*, February 26, 2014.

16 Hawaii, Department of Transportation, *Lihue Airport Runway Safety Area Practicability Study*, April 2008.

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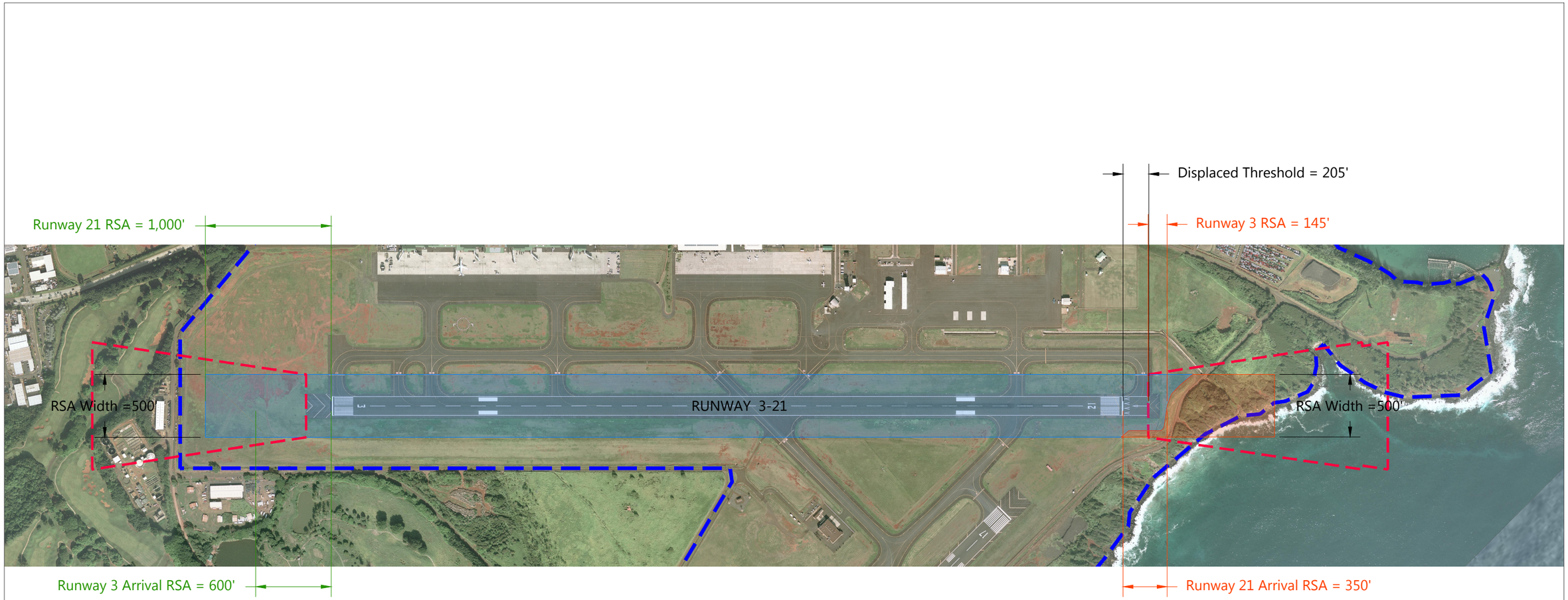

LEGEND

- Airport Property Line
- Area Within the Standard RSA that Meets RSA Standards
- Area Within the Standard RSA that Does Not Meet RSA Standards
- Runway Protection Zone (RPZ)

NOTES

1/ Green text indicates RSA meets standards

2/ Orange text indicates RSA deficiencies

3/ RSA - Runway Safety Area

RSA Meets Standards	Length Prior to Landing Threshold	Length Beyond Runway End	Width for Full Length of Runway
3	Yes (600')	No (145')	No
21	No (350')	Yes (1,000')	No
Standard	600'	1,000'	500'

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

EXHIBIT 1-3

NORTH 0 800 ft.

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Existing Conditions

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1.2.3 RUNWAY 3-21 RSA EVALUATION

In April of 2008, HDOT-A completed a Runway Safety Area Evaluation and Analysis for Lihue Airport[17] in accordance with FAA Order 5200.8, *Runway Safety Area Program*. The objective of the RSA Evaluation and Analysis was to determine if each Runway Safety Area (RSA) meets FAA standards outlined in its AC 150/5300-13A, *Airport Design*. If RSAs do not meet standards, the FAA provides recommendations that will allow them to meet standards "to the extent practicable."

As part of the 2008 RSA Evaluation and Analysis conducted for LIH, the HDOT-A determined that the Runway 3-21 RSA at LIH did not meet standards but concluded it would be not practicable to improve it. As a result, the preferred alternative at that time was to "do nothing". From 2013 to 2015, the Honolulu Airports District Office (ADO), Western-Pacific Region of the FAA submitted several RSA improvement alternatives to the HDOT-A in an attempt to identify an alternative that would meet the FAA standards. None of the alternatives were deemed viable due to significant operational impacts to aircraft using Runway 3-21. As a result, a RSA Study was conducted to identify, refine, evaluate, and select a preferred RSA improvement alternative for Runway 3-21. This RSA study was completed in 2016.[18]

At the onset of the 2016 RSA Study, the FAA acknowledged that full compliance with RSA standards may not be practicable. The FAA added that although full compliance is not expected, incremental improvements of the safety areas can be implemented in the short-term. As such, the RSA Study considered a wide range of alternatives from options providing full compliance with RSA standards but construction intensive to options requiring minimal construction but not fully complying with standards.

The Alternatives presented in the RSA Study were developed following a review of the previous RSA determination by the FAA, several meetings with LIH airport representatives, HDOT-A representatives, and FAA representatives, and the development of rough order of magnitude construction cost estimates for each of the alternatives. The practicability of RSA improvements was considered based on a review of airport operating characteristics, runway use configurations, and aircraft operational characteristics.

1.3 Description of Proposed Action

The HDOT-A is proposing the following improvements in accordance with Public Law 109-115 that requires all 14 CFR Part 139 certificated airports to improve the airport's RSA to comply with FAA design standards. However, the proposed improvements to Runway 3-21 would not fully meet FAA RSA design standards. In order to maintain the existing Runway 21 Landing Distance Available (LDA) of 6,295 feet, a non-standard RSA (935 feet) is proposed on the Runway 3 end. As stated in FAA AC 150/5300-13A, paragraph 307.a(2), "The airport owner and the FAA must continually analyze a non-standard RSA with respect to operational, environmental, and technological changes and revise the determination as appropriate. Incremental improvements are included in the determination if they are practicable and they will enhance the margin of

[17] Hawaii, Department of Transportation, *Lihue Airport Runway Safety Area Practicability Study*, April 2008.

[18] Ricondo & Associates, Inc., Lihue Airport, *Runway 3-21 Safety Area Study*, March 2016.

safety."[19] The non-standard RSA on the Runway 3 end has been agreed upon by HDOT-A and FAA as a means of meeting RSA design standards to the maximum extent practicable, since this RSA would provide the required 600-foot arrival RSA and no take-offs by commercial passenger airplanes occur towards the non-standard Runway 3 end 935-foot RSA. Currently, less than 0.1 percent of departures at LIH occur to the Runway 3 end.[20] The proposed RSA improvements would not affect (increase or decrease) the number of aircraft operations at LIH.

The components of the Proposed Action are depicted on **Exhibit 1-4**. The description of the Proposed Action that follows is subject to verification through final design and FAA approvals. The primary components of the RSA improvements include:

- Runway 3 (Southwest End)
  - Shift of the Runway 3 end 855 feet to the southwest; the landing threshold would remain in the same location, resulting in an 855-foot Runway 3 displaced threshold. To accommodate the runway shift, 855 feet of pavement would be constructed at the Runway 3 end. This shift of the Runway end would allow aircraft to take off from the new runway end, 855 feet southwest of where aircraft can takeoff under existing conditions (discussed in Section 1.3.1 below). As noted in Section 1.2.2, approximately 89 percent of aircraft departures occur from Runway 3.
  - Construction of a 200-foot blast pad.
  - Construction of a taxiway extension to the new Runway 3 end.
  - Construction of a retaining wall beyond the Runway 3 end. The land between the runway and the retaining wall would be filled and graded to meet RSA standards.
  - In order to mitigate the Runway Protection Zone (RPZ) penetrations on the Runway 3 end resulting from Alternative 1, a Departure End of Runway (DER) point would be created, limiting the extent of the Runway 21 TORA and TODA (discussed further in Section 1.3.3 below). The DER would coincide with the Runway 3 displaced threshold, which is also the existing Runway 3 end.
- Runway 21 (Northeast End):
  - The existing Runway 21 displaced threshold would increase from the current displacement of 205 feet to a 455-foot displaced threshold in order to provide a 600-foot arrival RSA to Runway 21.
  - Construction of a retaining wall along the public road beyond the Runway 21 end. The land between the runway and the retaining wall would be filled and graded to meet RSA standards. The public road would remain open.
- Implement declared distances (detailed in Section 1.3.3 below).
- Construction, installation, relocation and/or upgrade of various navigational and visual aids including but not limited to Runway End Identifier Lights (REIL), Precision Approach Path Indicator (PAPI), runway threshold and edge lights, and taxiway edge lighting and signage and associated utility lines. This equipment is necessary to ensure the safety of air navigation for aircraft operations at the airport.

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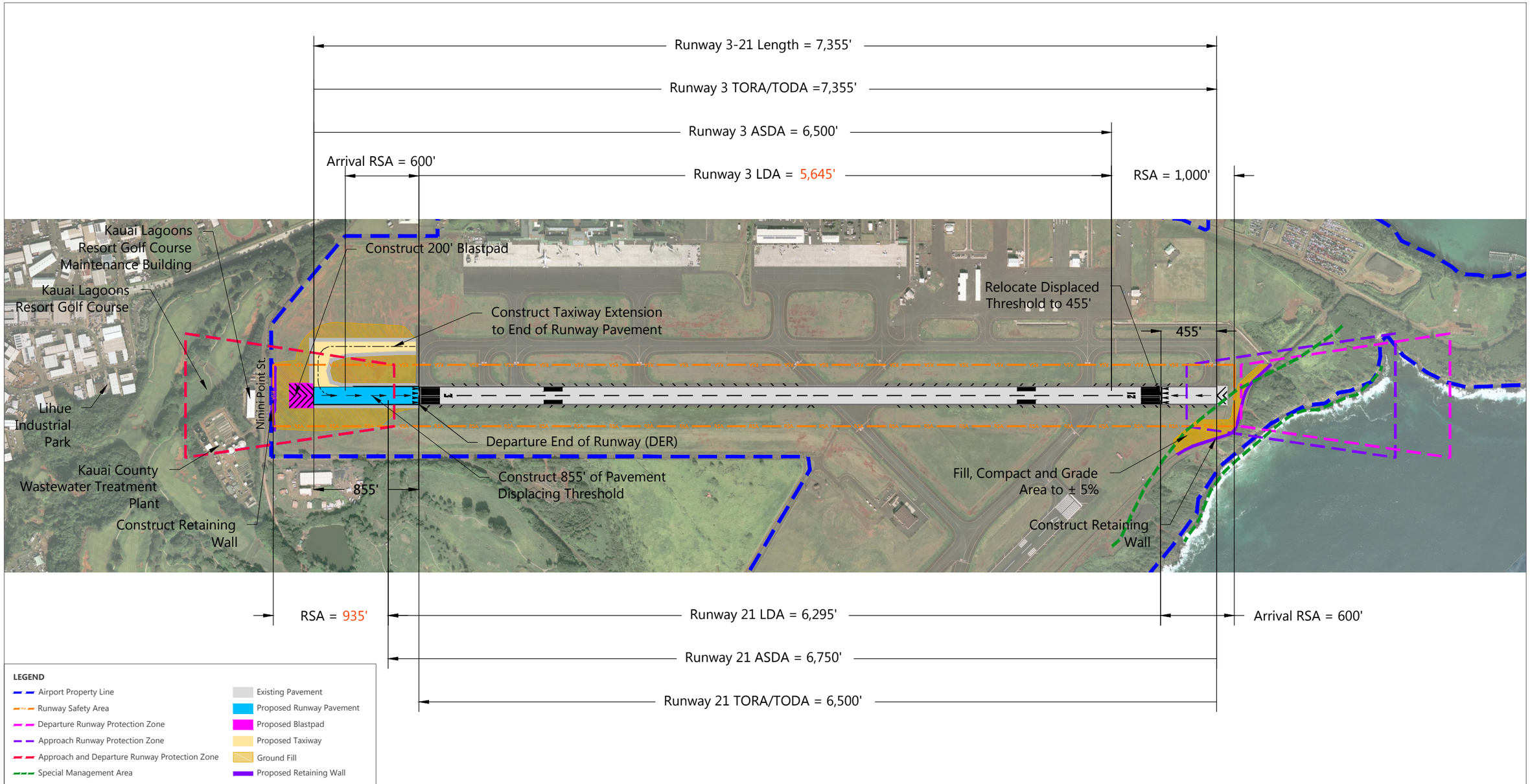
[19] U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13A, Change 1, paragraph 307.a(2), *Airport Design*, February 26, 2014.

[20] Hawaii Department of Transportation, Airports Division, *Assessment of Impacts on Airport Utility Associated with Proposed RSA Improvement Alternatives,* February 19, 2015.



SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 800 ft.

Acronyms

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT 1-4

Proposed Action

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1.3.1 SHIFT RUNWAY 3 END

Construction of the Proposed Action would result in a shift of the Runway 3 end 855 feet to the southwest. However, the Runway 3 landing threshold would remain in its existing location, resulting in an 855-foot displaced threshold for Runway 3. To accommodate the runway end shift, 855 feet of pavement would be constructed as a displaced threshold to the southwest beyond the existing Runway 3 end.

For departures from the Runway 3 end, the displaced threshold pavement would allow departures to shift 855 feet to the southwest; when combined with the existing 145-foot non-standard RSA, this shift in the departures would provide a standard 1,000-foot departure RSA at the Runway 21 end with no increase to the usable runway length based on the declared distances described in further detail in Section 1.3.3 below.

1.3.2 SHIFT RUNWAY 21 THRESHOLD

The existing Runway 21 end currently has a 205-foot displaced threshold. The Proposed Action would maintain the existing runway end and increase the displaced threshold to 455 feet. The resulting 250-foot increase in the displaced threshold combined with the existing 350-foot non-standard RSA would provide the standard 600-foot Runway 21 arrival RSA.

1.3.3 DECLARED DISTANCES

Declared distances are "the distances the airport operator declares available and suitable for satisfying an aircraft's takeoff run, take-off distance, accelerate-stop distance, and landing distance requirements."[21] The FAA defines four types of declared distances: the Take-Off Run Available (TORA), the Take-Off Distance Available (TODA), the Accelerate-Stop Distance Available (ASDA), and the Landing Distance Available (LDA).[22] Aircraft operators use these declared distances, along with weather data, aircraft performance characteristics, and market segments for flight planning, including the determination of payload and range restrictions. Pilots and airplane operators' performance engineers need this information for calculating their allowable takeoff and landing weights and speeds.[23] Essentially, declared distances represent the maximum runway distances available to safely takeoff or reject a takeoff (TORA, TODA, and ASDA), or to land (LDA). Shortening the usable runway length would allow for the standard RSA dimensions to be available in the event of an aircraft's excursion from the runway during an overrun, undershoot or veer-off.

Currently, LIH maintains declared distances for Runway 3-21. The Proposed Action would result in the implementation of new declared distances for Runway 3-21, depicted on Exhibit 1-4. The existing Runway 3-21 declared distances and proposed declared distances for operations on Runway 3-21 are listed in **Table 1-3** below.

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21 U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13A, *Airport Design*, Section 322, February 26, 2014.

22 U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13A, *Airport Design*, Section 322, February 26, 2014.

23 U.S. Department of Transportation, Federal Aviation Administration, CERTALERT, *Reporting Declared Distances to Aeronautical Information Services*, March 6, 2009.

While the Proposed Action would increase the existing Runway 3-21 overall length by 855 feet, from 6,500 feet to 7,355 feet, this increase in length would only provide safety areas necessary to satisfy FAA design standards. The declared distances and shift in Runway 21 threshold, described above, would limit the LDA for Runway 3 length to 5,645 feet and the LDA for Runway 21 length to 6,295 feet. Because the LDA would be the same or less than the existing declared distances, no change in aircraft fleet mix, number or type of operations would occur under the Proposed Action.

Table 1-3: Runway 3-21 Declared Distances

	DECLARED DISTANCES RUNWAY 3 (FEET)	DECLARED DISTANCES RUNWAY 21 (FEET)
EXISTING		
Runway Length	6,500	6,500
TORA = Take-off Run Available	6,500	6,500
TODA = Take-Off Distance Available	6,500	6,500
ASDA = Accelerate-Stop Distance Available	6,500	6,500
LDA = Landing Distance Available	6,500	6,295
PROPOSED		
Runway Length	7,355	7,355
TORA = Take-off Run Available	7,355	7,355
TODA = Take-Off Distance Available	7,355	7,355
ASDA = Accelerate-Stop Distance Available	6,500	6,750
LDA = Landing Distance Available	5,645	6,295

SOURCE: Ricondo & Associates, Inc., Lihue Airport, *Runway 3-21 Safety Area Study*, March 2016.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

1.3.4 CONSTRUCT RETAINING WALLS

In order to establish a standard RSA, the areas beyond each runway end must be cleared and graded to plus or minus 5 percent of the runway grade with no potential surface variations. Retaining walls beyond each end of Runway 3-21 will be needed to create the graded RSA. Exhibit 1-4 depicts the areas of grading and fill and associated retaining walls.

The Runway 21 end is located approximately 440 feet from the Pacific Ocean and the elevation decreases significantly in this area. To create the standard graded RSA, a retaining wall must be constructed beyond the Runway 21 end. This retaining wall would be approximately 2,600-feet in length and constructed along the existing public road beyond the Runway 21 end. The height of this retaining wall would vary and reach a maximum height of approximately 14 feet. The height of the retaining wall and associated fill would match the existing airfield grade and would not extend above the existing airfield elevation. The land between the runway and the retaining wall would be filled, compacted, and graded to meet FAA RSA standards. An eight-foot tall chain-link fence would be constructed at the top of the retaining wall, similar to existing airfield security fencing. The public road would remain open.

At the Runway 3 end, the elevation decreases from the runway to the surrounding RSA area. This area would also need to be cleared and graded to plus or minus 5 percent of the runway grade with no potential surface variations. To complete the grading, a retaining wall would need to be constructed at this end, spanning approximately the width of the 500-foot RSA. This retaining wall would vary in height, reaching a maximum of 11 feet. The retaining wall would not extend above the existing airfield elevation and the height of the wall and associated fill would match the existing airfield grade. The land between the runway and the retaining wall would be filled, compacted, and graded to meet FAA RSA standards with an eight–foot tall chain-link fence constructed at the top of the retaining wall, similar to existing airfield security fencing.

1.4 Purpose and Need

Pursuant to NEPA and FAA Orders 1050.1F and 5050.4B, an EA must include a description of the purpose of a proposed action and why it is needed. Identification of the purpose and need for a proposed action provides the rationale and forms the foundation for identification of reasonable alternatives that can meet the purpose for the action and, therefore, address the need or problem. The purpose of and the need for the proposed action are discussed in this section.

1.4.1 PURPOSE OF THE PROPOSED ACTION

The purpose of the Proposed Action is to comply with the *Transportation, Treasury, Housing and Urban Development, the Judiciary, The District of Columbia, and Independent Agencies Appropriations Act* (Public Law 109-115)[24], which states that the owner or operator of an airport certificated under 49 United States Code (U.S.C.) 44706 shall improve the airport's RSAs to comply with the Federal Aviation Administration design standards required by 14 CFR part 139. In response to an FAA request, HDOT-A committed to pursue a permanent solution so that the end of Runway 21 complies with FAA design standards and to make improvements to Runway 3.

[24] *The Transportation, Treasury, Housing and Urban Development, the Judiciary, the District of Columbia, and Independent Agencies Appropriations Act, 2006* (Public Law [P.L.] 109-115), November 30, 2005.

1.4.2 NEED FOR THE PROPOSED ACTION

In accordance with FAA AC 150/5300-13A, Change 1, a standard RSA for runways accommodating C-IV aircraft must be 500 feet wide, have a minimum of 1,000 feet beyond the runway end for departures and 600 feet prior to the runway threshold for arrivals.[25] FAA AC 150/5300-13A, Change 1, states that the RSA is "A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft in the event of an undershoot, overshoot, or excursion from the runway."[26]

The RSA at the northeast end of Runway 3-21 is 855 feet short of meeting the RSA standard beyond the runway end for Runway 21 departures. The RSA 600-foot length requirement prior to the Runway 21 arrival threshold is 250 feet short of meeting the FAA standard. The need for the project is to allow HDOT-A to improve the Runway 3-21 RSA to comply with FAA design standards to the extent practicable as required by P.L. 109-115. The proposed declared distances in combination with the Runway 3 end shift and Runway 21 displaced threshold, as described in Section 1.3, would maintain the existing runway length of 6,500 feet. Airlines at LIH have stated that any decrease in the Runway 21 LDA would have an impact on operations and have requested that the Runway 21 LDA be maintained at a minimum of the existing distance, 6,295 feet. In order to maintain the existing Runway 21 Landing Distance Available (LDA) of 6,295 feet, a non-standard RSA (935 feet) is proposed on the Runway 3 end. The non-standard RSA on the Runway 3 end has been agreed upon by HDOT-A and FAA as a means of meeting RSA design standards to the maximum extent practicable. This RSA would provide the required 600-foot arrival RSA and a 935-foot departures RSA on the Runway 3 end. However, less than 0.1 percent of all aircraft operations (and no take-offs by commercial passenger airplanes) occur towards the Runway 3 end.[27]

1.4.3 FAA PURPOSE AND NEED

The FAA's statutory mission is to ensure the safe and efficient use of navigable airspace in the United States. Under FAA Order 5200.8, *Runway Safety Area Program*, the FAA is directed to implement the RSA Program, which is intended to provide enhanced safety through the establishment of RSAs at all public use airports. Per FAA standards set forth in AC 150/5300-13A, the RSA at the Runway 21 end is 855 feet short of meeting the RSA standard for Runway 21 departures and 250 feet short of meeting the RSA arrivals requirement prior to the Runway 21 arrival threshold.[28] Implementation of the proposed improvements to the RSA for Runway 3-21 would bring it largely in compliance, to the maximum extent practicable, with the design standards set forth in FAA AC 150/5300-13A.

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25 U.S. Department of Transportation, Federal Aviation Administration, AC 150/5300-13A, Change 1, *Airport Design*, February 26, 2014.

26 U.S. Department of Transportation, Federal Aviation Administration, AC 150/5300-13A, Change 1, *Airport Design*, Paragraph 102 (qqq), February 26, 2014.

27 Hawaii Department of Transportation, Airports Division, *Assessment of Impacts on Airport Utility Associated with Proposed RSA Improvement Alternatives,* February 19, 2015.

28 U.S. Department of Transportation, Federal Aviation Administration, AC 150/5300-13A, Change 1, *Airport Design*, February 26, 2014.

1.5 Requested Federal Action

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

- Unconditional approval of the Airport Layout Plan (ALP) for LIH depicting the proposed improvements pursuant to 49 U.S.C. 40103(b), 44718, and 47107(a)(16); 14 Code of Federal Regulations (CFR) Part 77, Objects Affecting Navigable Airspace; and 14 CFR Part 157, Notice of Construction, Alteration, Activation, and Deactivation of Airports.
  - 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 CFR Part 139 (49 USC § 44706)].
- Determinations under 49 U.S.C. § 47106 and § 47107 relating to the eligibility of the Proposed Action and similar action for federal funding under the Airport Improvement Program (AIP).

1.6 General Implementation Timeframe

Implementation of the Proposed Action would begin upon FAA approval of the LIH ALP update for the proposed improvements, if the FAA issues a finding of no significant impact (FONSI) and/or a favorable Record of Decision (ROD) for the LIH Runway 3-21 RSA Improvements EA, and required environmental permits are obtained. Construction activities associated with the improvements would be anticipated to begin in January 2020 and be completed by March 2021.

Construction of the Proposed Action would require runway and taxiway pavement work at the Runway 3 end and pavement marking work along the entire length of Runway 3-21. During construction, aircraft operations would need to be shifted to Runway 17-35. The actual number and frequency of flights shifted to other runways is expected to be determined by HDOT-A and FAA Air Traffic Control. While an extended closure of Runway 3-21 is not expected, the Proposed Action may require connecting taxiways to be intermittently closed during construction. The loss of runway capacity during construction of the Proposed Action also has the potential to impact airfield operational efficiency, possibly increasing delay times and affecting airlines and flight scheduling. FAA coordination will be required to minimize disruption to aircraft operations and changes in approach and departure procedures.

1.7 Document Requirements and Organization

The format and content of this EA conforms to the requirements of Section (§) 102(2)(c) of the *National Environmental Policy Act of 1969* (NEPA, 42 U.S.C. 4321-4370h), and § 509(b)(5) of the *Airport and Airway Improvement Act of 1982*, as amended. The content of each section of this Final EA is summarized below.

- Table of Contents, List of Appendices, List of Tables, List of Exhibits, List of Abbreviations and Acronyms
- Section 1 – Purpose and Need, provides a brief description of LIH and the Proposed Action, its purpose, and why it is needed.
- Section 2 – Alternatives, provides an overview of the identification and screening of alternatives considered as part of the environmental evaluation process.
- Section 3 – Affected Environment, describes existing environmental conditions within the project site.
- Section 4 – Environmental Consequences, discusses and compares the environmental impacts associated with the Proposed Action, feasible alternatives to the Proposed Action, and the No Action Alternative, and identifies mitigation options considered.
- Section 5 – HRS 343 Additional Requirements, discusses the relationship of the Proposed Action, feasible alternatives to the Proposed Action and the No Action alternative to existing plans, policies and controls; a significance criteria assessment; and a list of permits and approvals necessary for the Proposed Action.
- Section 6 – Coordination and Public Involvement, discusses the coordination and public involvement associated with the EA process. This section also presents a list of federal, state, and local agencies and other interested parties that have been involved in EA coordination efforts.
- Section 7 – List of Preparers
- Section 8 – References

The Appendices contain various reference materials including technical information and records of coordination activities.

2. Alternatives

2.1 Introduction

2.1.1 SCOPE OF THE ALTERNATIVE ANALYSIS

This section summarizes the screening process that was used to identify, compare, and evaluate a wide range of Alternatives to the Proposed Action. The process followed to identify the range of initial alternatives to be considered and the screening process used to determine which alternatives would reasonably satisfy the purpose and need for the Proposed Action are described in this section. Alternatives that would satisfy the purpose and need for the Proposed Action were carried forward for analysis of environmental consequences. Lists of applicable federal laws and regulations considered during the analysis are provided at the end of this section.

As discussed in Section 1.2.3 of this document, the HDOT-A completed a RSA evaluation and analysis for LIH in 2008 in accordance with FAA Order 5200.8, *Runway Safety Area Program*. The *Lihue Airport Runway Safety Area Practicability Study*[1] evaluated RSA improvements and, concluded that improving the RSA would not be practical and the preferred alternative at that time was to "do nothing".

In 2013 and 2015, the Honolulu Airports District Office (ADO), Western-Pacific Region, of the FAA submitted several RSA improvement alternatives to the HDOT-A in an attempt to identify an alternative that would meet the FAA standards. None of the alternatives were deemed viable due to significant operational impacts to aircraft using Runway 3-21. As a result, in 2016 the *Runway 3-21 Safety Area Study* was conducted to identify, refine, evaluate, and select a preferred RSA improvement alternative for Runway 3-21.[2]

The alternatives presented in the RSA Study were developed following a review of the previous RSA determination by the FAA, several meetings with LIH airport representatives, HDOT-A representatives, and FAA representatives, and the development of rough order of magnitude construction cost estimates for each of the alternatives. The practicability of RSA improvements was considered based on a review of airport operating characteristics, runway use configurations, and aircraft operational characteristics.

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1 Aries Consultants, Ltd., *Lihue Airport Runway Safety Area Practicability Study*, April 2008.

2 Ricondo & Associates, Inc., *Runway 3-21 Safety Area Study*, April 2016.

The alternatives presented in this EA were developed as part of the *Lihue Airport Runway Safety Area Practicability Study* (Practicability Study) and the *Runway 3-21 Safety Area Study* (RSA Study), with some refinements.

2.1.2 REQUIREMENTS OF THE FAA AND NATIONAL ENVIRONMENTAL POLICY ACT

Pursuant to 40 CFR 1502.14(d) and paragraph 6-2.1(d) of FAA Order 1050.1F and paragraph 706(d) of FAA Order 5050.4B, analysis of the No Action alternative is required.[3,4] Due to the complexity of the Proposed Action, the range of alternatives considered has been expanded beyond the No Action and Proposed Action alternatives, consistent with the requirements of FAA Orders 1050.1F and 5050.4B.

The purpose and need for the Proposed Action, as described in Section 1.4 of this Final EA, includes compliance with the *Transportation, Treasury, Housing and Urban Development, the Judiciary, the District of Columbia, and Independent Agencies Appropriations Act, 2006* (Public Law [P.L.] 109-115).[5] This Act requires completion of RSA improvements by airport sponsors that hold a certificate under Title 14, Code of Federal Regulations (CFR) Part 139, *Certification and Operations: Land Airports Serving Certain Air Carriers*, to meet FAA design standards.

Reasonable alternatives that accomplish the purpose and need for the Proposed Action have been identified and evaluated in this Final EA to satisfy CEQ requirements.

2.2 Alternatives Screening and Evaluation

Conceptual Alternatives and on-site Alternatives and refinements were developed following the FAA guidelines listed in Section 2.3.2. The refined Alternatives are additional RSA improvements based on a combination of the conceptual alternatives, consistent with FAA Order 5200.8.[6] The RSA technical team, comprised of HDOT-A and FAA officials, conducted preliminary review and the subsequent evaluation process for the alternatives as part of the RSA Study. The RSA technical team was responsible for identifying the pros and cons of the conceptual alternatives, providing suggestions for refined alternatives, and making final recommendations.

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3 U.S. Department of Transportation, Federal Aviation Administration, Order 1050.1F, *Environmental Impacts: Policies and Procedures*, effective July 16, 2015.

4 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.

5 *The Transportation, Treasury, Housing and Urban Development, the Judiciary, the District of Columbia, and Independent Agencies Appropriations Act, 2006* Pub. L. No. 109-115, 109th Cong., 1st Sess. (November 30, 2005).

6 U.S. Department of Transportation, Federal Aviation Administration, Order 5200.8, *Runway Safety Area Program*, effective date: October 1, 1999.

2.2.1 RSA ALTERNATIVES SCREENING EVALUATION CRITERIA

The identification and evaluation of RSA Alternatives incorporates information presented in the Practicability Study and the RSA Study. The evaluation of RSA alternatives in this Final EA was performed using a three step evaluation process:

- Step 1: Would the proposed Alternative enhance the Runway 3-21 RSAs consistent with FAA Advisory Circular 150/5300-13A, *Airport Design*?
- Step 2: Would the Alternative be practical and feasible, consistent with FAA Order 5200.8, *Runway Safety Area Program*, considering existing technology and logistics?
- Step 3: Would the Alternative result in a safe and efficient use of navigable airspace and minimize airfield operational impacts?

Exhibit 2-1 illustrates the Alternative evaluation screening process.

Each Alternative was first evaluated to determine whether it would meet the purpose of and need for the Proposed Action by enhancing RSAs consistent with FAA airport design standards and improve safety for arriving and departing passengers and aircraft. Each Alternative found to meet the Step 1 criteria was then evaluated in Step 2 to determine whether or not it would be practicable, considering existing technology and logistics in light of the overall project purpose. In Step 3, Alternatives that were found to meet both the Step 1 and Step 2 criteria were further evaluated to determine whether each would result in a safe and efficient use of navigable airspace, and would minimize impacts on existing airfield operations. Each Step and associated criteria are described in Sections 2.2.1.1 through 2.2.1.3. Alternatives that were found to satisfy the screening criteria were carried forward for evaluation of potential environmental effects, as described in Section 4, *Environmental Consequences,* of this Final EA. In accordance with the requirements of the CEQ Regulations, the implementing regulations for NEPA, the No Action Alternative was retained and carried forward for detailed analysis in Section 4.

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STEP 1

Would the proposed alternative enhance the Runway 3-21 Runway Safety Areas consistent with FAA Advisory Circular 150/5300-13A, *Airport Design*?

NO → **ELIMINATED** from further consideration

YES ↓

STEP 2

Would the alternative be practicable and consistent with FAA Order 5200.8, *Runway Safety Area Program*, considering existing technology and logistics?

NO → **ELIMINATED** from further consideration

YES ↓

STEP 3

Would the alternative result in a safe and efficient use of navigable airspace and minimize airfield operational impacts?

NO → **ELIMINATED** from further consideration

YES ↓

EVALUATE ENVIRONMENTAL CONSEQUENCES

Retain for detailed analysis of environmental impacts within Chapter 4.0, Environmental Consequences and Mitigation Measures of this EA.

SOURCE: Ricondo & Associates, Inc., May 2016.
PREPARED BY: Ricondo & Associates, Inc., June 2016.

EXHIBIT 2-1

Alternatives Screening Process

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2.2.1.2 Step 1 Criteria: Purpose and Need

Would the Alternative improve the Runway 3-21 RSA to satisfy FAA airport design standards, or improve the Runway 3-21 RSA to the maximum extent practicable so that it substantially meets design standards, as articulated in FAA AC 150/5300-13A, *Airport Design*?

Table 2-1 depicts the RSA dimensions for runways such as Runway 3-21 that serve commercial aircraft in Approach Category C, per Table 3-8 of FAA AC 150/5300-13A, *Airport Design*.

Table 2-1: Runway Safety Area Dimensions for Approach Category C Aircraft

RSA DIMENSION	APPROACH CATEGORY C DIMENSIONS (FEET)
RSA Width	500
RSA Length Prior to Landing	600
RSA Length Beyond each Runway End	1,000

SOURCE: Federal Aviation Administration, Advisory Circular 150/5300-13A, *Airport Design*, February 26, 2014.
PREPARED BY: Ricondo & Associates, Inc., May 2016.

As discussed in Section 1.2.2 of this Final EA, a standard RSA must be capable, under dry conditions, of supporting aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

2.2.1.3 Step 2 Criteria: Practicality and Implementation Schedule

The criteria used in the Step 2 screening evaluation addressed several key considerations:

- Would the alternative be practical and feasible, considering existing technology, as well as design and construction challenges and relative costs when compared to other alternatives?

  Practical and Feasible: This criterion addressed the relative engineering design and construction complexity of each RSA alternative, and potential environmental impacts, along with the projected construction cost (including any environmental mitigation requirements). For example, the requirement for significant land alteration (e.g., filling coastal areas) would pose substantial design and construction challenges and have a substantially relative higher cost than an alternative that did not affect such facilities. Significant private land acquisition may create implementation complexities and result in increased project costs. As such, alternatives that had fewer complexities in terms of staging, phasing, and construction activities were considered more feasible and practical than those with highly complex construction issues.

- Does the Alternative provide the maximum practicable benefit to aviation safety in accordance with the guidance in FAA Order 5200.8, *Runway Safety Area Program*?

Provision of Maximum Practical Benefit to Aviation Safety: An explicit goal of FAA Order 5200.8, *Runway Safety Area Program*, is to encourage airport sponsors to provide the maximum practical benefit to aviation safety in developing their RSA program when provision of standard RSAs specified in FAA AC 150/5300-13A, Change 1, *Airport Design*, is not practical. Order 5200.8 recommends consideration of a sequence of possible improvements and recommends that, for each alternative improvement, the greatest practical conformance with the FAA Airport Design Standards for RSA dimensions and/or performance be implemented.

2.2.1.4 Step 3 Criteria: Safe and Efficient Use of Navigable Airspace and Impact on Airfield Operations

The final step of the screening evaluation considered these two criteria:

- Is the Alternative consistent with the FAA's statutory mission to ensure the safe and efficient use of navigable airspace?

  Safe and Efficient Use of Navigable Airspace: This criterion considered whether or not an Alternative would require significant changes to either local or regional airspace procedures, as well as the potential to cause airspace conflicts.

- Would the Alternative minimize the impact of the RSA improvements on the operation of LIH, including the ability to effectively serve the aircraft fleet currently using and expected to use LIH?

  Airport Operations: This criterion evaluated to what extent an Alternative may affect the efficient use of the airfield, reduce the utility of Runway 3-21, or otherwise substantially impact airfield operations. Examples of such impacts would be increased taxi distances and times; increased delay resulting from increased runway crossings; or reductions in runway length that would impose new operational restrictions on aircraft or make Runway 3-21 unusable for any aircraft type currently utilizing that runway. Operational restrictions would include any increased weight limitations for departing aircraft that reduce the number of passengers, amount of cargo, or amount of fuel that can be carried by the departing aircraft.

2.3 Identification and Description of Alternatives

This Section describes the various Alternatives that were developed to mitigate non-standard RSA conditions at the Lihue Airport.

2.3.1 IDENTIFICATION OF OFF-SITE AND OPERATIONAL ALTERNATIVES

While the use of off-site and operational Alternatives would not meet the purpose and need of the Proposed Action, these Alternatives were evaluated in this Final EA. The following off-site and operational Alternatives were considered:

- Use of Alternative Modes of Transportation: this Alternative would shift air transportation activity at LIH to other modes of transportation.

- Use of Other Public Airports: this Alternative would shift some or all air transportation activity to other public airports.
- Use of Alternative Aircraft: this Alternative would use aircraft which meet the ADG for the existing Runway 3-21 RSA dimensions.

2.3.2 IDENTIFICATION OF ON-SITE ALTERNATIVES

In developing the Alternatives to improve the RSA for Runway 3-21, consideration was given to an appropriate balance of improvements allocated to each runway end based on predominant direction of runway use, site constraints, environmental considerations, and practicability. The key FAA documents that provided guidance in developing the conceptual alternatives include FAA Order 5200.8, *Runway Safety Area Program*; FAA AC 150/5220-22A, *Engineered Materials Arresting Systems (EMAS) for Aircraft Overruns*; and FAA Order 5200.9 *Financial Feasibility and Equivalency of Runway Safety Area Improvements and Engineered Material Arresting Systems*.

Based on the guidelines in FAA Order 5200.8, six RSA conceptual Alternatives, in addition to the No Action Alternative, were developed for Runway 3-21 for comparative purposes:

- No Action Alternative
- Construct Standard RSA Alternative
- Reduce Runway Length Alternative
- Implement Declared Distances Alternative
- Relocate, Shift or Realign the Runway Alternative(s)
- Install Standard EMAS Alternative
- Combination of the above Alternatives

The alternatives identified in the Practicability Study and the RSA Study incorporate elements of the FAA Order 5200.8 Alternatives. The Practicability Study includes alternatives lettered "A" through "E" for Runway 3-21. These Alternatives use one of the six FAA Order 5200.8 Conceptual Alternatives or a combination of the Conceptual Alternatives. The Practicability Study concluded that Runway 3-21 could be improved to enhance safety, but the Alternatives examined were not feasible, practicable or would not meet FAA RSA design standards.[7] From the 2008 Practicability Study Alternatives, FAA's preferred Alternative was developed as Alternative 1 for the RSA Study.

[7] Aries Consultants, Ltd., *Lihue Airport Runway Safety Area Practicability Study*, April 2008.

The RSA Study was completed in 2016 and includes alternatives numbered "1" through "8". Alternatives 1, 3, and 4 each include three additional refinement alternatives for a total of 17 alternatives evaluated. The RSA Study Alternatives incorporate a combination of the FAA Order 5200.8 Conceptual Alternatives.[8]

2.3.2.1 Runway 3-21 Runway Safety Area Program Alternatives

No Action Alternative

The No Action Alternative would not involve any changes to the current configuration of Runway 3-21. Under this Alternative, Runway 3-21 would not meet standard RSA dimensions for runways accommodating Approach Category C aircraft nor would any practicable improvements to the existing RSA occur. This runway would fail to comply with FAA airport design standards that are required by P.L. 109-115. This Alternative has been included to provide a basis for comparing the environmental consequences of the Proposed Action as required by 40 CFR §1502.14(d).

Construct Standard RSA Alternative

FAA directive, through Order 5200.8, states that establishing a traditional graded RSA that fully meets the dimensional and gradient requirements must be the first Alternative considered.[9] At a minimum, land acquisition, fill, soil improvement, and grading requirements must be identified and evaluated. This Alternative often involves the greatest unavoidable impacts on natural resources and surrounding communities, and therefore, the greatest potential costs for environmental mitigation.

This conceptual Alternative was incorporated into Alternative B of the Practicability Study and would extend the Runway 3-21 RSA an additional 800 feet to the northeast in order to meet FAA RSA design standards. This Alternative would require extensive fill and grading in order to bring the RSA into compliance.

Reduce Runway Length Alternative

Under this Alternative, RSA dimensions compliant with FAA airport design standards may be obtained by shortening the length of a runway to achieve the required RSA length. This is a feasible Alternative if the current aircraft serving LIH require less runway length than what is presently available and the difference can accommodate the required RSA. Other runways, if available, can accommodate the larger aircraft without resulting in major impacts to airport operations.

This Conceptual Alternative was included in the RSA Study as Alternative 5 and is discussed in further detail in Section 2.3.2.2.

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8 Ricondo & Associates, Inc., *Runway 3-21 Safety Area Study*, April 2016.

9 Federal Aviation Administration, FAA Order 5200.8 *Runway Safety Area Program, Appendix 2,* effective date: October 1, 1999.

Implement Declared Distances Alternative

Where it is impracticable to provide the clearances and dimensions for RSAs in accordance with FAA design standards, the implementation of declared distances is another alternative that may provide an acceptable means of providing an equivalent RSA. Declared distances are defined in Chapter 1, of FAA AC 150/5300-13A, *Airport Design*, as "…the distances the Airport owner declares available for a turbine-powered aircraft's takeoff run, takeoff distance, accelerate-stop distance, and landing distance requirements." Typically, this concept involves declaring that some portion of the existing runway pavement is unavailable for specific operations, and is instead used to provide an RSA meeting applicable FAA airport design standards. **Appendix A** provides further explanation of declared distances.

Declared distances are also used where different runway lengths are defined for each direction of operation (i.e., when displaced thresholds are present). Pilots use these declared distances, along with weather data and aircraft performance characteristics, to make determinations such as the maximum allowable takeoff or landing weight of the aircraft or the maximum payload and range for a flight. Declared distances at airports are considered in the Operations Specifications of commercial aircraft operations that are part of the air carrier certificates and operations certificates issued by FAA under 14 CFR Part 119, as well as in the internal operations manuals of those operators. Pilots of commercial aircraft are required to comply with such specifications and manuals.

In this situation, the specified distance available for a particular operation such as landing may be different in each direction on the same runway pavement. As discussed in Section 1, *Purpose and Need*, declared distances include TORA, TODA, ASDA, and LDA. The application of declared distances at a specific airport requires prior FAA approval on a case-by-case basis. FAA approval would be secured through the ALP approval process set forth in FAA AC 150/5300-13A, *Airport Design*.[10]

Declared distances were included as the primary component of RSA Study Alternatives 6, 7, and 8. Declared distances are also included within the combination of components that comprise the RSA Study Alternatives 1, 3, 4, and 5.

Relocate, Shift or Realign the Runway Alternative(s)

When a traditional, standard RSA is determined not to be practicable, an option to meet RSA standards can involve relocating, shifting, realigning, or otherwise changing a runway. In some cases the environmental impacts and construction/implementation costs of these types of RSA improvements may not be practicable.

This Conceptual Alternative was included within the Practicability Study as Alternative A. This Alternative provides a RSA that fully meets the design standards in FAA AC 150/5300-13, Change 1, *Airport Design,* by relocating the runway 800 feet to the southwest and providing 1,000 feet of RSA beyond both ends of the runway. Alternative A would require acquisition of approximately 25 acres of land beyond the southwest end of Runway 3. This land is currently owned by the Kauai Lagoons Resort Company Ltd. and the Kauai County

[10] Federal Aviation Administration, Advisory Circular 150/5300-13A, *Airport Design*, February 26, 2014.

Wastewater Treatment Plant. Additionally this Alternative would involve constructing 800 feet of new runway length and 1,200 feet of new taxiway length at the southwest end of Runway 3-21. Minor landfill and grading would be required at the northeast end of Runway 3-21. Relocating, shifting and/or realignment of Runway 3-21 has also been incorporated into several of the alternatives discussed below.

Install Standard Engineered Materials Arresting System (EMAS) Alternative

When it is not practicable to provide a standard RSA that meets FAA standards, consideration may be given to enhancing runway safety through the use of an Engineered Materials Arresting System (EMAS). An EMAS is an aircraft arresting system comprised of a specialized concrete material that is designed to crush under the weight of an aircraft. An EMAS can decelerate and stop an aircraft over a short distance. When an aircraft overruns the runway, these materials are crushed, absorbing the forward momentum of the aircraft and decelerating and arresting the aircraft's movement. The FAA requires that EMAS be engineered to decelerate the runway's design aircraft at exit speeds of 70 knots, without causing significant damage to the aircraft or injuries to passengers. Section 4 of FAA AC 150/5220-22B, *Engineered Materials Arresting Systems for Aircraft Overruns*, indicates that a standard EMAS provides a level of safety that is generally equivalent to a full RSA built to the dimensional standards in the latest version of FAA AC 150/5300-13A, *Airport Design*. For purposes of installing an EMAS, the FAA defines the design aircraft as an aircraft having at least 500 annual operations (takeoffs and landings) on the runway, and having the most demand on EMAS. This is usually, but not always, the heaviest aircraft that regularly uses the runway. Photographs of sample EMAS installations are provided on **Exhibit 2-2**.

The EMAS Alternative was incorporated into the Practicability Study Alternative D. This Alternative would feature EMAS installed at both ends of Runway 3-21 and a 500-foot shift in the runway thresholds to the southwest. EMAS has also been incorporated into several of the Alternatives discussed in following sections.

2.3.2.2 RSA Study Alternatives

As discussed above, the RSA Study developed eight alternatives from the FAA preferred Practicability Study Alternatives. Alternatives 1, 3, and 4 each include three additional refinement alternatives for a total of 17 alternatives evaluated in this study. **Table 2-2** below provides information on the components of each Alternative and refinement. The RSA Study Alternatives are described in detail within **Appendix B**.

SOURCE: (a) Gizmodo Australia, http://www.gizmodo.com.au/2011/12/why-did-this-airplane-landing-gear-destroy-this-concrete-runway, 2011; (b) Port Authority of New York and New Jersey, 2004.
PREPARED BY: Ricondo & Associates, Inc., May 2016.

EXHIBIT 2-2

Sample Engineered Materials Arresting System (EMAS) Installations

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Table 2-2: RSA Study Alternatives

ALTERNATIVE	RUNWAY END	RUNWAY SHIFT / EXTENSION (FEET)	DISPLACED THRESHOLD (FEET)	DECLARED DISTANCES	STANDARD RSA	EMAS	AVAILABLE DISTANCES (FEET) TORA	TODA	ASDA	LDA
No Action Alternative	Rwy 3	-	-	-	Yes	No	6,500	6,500	6,500	6,500
	Rwy 21	-	205	X	**No (145')**	No	6,500	6,500	6,500	6,295
Alternative 1	Rwy 3	South 855	855	X	Yes	Standard	7,355	7,355	6,500	5,645
	Rwy 21	-	455	X	Yes	No	7,355	7,355	6,940	6,485
Alternative 1 Refinement 1	Rwy 3	South 855	855	X	Yes	Standard	7,355	7,355	6,500	5,645
	Rwy 21	-	455	X	Yes	No	6,500	6,500	6,940	6,485
Alternative 1 Refinement 2	Rwy 3	South 855	855	X	Yes	No	7,355	7,355	6,500	5,645
	Rwy 21	-	455	X	Yes	No	6,500	6,500	6,685	**6,230**
Alternative 1 Refinement 3	Rwy 3	South 855	855	X	**FAA Approved (935')**	No	7,355	7,355	6,500	5,645
	Rwy 21	-	455	X	Yes	No	6,500	6,500	6,750	6,295
Alternative 2	Rwy 3	South 205	-	-	Yes	No	6,500	6,500	6,500	6,500
	Rwy 21	South 205	-	-	Yes	Standard	6,500	6,500	6,500	6,500
Alternative 3	Rwy 3	South 440	-	-	Yes	Standard	6,500	6,500	6,500	6,500
	Rwy 21	South 440	-	-	Yes	Standard	6,500	6,500	6,245	6,245
Alternative 3 Refinement 1	Rwy 3	South 301	-	-	Yes	No	6,361	6,361	6,361	6,361
	Rwy 21	South 440	-	X	Yes	Standard	6,361	6,361	6,245	6,245
Alternative 3 Refinement 2	Rwy 3	South 440	139	X	Yes	Standard	6,500	6,500	6,500	6,361
	Rwy 21	South 440	-	X	Yes	Standard	6,361	6,361	6,500	6,500
Alternative 3 Refinement 3	Rwy 3	South 440	-		**FAA Approved (935')**	No	6,500'	6,500	6,500	6,361
	Rwy 21	South 440	-	X	Yes	Standard	6,361	6,361	6,295	6,295
Alternative 4	Rwy 3	South 516	-		Yes	No	6,500'	6,500	6,500	6,500
	Rwy 21	South 516	-	X	Yes	Standard	6,500'	6,500	6,169	**6,169**
Alternative 4 Refinement 1	Rwy 3	South 301	-	-	Yes	Standard	6,285	6,285	**6,285**	6,285
	Rwy 21	South 516	-	-	Yes	Standard	6,285	6,285	6,285	**6,285**
Alternative 4 Refinement 2	Rwy 3	South 516	516	X	**FAA Approved (935')**	No	6,500	6,500	6,500	5,984
	Rwy 21	South 516	-	X	Yes	Standard	5,984	5,984	6,295	6,295
Alternative 4 Refinement 3	Rwy 3	South 301	-	X	**FAA Approved (935')**	No	6,285	6,285	**6,285**	6,285
	Rwy 21	South 516	-	X	Yes	Standard	6,285'	6,285	6,285	**6,285**
Alternative 5	Rwy 3	South 997	-	X	Yes	No	5,503	5,503	**5,284**	5,284
	Rwy 21	-	-	-	Yes	No	5,503	5,503	5,503	**5,503**
Alternative 6	Rwy 3	-		X	Yes	No	6,500	6,500	**5,295**	5,295
	Rwy 21	-	205	X	**No**	No	6,500	6,500	6,500	6,295
Alternative 7	Rwy 3	-		X	Yes	No	6,500	6,500	**5,500**	5,500
	Rwy 21	-	205	X	**No**	No	6,500	6,500	6,500	6,295
Alternative 8	Rwy 3	-		X	Yes	No	6,500	6,500	**5,645**	5,645
	Rwy 21	-	205	X	**No**	No	6,500	6,500	6,500	6,295

NOTES: Orange text = Airport operations moderate impact; **Red** text = Airport operations significant impact; **Red** highlight = FAA RSA standards not met.

SOURCE: Ricondo & Associates, Inc., *Runway 3-21 Safety Area Study*, April 2016.
PREPARED BY: Ricondo & Associates, Inc., June 2016.

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2.3.2.3 Summary of Alternatives Considered

Table 2-3 provides a summary of the Alternatives considered in this Final EA and the components included in each Alternative.

Table 2-3: Runway 3-21 RSA Summary of Alternatives

ALTERNATIVE	STANDARD RSA	DISPLACED THRESHOLD	RUNWAY SHIFT	DECLARED DISTANCES	EMAS
No Action Alternative	-	X	-	X	-
Construct Standard RSA	X	-	-	-	-
Reduce Runway Length	X	-	-	-	-
Relocate, Shift or Realign	X	-	X	-	-
Declared Distances	X	-	-	X	-
Install EMAS	X	-	-	-	X
Alternative 1	X	X	X	X	X
Alternative 1 Refinement 1	X	X	X	X	X
Alternative 1 Refinement 2	X	X	X	X	-
Alternative 1 Refinement 3	-	X	X	X	-
Alternative 2	X	-	X	-	X
Alternative 3	X	-	X	-	X
Alternative 3 Refinement 1	X	-	X	X	X
Alternative 3 Refinement 2	X	X	X	X	X
Alternative 3 Refinement 3	-	-	X	X	X
Alternative 4	X	-	X	X	X
Alternative 4 Refinement 1	X	-	X	-	X
Alternative 4 Refinement 2	-	X	X	X	X
Alternative 4 Refinement 3	-	-	X	X	X
Alternative 5	X	-	X	X	-
Alternative 6	-	X	-	X	-
Alternative 7	-	X	-	X	-
Alternative 8	-	X	-	X	-

SOURCE: Ricondo & Associates, Inc., June 2016.
PREPARED BY: Ricondo & Associates, Inc., June 2016.

2.4 Evaluation of Alternatives

Evaluation of the RSA improvement Alternatives is based on the Step 1, 2, and 3 screening criteria described in Section 2.2.1.

2.4.1 EVALUATION OF OFF-SITE AND OPERATIONAL ALTERNATIVES

As discussed in further detail below, off-site and operational alternatives such as alternative modes of transportation, use of other public airports, or the use of alternative aircraft would not meet the purpose and need of the Proposed Action. The implementation of off-site or operational alternatives would fail to enhance the RSA for Runway 3-21 at LIH, which would still fail to meet applicable FAA airport design standards. Therefore, off-site and operational alternatives have been eliminated from further consideration in this Final EA.

2.4.1.1 Use of Alternative Modes of Transportation

- Step 1 Criteria:

  The use of alternative modes of transportation to replace some or all of the air transportation activity at LIH does not meet the project purpose and need because the Runway 3-21 RSA would still fail to meet FAA airport design standards and safety would not be enhanced as required by P.L. 109-115. In addition, FAA and HDOT-A do not have the authority to compel LIH airport users to use other modes of transportation. The location of LIH on the island of Kauai also limits the options of other modes of transportation.

The Use of Alternative Modes of Transportation Alternative does not meet Step 1 Criteria and has been eliminated from further consideration in this EA.

2.4.1.2 Use of Other Public Airports

- Step 1 Criteria:

  The use of other area public airports to replace some or all of the air transportation activity at LIH does not meet the project purpose and need because the RSA for Runway 3-21 at LIH would still fail to meet applicable FAA airport design standards and safety would not be enhanced as required by P.L. 109-115. In addition, FAA and HDOT-A do not have the authority to divert air transportation activity from LIH to other area airports. The location of LIH on the island of Kauai also limits the options of other public airports.

The Use of Other Public Airports Alternative does not meet Step 1 Criteria and has been eliminated from further consideration in this EA.

2.4.1.3 Use of Alternative Aircraft

- Step 1 Criteria:

The use of alternative aircraft to replace some or all of the transportation activity at LIH does not meet the purpose and need of the Proposed Action because the RSA for Runway 3-21 would still fail to meet the applicable FAA airport design standards and safety would not be enhanced, as required by P.L. 109-115. In addition, FAA and HDOT-A do not have the authority to compel airlines to use alternative aircraft.

The Use of Alternative Aircraft Alternative does not meet Step 1 Criteria and has been eliminated from further consideration in this EA.

2.4.2 EVALUATION OF ON-SITE ALTERNATIVES

2.4.2.1 FAA Runway Safety Area Program Alternatives

Construct Standard RSA Alternative

- Step 1 Criteria:

  The Practicability Study Alternative B would involve an additional 800 feet of runway pavement to the northeast in order to construct a standard RSA. This alternative would fully meet FAA RSA design standards and therefore would satisfy Step 1, purpose and need criteria.

- Step 2 Criteria:

  The Practicability Study determined that Alternative B of this study would not be practical and/or feasible to implement. This alternative would involve an extensive amount of landfill required, including fill into the Pacific Ocean. The existing public access road beyond the northeast end of Runway 3-21 would need to be relocated beyond the new runway end, requiring additional fill.

Since this alternative has been determined to be impractical to implement, it does not meet Step 2 criteria, and has been eliminated from further analysis in this Final EA.

Reduce Runway Length Alternative

This conceptual alternative was incorporated into on-site Alternative 5. See evaluation of Alternative 5 below.

Implement Declared Distances Alternative

This conceptual alternative was incorporated into on-site Alternatives 6, 7 and 8. See evaluations of these alternatives below.

Relocate, Shift or Realign the Runway Alternative(s)

- Step 1 Criteria:

  The Practicability Study Alternative A would shift Runway 3-21 by constructing an additional 800 feet of runway pavement at the southwest end of the runway. This alternative would provide an RSA that fully meets the FAA design standards and therefore would satisfy Step 1, purpose and need criteria.

- Step 2 Criteria:

  Alternative A would require acquisition of approximately 25 acres of land beyond the southwest end of Runway 3. This land is currently owned by the Kauai Lagoons Resort Company Ltd. (Kauai Lagoons) and the Kauai County Wastewater Treatment Plant. Kauai Lagoons has indicated that they would not consider the sale of their approximately 17 acres of land required for this alternative. The estimated value of the 17 acres is approximately $100 million. Kauai Lagoons is not willing to relocate the golf course maintenance facility. Kauai Lagoons has stated the relocation/reconfiguration of three holes of the golf course is not deemed feasible as there is no available land within the Kauai Lagoons Resort to accommodate such a relocation and reconfiguration. The Kauai County Waste Water Division indicated it would cost at least $100 million just to relocate the existing wastewater treatment plant facilities. There is no Kauai County-owned land available to relocate the facility so privately-owned land would have to be acquired. The Practicability Study determined that Alternative A of this study would not be practical and/or feasible to implement.

Therefore, due to the extensive land acquisition necessary to implement Alternative A, this Alternative does not meet Step 2 criteria, and has been eliminated from further analysis in this Final EA.

Install Standard EMAS Alternative

- Step 1 Criteria:

  The Practicability Study Alternative D would incorporate EMAS at both Runway 3-21 ends. Additionally, Alternative D would include a 500-foot shift in the runway thresholds to the southwest. This alternative would provide an RSA that fully meets the FAA design standards and therefore would satisfy Step 1, purpose and need criteria.

- Step 2 Criteria:

  The Practicability Study determined that Alternative D of this study is potentially practical and/or feasible to implement. No significant land acquisition or landfill would be required for implementation of this Alternative and also would not necessarily require significant time to implement. Therefore Alternative D would pass Step 2 criteria.

- Step 3 Criteria:

  According to the Practicability Study, Alternative D is not supported by LIH airlines and would result in impacts to airport operations, which does not satisfy the Step 3 criteria.

Therefore, the Install Standard EMAS Alternative does not meet Step 3 criteria and has been eliminated from further evaluation in this Final EA.

2.4.2.2 RSA Study Alternatives

The RSA Study Alternatives and refinements have been evaluated in full for the screening criteria described in Section 2.2.1 of this EA. The full analysis of the screening evaluation has been provided in Appendix B. **Table 2-4** below provides a summary of the analysis included in Appendix B.

Table 2-4: RSA Study Alternatives Screening Evaluation

ALTERNATIVE	ALTERNATIVE PASS TO THE NEXT STEP			RETAINED FOR FURTHER ANALYSIS IN THE FINAL EA?
	STEP 1	STEP 2	STEP 3	
Alternative 1	Yes	No, construction and maintenance of EMAS at the Runway 3 end would not be a practicable means for providing a standard RSA	-	**No**
Alternative 1 Refinement 1	Yes	No, construction and maintenance of EMAS at the Runway 3 end would not be a practicable means for providing a standard RSA	-	**No**
Alternative 1 Refinement 2	Yes	Yes	No, reduction in LDA from existing conditions would potentially result in significant impacts to airport operations	**No**
Alternative 1 Refinement 3	Yes	Yes	Yes	**Yes**
Alternative 2	Yes	No, filling, grading and tunneling public road for this alternative would not be practicable to implement	-	**No**
Alternative 3	Yes	No, construction and maintenance of EMAS at the Runway 3 end would not be a practicable means for providing a standard RSA	-	**No**
Alternative 3 Refinement 1	Yes	Yes	No, reduction in LDA from existing conditions would potentially result in significant impacts to airport operations	**No**
Alternative 3 Refinement 2	Yes	No, construction and maintenance of EMAS at the Runway 3 end would not be a practicable means for providing a standard RSA	-	**No**
Alternative 3 Refinement 3	Yes	Yes	No, reduction in the Runway 21 TORA/TODA from existing conditions would result in operational impacts to airlines at LIH	**No**
Alternative 4	Yes	Yes	No, RPZ penetrations and decrease to the Runway 21 LDA would be a significant impact to the safe and efficient use of navigable airspace and result in an impact to LIH airport operations	**No**
Alternative 4 Refinement 1	Yes	No, construction and maintenance of EMAS at the Runway 3 end would not be a practicable means for providing a standard RSA	-	**No**
Alternative 4 Refinement 2	Yes	Yes	No, reduction in the Runway 21 TORA/TODA and Runway 3 LDA from existing conditions would result in operational impacts to airlines at LIH	**No**
Alternative 4 Refinement 3	Yes	Yes	No, decreases in all declared distances from existing conditions would result in significant impacts to airport operations	**No**
Alternative 5	Yes	Yes	No, The reduced runway length and declared from existing conditions would significantly impact airport operations	**No**
Alternative 6	No, does not provide standard RSA	-	-	**No**
Alternative 7	No, does not provide standard RSA	-	-	**No**
Alternative 8	No, does not provide standard RSA	-	-	**No**

SOURCE: Ricondo & Associates, Inc., August 2016.
PREPARED BY: Ricondo & Associates, Inc., August 2016.

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2.5 Alternatives Carried Forward for Evaluation

Table 2-5 summarizes the results of the alternatives screening evaluation. As shown in Table 2-4 above, the Runway 3-21 Alternative 1 Refinement 3 has been carried forward for further analysis in this Final EA, because of its ability to meet the three screening level criteria described in Section 2.2. Although the No Action alternative does not meet the purpose and need for the proposed project, it was retained for further consideration as required by 40 CFR § 1502.14(d) and paragraph 706(d) of FAA Order 5050.4B.

2.5.1 SPONSOR'S PREFERRED ALTERNATIVE (ALTERNATIVE 1 REFINEMENT 3)

The HDOT-A is proposing the improvements described in Section 1.3 in accordance with Public Law 109-115 that requires all 14 CFR Part 139 certificated airports to improve the airport's RSA to comply with FAA design standards. However, the proposed improvements to Runway 3-21 would not fully meet FAA RSA design standards. In order to maintain the existing Runway 21 LDA of 6,295 feet, a non-standard RSA (935 feet) is proposed on the Runway 3 end. The non-standard RSA on the Runway 3 end has been agreed upon by HDOT-A and FAA as a means of meeting RSA design standards to the maximum extent practicable, since this RSA would provide the required 600-foot arrival RSA and no take-offs by commercial passenger airplanes occur towards the non-standard Runway 3 end 935-foot RSA. Currently, less than 0.1 percent of departures at LIH occur to the Runway 3 end.[11]

[11] Hawaii Department of Transportation, Airports Division, *Assessment of Impacts on Airport Utility Associated with Proposed RSA Improvement Alternatives,* February 19, 2015.

Table 2-5: Summary of RSA Alternatives Screening Evaluation

ALTERNATIVE	ALTERNATIVE PASS TO THE NEXT STEP			RETAINED FOR FURTHER ANALYSIS IN THE FINAL EA
	STEP 1	STEP 2	STEP 3	
Off-Site and Operational Alternatives				
Use of Other Modes of Transportation	No	-	-	**No**
Use of Other Public Airports	No	-	-	**No**
Use of Alternative Aircraft	No	-	-	**No**
On-Site Alternatives				
No Action Alternative 1/	No	-	-	**Yes**
Construct Standard RSA Alternative	Yes	No	-	**No**
Reduce Runway Length Alternative 2/	-	-	-	**See Alt. 5 2/**
Declared Distances Alternative 3/	-	-	-	**See Alt. 6, 7, & 8 3/**
Relocate, Shift, or Realign the Runway	Yes	No	-	**No**
Implement EMAS Alternative	Yes	Yes	No	**No**
Alternative 1	Yes	No	-	**No**
Alternative 1 Refinement 1	Yes	No	-	**No**
Alternative 1 Refinement 2	Yes	Yes	No	**No**
Alternative 1 Refinement 3	Yes	Yes	Yes	**Yes**
Alternative 2	Yes	No	-	**No**
Alternative 3	Yes	No	-	**No**
Alternative 3 Refinement 1	Yes	Yes	No	**No**
Alternative 3 Refinement 2	Yes	No	-	**No**
Alternative 3 Refinement 3	Yes	Yes	No	**No**
Alternative 4	Yes	Yes	No	**No**
Alternative 4 Refinement 1	Yes	No	-	**No**
Alternative 4 Refinement 2	Yes	Yes	No	**No**
Alternative 4 Refinement 3	Yes	Yes	No	**No**
Alternative 5	Yes	Yes	No	**No**
Alternative 6	No	-	-	**No**
Alternative 7	No	-	-	**No**
Alternative 8	No	-	-	**No**

NOTE:

1/ Analysis of the No Action Alternative is required by 40 CFR § 1502.14(d).

2/ The Reduce Runway Length Alternative has been carried forward and analyzed in on-site Alternative 5.

3/ The Declared Distances Alternative has been carried forward and analyzed in on-site Alternatives 6, 7, and 8.

SOURCE: Ricondo & Associates, Inc., May 2016.
PREPARED BY: Ricondo & Associates, Inc., May 2016.

2.6 Permits Required

FAA Order 1050.1F requires a preliminary list of permits required for implementation of the Proposed Action Alternative.[12] This list is provided in **Table 2-6**.

Table 2-6: Preliminary List of Permits Required for the Proposed Action

ISSUING AGENCY	PERMIT NAME/TYPE
U.S. Department of Transportation, Federal Aviation Administration	FAA Form 7460-1
Hawaii Department of Health	General Construction Storm Water Permit; and Standard Urban Stormwater Mitigation Plan (SUSMP)
	Water Discharge Requirements Application
	General National Pollutant Discharge Elimination System (NPDES) Stormwater permit under Section 402 of the Clean Water Act (CWA) for construction activities.
	General NPDES Stormwater permit under Section 402 of the CWA for industrial activities.
County of Kauai Department of Planning	Special Management Area Permit as part of Coastal Zone Management requirements.

SOURCE: Ricondo & Associates, Inc., May 2016.
PREPARED BY: Ricondo & Associates, Inc., May 2016.

2.7 Federal Laws and Regulations Considered

As required under Chapter 6 of FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, the relevant federal laws and statutes, executive orders, and other federal regulations considered during preparation of this EA are listed in **Table 2-7**, **Table 2-8**, and **Table 2-9**, respectively.

[12] Federal Aviation Administration, Order 1050.1F, *Environmental Impacts: Policies and Procedures,* Chapter 6-1, Paragraph a.(4), July 16, 2015.

Table 2-7 (1 of 2): Federal Laws and Statutes Considered

	CITATION
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)
Vision 100 – Century of Aviation Reauthorization Act of 2003	49 U.S.C. 40101
Airport and Airway Improvement Act of 1982, as amended	49 U.S.C. 47101 *et seq.*
Airport and Airway Revenue Act of 1987	P.L. 100-223, Title IV
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)
Vision 100 – Century of Aviation Reauthorization Act of 2003	49 U.S.C. 40101
Airport and Airway Improvement Act of 1982, as amended	49 U.S.C. 47101 *et seq.*
Airport and Airway Revenue Act of 1987	P.L. 100-223, Title IV
Community Environmental Resource Facilitation Act	42 U.S.C. §9601, *et seq.*
Policy on Lands, Wildlife and Waterfowl Refuges, and Historic Sites	49 U.S.C. § 303 [formerly known as Section 4(f) of the Department of Transportation Act of 1966]
Section 201(a), Federal Land Policy and Management Act of 1976	43 U.S.C. § 1701, *et seq.*; P.L. 94-579
The Archaeological and Historic Data Preservation Act of 1974	P.L. 86-253, as amended by P.L. 93-291, 16 U.S.C. § 469
The Noise Control Act of 1972	P.L. 92-574; 42 U.S.C. § 4901
The Transportation, Treasury, Housing and Urban Development, the Judiciary, The District of Columbia, and Independent Agencies Appropriations Act of 2006	P.L. 109-115
Airport Noise and Capacity Act of 1990	49 U.S.C. 4752 *et seq.*
Aviation Safety and Noise Abatement Act of 1979	49 U.S.C. 47501 *et seq.*
Aviation Safety and Capacity Expansion Act of 1990	49 U.S.C. App. 2226
Subtitle VII, Title 49, U.S.C. – "Aviation Programs" recodified from, and formerly known as, the "Federal Aviation Act of 1958" as amended (P.L. 85-726)	49 U.S.C. 40101 *et seq.*
Endangered Species Act of 1973	16 U.S.C. 1531 *et seq.*
Fish and Wildlife Coordination Act of 1958	16 U.S.C. 661 *et seq.*
Magnuson-Stevens Fishery Conservation and Management Act of 1976, as amended	16 U.S.C. 1801 *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. 6901 *et seq.*
Section 106, National Historic Preservation Act of 1966, as amended	16 U.S.C. 470 *et seq.*
Archaeological and Historic Preservation Act of 1974, as amended	16 U.S.C. 469 *et seq.*
Land and Water Conservation Fund Act of 1965	16 U.S.C. 4601 *et seq.*
Section 404, Federal Water Pollution Control Act of 1972, as amended (commonly referred as the Clean Water Act), as amended by the Clean Water Act of 1977	33 U.S.C. 1251 *et seq.*, 33 U.S.C. § 1251; P.L. 95-217

Table 2-7 (2 of 2): Federal Laws and Statutes Considered

	CITATION
Rivers and Harbors Act of 1899, Section 10	33 U.S.C. 403 *et seq.*
Farmland Protection Policy Act	7 U.S.C. 4201 *et seq.*
Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970	42 U.S.C. 4601 *et seq.*
Wild and Scenic Rivers Act of 1968	16 U.S.C. 1271 *et seq.*
Toxic Substances Control Act	15 U.S.C. 2601 *et seq.*
Coastal Zone Management Act of 1972	16 U.S.C. 1452 *et seq.*
Oil Pollution Control Act of 1990	33 U.S.C. 2701 *et seq.*

SOURCE: Ricondo & Associates, Inc., May 2016.
PREPARED BY: Ricondo & Associates, Inc., May 2016.

Table 2-8: Executive Orders Considered

	CITATION
Executive Order 11593, Protection and Enhancement of the Cultural Environment	36 Federal Register (FR) 8921
Executive Order 11988, Floodplain Management	43 FR 6030
Executive Order 11296, Flood Hazard Evaluation Guidelines	31 FR 10663
Executive Order 11514, Protection and Enhancement of Environmental Quality (dated March 4, 1970)	35 FR 4247
Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency	65 FR 50121
Executive Order 11990, Protection of Wetlands	42 FR 26961
Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations	59 FR 7629
Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks	62 FR 19883

SOURCE: Ricondo & Associates, Inc., May 2016.
PREPARED BY: Ricondo & Associates, Inc., May 2016.

Table 2-9 (1 of 2): FAA Orders, Advisory Circulars, and Federal Regulations Considered

U.S. DEPARTMENT OF TRANSPORTATION AND FAA ORDERS
U.S. Department of Transportation (DOT), FAA Order 1050.1E: *Environmental Impacts: Policies and Procedures*
U.S. DOT, FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*
U.S. DOT, FAA Order 5200.5A, *FAA Guidance Concerning Sanitary Landfills On or Near Airports*
U.S. DOT, FAA Order 5200.8, *Runway Safety Area Program*
U.S. DOT, FAA Order 5200.9, *Financial Feasibility and Equivalency of Runway Safety Area Improvements and Engineered Materials Arresting Systems*
U.S. DOT, Order 5650.2: *Floodplain Management and Protection*
U.S. DOT Order 5610.1C, *Procedures for Considering Environmental Impacts* (44 FR 56420, October 1, 1979) and Order DOT 5610.1C, *Change 1* (July 13, 1982)
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*
U.S. DOT, FAA Joint Order 7110.65V, *Air Traffic Control*
FAA Advisory Circulars
U.S. DOT, FAA Advisory Circular (AC) A/C 91-53A, *Noise Abatement Departure Profile*
U.S. DOT, FAA AC 150/5020-1: *Noise Control and Compatibility Planning for Airports*
U.S. DOT, FAA AC 150/5070-6B, *Airport Master Plans*
U.S. DOT, FAA AC 150/5070-7, *Airport System Planning Process*
U.S. DOT, FAA AC 150/5200-33B: *Hazardous Wildlife Attractants on or near Airports*
U.S. Department of Transportation and FAA Orders
U.S. DOT, FAA AC 36-3H: *Estimated Airplane Noise Levels in A-Weighted Decibels*
U.S. DOT, FAA AC 150/5300-13A: *Airport Design*
U.S. DOT, FAA AC 150/5320-6E, *Airport Pavement Design and Evaluation*
U.S. DOT, FAA AC 150/5370-10F: *Standards for Specifying Construction of Airports*

Table 2-9 (2 of 2): FAA Orders, Advisory Circulars, and Federal Regulations Considered

U.S. DEPARTMENT OF TRANSPORTATION AND FAA ORDERS
Code of Federal Regulations
Title 7 CFR Part 657 (43 FR 4030, January 31, 1978), Prime and Unique Farmlands
Title 14 CFR Part 36, *Noise Standards Type and Airworthiness Certificates*
Title 14 CFR Part 71: Designation of Class A, Class B, Class C, Class D, and Class E Airspace Areas; Airways; Routes; and Reporting Points
Title 14 CFR Part 75, *Establishment of Jet Routes and Area High Routes*
Title 14 CFR Part 77: Objects Affecting Navigable Airspace
Title 14 CFR Part 135: Operating Requirements: Commuter and On-Demand Operations and Rules Governing Persons on Board Such Aircraft
Title 14 CFR Part 139, Airport Operations Specifications
Title 14 CFR Part 150: Airport Noise Compatibility Planning
Title 14 CFR Part 151, *Federal Aid to Airports*
Title 14 CFR Part 152, *Airport Aid Program*
Title 14 CFR Part 153, *Acquisition of U.S. Land for Public Airports*
Title 14 CFR Part 154, *Acquisition of U.S. Land for Public Airports under the Airport and Airway Development Act of 1970*
Title 14 CFR Part 155, *Release of Airport Property from Surplus Property Disposal Restrictions*
Title 14 CFR Part 157, *Notice of Construction, Alteration, Activation, and Deactivation of Airports*
Title 14 CFR Part 169, *Expenditures of Federal Funds for Non-Military Airports or Air Navigational Facilities Thereon*
Title 36 CFR Part 800 (39 Federal Register [FR] 3365, January 25, 1974, and 51 FR 31115, September 2, 1986), *Protection of Historic Properties*
Title 40 CFR Part 93: Determining Conformity of Federal Actions to State or Federal Implementation Plans, Subpart B
Title 40 CFR Part 122: EPA Administered Permit Programs: The National Pollutant Discharge Elimination System
Title 40 CFR Part 123: State Program Requirements
Title 40 CFR Part 124: Procedures for Decision making
Title 40 CFR Part 172: Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements
Title 40 CFR Parts 1500-1508: President's Council on Environmental Quality
Title 49 CFR Part 24 (March 2, 1989), *Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally Assisted Programs*

SOURCE: Ricondo & Associates, Inc., May 2016.
PREPARED BY: Ricondo & Associates, Inc., May 2016.

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3. Affected Environment

3.1 Identification and Description of Study Area

Lihue Airport is located approximately 1 mile east of downtown Lihue on approximately 885 acres of land along the eastern shore of the island of Kauai in the State of Hawaii. LIH is owned and operated by the State of Hawaii and operated by the HDOT-A as part of the Statewide system of airports. Exhibit 1-1, presented in Chapter 1 of this EA, shows the location of LIH on the island of Kauai.

The Study Area is defined as the area that could be disturbed during construction, would be needed for construction staging, or would be affected by operation of the proposed RSA improvements (see **Exhibit 3-1**). The Study Area encompasses the LIH boundary along its eastern and northern boundaries, and in order to account for potential noise impacts to surrounding uses, the lands outside the LIH boundary to the west and south are also included. Along the western boundary, the Study Area follows the Kapule Highway. The southern boundary follows Rice Street south to Nawiliwili Bay. Hanamaulu Bay borders the Study Area to the north and the eastern portion of the Study area is mostly bordered by the Pacific Ocean with the exception of a strip of land east of Runway 17-35.

Outside the LIH property boundary but within the southern region of the Study Area are roadways to the west and a golf course to the immediate south with industrial and commercial resort land uses beyond.

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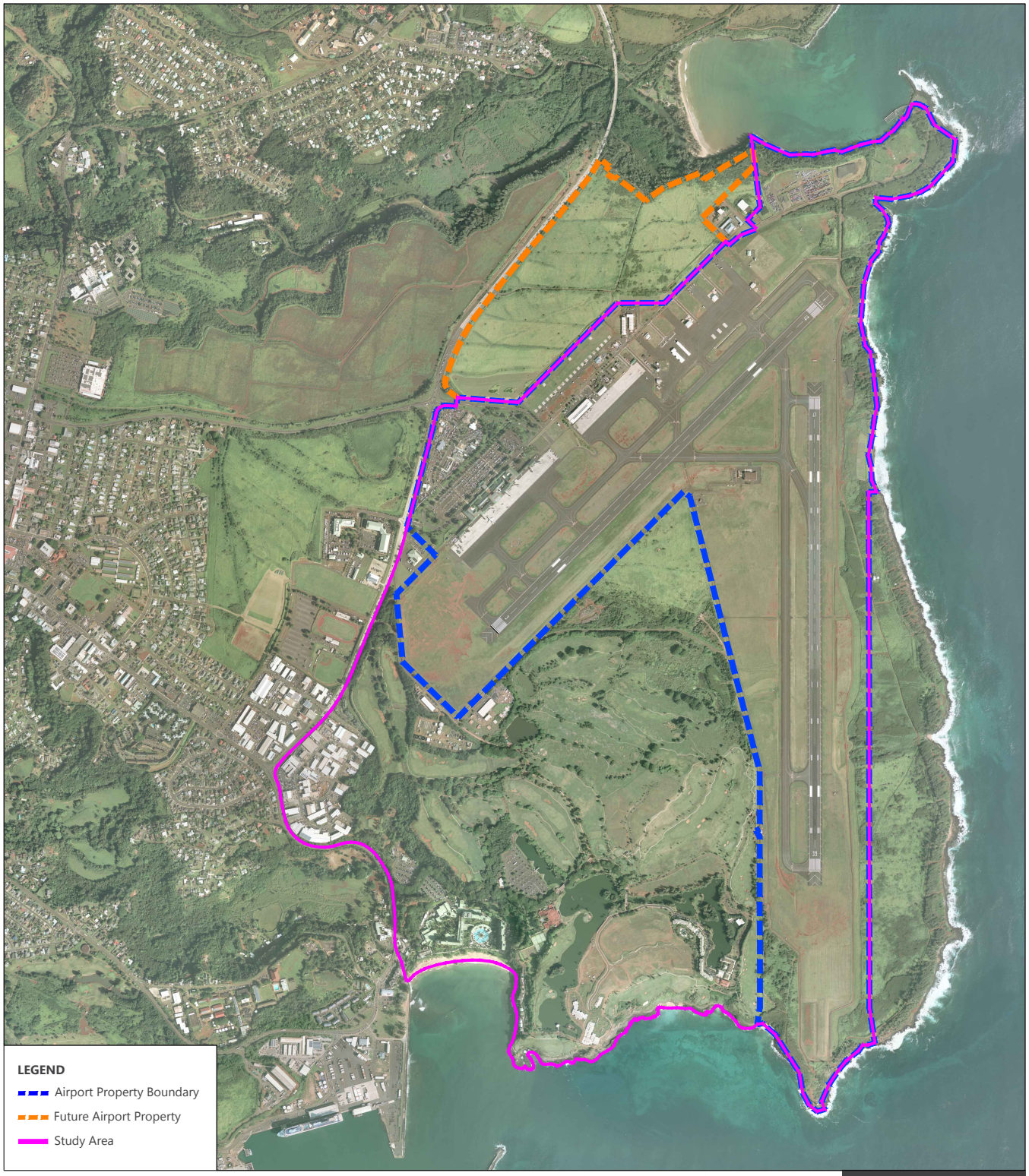

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., June 2016.

EXHIBIT 3-1

NORTH 0 2,000 ft.

Study Area

Drawing: Z:\Hawaii\LIH\04-RSA EA\12-CAD\LIH_RSA_EA_Affected Environment_20171121.dwg Layout: Ex - 3-1r1 Plotted: Mar 7, 2018, 02:08PM

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3.2 Air Quality

3.2.1 REGULATORY SETTING

The Federal Clean Air Act of 1970, 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. A state with one or more nonattainment areas must prepare a State Implementation Plan (SIP) for each nonattainment area, detailing the programs and requirements that the state will implement to meet the NAAQS by the deadlines specified in the Clean Air Act Amendments of 1990 (CAAA), Public Law 101-49. SIPs must address all pollutants for which the NAAQS are not met.

Both federal and state standards have been established to maintain ambient air quality (see **Table 3-1**). The U.S. EPA, under mandates of the CAAA, has established primary and secondary NAAQS for seven air contaminants or criteria pollutants. These contaminants are carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), lead (Pb), sulfur dioxide (SO_2), particulate matter (PM_{10}), and fine particulates ($PM_{2.5}$). The primary standards were established at levels sufficient to protect public health with a satisfactory margin of safety. The secondary standards were established to protect public welfare from other adverse effects of air pollution. Hawaii's air quality standards for CO, NO_2, and O_3 are more stringent than the comparable federal limits. However, Hawaii's standards for Pb, PM_{10}, and SO_2 are the same as the federal standards.

Table 3-1: 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 8-hour	35 ppm 9 ppm	-- --	9 ppm 4.4 ppm
Nitrogen Dioxide	1-hour Annual	0.100 ppm 0.053 ppm	-- 0.053 ppm	-- 0.04 ppm
Particulate Matter (PM_{10})	24-hour Annual	150 ug/m^3 --	150 ug/m^3 --	150 ug/m^3 50 ug/m^3
Fine Particulates ($PM_{2.5}$)	24-hour Annual	35 ug/m^3 12 ug/m^3	35 ug/m^3 15 ug/m^3	-- --
Ozone	8-hour	0.070 ppm	0.070 ppm	0.08 ppm
Sulfur Dioxide	1-hour 3-hour 24-hour Annual	0.075 ppm -- -- --	-- 0.5 ppm -- --	-- 0.5 ppm 0.14 ppm 0.03 ppm
Lead	Calendar Quarter	0.15 ug/m^3	0.15 ug/m^3	1.5 ug/m^3
Hydrogen Sulfide	1-hour	--	--	0.025 ppm

NOTES: ppm = parts per million; ug/m^3 = micrograms per cubic meter

SOURCE: U.S. Environmental Protection Agency, NAAQS Table, https://www.epa.gov/criteria-air-pollutants/naaqs-table (accessed June 6, 2017); 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 (accessed June 23, 2016); Hawaii Administrative Rules, Title 11, Chapter 59, *Ambient Air Quality Standards*, revised September 15, 2001.

PREPARED BY: Ricondo & Associates, Inc., June 2016.

In areas that do not meet the NAAQS, federal Conformity Rules apply. Conformity Rules (40 CFR 93) were issued by the U.S. EPA in response to Section 176 of the Clean Air Act (CAA). Conformity Rules prohibit any federal agency from engaging in any actions that do not conform to a state's plan to correct nonattainment situations. In Hawaii, ambient air quality standards are set by the Department of Health in accordance with Hawaii Administrative Rules (HAR) Title 11, Chapter 59.[1] Based on data collected by the State Department of Health, the State of Hawaii standards and NAAQS for all pollutants are being met at the time of this EA. Regarding the CAA, the entire State of Hawaii is listed as unclassifiable/attainment for all NAAQS.[2] Therefore, the FAA is not required to make a conformity determination.

[1] Hawaii Administrative Rules, Title 11, Chapter 59, *Ambient Air Quality Standards*, revised September 15, 2001.

[2] Title 40, Code of Federal Regulations, Part 81 – Designation of Areas for Air Quality Planning Purposes, Subpart C-Section 107, Attainment Status Designations, § 81.312, Hawaii.

3.2.2 EXISTING AMBIENT AIR QUALITY

The State Department of Health, Clean Air Branch maintains an air quality monitoring station at the Lihue District Health Office located on Umi Street, approximately one mile west of the Lihue Airport. Established in November 1972, the monitoring station site is located in a primarily commercial and residential area with nearby agricultural areas.

Measurements for suspended particulates have been made at the Kauai County Niumalu monitoring station, located approximately 1 mile southwest of the Study Area. In 2016, measurements of particulate matter (PM_{10}) ranged between 2 micrograms per cubic meter (ug/m^3) and 24 ug/m^3, with an average of 4 ug/m^3. This is significantly lower than the Hawaii State Standard and Federal Primary and Secondary Standards which are set at 50 ug/m^3 (annual). Measurements for nitrogen dioxide (NO_2) measured between 0.0 parts per million (ppm) and 0.0182 ppm, with an average of 0.0032 ppm. This is significantly lower than the Hawaii State Standard and Federal Primary and Secondary Standards which are set at 0.04 ppm (annual). Measurements for sulfur dioxide (SO_2) measured between 0.0004 parts per million (ppm) and 0.0030 ppm, with an average of 0.0008 ppm. This is significantly lower than the Hawaii State Standard and Federal Primary and Secondary Standards which are set at 0.03 ppm (annual).[3]

3.2.3 GREENHOUSE GASES AND CLIMATE CHANGE

Research has shown there is a direct correlation between fuel combustion and greenhouse gas (GHG) emissions. In terms of U.S. contributions, the Government Accountability Office (GAO) reports that "domestic aviation contributes about 3 percent of total carbon dioxide emissions, according to the U.S. Environmental Protection Agency (EPA) data," compared with other industrial sources including the remainder of the transportation sector (20 percent) and power generation (41 percent).[4] The International Civil Aviation Organization (ICAO) estimates that GHG emissions from aircraft account for roughly 3 percent of all anthropogenic GHG emissions globally.[5] Climate change due to GHG emissions is a global phenomenon, so the affected environment is the global climate.[6]

The scientific community is continuing efforts to better understand the impact of aviation emissions on the global atmosphere. The FAA is leading and participating in a number of initiatives intended to clarify the role

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3 Hawaii Department of Health, *Hawaii Ambient Air Quality Data, Kauai County*, http://emdweb.doh.hawaii.gov/air-quality/, accessed: November 14, 2017.

4 U.S. General Accountability Office, Report to Congressional Committees, *Aviation and Climate Change,* (2009). *http://www.gao.gov/new.items/d09554.pdf,* accessed: April 6, 2017.

5 Melrose, Alan, The International Civil Aviation Organization Environmental Report, "European ATM and Climate Adaptation: A Scoping Study," (2010).

6 As explained by the U.S. Environmental Protection Agency, "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*, December 7, 2009, https://nepis.epa.gov/, accessed: April 6, 2017.

that commercial aviation plays in GHG emissions and climate. The FAA, with support from the U.S. Global Change Research Program and its participating federal agencies (e.g., National Aeronautics and Space Administration (NASA), National Oceanographic and Atmospheric Administration (NOAA), EPA, and Department of Energy (DOE)), has developed the Aviation Climate Change Research Initiative (ACCRI) in an effort to advance scientific understanding of regional and global climate impacts of aircraft emissions. FAA also funds the Partnership for AiR Transportation Noise & Emissions Reduction (PARTNER) Center of Excellence research initiative to quantify the effects of aircraft exhaust and contrails on global and U. S. climate and atmospheric composition. Similar research topics are being examined at the international level by the International Civil Aviation Organization.[7]

3.3 Biological Resources

3.3.1 BIOTIC COMMUNITIES

3.3.1.1 Flora

The vegetation throughout the ground disturbance portion of the Study Area consists primarily of non-native species with a few scattered common native species. No special habitats were found within the ground disturbance portion of the Study Area.[8]

A botanical survey of the ground disturbance area of the Study Area was conducted with the areas most likely to harbor native or rare plants more intensively examined (see **Appendix E**).[9] Almost the entire ground disturbance area of the Study Area along and around the paved surfaces is frequently mowed to maintain the vegetation at a height of about 6 inches. A small strip of vegetation about 50 feet wide lies outside the fence off the end of Runway 21 where the vegetation is not maintained and consists of dense grass and shrubs.

A total of 67 plant species were identified existing within the ground disturbance portion of the Study Area during three site visits in June 2016.

- Two non-native grass species were abundant throughout the area: (*Bothriochloa bladhii*) no common name and pitted beardgrass (*Bothriochloa pertusa*).
- Seven non-native species were common: Carolina lovegrass (*Eragrostis pectinacea*), Guinea grass (*Megathyrsus maximus*), sweet clockvine (*Thunbergia fragrans*), matt chaff flower (*Alternanthera caracasana*), wedelia (*Sphagneticola trilobata*), fourspike heliotrope (*Heliotropium procumbens*), and siratro (*Macroptilium artropurpureum*).

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7 Maurice and Lee, Final Report of the International Civil Aviation Organization (ICAO) Committee on Aviation and Environmental Protection (CAEP) Workshop. October 29th –November 2nd, 2007, *Chapter 5: Aviation Impacts on Climate*, 2007.

8 Robert W. Hobdy, *Biological Resources Study, Lihue Airport RSA EA Project, Lihue, Kauai*, June 2016.

9 Robert W. Hobdy, *Biological Resources Study, Lihue Airport RSA EA Project, Lihue, Kauai*, June 2016.

- 58 (non-native and native) species were uncommon or rare in abundance.

Three native Hawaiian plants were found: koali awahia (*Ipomoea indica*), 'ilima (*Sida fallax*), and 'uhaloa (*Waltheria indica*). These three plants are all indigenous species that are found throughout Hawaii as well as on other Pacific islands. The 'uhaloa was uncommon but scattered throughout the ground disturbance portion of the Study Area. The koali awahia and 'ilima were both of rare occurrence here and found only at the southern boundary of the ground disturbance portion of the Study Area. All three of these native species, however are common throughout Hawaii and are not of any conservation concern. The remaining sixty-four species were common non-native plants. Appendix E provides a list of all the plant species observed during the botanical survey.

3.3.1.2 Fauna

A drive and walk-through fauna survey method was conducted in conjunction with the botanical surveys in June 2016 (Appendix E). All parts of the ground disturbance portion of the Study Area were covered. Field observations were made with the aid of binoculars and by listening to vocalizations. Notes were made on species, abundance, activities and location as well as observations of trails, tracks, scat, and signs of feeding.

In addition, an evening visit was made to the area to record crepuscular activities[10] and vocalizations and to see if there was any evidence of occurrence of the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) in the area.

Mammals

No mammals were observed in the project area during three site visits. While not seen during the surveys, rats (*Rattus* spp.), mice (*Mus domesticus*) and cats (*Felis catus*) would be expected to occur on the property. Rats and mice feed on fruits, seeds, and herbaceous vegetation, while cats would hunt for these rodents and birds.

A special effort was made to find any occurrence of the endemic and endangered Hawaiian hoary bat (*Lasirus cinereus semotus*) by conducting an evening survey in the ground disturbance portion of the Study Area. When present in an area, these bats can be easily identified as they forage for insects and their distinctive flight patterns are clearly visible in the glow of twilight. As part of the Survey, a bat detecting device (Batbox IIID) was employed and set to the frequency of 27,000 Hertz that these bats are known to use when echolocating for flying nocturnal insects. No bats were detected with the use of this device at two locations.

Birds

During the 2016 fauna surveys, birdlife was moderate in both the species represented and in the total numbers in this open and sparsely vegetated habitat. Nine species of non-native birds were observed during three site

[10] Crepuscular animals are those that are active primarily during twilight.

visits.[11] Two species were common: the common myna (*Acridotheres tristis*) and the zebra dove (*Geopelia striata*).

Uncommon bird species at the site include: the spotted dove (*Streptopelia chinensis*), the house sparrow (*Passer domesticus*), and the house finch (*Carpodacus mexicanus*). Four other species were rare in abundance: the northern cardinal (*Cardinalis cardinalis*), the northern mockingbird (*Mimus polyglottos*), the red-crested cardinal (*Paroaria coronata*), and the chestnut mannikin (*Lonchura malacca*). Other non-native birds that could occasionally show up include: the nutmeg mannikin (*Lonchura punctulata*), the Japanese white-eye (*Zosterops japonicus*), the cattle egret (*Bubulcus ibis*) and the common chicken (*Gallus gallus*). During the winter months the migratory Pacific golden-plover (*Pluvialis fulva*) shows up in significant numbers. Occasionally the indigenous great frigate bird (*Fregata minor palmerstoni*) can be seen flying high above the project area but these seabirds would not land in the ground disturbance portion of the Study Area. During the evening hours, the native pueo (*Asio flameus sandwichensis*) and the non-native barn owl (*Tyto alba*) can sometimes hunt for rodents over the open grasslands. The native nēnē goose (*Branta sandvicensis*) has also been known to forage along runway margins from time to time.

Insects

According to the site survey, insect life was rather sparse in this open, windy, and rather barren habitat alongside the runways. Just four non-native species were observed during three site visits. One common butterfly species was observed within the Study Area, the long tail blue (*Lampides boeticus*), in low numbers. This small butterfly was seen in a few different parts of the ground disturbance portion of the Study Area. This species is not federally or state listed. Rarely encountered insects include: the honey bee (*Apis mellifera*), the Sonoran carpenter bee (*Xylocopa sonorina*), and the fiery skipper butterfly (*Hylephila phyleus*). No native insects were seen.

Mollusks

The shells of just one non-native mollusk, the giant East African snail (Achatina fulica) were seen in two places in the ground disturbance portion of the Study Area.

3.3.2 ENDANGERED AND THREATENED SPECIES

According to the 2007 EIS, prepared for Lihue Airport Improvements,[12] no rare or endangered species nor critical habitat were known to exist within the Study Area and none were found during surveys conducted at that time.[13] The vegetation throughout the ground disturbance portion of the Study Area is comprised mainly of non-native species with just three common indigenous species scattered about, mostly along the coastal fringe. The faunal species observed within the ground disturbance portion of the Study Area were entirely non-native in character.

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[11] Taxonomy and nomenclature follow American Ornithologists' Union (2014).

[12] Robert W. Hobdy, *Biological Resources Study, Lihue Airport RSA EA Project, Lihue, Kauai*, June 2016.

[13] Wilson Okamoto Corporation and State of Hawaii DOT-Airports Division. *Final Environmental Impact Statement: Lihue Airport Improvements*. November 2007.

Not a single native mammal, bird, insect or mollusk species was observed. No listed species were observed during the June 2016 flora and fauna surveys.

While no listed species were observed during the 2016 fauna surveys, HDOT-A completed a Wildlife Hazard Assessment (WHA) in 2004 and a Wildlife Hazard Management Plan (WHMP) (revised in 2016) for LIH. The WHA identified potential wildlife hazards within the approach/departure areas. A Biological Assessment of the WHMP is being prepared to address potential mitigation of the wildlife hazards. The WHA documented 51 species of birds that had been observed in the airport environment, including 8 listed species:

- Hawaiian Stilt (Himantopus mexicanus knudseni)
- Hawaiian Moorhen or Common Gallinule (Gallinula chloropus sandvicensis)
- Hawaiian Coot (Fulica alai)
- Hawaiian Duck (Anas wyvilliana)
- Hawaiian Goose (Branta sandvicensis),
- Hawaiian Petrel (Pterodroma sandwichensis)
- Band-rumped Storm Petrel (Oceanodroma castro)
- Newell's Shearwater (*Puffinus newelli*)

The Hawaiian stilt, Hawaiian moorhen or common gallinule, Hawaiian coot, Hawaiian duck, and Hawaiian goose utilize the man-made wetlands on the Hokuala Resort and Marriott Kauai Lagoons Resort south of the airport. Due to their proximity to the airport, these birds are occasionally observed in the open grassy areas adjacent to the airfield. HDOT-A's WHMP for LIH contains measures including habitat modification and hazing (non-lethal) methods to discourage use of airport property by these species.

Hawaiian petrels, Band-rumped storm petrels, and Newell's shearwaters, nest on mountain slopes on Kauai, but forage for food in the ocean. Thus, they can overfly the airport on their way to and from nesting and feeding areas. Newell's shearwaters are occasionally found on airport property; because these birds feed at night, they can become disoriented by the lights associated with urban development, the resorts, and the airport, causing them to fallout of the night sky and land.

No Hawaiian hoary bats were detected during the 2016 fauna surveys or previous surveys, but they are known to occur on Kauai. These endangered bats are highly mobile creatures that utilize a wide range of habitats and move around to take advantage of spikes in nocturnal insect activity that provide their food. It is thus possible that these bats may periodically show up in the Study Area. These bats often roost in trees during the day and they place their newborn pups in trees during the summer months when they are too young to fly. The ground disturbance area of the Study Area, however, is devoid of trees so this would not be an issue. Additionally, Hawaiian hoary bats forage for insects at a wide range of elevation and have been known to become entangled in barbed wire fencing. Existing LIH security fencing surrounding the entire airfield uses barbed wire for security purposes. There are no known recorded takes of Hawaiian hoary bats that have occurred at LIH.

3.4 Climate

Lihue's climate is characterized as semi-tropical due to Hawaii's geographic location within the tropics, southwest of the Pacific High. The temperature average recorded at the Lihue Airport ranges between 71°F in January, the coldest month, to 80°F in August-September, the warmest months.[14] The average annual rainfall is approximately 44 inches a year.[15] Mount Waialeale, near the center of the island, receives the world's highest recorded average rainfall of 422 inches.[16] The average relative humidity recorded at Lihue Airport is 75.2 percent. Winds at Lihue Airport are predominately from the northeast 89.0 percent of the time. Western winds have a 7.4 percent occurrence.

3.5 Coastal Resources

The Coastal Zone Management Act (CZMA) of 1972 ensures effective management, beneficial use, protection, and development of the coastal zone. Coastal zone management programs, prepared by States according to guidelines issued by the National Oceanic and Atmospheric Administration, are designed to address issues affecting coastal areas. In Hawaii, the designated Coastal Areas include the waters from the shoreline to the seaward limit of the State's jurisdiction, and all lands of the State. In addition, two "belts" circling the islands, referred to as the Special Management Area (SMA) and the Shoreline Setback Area, have been established for more intensive management by the counties. The northeastern portion of the Study Area is within the Kauai SMA. Further discussion on the CZMA and SMA regulation within the Study Area is provided in **Section 5.1**.

3.6 Department of Transportation Act, Section 4(f)

As required by HRS 343, scenic and open space resources in the vicinity of the Study Area were identified. Scenic and open space resources west of LIH include scenic vistas of Kawaikini (the highest point of Kauai) beyond the town of Lihue. North of LIH are the Ahukini Recreational Pier State Park and Hanamaulu Beach Park, with the Kalepa Mountain Forest Reserve beyond. To the east of LIH lies the Pacific Ocean, and to the south is Kauai Lagoons Marriott Resort, the Ocean Course at Hokuala and Timbers Kauai Ocean Club and Residences and Nawiliwili Harbor. The majority of undeveloped lands outside of Lihue town can be classified as fallow agricultural lands that were formerly in sugar cane cultivation. This fallow land use dominates the open space

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14 National Oceanic and Atmospheric Administration (NOAA). *Preliminary Monthly Climate Data: Lihue Airport*, http://w2.weather.gov/climate/index.php?wfo=hnl (accessed December, 2016).

15 Wilson Okamoto Corporation and State of Hawaii DOT-Airports Division, *Final Environmental Impact Statement: Lihue Airport Improvements,* November 2007.

16 United States Geological Survey (USGS), *Recent Hydrologic Conditions, Hawaii*, November 2, 2015.

character of the region. The central and northern areas of Kauai feature large tracts of land designated as natural, forest, and wilderness preserves.

Given the developed nature of the Lihue Airport area, scenic resources visible from the vicinity of LIH are limited to those that rise above building rooflines and previously altered grades. Limited views of Kawaikini, as previously mentioned, are available along sections of Mokulele Loop and Ahukini Road approaching and leaving LIH. The Pacific Ocean is also clearly visible from the LIH runways and terminal building.

A recreational path has been proposed by Kauai County within the eastern boundary of the Study Area. The Nawiliwili-Ahukini Shared-Use Path would connect Nawiliwili Harbor to Ahukini Point. The proposed path alignment is partially within the LIH property boundary along the eastern side of the airport. Plans for the proposed path are currently undergoing environmental review. A Draft EA was published for the shared-use path project in 2008.[17] The project has been on hold pending completion of National Historic Preservation Act (NHPA) Section 106 consultation and execution of a Memorandum of Agreement (MOA) among the FHWA, HDOT-A, and County of Kauai. Currently, the project is finalizing the State HRS 343 Environmental Assessment and FONSI. A separate NEPA Categorical Exclusion document will be prepared upon execution of the NHPA 106 MOA. The Final EA for this project is scheduled to be published in February 2018.

3.7 Farmlands

The U.S. Department of Agriculture defines prime farmland as that land that is best suited for food, feed, forage, fiber, and oilseed crops. Prime farmland produces the highest yields with minimal inputs of energy and economic resources, and farming such land results in the least damage to the environment.

According to the Natural Resources Conservation Service of the U.S. Department of Agriculture, the Farmland Protection Policy Act is "intended to minimize the impact Federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses." For the purpose of impact analysis, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to Farmland Protection Policy Act requirements does not have to be currently used for cropland, but is identified based on soil types that would be irreversibly converted (directly or indirectly) to nonagricultural use. The Natural Resources Conservation Service states that projects completed by a federal agency or with assistance from a federal agency that are subject to the Farmland Protection Policy Act include:

- Airport expansions
- Federal agency projects that convert farmland
- Other projects completed with federal assistance

[17] County of Kauai, *Nawiliwili-Ahukini Shared-Use Path Draft Environmental Assessment*, July 29, 2008.

Hawaii State Land Use Districts designate areas within the Study Area as agricultural. However these areas are currently vacant land and the Kauai Marriott Resort golf course. The nearest farmlands are located approximately 350 feet to the northwest of the Study Area. There are no prime or unique farmlands located within the Study Area. Section 3.10 below provides a map of the State Land Use Districts and further discusses land use in and around the Study Area including designated agricultural land use.

3.8 Hazardous Materials, Solid Waste, and Pollution Prevention

3.8.1 REGULATORY SETTING

3.8.1.1 Federal Regulation

Many laws regulate the handling and disposal of hazardous materials, chemicals, substances, and waste. Hazardous materials are controlled by a number of federal laws and regulations, most of which are promulgated by the EPA. The two statutes most applicable to airport projects are the Resource Conservation and Recovery Act (RCRA), as amended by the Federal Facilities Compliance Act of 1992, and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended (also known as Superfund). RCRA governs the generation, treatment, storage, and disposal of hazardous wastes. CERCLA provides for cleanup of any release of a hazardous substance (excluding petroleum) in the environment. In addition to the RCRA and CERCLA, the Hazardous Materials Transportation Act (HMTA) and the Emergency Planning & Community Right to Know Act (EPCRA) serve as guiding principles governing the storage, use, and transportation of hazardous and other regulated materials from their time of origin to their ultimate disposal. The recovery and cleanup of environmental contamination resulting from the accidental or unlawful release of these materials and substances are also governed by these regulations. **Table 3-2** lists the regulations that apply to the Proposed Action.

3.8.1.2 State Regulation

Pursuant to delegation from the EPA, the Hawaii Department of Health (DOH) is responsible for implementing and regulating the hazardous waste rules listed in Table 3-2, established in 1994 and updated in 1999.[18] The Hawaii DOH Office of Solid Waste Management (OSWM), established in 1994, is responsible for the implementation and regulation of the solid waste rules listed in Table 3-2.

3.8.1.3 Local Regulation

Locally, the County of Kauai handles regulation of nonhazardous solid waste and recycling.

[18] State of Hawaii, Department of Health, Hawaii DOH Hazardous Waste Section, http://health.hawaii.gov/shwb/hazwaste/, accessed October, 2016.

Table 3-2: Regulations Pertaining to the Management of Hazards and Hazardous Materials

----- FEDERAL -----
Comprehensive Environmental Response, Compensation & Liability Act (CERCLA) – Regulation of former and new waste disposal and spill sites. Established the "Superfund" program and the National Priorities List (NPL).
Resource Conservation & Recovery Act (RCRA)—Regulation of the generation, transportation, storage, treatment, and disposal of hazardous materials.
Clean Water Act (CWA)—Regulation of discharges and spills of pollutants (including hazardous materials) to surface and ground-waters.
Safe Drinking Water Act (SDWA)—Regulation of discharges of pollutants to underground aquifers.
Clean Air Act (CAA)—Regulation of discharges of air emissions (including hazardous air pollutants) to the ambient (i.e., "outside") air.
Hazardous Materials Transportation Act (HMTA)—Regulation of the transport of hazardous materials by motor vehicles, marine vessels, and aircraft.
Emergency Planning & Community Right to Know Act (EPCRA)—Regulation of facilities that use hazardous materials in quantities that require reporting to emergency response officials.
----- STATE -----
Hawaii Administrative Rules Chapter 11-58.1, Solid Waste Management Control—Regulates solid waste management practices within the State of Hawaii. Hawaii Administrative Rules Chapters 11-260 to 11-280, Update Hazardous Waste Rules—Regulates the disposal and management of hazardous waste within the State of Hawaii.
----- LOCAL -----
Kauai County Code, Chapter 21, Integrated Solid Waste Management—Regulates nonhazardous solid waste, nonhazardous liquid waste, recycling, refuse containers, and construction debris landfills within Kauai County.

SOURCE: Ricondo & Associates, Inc., October 2016.
PREPARED BY: Ricondo & Associates, Inc., October 2016.

3.8.2 KNOWN/POTENTIAL SITES

The types, characteristics, and occurrences of hazardous materials and other regulated substances at LIH are typical of airports that offer commercial and cargo services. These services include:

- the fueling, servicing, and repair of aircraft, ground support equipment (GSE), and motor vehicles;
- the operation and maintenance of the airfield, terminal complex, and parking facilities; and
- a range of other special purpose facilities and operations connected with aviation (i.e., air cargo facilities, navigation, and air traffic control functions).

Off-airport activities within the Study Area include a mixture of industrial, commercial, and warehousing activities.

The substances that are used in large quantities at LIH 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 LIH. These materials and substances are characteristically used on a routine basis in support of aircraft, GSE, and motor vehicle maintenance activities and for a range of other similar functions to operate LIH and to meet aviation safety requirements.

As part of the 2007 EIS, a Hazardous Materials Survey was conducted. The survey consisted of a review of literature and governmental agency records to document incidents or operations that may have impacted the environmental condition of the EIS proposed improvement areas. Interviews with LIH personnel and others with knowledge of current or past facility operations at the airport were conducted, as well as an environmental survey/site reconnaissance of the EIS proposed improvement areas. Based on available records, interviews and visual indicators, the following potential hazardous materials or subsurface contamination was identified in the EIS[19]:

- The north end of Runway 3-21 is situated within the former Ahukini Landing area, and historical Sanborn maps indicate that chemical (fertilizer and pesticide) warehouses, a locomotive maintenance shed, and a wrecking yard were situated within or immediately adjacent to the north end of the runway.

  Several environmental investigations at Ahukini Landing documented the existence of hazardous materials and subsurface contamination in the area. Although subsurface investigation and cleanup has occurred, it is possible that additional, previously undocumented subsurface contamination and hazardous materials remain in this area.

- Historical records indicate that a majority of the Study Area was formerly part of the Lihue Plantation and was used for commercial sugar cane production.

  Although the potential presence of herbicides or arsenic-based pesticides is unlikely to be of concern with respect to the planned use of the land for airport facilities, the Hawaii Department of Health (DOH) Office of Hazard Evaluation and Emergency Response (HEER) promulgated a Guidance Document in August 2006 intended for use during the redevelopment of former agricultural areas. The HEER Guidance describes methods of assessment of risk, based on soil testing and intended use.

- A former (unregulated) County dump was located in an area adjoining the northern perimeter road improvement area and could contain buried hazardous materials.

- A currently used underground storage tank (UST) abutting a proposed employee parking expansion project (which is not part of the Proposed Action) is exempt from UST Solid and Hazardous Waste Branch regulation and release monitoring requirements are deferred. Therefore, past, present, and future undetected/unreported releases and contaminant migration to this proposed parking area may be of concern.

- UST records indicate that several facilities with USTs within the LIH complex were demolished in the 1990s. However, documentation of closure by tank removal is missing. Furthermore, abandoned

[19] Wilson Okamoto Corporation and State of Hawaii DOT-Airports Division. *Final Environmental Impact Statement: Lihue Airport Improvements*. November 2007.

wells (containing fuel product) have been encountered during previous Airport construction work and subsequently remediated. Therefore, unidentified or unreported past or future releases could potentially be located within the Study Area.

In addition to documentation provided in the 2007 EIS, a database search was conducted in preparation of this EA. According to a NEPAssist[20] database, 21 sites within or immediately adjacent to the Study Area are listed within EPA records. These sites are listed within **Table 3-3**. The sites listed within or adjacent to the Study Area consist of Clean Water Act (CWA) listings for National Pollution Discharge Elimination System (NPDES) permits and RCRA waste monitoring. No sites from any other EPA databases were found within or adjacent to the Study Area.

3.8.3 SOLID WASTE COLLECTION AND DISPOSAL

Solid waste collection and disposal is regulated by Kauai County. The Kauai County Landfill Program provides for the disposal of residential and Subtitle "D" commercial solid waste at the Kekaha Phase II Landfill, located approximately 25 miles directly west of the Study Area on the southwestern coast of Kauai. The landfill is operated by the County with environmental monitoring, project management, and quality assurance, and control provided by private management. The existing Kekaha Municipal Solid Waste Landfill (MSWLF) is projected to reach capacity in 2019. Therefore, the County of Kauai, Department of Public Works, Solid Waste Division, is proposing a vertical expansion. This proposed project is currently undergoing environmental evaluation.[21]

Table 3-3 (1 of 2): Relevant EPA Database Listing Sites Within and Adjacent to the Study Area

SITE NAME	HAZARD CATEGORY	DATABASE ID	STATUS	ADDRESS
Kauai Resource Center And Lihue Transfer Station	CWA	NPDES HIF008273	Effective Permit	3460 Ahukini Road
Dollar Rent-A-Car	RCRA	HIP000136283	Inactive	3273 Hoolimalima Place
Lihue Airport Emergency Generator	CWA	NPDES HIF009556	Effective Permit	3901 Mokulele Loop
Lihue Wastewater Treatment Plant	CWA	NPDES HIU010448	Unpermitted Facility	3190 Ninini Point Street
Former Ahukini Dump Site Restoration At Lihue Airport	CWA	HIF006200	Expired Permit	NA

20 NEPAssist Tool Online Database, https://www.epa.gov/nepa/nepassist, accessed October 2016.

21 Kauai County, Department of Public Works, Solid Waste Division, *Program Description*, http://www.kauai.gov/publicworks/solidwaste, accessed October 2016.

Table 3-3 (2 of 2): Relevant EPA Database Listing Sites Within and Adjacent to the Study Area

SITE NAME	HAZARD CATEGORY	DATABASE ID	STATUS	ADDRESS
Dollar Rent-A-Car	RCRA	HID981638166	Conditionally Exempt SQG	2989 Aukele Street
Senter Petroleum Inc.	RCRA	HI0000479345	Transporter	3011 Aukele Street
Kauai Marriott Resort	RCRA	HIR000138255	Conditionally Exempt SQG	3610 Rice Street
Kuhio Motors Inc.	RCRA	HID982044810	Conditionally Exempt SQG	3033 Aukele Street
Island Cars, LLC.	CWA	NPDES HIU010096	Unpermitted Facility	2983 Aukele Street
D&W Services	CWA	NPDES HIU001112	Unpermitted Facility	2989 Aukele Street
Kauai Service Center	RCRA	HID981968613	Conditionally Exempt SQG	3081 Peleke Street
Duke's Canoe Club	CWA	NPDES HIU001155	Unpermitted Facility	3610 Rice Street
Hokuala Golf Clubhouse And Lot 8 Hotel	CWA	NPDES HIF011315	Effective Permit	East Of Kalapaki Circle
Kauai Marriott Resort And Beach Club	CWA	NPDES HIU010340	Unpermitted Facility	3610 Rice Street
Calipjo Estates Condominium	CWA	NPDES HIU010361	Unpermitted Facility	3582 Rice Street
Hokuala Golf Course Improvements (Holes 1k-9k & Pa)	CWA	NPDES HIF011228	Effective Permit	3351 Hoolaulea Way
Timbers Kauai Ocean Club And Residences	CWA	NPDES HIF011042	Effective Permit	3351 Hoolaulea Way
Western Channel	CWA	NPDES HIF006171	Effective Permit	3351 Hoolaulea Way, Suite 201
Westin Kauai	RCRA	HID982508483	NA	Kalapaki Beach

NOTES:

NA = Not Available

CWA = Clean Water Act

NPDES = National Pollution Discharge Elimination System

RCRA = Resource Conservation and Recovery Act

SQG = Small Quantity Generator

SOURCE: NEPAssist Tool Online Database, https://www.epa.gov/nepa/nepassist (accessed October 2016).
PREPARED BY: Ricondo & Associates, Inc., October 2016.

3.9 Historical, Architectural, Archeological, and Cultural Resources

Historic, archeological, architectural, and cultural resources are prehistoric and/or historic districts, structures, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. Numerous laws and regulations require that potential effects on historic, architectural, archeological, and cultural resources be considered during the planning and execution of federal undertakings. These laws and regulations stipulate a process of compliance, define the responsibilities of the federal agency proposing the actions, and prescribe the relationships among involved agencies. NEPA directs federal agencies to assess the environmental impacts of their proposed actions, including impacts to historic and cultural resources. In addition to NEPA, the primary laws that pertain to the treatment of historic, architectural, archeological, and cultural resources during environmental analyses are the NHPA, especially Sections 106 and 110, the Archaeological Resources Protection Act, the American Indian Religious Freedom Act, and the Native American Graves Protection and Repatriation Act.

Section 106 of the NHPA requires that federal agencies consider whether their activities could affect historic properties that are already listed, determined eligible, or not yet evaluated under the National Register of Historic Places (NRHP) criteria. Properties that are listed in, or eligible for listing in, the NRHP are provided the same measure of protection under Section 106. Section 106 of the NHPA requires that federal agencies consider the effects of their undertakings on historic properties through consultation with the State Historic Preservation Division (SHPD) when the Proposed Action may affect historic resources of religious and cultural significance to a tribe. A historic property is defined as any prehistoric or historic district, site, building, structure, or object listed in, or eligible for listing in, the NRHP. To complete this review, the FAA consulted with the Hawaii SHPD to consider the project's potential effects on historic properties and to resolve any adverse effects.

Exhibit 3-2 depicts the Area of Potential Effect (APE) utilized by the FAA to identify whether any historic properties exist within the area with the potential to be affected by the Proposed Action. The APE was defined by determining the extent of construction or alteration of existing structures and the limits of potential ground disturbance. The FAA determined the size of the APE and coordinated the APE with the Hawaii SHPD, as well as their determination of effect by letter dated November 22, 2016.[22] The FAA did not receive an objection from the SHPD to its determination during the 30-day period (allotted per 36 CFR 800) following receipt of the FAA's letter by the SHPD.

[22] U.S. Department of Transportation, Federal Aviation Administration, Certified letter to Mr. Alan Downer, Administrator, State Historic Preservation Division, November 22, 2016 (see Appendix G).

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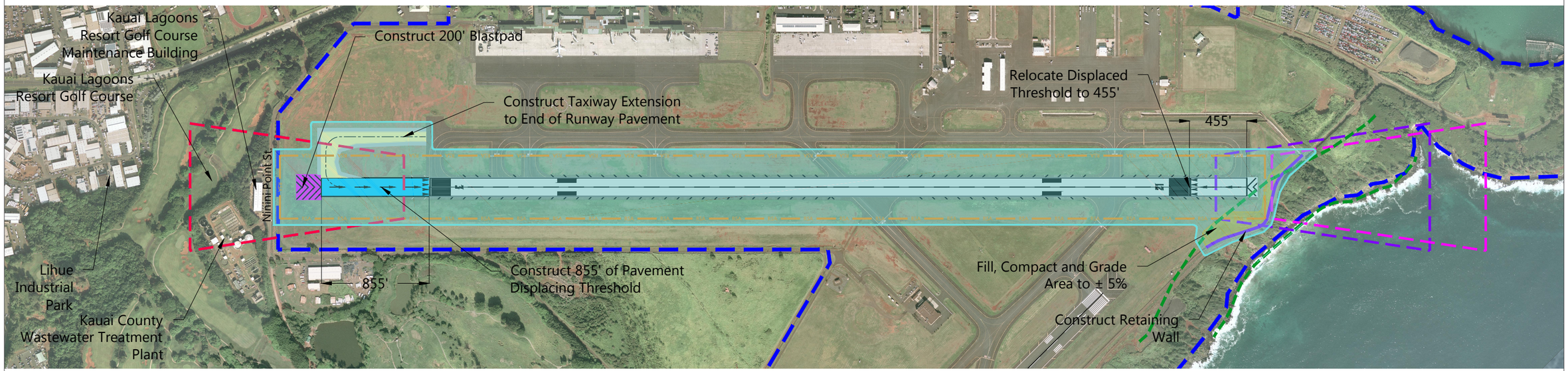

LEGEND

- Airport Property Line
- Runway Safety Area
- Departure Runway Protection Zone
- Approach Runway Protection Zone
- Approach and Departure Runway Protection Zone
- Special Management Area
- Existing Pavement
- Proposed Runway Pavement
- Proposed Blastpad
- Proposed Taxiway
- Ground Fill
- Proposed Retaining Wall
- Area of Potential Effect

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., June 2016.

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Acronyms

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT 3-2

Area of Potential Effect

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As part of the 2007 EIS, an archeological survey and a Cultural Impact Assessment (CIA) were conducted for the LIH property. The CIA included a literature review and site survey. The EIS found that no previously recorded State Inventory of Historical Places (SIHP) were located within the area described above for the APE of the proposed undertaking.[23]

Background research indicates that most of LIH was formerly part of Lihue Plantation's sugar cane fields. Later, portions of the APE were disturbed by Lihue Airport construction. Based on decades of cane cultivation, including some recently active fields, and airport related ground disturbance, few, if any traditional Native Hawaiian cultural resources remain in evidence. The two heiau (Hawaiian temples), Ahukini and Ninini, once recorded along the shoreline near Runway 17-35 are now either entirely or mostly destroyed, as was the case in the original survey of the area by Bennett in 1930.[24]

During the archeological field survey, a single, previously unrecorded cultural resource/historic property was identified northeast of the existing Runway 3-21 RSA (SIHP #50-30-08-3958). The property consists of two features; a remnant linear alignment of at least five concrete enclosures and a lone cement foundation. Both features appear to be plantation-era, based on construction materials and techniques, and likely functioned as a piggery or other animal enclosure. This resource identified during the field survey was recommended eligible to the National and Hawaii Registers under Criterion D, for its information content. The SHPD concurred with this finding.[25] SIHP #50-30-08-3958 is outside of the APE for the proposed undertaking and would not be within any area of potential ground disturbance from the proposed undertaking.

3.10 Land Use

The Study Area consists of developed land, a portion of the Lihue Wastewater Treatment Facility, a portion of the Ocean Course at Hokuala Golf Course, the east Kauai coast, and airport property, which includes terminal buildings, roadways, apron areas, taxiways, and runways.

3.10.1 EXISTING LAND USES

The Study Area is located approximately 1 mile east of Kuhio Highway which runs northeast-southwest through central Lihue, the island of Kauai's center of business and civic services. Lihue is home to Nawiliwili Harbor, the island's only deep water commercial port, and to Lihue Airport, Kauai's primary airport and the fourth busiest airport in the state. With the harbor and the airport, the Lihue region has emerged as the focal point for heavy industrial, light industrial, and commercial activities and services, such as warehousing, baseyard operations,

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23 Wilson Okamoto Corporation and State of Hawaii DOT-Airports Division. *Final Environmental Impact Statement: Lihue Airport Improvements*. November 2007.

24 Wilson Okamoto Corporation and State of Hawaii DOT-Airports Division. *Final Environmental Impact Statement: Lihue Airport Improvements*. November 2007.

25 Wilson Okamoto Corporation and State of Hawaii DOT-Airports Division. *Final Environmental Impact Statement: Lihue Airport Improvements*. November 2007.

automotive sales and maintenance, and retailing for equipment and materials suppliers. The region is also Kauai's central commercial retailing center, offering shopping centers – including Kukui Grove Shopping Center – as well as large scale retailers and various smaller shopping centers and merchants.

LIH is located east of the commercial and civic core of Lihue. Surrounding the commercial core is an expansive residential area consisting principally of single-family residential. Residential uses extend to the north and west from the center of Lihue. The residential area nearest the project site is located adjacent to the southwestern portion of the Study Area. Nawiliwili Harbor is located to the south of Lihue's commercial and civic core.

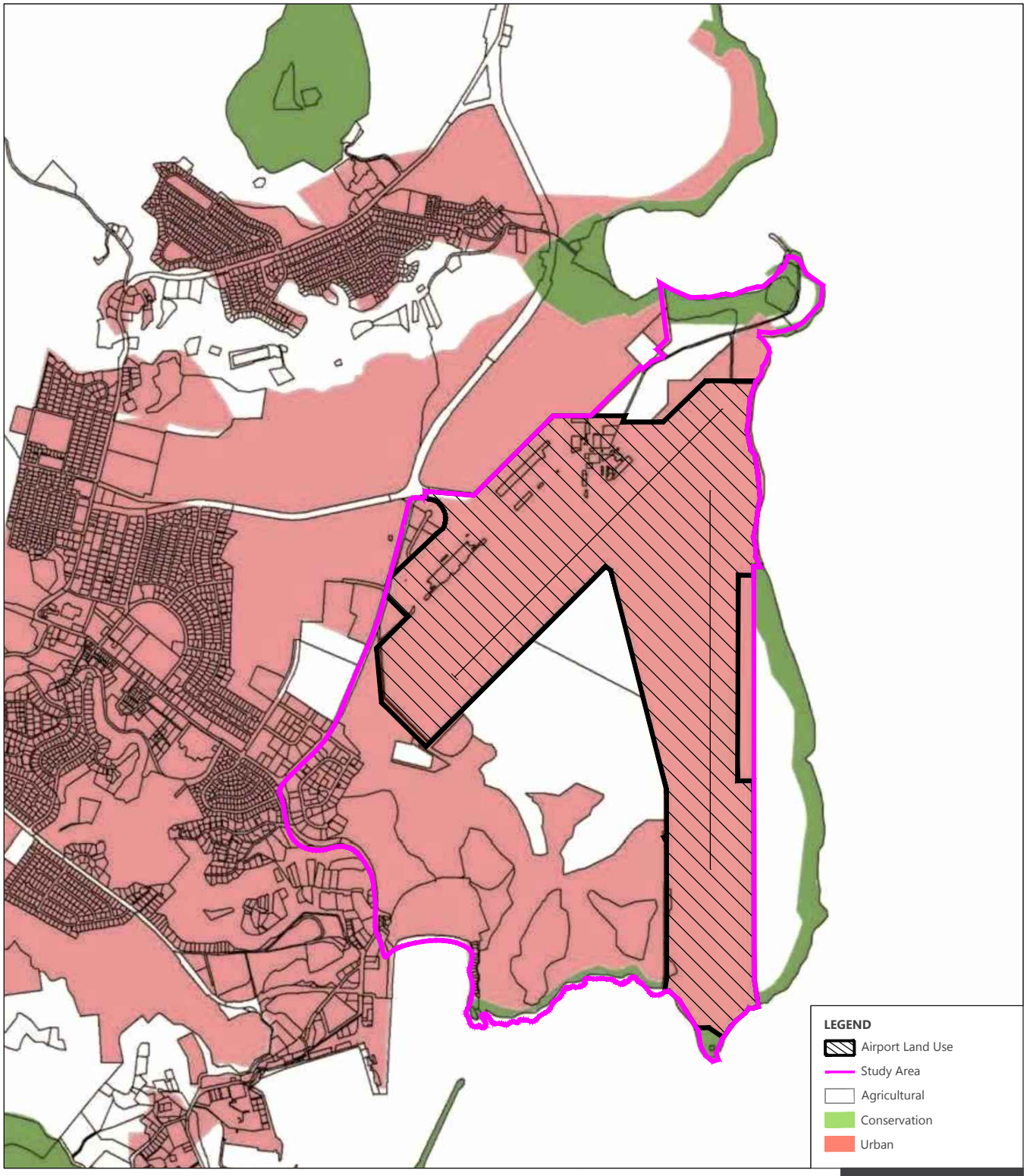
Land uses on the LIH site include those owned primarily by the State of Hawaii, and related to LIH operations, as well as those leased by HDOT-A to operators. Much of the adjacent land is developed in public uses, including, to the north, the Lihue Refuse Transfer Station with Hanamaulu Bay and the Ahukini Recreation Pier State Park beyond; the Lihue Wastewater Treatment Facility to the south; the Kauai Police Department, Kauai County Civil Defense Office, State of Hawaii Circuit Court, and Kauai Veterans Center to the west; and the County of Kauai's Vidinha Stadium sports complex to the southwest. These public land uses are discussed further in **Section 3.10.4**, Public Lands, as required by HRS 343.

Located southwest of LIH are Nawiliwili Harbor and numerous industrial facilities in support of harbor operations. These facilities include harbor piers, storage facilities, and distribution centers. Kauai Petroleum, Honsador Lumber, the Kauai Food Bank, and Garden Isle Disposal operate out of this area. In general, the area southwest of LIH is developed in heavy industrial uses. Rice Street extends from the Harbor area to connect with Kapule Highway, which then runs east of the LIH terminal area and to the east side of the island. Located around this junction of Rice Street and Kapule Highway are other industrial uses including warehousing, baseyard operations, automotive sales and maintenance, and retailing for equipment and materials suppliers, large scale retailers, and utility companies. Located further west on Rice Street are smaller commercial establishments, the County of Kauai civic center, and residential areas.

3.10.2 LAND USE DESIGNATIONS

3.10.2.1 State Land Use Districts

Hawaii Revised Statutes Section 205-2, pertaining to the State Land Use Commission, established four land use districts in which all land in the State have been classified. These land use districts are designated "Urban", "Rural", "Agricultural", and "Conservation". The Study Area is located within the State's "Urban," "Agricultural, and "Conservation" Districts (see **Exhibit 3-3**).



SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Land Use Commission, *State Land Use Districts* , January 2012; Kauai County, *Lihue Community Plan: Towards a Vibrant Lihue* , June 2015.
PREPARED BY: Ricondo & Associates, Inc., September 2016.

EXHIBIT 3-3

NORTH 0 2,500 ft.

State Land Use Districts

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The land on which the proposed RSA improvements will be constructed is classified as "Urban" and has consistently been in urban use as part of the LIH area. Permissible uses within the State's Urban District are identified in §15-15-24 HAR, "Permissible uses within the 'U' urban district". Permissible uses defined in §15-15-24 are "Any and all uses permitted by the counties, either by ordinances or rule may be allowed within this district, subject to any conditions imposed by the commission pursuant to section 205-4(g), HRS."[26]

As outlined in the following subsections, the proposed RSA improvements also qualify as an urban use within the Lihue Community Plan, County of Kauai General Plan, and Kauai County Zoning regulations.

3.10.2.2 Lihue Community Plan

The Study Area is within the region addressed by the *Lihue Community Plan*,[27] which is one of six community plans established within the County of Kauai. The respective regional community plans are designed to implement the County of Kauai General Plan.

Land use guidelines are set forth on the Lihue Community Plan Land Use Map. The Study Area is designated as "Airport", with the underlying land use within this area being "Industrial" (see **Exhibit 3-4**). The land uses depicted on the Lihue Community Plan Map approximate those contained on the County of Kauai General Plan Land Use Map.

3.10.2.3 Zoning

The Study Area is located on lands zoned as "I-G/ST-P" as shown on the County of Kauai zoning map for the area.[28] The "I-G/ST-P" designation denotes lands zoned as "General Industrial" that are also within the "Special Treatment-Public Facilities" Overlay District. Special Treatment Districts specify additional performance required when critical or valuable social or aesthetic characteristics of the environment or community exist in the same area as a parcel where particular functions or uses may be developed. Special Treatment Districts are implemented as overlays to traditional zoning.[29]

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26 Hawaii Administrative Rules, Title 15, Chapter 15, Subchapter 3, *Permissible Uses within the "U" Urban District*, November 4, 1999.

27 County of Kauai, *Lihue Community Plan*, Ordinance 989, June 2015.

28 County of Kauai, *Lihue Community Plan*, Ordinance 989, June 2015.

29 County of Kauai, Planning Department, Zoning and Land Use Permits, http://www.kauai.gov/Government/Departments/Planning-Department/Zoning-Land-Use-Permits, accessed: August 16, 2016.

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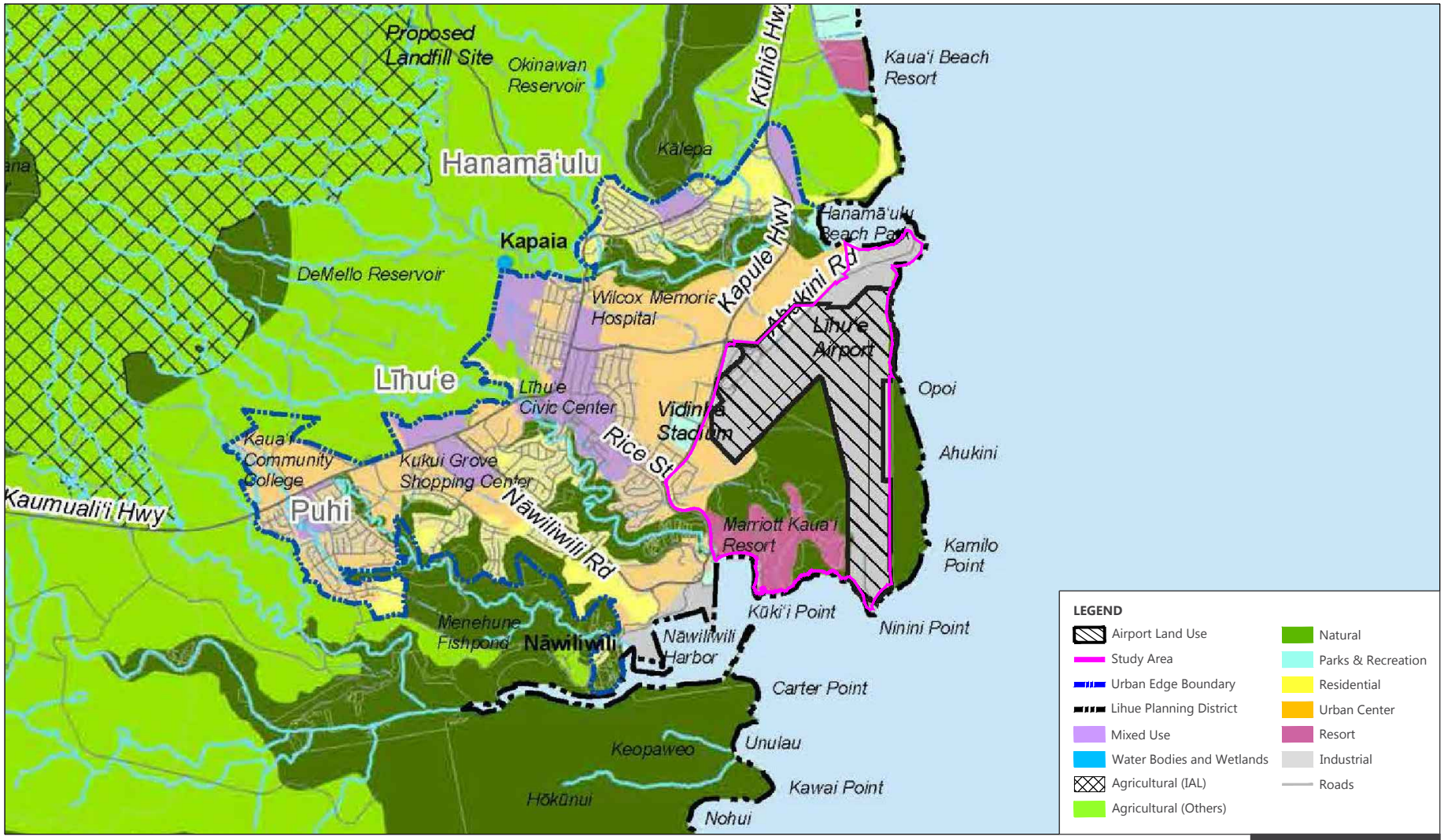

NOTES: IAL = Important Agricultural Lands.
SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; Kauai County, *Lihue Community Plan: Towards a Vibrant Lihue* , June 2015.
PREPARED BY: Ricondo & Associates, Inc., September 2016.

EXHIBIT 3-4

NORTH 0 5,500 ft.

Lihue Community Plan Land Use Map

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3.10.3 AFFECTED JURISDICTIONS

Lihue Airport is located within the town of Lihue municipal boundary, which is located within the Lihue District of the County of Kauai. Affected jurisdictions typically encompass the geographic areas in which environmental resources would be affected by activities associated with the construction and operation of a proposed action and feasible alternatives. The jurisdictions affected with the proposed RSA improvements project discussed in this EA will be limited and restricted primarily to LIH property, areas encompassing the existing Runway Safety Area, and areas immediately adjacent to the LIH (i.e., the Study Area depicted in Exhibit 3-1). These areas include the Lihue Wastewater Treatment Facility, resort uses, golf course and industrial uses, within the town of Lihue.

3.10.4 PUBLIC LANDS

As required by Hawaii Revised Statutes, Chapter 343 (HRS 343), public lands in the vicinity of the Proposed Action are discussed in this section of the EA. Numerous publicly owned parcels are located within the vicinity of the Study Area, including other parcels owned by the State that are in LIH, industrial, or park use, as well as County-owned lands in parks, civic, or utility use. The vicinity also includes lands dedicated to the County or State that are used as rights-of-way. Public uses in the vicinity of LIH include the Ahukini Recreation Pier State Park and the Lihue Refuse Transfer Station to the north, County of Kauai's Vidinha Stadium Complex to the southwest, the Lihue Wastewater Treatment Facility and Nawiliwili Harbor to the south, and the Kauai Police Department, State of Hawaii Courthouse, and Kauai Veterans Center to the west. A recreational path has been proposed by Kauai County that would be aligned within the eastern boundary of the Study Area. Further details on the path are provided in **Section 3.6**.

3.10.4.1 Airport Area

The Lihue Airport was opened in 1950. Today it serves as Kauai's largest and busiest airport, and the only airport providing overseas and interisland air carrier services for the island. LIH is ranked as the fourth busiest airport in the State. The property comprising LIH is owned by the State of Hawaii and totals approximately 885 acres. It is comprised of several Tax Map Keys (TMKs), however, the majority of LIH facilities are located on TMK (4)3-5-001:008 (Parcel 8), which is approximately 721 acres in size.

Airfield Operations

The Air Operations Area (AOA) at LIH is situated within Parcel 8. The airfield includes runways, taxiways, and aircraft aprons. Lihue Airport has two operating runways, designated as Runways 3-21 and 17-35, each measuring 6,500 feet long and 150 feet wide, which serve all aircraft operations.

In addition to the two runways, a network of taxiways connects various portions of the airfield. An aircraft apron is located on the north side of Runway 3-21, northeast of the terminal building. The apron is used for general aviation, including executive (private) jets, helicopter operations, cargo, as well as the temporary storage of disabled aircrafts.

Passenger Terminal Complex and Rental Car Booths

The passenger terminal facilities at Lihue Airport are located west of Runway 3-21 and include a variety of facilities that support passenger operations, including the ticketing lobby, security facilities, baggage claim, and

passenger holding areas. The major car rental providers have customer service booths outside the LIH terminal. While the runways, taxiways, and apron are located on Parcel 8, the passenger terminal building itself and the car rental booths are located on two separate TMKs identified as (4)3-5-001:135 (Parcel 135) and (4)3-5-001:136 (Parcel 136), respectively. Parcel 135 is approximately 5 acres in size, while Parcel 136 is approximately a quarter acre in size.

Air Cargo Facilities

Most air cargo at the Lihue Airport is processed at the cargo building located to the northeast of the passenger terminal building on Ahukini Road. The cargo building accommodates both airline cargo services, as well as Aloha Air Cargo and a FedEx shipping center. The cargo building is located on a separate TMK identified as (4)3-5-001:146; however, the apron servicing the operators is located on Parcel 8. A map of the TMK parcels surrounding LIH has been provided as **Exhibit 3-5**.

Ground Transportation

Although most rental car companies have customer service booths located directly across the Mokulele Loop road from the passenger terminal on Parcel 136, the larger car rental operation facilities, including those for maintenance and car washing, are located on several separate TMKs leased by each tenant. These properties are accessed via Hoolimalima Place off Mokulele Loop.

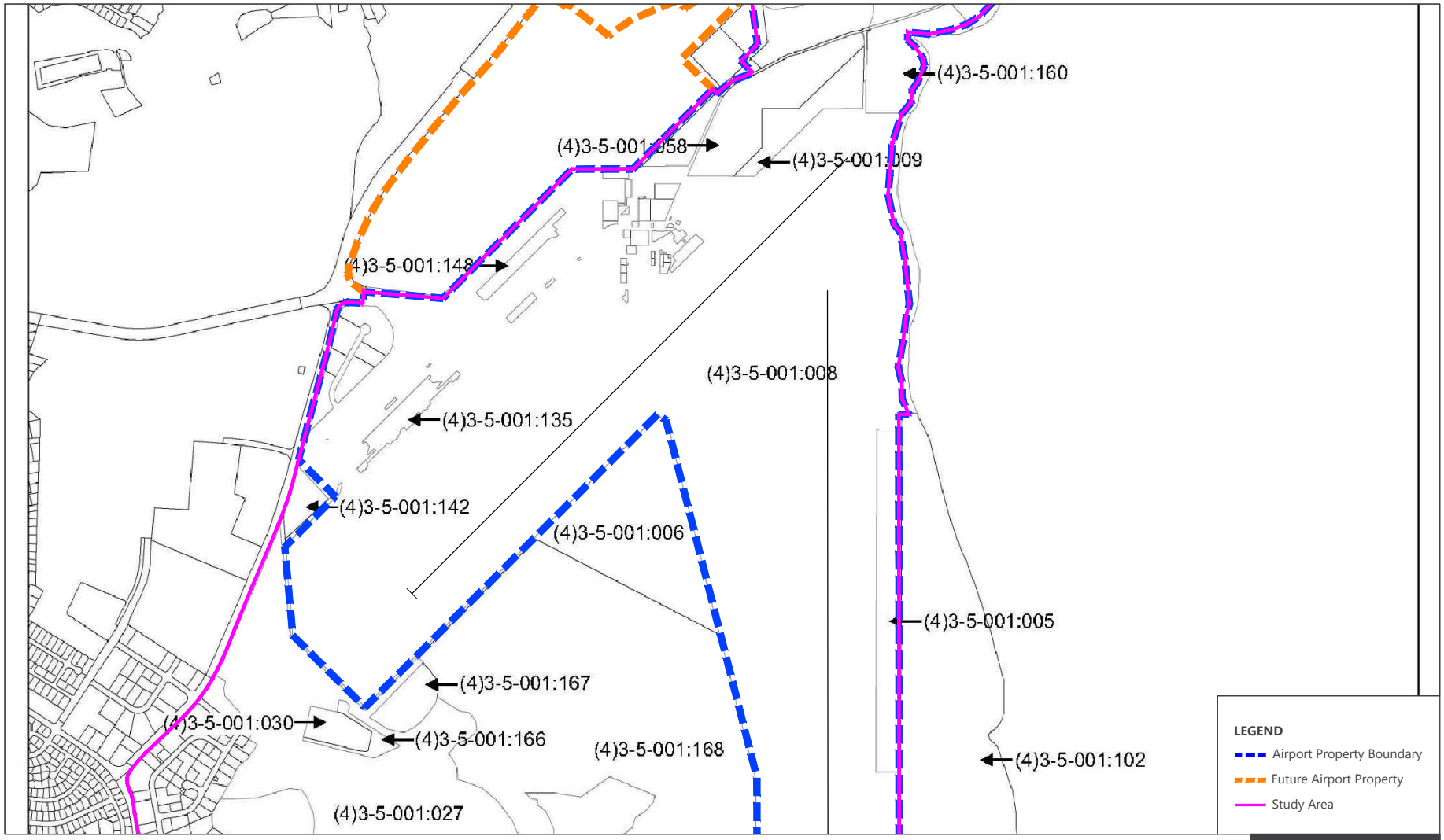
Commercial and Industrial Areas

Commercial and industrial areas and uses at LIH are limited to airline, cargo, helicopter, and rental car operations. South of LIH, beyond the County of Kauai Wastewater Treatment Facility at the southern end of Runway 3-21, is an industrial area located in the vicinity of the Kapule Highway and Rice Street intersection. Industrial uses in this area include warehousing, baseyard operations, automotive sales and maintenance, retailing for equipment and materials suppliers, large scale retailers, and utility companies.

Located southwest from LIH is Nawiliwili Harbor and numerous industrial facilities in support of harbor operations. These facilities include harbor piers, storage facilities, and distribution centers. Young Brothers, Kauai Petroleum, Honsador Lumber, Anheuser Busch, the Kauai Food Bank, and Garden Isle Disposal operate out of this area. In general, the area southwest of LIH is developed in heavy industrial uses and commercial uses.

Kaana Street Public Complex

Located approximately 1,000 feet west of the Study Area, across Kapule Highway from the LIH area is a complex of buildings which houses the Hawaii State Judiciary Fifth Circuit Court, Kauai Police Department, Kauai County Civil Defense office, and County of Kauai Transportation Agency Baseyard facilities. These facilities are accessible from Kaana Street, off Kapule Highway.



SOURCES: State of Hawaii, Office of Planning, *Statewide GIS Program*, (http://planning.hawaii.gov/gis/), accessed February 2017.
PREPARED BY: Ricondo & Associates, Inc., February 2017.

EXHIBIT 3-5

NORTH 0 5,500 ft.

TMK Property Map

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Airport Access

The airline passenger facilities and rental car booths are accessed primarily via Mokulele Loop, which is a circular roadway off of Ahukini Road, which provides access to LIH from Kapule Highway. Roadways within Parcel 8, including Mokulele Loop, Hoolimalima Street, Hoolimalima Place, and a portion of Ahukini Road from Kapule Highway to the Landing, are maintained by the Hawaii DOT–Airports Division. Off LIH property, the remainder of Ahukini Road and Kapule Highway are maintained by the Hawaii DOT–Highways Division. Access to LIH's accessory facilities, including cargo and helicopter operations, is provided directly from Ahukini Road.

3.10.4.2 County Uses

Vidinha Stadium

Located southwest of LIH, the Vidinha Stadium is an athletic complex owned and maintained by the County of Kauai. This complex includes a baseball field, lighted football field and track, soccer fields, restroom comfort stations, and parking. Access to the Vidinha Stadium complex is provided via Kapule Highway and Hoolako Street.

Lihue Refuse Transfer Station

The Lihue Refuse Transfer Station is located on Ahukini Road, northeast of LIH just past the cargo and helicopter operation facilities. Managed by the Kauai County Department of Public Works, the refuse transfer station is one of five sites open daily which collects mixed refuse from County residents free of charge.

Lihue Wastewater Treatment Facility

The Lihue Wastewater Treatment Facility is located on Ninini Point Street, to the immediate southwest of Runway 3-21, adjacent to LIH property, just beyond the Study Area for the Proposed Action. This facility is managed by the Kauai County Department of Public Works and treats wastewater conveyed from the Lihue area. Specific facility activities include preventive maintenance, treatment process control, wastewater effluent reuse, solids management, and laboratory monitoring for regulatory compliance.

3.10.4.3 Nawiliwili Harbor

Nawiliwili Harbor is located approximately 1.4 miles south of the Study Area. A vast majority of the harbor facilities are used to transport goods into and out of Kauai and include facilities for transporting special commodities, such as natural gas and petroleum products. The Hawaii DOT–Harbors Division oversees operations at the Nawiliwili Harbor and owns most of the land within the Harbor; however, other private entities own various other facilities and parcels at the harbor.

The primary commercial uses of the harbor include Young Brothers' inter-island cargo service, liquid bulk operations of Kauai Petroleum, dry bulk operations of Honsador Lumber, Anheuser-Busch, and the Kauai Food Bank. Other commercial uses include the Garden Isle Disposal operation and cruise ship porting.

The Nawiliwili Small Boat Harbor is located at the southern end of the harbor, and provides slips for small private vessels, as well as for small commercial tour and fishing boats.

Nawiliwili Park is located at the northern end of the harbor. Beyond that is Kalapaki Beach which is where the Kauai Marriott Resort is located. The area surrounding the harbor is comprised of other hotel and commercial establishments.

3.10.4.4 Public Roadways

Lihue Airport is served by a system of State and County roads. Kapule Highway (State Route 51) runs north/northeast to the east side of Kauai from its intersection with County maintained Rice Street in Lihue town. From its intersection with Kapule Highway, Ahukini Road (State Route 570) provides access to LIH passenger terminal by way of Hoolimalima Street and Mokulele Loop, and to the cargo and helicopter operation facilities. Ahukini Road continues northeast along the LIH boundary and terminates at the Ahukini Recreation Pier State Park. Ninini Point Street intersects with Kapule Highway at the southern end of Runway 3-21 and creates the southern boundary of LIH. Ninini Point Street terminates at the Ninini Point Lighthouse, at the extreme southern end of Runway 17-35. A public access and maintenance roadway runs along the eastern boundary of the LIH property from Ahukini Road to Ninini Point. All roads in the vicinity of LIH are two lane roads, with the exception of additional turning lanes on both Kapule Highway and Ahukini Road.

3.11 Natural Resources and Energy Supply

3.11.1 GEOLOGY AND TOPOGRAPHY

Lihue Airport is located on the Koloa Volcanic Series which includes lava flows of nepheline basalt, melilite-nelpheline basalt, olivine basalt, picrite basalt, and basanite. LIH is located on a plateau between the Hanamaulu and Huleia Streams and is characterized by uniform soils on slopes of less than 8 percent.[30] Topography surrounding the airport includes a steep elevation decrease to sea level in the coastal areas along the eastern and southern boundaries of the Study Area.

3.11.2 SOILS

The predominant soils in the project area are Lihue Silty Clay (LhB) and Lihue Gravelly Silty Clay (LIB), which are deep and well-drained with fine to moderately fine texture. Both soil types have a slope range of 0-8 percent and are also characterized as upland soils on broad interfluves. There are no undrained depressions anywhere in the Study Area that could form hydric soils.[31]

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[30] Wilson Okamoto Corporation and State of Hawaii DOT-Airports Division, *Final Environmental Impact Statement: Lihue Airport Improvements*, November 2007.

[31] Hobdy, Robert W., *Wetlands and Waters of the U.S. Analysis Studies: Lihue Airport RSA EA Project Area*, June 2016.

Other soil types which underlie the Study Area at the east end of Runway 3-21 include Koloa Stony Silty Clay (KvD) and Lihue Silty Clay (LhC). KvD has a slope range of 15-25 percent with medium runoff and moderate to severe erosion hazard. LhC has an 8-15 percent slope range with slow runoff and slight erosion hazard.[32]

3.11.3 NATURAL HAZARDS

Kauai has not had any volcanic activity since the end of the Pleistocene Epoch.[33] At present, there are no active vents or faults within Lihue Airport. The Island's gulches and ravines were formed as a result of natural erosion as opposed to landslides and geologic faults.[34]

LIH is located almost entirely within Federal Emergency Management Agency Flood Insurance Rate Map flood Zone X, with areas along the coast within storm-induced wave hazard zones and floodways. **Section 3.15.4** provides additional floodplain information. Portions of the Study Area along the coast are located within the Tsunami Evacuation Zone.[35]

3.12 Noise and Compatible Land Use

3.12.1 NOISE DESCRIPTORS

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. Unless otherwise stated, all sound levels (decibels [dB]) reported in this EA are in A-weighted decibels (dBA).

A-Weighted Sound Pressure Level (dBA): The dB is a unit used to describe sound pressure level. When expressed in dBA, the sound has been filtered to reduce the effect of very low and very high frequency sounds, much as the human ear filters sound frequencies. Without this filtering, calculated and measured sound levels would include events that the human ear cannot hear (e.g., dog whistles and low frequency sounds, such as the groaning sounds emanating from large buildings with changes in temperature and wind). With A-weighting, calculations and sound monitoring equipment approximate the sensitivity of the human ear to sounds of different frequencies.

Day-Night Average Sound Level (DNL): DNL, formerly referred to as L_{dn}, is expressed in dBA and represents the noise level over a 24-hour period. Because environmental noise fluctuates over time, DNL was devised to relate noise exposure over time to human response. DNL is a 24-hour average of the hourly L_{eq}; however, it has

32 Wilson Okamoto Corporation and State of Hawaii DOT-Airports Division, *Final Environmental Impact Statement: Lihue Airport Improvements*, November 2007.

33 The Pleistocene Epoch ended approximately 11,500 years ago.

34 Wilson Okamoto Corporation and State of Hawaii DOT-Airports Division, *Final Environmental Impact Statement: Lihue Airport Improvements,* November 2007.

35 State of Hawaii, Office of Planning, GIS Database, *Tsunami Evacuation Zone GIS Data*, http://planning.hawaii.gov/gis/download-gis-data/, accessed: September 23, 2016.

penalties to account for the increased sensitivity to noise events that occur during the more sensitive nighttime periods. Specifically, DNL penalizes noise 10 dB during the nighttime period (10:00 p.m. to 7:00 a.m.). The EPA introduced the 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 FAR Part 150, *Airport Noise Compatibility Planning*. The Department of Housing and Urban Development, the Veterans Administration, the Department of Defense, the United States Coast Guard, and the Federal Transit Administration have also adopted DNL for measuring cumulative noise exposure.

DNL is employed to describe existing and predicted noise exposure in communities in airport environs; this is based on the average daily operations over the year and the average annual operational conditions at an airport. Therefore, at a specific location near an airport, the noise exposure on a particular day is likely to be higher or lower than the annual average noise exposure, depending on the specific operations at an airport on that day. DNL is widely accepted as the best available method to describe aircraft noise exposure, and it is the noise descriptor required for aircraft noise exposure analyses and land use compatibility planning under FAR Part 150 and for EAs for airport improvement projects (FAA Order 10501.F).

3.12.2 REGULATORY SETTING

The FAA has a long history of providing guidance regarding aviation noise and land use criteria in the vicinity of airports. 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. In terms of land use compatibility, the primary role of the FAA is the regulation of noise at the source. This includes the development of noise standards for certificated aircraft and the approval of noise abatement flight procedures. The FAA also plays a supporting role in the development of local airport noise abatement plans and policies to ensure that land uses in the immediate vicinity of airports are compatible with normal airport operations.

The FAA defines DNL 65 dB as the threshold of exterior noise compatibility for residential and other noise-sensitive land uses, such as schools, libraries, and religious facilities. The FAA requires an analysis of noise exposure when development actions may change the cumulative noise exposure of individuals to aircraft noise in areas surrounding an airport. Common development actions that may change the cumulative noise environment include the following: runway reconfiguration, changes in aircraft operations and/or movements, changes in aircraft types using the airport, or changes in aircraft tracks and profiles.

Potential noise impacts are analyzed using the methodologies developed by the FAA and published in Appendix B of FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*. This guidance states that a Proposed Action or its action alternatives 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 located at or above DNL 65 dB to experience a noise increase of at least DNL 1.5 dB. Noise sensitive areas within the DNL 60 dB contour that are exposed to aircraft noise at or above DNL 60 dB but below DNL 65 dB and are projected to experience a noise increase of DNL 3 dB or more, only when DNL 1.5 dB increases are documented within the DNL 65 dB contour, must be disclosed and identified for each modeled scenario analyzed.

3.12.3 METHODOLOGY

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. 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.[36]

The AEDT incorporates the number of annual average daily daytime, evening, and nighttime aircraft operations, flight paths, and flight profiles of aircraft, along with its extensive internal database of aircraft noise and performance information, in order 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, the DNL 65 dB noise contours are presented.[37]

The flight tracks modeled in the AEDT are based on the flights operated at LIH in 2015. Aircraft operations and fleet mix data used for this noise analysis are based on the FAA's Terminal Area Forecast (TAF) and the Airport Operations records.

3.12.4 NOISE ENVIRONMENT

The existing noise environment at and around the Study Area is dominated by noise from airport-related uses, including aircraft departing, landing, and taxiing on runways and connecting taxiways. Noise levels from aircraft departure operations commonly exceed 110 dBA at locations near the runway. The year used to establish existing noise conditions was 2015, which was the last full year of available data at the time the EA was initiated. The AEDT input data utilized to prepare the noise contours is included in **Appendix C**.

The nearest noise-sensitive areas to the Study Area are residential properties to the southwest, with resorts and a golf course to the south. The existing DNL 65 dB contour mainly extends out of the LIH property boundary and Study Area to the northeast over the Pacific Ocean and to the south over Nawiliwili Bay. The DNL 65 dB contour extends outside the LIH property boundary to the southwest in the vicinity of the Kauai County Water Treatment Facility and over portions of the adjacent golf course. These areas are within the project Study Area. **Exhibit 3-6** illustrates the existing DNL 65 dB noise contour.

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36 U.S. Department of Transportation, Federal Aviation Administration 14 CFR Chapter I, "Noise, Fuel Burn, and Emissions Modeling Using the Aviation Environmental Design Tool Version 2b," *Federal Register 80*, no. 94 (May 15, 2015).

37 DNL 55 and 60 dB contours are illustrated on noise contour exhibits in this EA for State and local informational purposes only.

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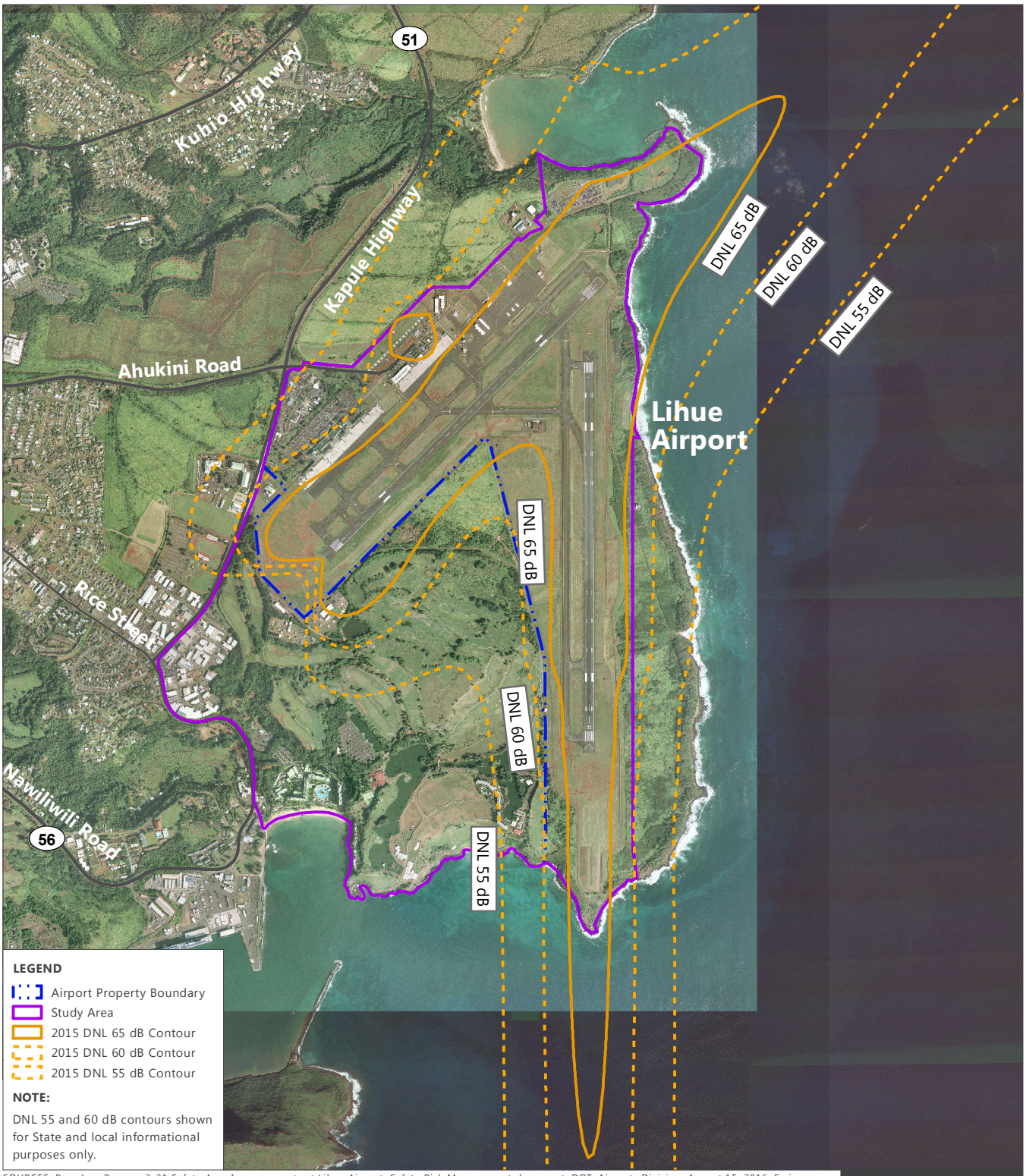

SOURCES: Based on Runway 3-21 Safety Area Improvements at Lihue Airport, Safety Risk Management document, DOT, Airports Division, August 15, 2016; Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, March 2018 (aerial basemap); Comments from Airline Committee of Hawaii to DOT-A's Preferred Alternative - LIH Rwy 3-21 RSA, Ricondo & Associates, Inc.
PREPARED BY: Ricondo & Associates, Inc., December 2016.

EXHIBIT 3-6

NORTH 0 2,500 ft.

Existing Aircraft Noise (2015)

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3.13 Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

Table 3-4 presents historical and projected population, employment, and number of households in the State of Hawaii, Kauai County, and the town of Lihue for 2000, 2010, 2015, and 2020 based on U.S. Census data and projections prepared by the Hawaii Department of Business, Economic Development, and Tourism. According to the 2010 U.S. Census, Kauai County represents approximately 0.5 percent of the State of Hawaii population. Lihue represents approximately 10 percent of the Kauai County population.

Table 3-4: Population, Employment, Households 2000-2020

ENTITY	2000	2010[1/]	2014-2015	2020[5/]
Population				
State of Hawaii	1,211,537	1,360,301	1,431,603[2/]	1,481,200
Kauai County	58,463	67,091	71,735[2/]	75,600
Lihue	5,674	6,455	6,955[3/]	-
Employment				
State of Hawaii	950,055	1,068,287	1,118,419[3/]	633,000
Kauai County	44,290	52,406	55,049[3/]	32,300
Lihue	4,707	5,770	5,5052[3/]	-
Households				
State of Hawaii	403,542	455,338	462,000[4/]	477,000[4/]
Kauai County	20,183	23,240	-	-
Lihue	2,178	2,333	-	-

NOTES:

1/ Annual estimates of the resident population as of April 1, 2010.

2/ 2015 Population Estimate Summary Data as of July 1, 2015 compiled by the Hawaii State Department of Business, Economic Development & Tourism, Research and Economic Analysis Division.

3/ Only employment estimates for 2014 provided from the 2014 American Community Survey. No 2015 employment estimates available on U.S. Census Bureau.

4/ Measuring Housing Demand in Hawaii, 2015-2025, Department of Business, Economic Development, and Tourism (DBEDT), Research and Economic Analysis Division, March 2015,

5/ 462,000 households in 2015. Data from Population and Economic Projections for the State of Hawaii to 2040, Department of Business, Economic Development, and Tourism (DBEDT) 2040 Series, Research and Economic Analysis Division, March 2012.

SOURCES: U.S.Census Bureau: American Fact Finder ; 2006-2010 American Community Survey ; 2010-2014 American Community Survey.
PREPARED BY: Ricondo & Associates, Inc., June 2016.

Table 3-5 presents estimated income and poverty information for the State of Hawaii, Kauai County, and the town of Lihue, as reported in the U.S. Census Bureau and *2010-2014 American Community Survey 5-Year Estimates*. **Table 3-6** shows racial characteristics for the same geographic areas in 2010. According to these estimates, Kauai County and Lihue have a lower median income than the overall State of Hawaii population and a higher percentage of residents in poverty. Kauai County and Lihue have similar demographic characteristics to the State of Hawaii, with Lihue having a higher percentage Asian population than the county or state.

Table 3-5: Income and Poverty Data for 2014

	STATE OF HAWAII	KAUAI COUNTY	LIHUE
Median Household Income 1/	$68,201	$62,946	$59,214
Median Family Income 1/	$80,371	$74,076	$69,031
Per Capita Income 1/	$29,552	$27,079	$26,413
Percent Individuals in Poverty	11.3%	11.7%	17.8%

NOTE:

1/ In 2014 inflation-adjusted dollars.

SOURCE: U.S. Census Bureau, 2010-2014 American Community Survey 5-Year Estimates.
PREPARED BY: Ricondo & Associates, Inc., June 2016.

Table 3-6: Population Demographics in 2014

	STATE OF HAWAII		KAUAI COUNTY		LIHUE	
RACES	POPULATION	PERCENT	POPULATION	PERCENT	POPULATION	PERCENT
White	350,634	25.2%	23,103	33.6%	1,592	22.9%
Black or African American	26,913	1.9%	433	0.6%	49	0.7%
American Indian and Alaskan Native	2,725	0.2%	156	0.2%	0	0%
Asian	529,907	38.0%	24,250	35.3%	3,356	48.3%
Native Hawaiian and Other Pacific Islander	138,735	10%	6,638	9.7%	834	12.0%
Some Other Race	15,357	1.1%	422	0.6%	0	0%
Two or More Races	328,433	23.6%	13,743	20.0%	1,124	16.2%
Total Population	1,392,704	100%	68,745	100%	6,955	100%

SOURCES: U.S. Census Bureau-ACS Demographic and Housing Estimates: 2010-2014 American Community Survey 5-Year Estimates.
PREPARED BY: Ricondo & Associates, Inc., June 2016.

3.14 Visual Effects

Lighting is used throughout the Study Area and on LIH to support existing operations during nighttime periods, and other periods of low visibility. Lighting consists of in-pavement lights along taxiways and runways, and lights mounted on towers used for the approach lighting system (ALS).

The visual character in the vicinity of LIH is within the designated "Urban" State Land Use District, as discussed in Section 3.10. LIH is developed for airport use, including the terminal as well as airport ancillary support service buildings and associated businesses such as rental car facilities. The visual character surrounding LIH includes the Lihue Refuse Transfer Station to the north; the Lihue Wastewater Treatment Facility to the south; the Kauai Police Department, Kauai County Civil Defense Office, State of Hawaii Circuit Court, and Kauai Veterans Center to the west; and the County of Kauai's Vidinha Stadium sports complex to the southwest. South of LIH includes the Kauai Marriott Resort and associated golf course.

LIH and most of the Study Area is generally flat, including the airfield and surrounding land uses. The elevation significantly drops into the Pacific Ocean along the northern, eastern, and southern Study Area boundaries. Further to the north, east, and south mountain ranges of Kauai are visible from the Study Area

The Study Area has been extensively disturbed by development activities and its visual character is dominated by Airport facilities; level, graded surfaces; and paved runways.

3.15 Water Resources

3.15.1 SURFACE WATER RESOURCES

Surface water resources on the Island of Kauai generally consists of perennial streams that flow to the sea. The major streams originate in the rainy Kauai uplands and are relatively large and uniform in flow. Perennial streams located near LIH include the Huleia Stream located approximately one mile south of LIH, and the Hanamaulu Stream located about one-half mile north of LIH.

The Lihue Airport is part of a natural drainage area of 2,270 acres with extensive crossings of irrigation systems over the sub-basin boundaries. Natural drainage is from west to east, based on topography, and has been modified by the extensive use of agricultural ditches. In the past, stream water was often diverted into ditch and tunnel systems for sugarcane irrigation purposes. Also, the former Lihue Plantation Company, Ltd., constructed several small settling ponds adjacent to the coast to settle out suspended solids before water from the drainage basin, including LIH, is discharged into the ocean.

The Study Area is adjacent to waters of the U.S. (Pacific Ocean). Coastal waters adjacent to LIH are designated as Class A Waters by the State of Hawaii, Department of Health Administrative Rules, Chapter 54, Water Quality Standards. The objective of the Class A classification is to protect water quality for recreational purposes and

aesthetic enjoyment. Generally, discharges which have not received the highest degree of treatment or control are not allowed in Class A waters.[38]

3.15.2 GROUNDWATER

The Koloa Volcanic Series underlying Lihue Airport consists of a system of layered basalts of variable density and thickness with generally poor to moderate permeability. The Koloa Series and the Waimea Canyon Series constitute the principal aquifers of Kauai.[39]

Existing water source facilities for the Lihue area consist of two tunnels tapping high-level groundwater, one in Kokolau Tunnel (elevation 313 feet) located in a tributary to Huleia Stream and the other in Garlinghouse Tunnel (elevation 280 feet) located west of Nawiliwili Stream. The Garlinghouse Tunnel, approximately 3 miles inland, is nearest in relation to Lihue Airport.

3.15.3 WETLANDS

The U.S. Army Corps of Engineers' (USACE) *Wetland Delineation Manual* defines wetland areas that have positive indicators for hydrophytic vegetation, wetland hydrology, and hydric soils as "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." The USACE typically takes jurisdiction over wetlands only when they lie within or adjacent to navigable waters or tributaries of such waters where those tributaries have an ordinary high-water mark. An ordinary high-water mark is defined as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in soil character, destruction of terrestrial vegetation, presence of litter or debris, or other appropriate means that consider the characteristics of the surrounding areas."

According to U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping data, several wetlands are located within the Study Area, but outside of the areas that will experience ground disturbance. Freshwater pond wetlands are located south of the LIH property boundary and are lagoons associated with the resort and golf course. A riverine wetland is located just north of the northeastern end of Runway 3-21.[40] This area serves as a man-made cement culvert for storm water drainage. Wetlands exist as palustrine systems, which includes all non-tidal wetlands, dominated by trees, shrubs, and persistent emergent mosses or lichens. Flora consists of emergent species, characterized by their erect, rooted, herbaceous hydrophytes, and is present

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38 Wilson Okamoto Corporation and State of Hawaii DOT-Airports Division, *Final Environmental Impact Statement: Lihue Airport Improvements,* November 2007.

39 Wilson Okamoto Corporation and State of Hawaii DOT-Airports Division, *Final Environmental Impact Statement: Lihue Airport Improvements,* November 2007.

40 U.S. Fish and Wildlife Service, National Wetlands Inventory, *State Downloads: Hawaii Wetland Data*, https://www.fws.gov/wetlands/data/State-Downloads.html, accessed: September 22, 2016.

for the majority of the growing season. The wetlands within the Study Area are seasonally flooded, especially during the early growing season, but normally dissipate by the end of season.

In June 2016 a Wetland and Waters of the U.S. study was completed for the ground disturbance portion of the Study Area. This study identified any potential aquatic resources within the ground disturbance portion of the Study Area and provided a provisional assessment of jurisdictional status, subject to USACE final determination. The Wetland and Waters of the U.S. analysis is provided in **Appendix D**. This report provides photographs of the Study Area, including the cement culvert described above.

The ground disturbance portion of the Study Area lies on a broad and gently sloping ridge top with absolutely no gulches or gullies. No permanent, intermittent or even ephemeral streams occur here. There are no identifiable natural stream channels and there are no stream beds, or banks visible in the entire ground disturbance portion of the Study Area. Before the construction of Lihue Airport all storm flow was apparently by sheet flow to the coastal bluffs. There were no aquatic features to consider or analyze. No positive wetland indicators occurred in any of the three parameters of vegetation, soil, and hydrology. The entire ground disturbance portion of the Study Area was determined to be a non-wetland.

The June 2016 Wetland and Waters of the U.S. assessment concluded the ground disturbance portion of the Study Area does not contain any Waters of the U.S.

3.15.4 FLOODPLAINS

Executive Order No. 11988 was enacted to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. The order was issued in furtherance of NEPA, the National Flood Insurance Act of 1968, and the Flood Disaster Act of 1973. Floodplains are defined as lowland and flat areas adjoining waters that are subject to a 1.0 percent or greater chance of flooding in any given year, i.e., a 100-year flood event.

According to the FEMA Flood Insurance Rate Map (FIRM), the majority of the Study Area is located within FEMA Zone X, areas with 0.2 percent annual chance of flood. Portions of the Study Area boundary along the coast fall within FEMA Zone VE. Zone VE includes areas subject to inundation by the 1-percent-annual-chance flood event with additional hazards due to storm-induced velocity wave action. A portion of the southern boundary of the Study Area is located within Zone AE. Zone AE is considered a floodway and subject to inundation by the 1-percent-annual-chance flood event.[41] **Exhibit 3-7** depicts the existing FIRM for the Study Area. Tsunamis have been recorded on all of the Hawaiian Islands.

[41] U.S. Department of Homeland Security, Federal Emergency Management Agency, *FEMA Flood Map Service Center, County Mapping Data Downloads*, https://msc.fema.gov/portal, accessed: September 21, 2016.

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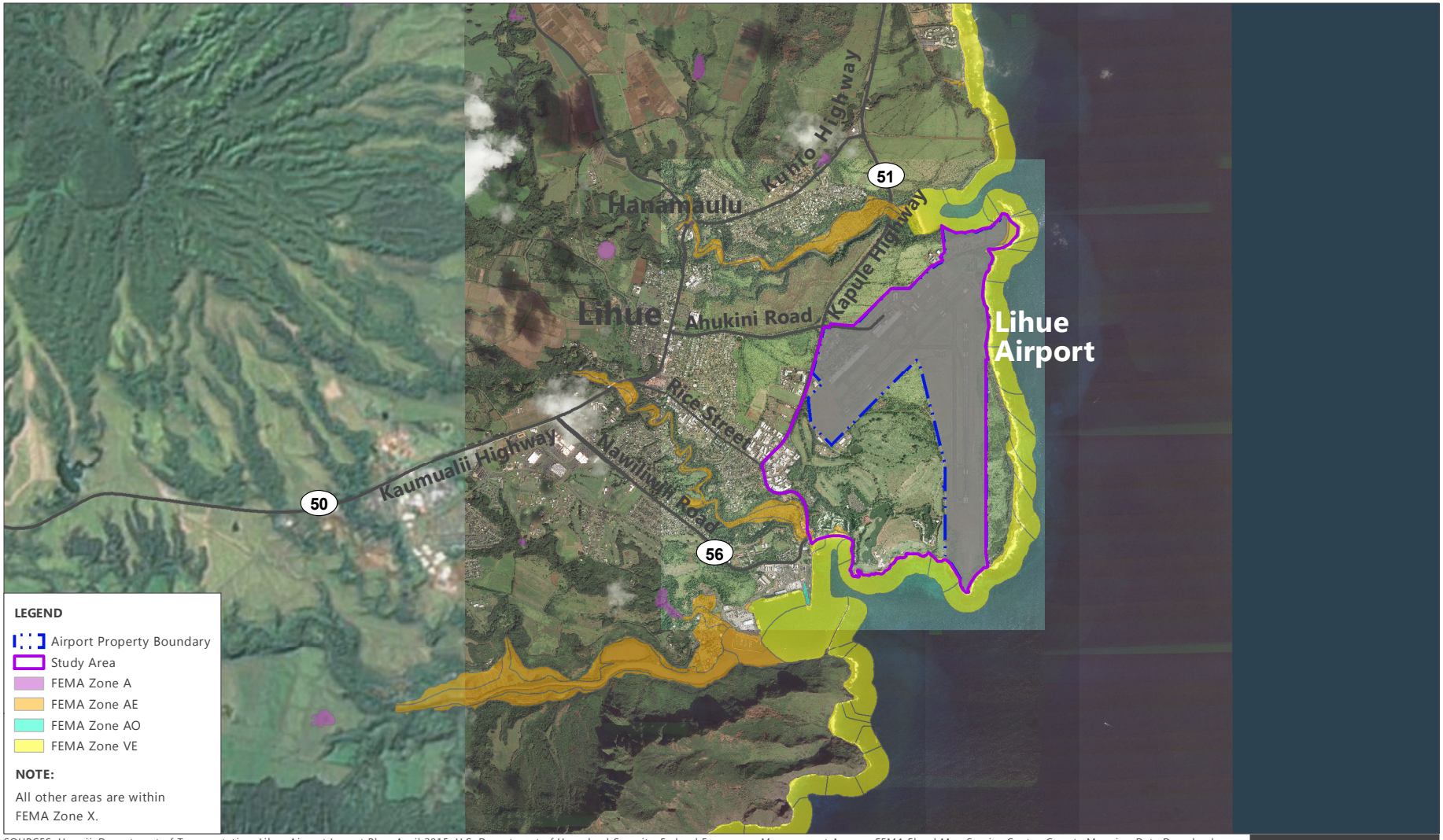

SOURCES: Hawaii, Department of Transportation, Lihue Airport Layout Plan, April 2015; U.S. Department of Homeland Security, Federal Emergency Management Agency, FEMA Flood Map Service Center, County Mapping Data Downloads, https://msc.fema.gov/portal, accessed: September 21, 2016; Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, October 2017 (aerial basemap).
PREPARED BY: Ricondo & Associates, Inc., September 2016.

EXHIBIT 3-7

NORTH 0 5,500 ft.

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Floodplains

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3.16 Past, Present, and Reasonably Foreseeable Actions

Cumulative impacts to environmental resources result from incremental effects of future actions combined with other past, present, and planned projects in the area. Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies (federal, state, and local) or individuals. In accordance with NEPA, a discussion of cumulative impacts resulting from projects that are proposed, under construction, recently completed, or planned for implementation in the near future is required. For purposes of this EA, projects implemented within the last 5 years or proposed to be implemented within the next 5 years located within 1.0 mile of the Proposed Action were identified (see **Table 3-7**).

Table 3-7: Past, Present, and Future Actions within a Mile of LIH

PROJECT	STATUS	DESCRIPTION
Past Actions		
Rice Camp Affordable Housing Project	Completed in January 2015	Development of affordable senior housing units at properties formerly known as Rice Camp in Lihue
Present Actions		
Hanamaulu Residential Project	Currently under construction	Development of single-family and duplex residences
Hokuala Resort	Public ownership available as of March 2017	Development of a resort community including residential units, recreational areas, hotel, golf and commercial uses
Future Actions		
Kauai Water System Energy Conservation	Currently undergoing environmental review. Environmental Impact Preparation Notice published on February 8, 2013.	Development of a high level directionally drilled well capable of flowing by gravity and possibly producing power for the Lihue and Kapaa areas
Kauai County Materials Recovery Facility	July 2019	Development of a facility for accepting, processing, and recycling source-separated recyclable materials
Ahukini to Lydgate Park Bicycle/Pedestrian Path	NA	Development of a shared-use bicycle and pedestrian path covering a distance of approximately 6.7 miles from Ahukini Point to Lydgate Park
Nawiliwili to Ahukini Bicycle/Pedestrian Path	Currently undergoing environmental review	Continuation of the Ahukini to Lydgate Park shared use path south to Nawiliwili Bay
Wailani Residential Project	NA	Development of a Mixed-Use Community

NOTES: N.A. = Not Available.

SOURCES: County of Kauai, Planning Department, http://www.kauai.gov/Planning (accessed September 2016); Timbers Resorts, Press Release: Timbers Resorts Announces Launch of Sales for Timbers Kaua'I – Ocean Club & Residences at Hōkūala, March 16, 2017, https://www.hokualakauai.com/press-accolades/press-releases, accessed: June 2017; Environet, Inc. for the Kauai County Housing Agency, Final Environmental Assessment (Environmental Records Review) Kauai County Housing Agency Affordable Housing Project for Rice Camp Parcels, August 2013.

PREPARED BY: Ricondo & Associates, Inc., July 2016.

It is noted that the Fiscal Year 2016-2017 Kauai County budget also includes various Capital Improvements Projects. Within the Study Area a proposed bicycle/pedestrian path is currently undergoing planning and environmental review. Adjacent to the Study Area there are proposed improvements to the Lihue Stadium Baseball field and Vidinha Stadium track and field improvements, as well as improvements to Rice Street, which is a main thoroughfare for Lihue town.

In summary, the past projects and projects currently under construction, as identified above, are mainly residential in nature, and as such, each development has identified impacts and proposed mitigation measures as part of their respective planning, entitlement, and permitting processes. The planned projects involve the development of public facilities and infrastructure which will provide services and amenities to support residential development and resulting population growth in the area. These planned projects, having been comprehensively planned, are not anticipated to result in adverse impacts to public services or other land uses.

4. Environmental Consequences

4.1 Introduction

The potential environmental consequences associated with the Proposed Action and the No Action Alternative are discussed in this chapter. Of the environmental categories specified in FAA Orders 1050.1F and 5050.4B, the following were evaluated as part of this EA and are documented in the following sections:

- Air Quality—Section 4.2
- Biological Resources—Section 4.3
- Climate—Section 4.4
- Coastal Resources—Section 4.5
- Department of Transportation Act, Section 4(f) Resources—Section 4.6
- Farmlands—Section 4.7
- Hazardous Materials, Solid Waste, and Pollution Prevention—Section 4.8
- Historical, Architectural, Archeological, and Cultural Resources—Section 4.9
- Land Use—Section 4.10
- Natural Resources and Energy Supply—Section 4.11
- Noise and Compatible Land Use—Section 4.12
- Socioeconomics, Environmental Justice, and Children's Health and Safety Risks—Section 4.13
- Visual Effects—Section 4.14
- Water Resources—Section 4.15
- Cumulative Impacts—Section 4.16
- Other Considerations—Section 4.17

4.2 Air Quality

4.2.1 METHODOLOGY

The primary sources of guidance for assessing potential air quality impacts are FAA Orders 1050.1E and 5050.4B, and the *Aviation Emissions and Air Quality Handbook* (Airport Air Quality Handbook).[1] Typically, an emissions inventory is prepared for each reasonable Alternative, including the No Action Alternative. Additional analyses, including dispersion modeling or roadway intersection hot spot analyses, are not typically required if the estimated emissions of each criteria pollutant do not exceed thresholds listed in the general conformity regulations. Information presented in the Airport Air Quality Handbook can be used as a guide to determine whether an NAAQS assessment[2] needs to be performed for a proposed action. The entire State of Hawaii is listed as unclassifiable/attainment for all NAAQS.[3] Therefore, the FAA is not required to make a conformity determination.

4.2.2 SIGNIFICANCE THRESHOLDS

The evaluation of significance involves identifying if the Proposed Action would cause pollutant concentrations to exceed one or more of the National Ambient Air Quality Standards (NAAQS) for any of the time periods analyzed.

4.2.3 CONSTRUCTION IMPACTS

4.2.3.1 No Action Alternative

Under the No Action Alternative, no construction activities would occur within the Study Area. Therefore, no construction air quality impacts would occur.

4.2.3.2 Proposed Action Alternative

Construction of the Proposed Action Alternative would include site preparation, grading, structure construction, paving, and pavement markings at the airport. These activities would require the use of heavy trucks, excavating and grading equipment, material loaders, dozers, and paving equipment. Emissions would occur as a result of these activities from: (1) engine exhaust from construction worker vehicle trips to and from the site, (2) trips by trucks hauling raw materials, supplies, and fill material and the operation of construction equipment at the site, and (3) fugitive dust emissions during ground-disturbing activities, materials handling, and equipment use on unimproved surfaces. The construction period would occur during 2018.

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1 Federal Aviation Administration, *Aviation Emissions and Air Quality Handbook, Version 3, Update 1*, January 2015.

2 When a Proposed Action could cause or contribute to an exceedance of the NAAQS, pollutant concentrations are estimated for criteria pollutants of interest through air dispersion modeling.

3 Title 40, Code of Federal Regulations, Part 81 – Designation of Areas for Air Quality Planning Purposes, Subpart C-Section 107, Attainment Status Designations, § 81.312, Hawaii.

The emissions inventory for construction activities associated with the Proposed Action Alternative 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. As noted in the FAA Order 1050.1F Desk Reference[4], if a project's emissions are less than the *de minimis* levels, then the Federal action is considered to be too small to adversely affect the air quality status of the area.

Table 4-1: 2018 Proposed Action Alternative Construction Emissions Inventory

	ESTIMATED ANNUAL EMISSIONS OF CRITERIA POLLUTANTS (TONS/YEAR)				
	CO	**VOC**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**
Construction Activity	0.91	0.37	0.72	0.51	0.17
De Minimis Threshold	*100*	*100*	*100*	*100*	*100*
Significant?	No	No	No	No	No

SOURCE: Ricondo & Associates, Inc., April 2017; General Conformity Rule (40 CFR Part 93, Subpart B), January 31, 1994.
PREPARED BY: Ricondo & Associates, Inc., April 2017.

As shown in Table 4-1, the construction-related emissions of criteria pollutants would be below the established annual *de minimis* thresholds for the construction period, and therefore would not be significant. The increase in emissions would be temporary in nature and only during the construction period.

4.2.4 OPERATIONAL IMPACTS

4.2.4.1 No Action Alternative

Under the No Action Alternative, no change in airport operations would occur as compared with existing conditions. Therefore, no impacts from the No Action Alternative would occur.

4.2.4.2 Proposed Action Alternative

Development of the Proposed Action Alternative would result in a shift of Runway 3-21 in order to provide a RSA that meets FAA design standards to the maximum extent practicable. The Proposed Action Alternative would not result in any changes to the number or size of aircraft operating at LIH. Operation of the Proposed Action Alternative would shift Runway 3-21 to the southwest by 855 feet, shifting aircraft taxi routes by a similar amount. The runway shift and increased taxi distance for operations for departures from Runway 3 would result in a minor change to aircraft emissions. Thus, a minimal change in emissions would be anticipated from the Proposed Action Alternative as compared with the No Action Alternative. Therefore, operation of the Proposed Action is not anticipated to have significant impacts to air quality.

[4] U.S. Department of Transportation, Federal Aviation Administration, *1050.1F Desk Reference*, July 2015, p. 1-8.

4.2.5 MITIGATION MEASURES

No significant impacts related to air quality are anticipated. Therefore, no mitigation measures are necessary.

4.3 Biological Resources

4.3.1 METHODOLOGY

In preparation of this EA, a Biological Resources Study was conducted for the ground disturbance portion of the Study Area (**Appendix E**).[5] The potential for impacts to biological resources and threatened and endangered species were assessed through:

- Review of databases of potentially present species maintained by the United States Fish and Wildlife Service (USFWS) and the State of Hawaii Division of Forestry and Wildlife (DOFAW).
- Assessment of the presence of species and habitat during three site visits of the potential ground disturbance portion of the Study Area, conducted in June 2016.

4.3.2 SIGNIFICANCE THRESHOLDS

Under the Endangered Species Act (ESA), the FAA, as the responsible federal agency, determines if the proposed action may affect a threatened or endangered species, and if so, the FAA must initiate consultation with the USFWS for terrestrial and freshwater species and National Marine Fisheries Service (NMFS) for marine species to determine significance. Additionally, under the Fish and Wildlife Coordination Act, the FAA must consult with the USFWS regarding the conservation of wildlife resources when a federal action may result in control or modification of the water of any stream or other water body to determine if effects are significant.

To identify the potential for impacts to biological resources, the Proposed Action and No Action Alternatives were reviewed to determine whether either would:

- create a long-term or permanent loss of an unlisted species,
- adversely affect special status species or their habitats,
- create a substantial loss, reduction, degradation, disturbance, or fragmentation of native species' habitats or populations, or
- adversely affect a species' reproductive success rates, natural mortality rates, non-natural mortality, or ability to sustain minimum population levels required for population maintenance.

[5] Robert W. Hobdy, *Biological Resources Study, Lihue Airport RSA EA Project, Lihue, Kauai*, June 2016.

4.3.3 CONSTRUCTION IMPACTS

4.3.3.1 No Action Alternative

Under the No Action Alternative, no construction activities would occur at the project site. Therefore, no construction impacts to fish, wildlife, or plants would occur under the No Action Alternative.

4.3.3.2 Proposed Action Alternative

Based on the results of the Biological Resources Study database review, surveys were undertaken to assess the potential for the Proposed Action Alternative to affect biological resources. As discussed in Section 3.3.2, no critical habitat exists within the Study Area and none were observed during field surveys. Additionally, no species were observed that are candidates for state or federal special status.[6] However, certain species of Hawaiian waterbirds, notably the Hawaiian stilt, Hawaiian moorhen or common gallinule, Hawaiian coot, Hawaiian duck, and Hawaiian goose utilize the man-made wetlands on the Hokuala Resort and Marriott Kauai Lagoons Resort south of the airport. Due to their proximity to the airport, these birds are occasionally observed in the open grassy areas adjacent to the airfield.

The vegetation throughout the ground disturbance portion of the Study Area is comprised mainly of non-native species with just three common indigenous species scattered about, mostly along the coastal fringe.[7] No listed or candidate plant species were observed to exist within the ground disturbance portion of the Study Area.

Implementation of the additional pavement required to shift Runway 3-21 and associated taxiway components of the Proposed Action Alternative would result in the conversion of approximately seven undeveloped acres of existing airfield to paved surfaces. While these areas are currently undeveloped, they have been previously disturbed for development of LIH and were previously in agricultural use. Vegetation in this area consists of either non-native or common indigenous species and is frequently mowed for LIH operations and safety.

Implementation of the Proposed Action Alternative would require ground disturbance for grading and fill and construction of a retaining wall approximately 1,100 feet in length at the northeast end of Runway 3-21. While the proposed retaining wall would be along the coastal area of LIH, the retaining wall would be located in the vicinity of an existing public access road. The retaining wall would also include fencing along the top to secure the Air Operations Area (AOA) of the airfield in compliance with Transportation Security Administration regulations. The fence would be similar to the existing airfield security fencing. This area has been previously disturbed and does not provide habitat for any special status species. Vegetation in this area consists of either non-native or common indigenous species.

Because of the existing conditions described above, the Proposed Action Alternative is not anticipated to have any significant impacts on plants within the Study Area.

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6 Robert W. Hobdy, *Biological Resources Study, Lihue Airport RSA EA Project, Lihue, Kauai*, June 2016.

7 IBID.

No mammals were observed in the project area during three site visits. A special effort was made to detect any occurrence of the federally endangered Hawaiian hoary bat by conducting an evening survey in the area. No Hawaiian hoary bats were detected during site surveys, but they are known to occur on Kauai. These bats often roost in trees during the day and they place their newborn pups in trees during the summer months when they are too young to fly. The ground disturbance portion of the Study Area, however, is devoid of trees and therefore habitat for this species would not be an issue. Therefore, it is not anticipated that construction of the Proposed Action Alternative would result in any significant impacts to Hawaiian hoary bats.[8]

On August 4 2016 HDOT-A provided the USFWS details on the purpose and need and description of the Proposed Action.[9] HDOT-A received a response from USFWS in a letter dated September 7, 2016 which included comments and recommendations on the project Study Area and Proposed Action. According to USFWS correspondence, there is no designated critical habitat within the vicinity of the Study Area. USFWS noted however, the following species are known to occur or transit through the project Study Area:[10]

- Endangered Hawaiian hoary bat *(Lasiurus semotus)*
- Hawaiian waterbirds
  - endangered Hawaiian goose *(Branta sandvicensis)*
  - endangered Hawaiian stilt *(Himantopus mexicanus knudseni)*
  - Hawaiian moorhen *(Gallinula galeata sandvicensis)*
  - Hawaiian coot *(Fulica alai)*
  - Hawaiian duck (Anas wyvilliana)
- Seabirds
  - endangered Hawaiian petrel *(Pterodroma sandwichensis)*
  - threatened Newell's shearwater *(Puffinus newelli)*
  - Band-rumped storm-petrel *(Oceanodroma castro),* which is proposed for federal listing

The USFWS noted that certain wildlife species, particularly seabirds, are potentially sensitive to artificial nighttime light sources. Any increase in the use of nighttime lighting, particularly during peak fallout period (September 15 through December 15), could result in additional seabird injury or mortality.[11] The Proposed Action Alternative would not result in any construction activity taking place in the Pacific Ocean or any other

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8 Robert W. Hobdy, *Biological Resources Study, Lihue Airport RSA EA Project, Lihue, Kauai*, June 2016.

9 Hawaii Department of Transportation, Airports Division, Pre-consultation for Draft Environmental Assessment for Runway Safety Area Improvements, Lihue Airport, Kauai, September 7, 2016.

10 U.S. Department of the Interior, U.S. Fish and Wildlife Service, *Pre-consultation for Draft Environmental Assessment for Runway Safety Area Improvements, Lihue Airport, Kauai*, September 7, 2016.

11 U.S. Department of the Interior, U.S. Fish and Wildlife Service, *Pre-consultation for Draft Environmental Assessment for Runway Safety Area Improvements, Lihue Airport, Kauai*, September 7, 2016.

body of water. No construction impacts would be anticipated for fish or any other marine wildlife. Construction of the northeastern most portion of the Proposed Action would however be partially within the coastal SMA. The retaining wall and grading and fill components of the Proposed Action Alternative would be constructed in this location. As discussed above, this portion of the Study Area is in the vicinity of an existing public access road. This area has been previously disturbed and does not provide habitat for any special status species. A SMA permit would be obtained prior to any construction activity, which is discussed in further detail in Section 4.5.

According to the Biological Resources Study, while not observed during site surveys, the federally endangered native nēnē goose (*Branta sandvicensis*), Hawaiian duck (*Anas wyvilliana*), and Hawaiian stilt (*Himantopus mexicanus knudseni*) have been known to forage along runway margins from time to time. Additionally, there are also two species of protected seabirds, the endangered ʻuaʻu or Hawaiian petrel (*Pterodroma sandwichensis*) and the threatened ʻaʻo or Newell's shearwater (*Puffinus newelli*) that nest in burrows high in the Kauai mountains. These species would not physically land in the ground disturbance portion of the Study Area but do fly over the coastal lowlands to and from their burrows at dusk and at dawn respectively. Young fledglings, in particular, can be drawn to and confused by bright lights and crash into or around light structures with fatal results. Due to airport operational constraints, it is anticipated that construction work for the Proposed Action Alternative would occur during nighttime hours in order to mitigate impacts to air carrier operations. It is recommended that the use of any significant outdoor flood lights that may be associated with this project be avoided during the fledging season (from September 15 through December 15) and hooded to direct the light downward to mitigate this threat. Construction nighttime lighting would be temporary and restricted to the areas of the proposed RSA improvements.[12]

LIH has a Wildlife Hazard Management Plan (WHMP) with measures designed to minimize impact to wildlife resources – at, and surrounding LIH – while maximizing safety of airport operations. These measures include daily routine patrols of the airport property to identify and discourage use of airport property by wildlife including endangered species. The Proposed Action Alternative would be constructed on existing airport property and would thus be subject to the daily routine patrols by certified airport wildlife biologists, who are trained in the approved methods contained in the WHMP for disbursing wildlife from airport property. The LIH WHMP has been developed in consultation with the USFWS and includes specific measures for endangered and threatened species. Construction and operation of the Proposed Action Alternative would comply with the current WHMP for LIH. A Biological Assessment of the WHMP is being prepared to address potential mitigation of the wildlife hazards associated with the approach/departure areas.

[12] Robert W. Hobdy, *Biological Resources Study, Lihue Airport RSA EA Project, Lihue, Kauai*, June 2016.

4.3.4 OPERATIONAL IMPACTS

4.3.4.1 No Action Alternative

Under the No Action Alternative, the improvements associated with the Proposed Action Alternative would not be constructed. Therefore, no operational impacts to biological resources would occur under the No Action Alternative.

4.3.4.2 Proposed Action Alternative

Operation of the Proposed Action Alternative would not result in an increase in aircraft operations or any significant change to the way aircraft operate at LIH. Implementation of the additional pavement required to shift Runway 3-21 and associated taxiway components of the Proposed Action Alternative would result in converting approximately seven undeveloped acres of existing airfield to paved surfaces. The Proposed Action Alternative would shift the end of Runway 3 855 feet closer to the Holuakala and Marriott Kauai Lagoons resorts, which are known to be utilized by endangered Hawaiian waterbirds. However, this shift in the runway end would not increase overflights or cause aircraft to fly lower over these properties, as Runway 3 is utilized for arrivals less than 0.1 percent of the time. The shift in the Runway 3 end by 855 feet is not anticipated to have any effect on any threatened or endangered species utilizing the resort areas located south of the airport.

The net change in pervious to impervious surfaces would likely result in increased runoff; however there would be no significant change to existing runoff patterns and there are no sensitive species or bodies of water that would be impacted. At LIH a network of underground culverts were installed to channel water from every surface area away from the airport airfield. Within the airfield small grassy islands between paved surfaces have swales leading to these underground culverts. As a result, even substantial storm flows are quickly channeled off LIH property eventually to the Pacific Ocean. There is no place within the ground disturbance portion of the Study Area where water can pond. Storm water runoff would be maintained through the LIH Storm Water Pollution Control Plan (SWPCP) as well as a NPDES permit. Further information on surface water is provided in Section 4.15. As stated above, construction and operation of the Proposed Action Alternative would comply with the current WHMP for LIH.

Since implementation of the Proposed Action Alternative would not cause a significant change in aircraft operations or routes, nor significantly impact any sensitive habitat, it would therefore result in no significant impacts to biological resources as compared to the No Action Alternative.

4.3.5 MITIGATION MEASURES

Operation of the Proposed Action Alternative would not result in a significant impact to biological resources, therefore no mitigation measures would be required for operation of the Proposed Action Alternative. Construction of the Proposed Action Alternative has the potential to result in impacts to wildlife, including special status birds. Therefore, in accordance with USFWS recommendations, Section 4.3.5.1 presents the mitigation measures that are recommended during construction of the Proposed Action Alternative. Implementation of these mitigation measures would limit the potential for construction of the Proposed Action

Alternative to have a significant impact on biological resources.[13] In addition to the measures discussed below, further coordination may be conducted with USFWS prior to construction in order to develop an acceptable project phasing plan.

The Hawaiian stilt, Hawaiian moorhen or common gallinule, Hawaiian coot, Hawaiian duck, and Hawaiian goose utilize the man-made wetlands on the Hokuala Resort and Marriott Kauai Lagoons Resort south of the airport. Due to their proximity to the airport, these birds are occasionally observed in the open grassy areas adjacent to the approach/departure areas of the airfield. While no direct impacts are anticipated from the Proposed Action Alternative, HDOT-A's WHMP for LIH contains measures including habitat modification and hazing (non-lethal) methods to discourage use of airport property by these species.

4.3.5.1 Construction Lighting

To reduce potential impacts to seabirds and other sensitive wildlife, construction activities should only occur during daylight hours. If nighttime construction is unavoidable, the following mitigation measures will be employed for limiting light exposure to sensitive wildlife:[14]

- Review of construction lighting plans to ensure lighting is shielded and focused to eliminate unnecessary light spillover and glare. Effective light shields should be completely opaque, sufficiently large, and positioned so that the bulb is only visible from below;
- Lighting should be positioned low to the ground, be motion-triggered, and be shielded and/or full cut-off;
- Seabirds are susceptible to nighttime collisions with objects that protrude above the vegetation layer such as utility lines, guy-wires, and communication towers. Once grounded, they are vulnerable to predators and are often struck by vehicles along roadways. It is recommended that nighttime lighting type and placement be reviewed by a biological monitor prior to any nighttime construction activity.
- In order to avoid impacts to fledging Newell's shearwater, USFWS recommends that nighttime construction and associated construction lighting be conducted outside the fledging period (September 15 through December 15) for this species.

4.3.5.2 Surveys

Surveys of construction areas should be included as part of the daily routine surveys conducted by certified airport wildlife biologists as part of the LIH WHMP to ensure that Hawaiian geese and Hawaiian waterbirds are not adversely impacted. If a listed Hawaiian waterbird is observed within the Study Area, or flies into the site

[13] U.S. Department of the Interior, U.S. Fish and Wildlife Service, *Pre-consultation for Draft Environmental Assessment for Runway Safety Area Improvements, Lihue Airport, Kauai*, September 7, 2016.

[14] U.S. Department of the Interior, U.S. Fish and Wildlife Service, *Pre-consultation for Draft Environmental Assessment for Runway Safety Area Improvements, Lihue Airport, Kauai*, September 7, 2016.

while activities are occurring, the certified airport wildlife biologist should employ the approved non-lethal hazing techniques identified in the LIH WHMP to disburse the birds from the airport area.

With incorporation of these mitigation measures, the FAA has concluded that the Proposed Action Alternative would not likely adversely affect threatened and endangered species.

4.4 Climate

4.4.1 METHODOLOGY

Short-term increases in greenhouse gas (GHG) emissions would be expected during construction of the Proposed Action. Because the Proposed Action Alternative would result in minimal operational changes at LIH, a qualitative discussion of climate is provided.

4.4.2 SIGNIFICANCE THRESHOLDS

Although there are no federal standards for aviation-related GHG emissions, it is well-established that GHG emissions can affect climate.[15] The U.S. Council on Environmental Quality (CEQ) has indicated that climate should be considered in NEPA analyses. As noted by CEQ, however, "it is not currently useful for the NEPA analysis to attempt to link specific climatological changes, or the environmental impacts thereof, to the particular project or emissions, as such direct linkage is difficult to isolate and to understand".[16] As noted previously the project will not increase the number of aircraft operations at LIH.

4.4.3 NO ACTION ALTERNATIVE

Under the No Action Alternative, no construction activities would occur at the Study Area. Operation of the No Action Alternative would not represent a change from existing airport operations. Therefore, the No Action Alternative would not have any climate impacts.

4.4.4 PROPOSED ACTION ALTERNATIVE

The Proposed Action Alternative would result in increased construction emissions as compared with the No Action Alternative; however, the extent of construction would not significantly increase regional emissions. The Proposed Action Alternative shifts Runway 3-21 to the southwest which would result in minor changes to aircraft operations that would have a less than significant increase in air emissions. While the Proposed Action Alternative would result in an increase in GHG emissions, when compared to the No Action Alternative, the emissions associated with the Proposed Action Alternative would not substantially be different.

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15 Massachusetts v. E.P.A., 549 U.S. 497, 508-10, 521-23 (2007).

16 U.S. Council on Environmental Quality, *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions*, 2010. https://www.nrc.gov/docs/ML1006/ML100601337.pdf, accessed April 6, 2017.

The State of Hawaii has formed the Interagency Climate Adaptation Committee (ICAC) to investigate climate impacts related to sea level rise.[17] The ICAC is currently preparing a statewide Sea Level Rise Vulnerability Assessment and Adaptation Report, anticipated to be available by 2018. According to the 2013 Hawaii Ocean Resources Management Plan, "proper coastal development, watershed management, and disaster preparedness in coastal regions are necessary tools to deal with the effects of sea level rise and coastal hazards."[18] The coastal area adjacent to the Study Area consists of coastal bluffs with significant elevation changes. This coastal area would not be as sensitive to sea level rise when compared to other coastal areas on Kauai.

The Proposed Action Alternative would increase impervious surfaces at LIH which would likely increase storm water runoff within the Study Area. However, storm water runoff would be maintained through the 2016 LIH Storm Water Pollution Control Plan (SWPCP)[19] as well as a National Pollution Discharge Elimination System permit (NPDES). Increased runoff as a result of the Proposed Action Alternative would be mitigated by measures stipulated in the SWPCP and NPDES. Further information on storm water management is provided in **Section 4.15**.

Construction and operations of the Proposed Action Alternative would not significantly contribute to global climate change. Additionally, storm water management practices at LIH would prevent any significant impacts of sea level rise to Kauai's coastal areas. Therefore the Proposed Action Alternative is not anticipated to result in any significant climate impacts.

4.4.5 MITIGATION MEASURES

Storm water runoff would be maintained through the existing 2016 LIH SWPCP as well as a NPDES permit. Increased runoff as a result of the Proposed Action Alternative would be mitigated by existing measures stipulated in the SWPCP and NPDES. Through compliance with these existing measures in place, no significant impacts related to climate are anticipated. Therefore, no project-specific mitigation measures are necessary.

4.5 Coastal Resources

4.5.1 METHODOLOGY

The Coastal Zone Management Act of 1972 ensures the effective management, beneficial use, protection, and development of the coastal zone. Coastal Zone Management Programs (CZMP), prepared by states according to guidelines issued by the National Oceanic and Atmospheric Administration (NOAA), are designed to address issues affecting coastal areas.

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17 Hawaii, Interagency Climate Adaptation Committee, accessed online (December 2016): http://climateadaptation.hawaii.gov/committee/.

18 Hawaii, Office of Planning, Hawaii Ocean Resources Management Plan, July 2013, accessed online: http://planning.hawaii.gov/czm/ocean-resources-management-plan-ormp/.

19 Hawaii Department of Transportation, Airports Division, *Lihue Airport Storm Water Pollution Control Plan, NDPES Permit No. HI 80A416*, August 2016.

The Coastal Barriers Resources Act of 1982 prohibits federal financing for development within the Coastal Barrier Resources System, which consists of undeveloped coastal barriers along the Atlantic and Gulf Coasts. The legislation was amended by the Coastal Barrier Improvement Act of 1990 to include undeveloped coastal barriers along the shores of the Great Lakes. This Act does not apply to the State of Hawaii.

This section addresses potential significant coastal resources with regard to consistency with Chapter 205A, HRS, and the Kauai County Planning Department. Hawaii's CZMP was enacted to provide a common focus for State and County actions associated with land and water uses and activities. The State of Hawaii Department of Business, Economic Development and Tourism (DBEDT), Office of Planning, is responsible for concurring with CZM consistency.

4.5.2 SIGNIFICANCE THRESHOLDS

Although the FAA has not established specific thresholds for coastal resources, it follows the regulations set forth in Title 15 Code of Federal Regulations (CFR) Part 930, Federal Consistency with Approved Coastal Management Programs. A federal action is subject to the Coastal Zone Management Act federal consistency requirements if the action will affect a coastal use or resource, in accordance with NOAA's regulations. Under 15 CFR Part 930.33, federal agencies shall determine which of their activities affect any coastal use or resource of states with approved management programs. Effects are determined by looking at reasonably foreseeable direct and indirect effects on any coastal use or resource. If the federal agency determines that the activity has no effects on any coastal use or resource and a negative determination under 15 CFR Part 930.35 is not required, then the federal agency is not required to coordinate with state agencies under Section 307 of the Coastal Zone Management Act.

The FAA has indicated that a Proposed Action or its Alternatives cannot be approved if a state with an approved CZMP raises an objection unless other specified actions are taken.

4.5.3 NO ACTION ALTERNATIVE

Under the No Action Alternative, no development or change in land use would occur; therefore, there would be no effects to coastal resources.

4.5.4 PROPOSED ACTION ALTERNATIVE

Hawaii's Coastal Zone Management (CZM) Program is described in Hawaii Revised Statutes Chapter 205A. Chapter 205A provides the basis for protecting, restoring and responsibly developing coastal communities and resources. The entire state of Hawaii is located within the Hawaii Coastal Zone. The Proposed Action Alternative involves the improvement of a Runway Safety Area on existing Airport property.

As discussed above, FAA does not provide a significance threshold for coastal resources. However, in accordance with FAA 1050.1F Paragraph 4-3.3, the various components of the Proposed Action Alternative 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.[20]

A discussion of the Proposed Action's consistency with the objectives and policies of the CZM Program is provided below. Based on the information contained in this section, the Proposed Action Alternative is consistent with the Hawaii CZM. The Study Area is located within the State CZMP, as well as the Kauai County Special Management Area (SMA) as noted in Section 3.5. The SMA permitting system is part of the State of Hawaii Coastal Zone Management Program, with the regulatory function administered at the county level. The SMA permit regulates permissible land uses that are already allowed by land use policies including zoning designations, county general plans, and community development plans. County authorities administer SMA permits and shoreline setback provisions. Therefore, at LIH, the County of Kauai, Planning Department, administers SMA permits. HDOT-A has begun coordination with Kauai County which included an agency coordination letter providing the project description and purpose and need, dated August 4, 2016.[21] The Kauai County Planning Department provided a response dated August 17, 2016 that the Proposed Action may be subject to SMA permitting and a Shoreline Setback Determination Application (see **Appendix F**).[22]

The following section addresses the applicability of the Proposed Action Alternative to coastal zone management considerations, as set forth in Chapter 205A, HRS.

4.5.4.1 Recreational Resources

Objective:

Provide coastal recreational opportunities accessible to the public.

Policies:

A. Improve coordination and funding of coastal recreational planning and management; and

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

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

   ii. Requiring replacement of coastal resources having significant recreational value, including but not limited to, surfing sites, fishponds, and sand beaches, when such resources will be unavoidably

[20] U.S. Department of Transportation, Federal Aviation Administration, *Order 1050.1F, Environmental Impacts*, Policies and Procedures, July 2015, p. 4-5.

[21] Hawaii Department of Transportation, Airports Division, *Environmental Assessment for Runway Safety Area (RSA) Improvements for Runway 3-21 Lihu'e Airport, Island of Kaua'i, Hawai'i letter*, August 4, 2016.

[22] Kauai County, Planning Department, *RE: Environmental Assessment for Runway Safety Area (RSA) Improvements for Runway 3-21 Lihu'e Airport, Island of Kaua'i, Hawai'I,* Letter dated August 17, 2016.

damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;

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

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

v. Ensuring public recreational use of County, State, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;

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

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

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

Construction and operations of the Proposed Action Alternative would not impede coastal recreational opportunities. The nearest existing recreational resource is the Ahukini Recreational Pier State Park, located approximately 1,000 feet north of the ground disturbance portion of the Study Area. Hanamaulu Beach Park is approximately 1,500 feet north of the ground disturbance portion of the Study Area. These resources would not be impacted by construction of the Proposed Action Alternative. The Nawiliwili to Ahukini Landing recreational path has been proposed by Kauai County, which would be aligned along the northeastern side of the ground disturbance portion of the Study Area and would follow the coastal area south to Nawiliwili Bay. This recreational path is currently undergoing environmental review. The Proposed Action Alternative would avoid ground disturbance in the location of the proposed path and its alternative alignment.[23] HDOT-A would coordinate with Kauai County during construction of the Proposed Action Alternative as well as development of the proposed path to limit the potential for any impacts of the Proposed Action Alternative to the path. Therefore, the Proposed Action Alternative is not anticipated to result in any negative impacts on nearby recreational areas.

4.5.4.2 Historic Resources

Objective:

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

[23] County of Kauai, *Nawiliwili-Ahukini Shared-Use Path Draft Environmental Assessment*, July 29, 2008.

Policies:

A. Identify and analyze significant archeological resources;

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

C. Support State goals for protection, restoration, interpretation, and display of historic resources.

In 2007 an Environmental Impact Statement (EIS) was prepared for Lihue Airport Improvements. As part of this EIS, literature reviews and field surveys relative to historic resources were conducted for the LIH property. The EIS found that no previously recorded State Inventory of Historical Places (SIHP) were located within the ground disturbance portion of the Study Area. In the event that significant cultural deposits or human skeletal remains are inadvertently encountered, in accordance with Section 6E-43.6, HRS, and Chapter 13-300, HAR, work would stop in the immediate vicinity and the SHPD of the Hawaii Department of Land and Natural Resources (DLNR) would be contacted. Further information on historical, architectural, archeological and cultural resources is provided in Section 4.9.

4.5.4.3 Scenic and Open Space Resources

Objective:

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

Policies:

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

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

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

D. Encourage those developments that are not coastal-dependent to locate in inland areas.

The Proposed Action Alternative would not impact scenic or open space resources. The Proposed Action Alternative would be constructed entirely on existing LIH property and would consist of minor alterations to the landscape. Grading and a retaining wall would be constructed at the Runway 21 end, however this construction would occur on the existing airfield and adjacent to an existing unpaved public access road. At the Runway 3 end, runway pavement would be constructed to accommodate the runway shift and a retaining wall would be built to support the grade change needed for the pavement. This would occur on existing airport airfield. No impacts to scenic or open space resources are anticipated as a result of construction or operation of the Proposed Action Alternative.

4.5.4.4 Coastal Ecosystems

Objective:

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

Policies:

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

B. Improve the technical basis for natural resource management;

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

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

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

The Proposed Action Alternative is not anticipated to result in adverse impacts to coastal ecosystems. As discussed further in **Section 4.3**, construction and operation of the Proposed Action Alternative would not have significant impacts to any listed special status species or related habitat. Section 4.3 includes mitigation measures that would reduce the likelihood of impacts to any fish, wildlife, and plant species with special status. The nearest coastal ecosystem resource to the Study Area is the Ahukini Recreational Pier Fishery Management Area. This area is located over 1,000 feet north of the ground disturbance portion of the Study Area and would not be subject to impacts from construction of the Proposed Action Alternative. Additionally, water quality measures discussed below would provide additional management of runoff from the Study Area.

Development of the Proposed Action Alternative would convert approximately seven undeveloped acres of existing airfield to paved surfaces. The net change in pervious to impervious surfaces would likely result in increased runoff; however there would be no significant change to existing runoff patterns and there are no sensitive species or bodies of water that would be impacted. Applicable Best Management Practices (BMPs) and erosion-control measures would be implemented to mitigate runoff during construction-related activities. Storm water runoff would be maintained through the LIH Storm Water Pollution Control Plan (SWPCP)[24] as well as a National Pollution Discharge Elimination System (NPDES) permit.[25] Additionally, where feasible the project design will incorporate BMPs and guidance provided by the Hawaii Office of Planning to manage storm water,

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[24] Hawaii Department of Transportation, Airports Division, *Lihue Airport Storm Water Pollution Control Plan, NDPES Permit No. HI 80A416*, August, 2016.

[25] Hawaii Department of Health, *Renewal Notice of General Permit Coverage (NGPC), National Pollutant Discharge Elimination System (NPDES), HI DOT Lihue Airport, File No. HI R80A416*, December 9, 2013.

sediment and polluted runoff. Watershed, storm water impact and low impact development guidelines are provided by the Hawaii Office of Planning and will be utilized as resources during project design.[26, 27, 28]

As discussed in **Section 4.4**, the Hawaii ICAC is currently preparing a statewide Sea Level Rise Vulnerability Assessment and Adaptation Report, anticipated to be available by 2018. The coastal area adjacent to the Study Area consists of coastal bluffs with a significant elevation change. This coastal area would not be as sensitive to erosion as a result of sea level rise as would the coastal beaches areas. Storm water management practices at LIH would prevent any significant impacts of sea level rise to Kauai's coastal areas.

Further information on surface water is provided in **Section 4.15**.

4.5.4.5 Economic Uses

Objective:

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

Policies:

A. Concentrate coastal dependent development in appropriate areas;

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

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

   i. Use of presently designated locations is not feasible;

   ii. Adverse environmental effects are minimized; and

   iii. Development is important to the State's economy.

The Proposed Action Alternative would provide Runway 3-21 at LIH with a RSA improved to meet FAA standards to the maximum extent practicable. This would provide increased safety for aircraft operations at LIH. All RSA improvements would occur on existing LIH property. Development of the Proposed Action Alternative would

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26 Hawaii, Office of Planning, *Hawaii Watershed Guidance*, August 2010, accessed online (December 2016): http://planning.hawaii.gov/czm/initiatives/coastal-nonpoint-pollution-control-program/watershed-approach-to-nonpoint-source-pollution-management/

27 Hawaii, Office of Planning, *Stormwater Impact Assessments: Connecting Primary, Secondary and Cumulative Impacts to Hawaii's Environmental Review Process*, May 2013, accessed online (December 2016): http://planning.hawaii.gov/czm/initiatives/cumulative-secondary-impact-csi-stormwater-impact-assessment/

28 Hawaii, Office of Planning, *Low Impact Development, A Practitioner's Guide,* June 2006, accessed online (December 2016): http://planning.hawaii.gov/czm/initiatives/low-impact-development/

be compatible with surrounding land uses and in accordance with applicable land use plans. As a project designed to enhance LIH safety, the RSA improvements would benefit the State and local economy.

In the short term, the Proposed Action Alternative would provide employment during construction and would benefit the local population.

4.5.4.6 Coastal Hazards

Objective:

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

Policies:

A. Develop and communicate adequate information about tsunami, storm waves, flooding, erosion, subsidence, and point and non-point-source pollution hazards;

B. Control development in areas subject to tsunami, storm waves, flooding, erosion, hurricanes, wind, subsidence, and point and non-point-source pollution hazards;

C. Ensure that development complies with requirements of the Federal Flood Insurance Program; and

D. Prevent coastal flooding from inland projects.

According to the FEMA FIRM for LIH, the majority of the Study Area is located within flood Zone X, areas with 0.2 percent annual chance of flooding. Portions of the Study Area boundary along the coast fall within the VE flood zone. This zone includes areas subject to inundation by the 1-percent-annual-chance flood event with additional hazards due to storm-induced velocity wave action. A portion of the southern boundary of the Study Area is located within the AE flood zone. This zone is considered a floodway and subject to inundation by the 1-percent-annual-chance flood event.[29] The Proposed Action Alternative would be designed such that it would not alter flooding characteristics or raise flood heights.

The Proposed Action Alternative would be located on existing LIH property, away from environmentally sensitive areas and areas prone to other coastal hazards, such as storm waves and coastal erosion. The Proposed Action Alternative would be located adjacent to the tsunami evacuation area but would not impede with evacuation efforts in the event of a tsunami.

[29] U.S. Department of Homeland Security, Federal Emergency Management Agency, *FEMA Flood Map Service Center, County Mapping Data Downloads*, https://msc.fema.gov/portal, accessed: September 21, 2016.

4.5.4.7 Managing Development

Objective:

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

Policies:

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

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

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

Opportunities for review and input regarding the Proposed Action Alternative are provided through the EA and SMA permit processes. The Proposed Action Alternative is compatible with the Lihue Community Plan which designates the Study Area as "Airport" with the underlying use of "Industrial".

Agencies and interested parties were engaged in early consultation during preparation of the Draft EA. Comments received in response to the early consultation letter are included in Appendix F of this FinalEA. The availability of the Draft EA was published in the *Environmental Notice*, a twice-monthly publication from the State of Hawaii, Department of Health, Office of Environmental Quality Control (OEQC), which began a 30-day public comment period.

4.5.4.8 Public Participation

Objective:

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

Policies:

A. Promote public involvement in coastal zone management processes;

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

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

The Proposed Action Alternative would be located within existing LIH property which is designated as "Airport" use in local plans. The EA process has engaged relevant agencies and interested parties in early consultation during the preparation of the Draft EA. The EA and SMA permitting processes provide channels for public awareness, education, and participation and will address the technical characteristics of the specific project, as well as environmental impacts and proposed mitigation measures. The Proposed Action Alternative is subject

to a public hearing before the Kauai County Planning Commission in connection with requirements of the SMA process.

4.5.4.9 Beach Protection

Objective:

Protect beaches for public use and recreation.

Policies:

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

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

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

The ground disturbance portion of the Study Area is located approximately 2,200 feet southeast of the nearest beach. As such, adverse effects on beach processes are not anticipated. Appropriate BMPs would be implemented to mitigate storm water runoff associated with the project and to ensure that impacts to downstream and adjoining areas are mitigated. Further discussion of these BMPs is provided in Section 4.15.

4.5.4.10 Marine Resources

Objective:

Promote the protection, use, and development of marine and coastal resources to ensure their sustainability.

Policies:

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

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

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

D. Promote research, study, and understanding of ocean processes, marine life, and other ocean resources to acquire and inventory information necessary to understand how ocean development activities relate to and affect ocean and coastal resources; and

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

The Proposed Action Alternative would have the potential to increase runoff from the project site. Implementation of appropriate BMPs and the provision of storm water detention basins would mitigate potential impacts to downstream marine and coastal resources.

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

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

   i. Directly illuminates the shoreline and ocean waters; or

   ii. Is directed to travel across property boundaries toward the shoreline and ocean waters.

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

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

The Proposed Action Alternative does not affect a coastal use or coastal resources. The Proposed Action Alternative would be located entirely on LIH property, designated for airport use. Airport property is not available for public use and is not considered a coastal resource.

Lighting installed in conjunction with the Proposed Action Alternative would be temporary in nature and used for construction purposes. Construction lighting would be used in accordance with measures designed to minimize reflection and spillover, further detailed in **Section 4.3**.

4.5.5 MITIGATION MEASURES

Storm water runoff would be maintained through the existing 2016 LIH SWPCP as well as a NPDES permit. Increased runoff as a result of the Proposed Action Alternative would be mitigated by existing measures stipulated in the SWPCP and NPDES. Through compliance with these existing measures in place, no significant impacts related to coastal resources are anticipated. Therefore, no project-specific mitigation measures are necessary.

4.6 Department of Transportation Act, Section 4(f)

4.6.1 METHODOLOGY

Existing recreational resources near the Study Area were documented through a review of applicable plans and maps. The information gathered during the inventory of resources, and information obtained from the National Park Service (NPS), was used to identify potential impacts to any Section 4(f) lands. An initial assessment was made to determine whether the Proposed Action Alternative would result in the use of any property to which Section 4(f) applies.

As described in Section 4.12, the Proposed Action Alternative would not result in significant off-Airport noise related to aircraft operations, meaning that there would not be indirect noise impacts at parks or other

recreational areas located under the Airport flight paths. Based on these factors, the analysis was focused on those recreational resources located in the immediate vicinity of LIH.

4.6.2 SIGNIFICANCE THRESHOLDS

A Section 4(f) impact would occur if the Proposed Action Alternative would involve a physical or constructive use of a Section 4(f) property. A physical use includes the purchase of land or a permanent easement, physical occupation of a portion or all of the property, or alteration of structures or facilities on the property. A constructive use occurs when the impacts of a project on a Section 4(f) property are so severe that the activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired.

According to FAA Order 1050.1F, a significant impact would occur to Section 4(f) lands when:

- The action involves more than a minimal physical use of a resource, or
- The action constitutes a "constructive use" based on an FAA determination that the project would substantially impair the resource.

A Section 4(f) use would occur if the proposed action or alternatives would involve an actual physical taking of Section 4(f) property through the purchase of land or a permanent easement, physical occupation of a portion of the property, or alteration of structures or facilities on the property. A temporary occupancy of a Section 4(f) property for project construction-related activities is usually so minimal that it does not constitute a use within the meaning of Section 4(f). Constructive use occurs when the impacts of the project on a Section 4(f) property are so severe that the activities, features, or attributes of the Section 4(f) property that contribute to its significance or enjoyment are substantially diminished.

The impacts to historic resources, which are also considered Section 4(f) resources, are discussed in Section 4.9, "Historic, Architectural, Archeological, and Cultural Resources."

Section 6(f) of the National Park Service (NPS) Land and Water Conservation Fund (LWCF) Act of 1965 contains provisions for the protection of federal investments in land and water resources. The LWCF Act discourages the conversion of parks or recreational facilities to other uses. The NPS database (Land & Water Conservation Fund Detailed Listing of Grants) was reviewed to determine if there were any Section 6(f) resources present. There are no Section 6(f) resources within the Study Area.

4.6.3 CONSTRUCTION IMPACTS

4.6.3.1 No Action Alternative

The No Action Alternative would not involve any construction; therefore, no impacts to Section 4(f) resources would occur.

4.6.3.2 Proposed Action Alternative

Construction of the Proposed Action Alternative would be restricted to the ground disturbance portion of the Study Area. This is located within the airfield portion of LIH property. As such, this area is restricted to

authorized personnel. Since the Proposed Action Alternative would be implemented entirely on LIH property, there would be no physical taking or even temporary occupancy of a 4(f) resource. Therefore, no physical use of 4(f) resource would occur as a result of construction of the Proposed Action Alternative.

The LIH airfield is actively managed per FAA regulations to ensure safe airport operations at LIH. Construction of the Proposed Action Alternative would occur adjacent to the existing public access road at the northeastern end of Runway 3-21. The area of this public access road is in the vicinity of the proposed Nawiliwili-Ahukini Shared-Use recreational path that is currently undergoing environmental review. The project has been on hold pending completion of NHPA Section 106 consultation and execution of a MOA among the FHWA, HDOT-A and County of Kauai. The construction of the Proposed Action Alternative is restricted to the airfield portion of the Study Area and would not impact the proposed route of the recreational path.[30] Construction of the Proposed Action would be temporary in nature. During the construction period, the Study Area would experience noise and emissions related to construction activities. However, given the nature of the Study Area setting, 4(f) resources within the Study Area are subject to emissions and noise from existing airport operations. Temporary construction activities would not represent a significant change in noise or air quality for nearby 4(f) resources when compared to the No Action Alternative. The Proposed Action Alternative would not constitute a constructive use because there are no impacts that are so severe that the activities, features, or attributes that contribute to the significance of the Nawiliwili-Ahukini Shared-Use recreational path or its enjoyment would be substantially diminished.

No public lands, recreational resources, historic resources or scenic views would be significantly impacted by the construction of the Proposed Action Alternative. Therefore, implementation of the Proposed Action Alternative is not anticipated to result in any significant impacts to Section 4(f) resources.

4.6.4 OPERATIONAL IMPACTS

4.6.4.1 No Action Alternative

The No Action Alternative would not result in any development or change in land uses; therefore, no impacts to Section 4(f) resources would occur.

4.6.4.2 Proposed Action Alternative

Since the Proposed Action Alternative would be implemented entirely on LIH property, no physical use of 4(f) properties would occur as a result of operation of the Proposed Action Alternative.

Given the developed nature of the Lihue Airport area, scenic resources visible from the vicinity of LIH are limited to those that rise above building rooflines and previously altered grades. As discussed in Section 4.14, development of the Proposed Action Alternative would result in retaining walls at each end of the improved RSA between 10 and 15 feet in maximum height. Each of these walls would have an eight-foot tall chain-link fence at the top of the wall. These retaining walls however, would only reach the height of the existing airfield grade. Only the chain-link fence would be constructed above existing airfield grade. The chain-link fence would

[30] County of Kauai, *Nawiliwili-Ahukini Shared-Use Path Draft Environmental Assessment*, July 29, 2008.

be similar to existing security fencing surrounding the LIH airfield. Therefore the development of the retaining walls and fencing would have a less than significant impact to any potential scenic views.

The proposed RSA improvements are proposed adjacent to the existing runway area, and as such are not located within a scenic corridor. As discussed in the preceding paragraph, the components of the Proposed Action Alternative would be adjacent to a proposed recreational path. However, views of the Proposed Action Alternative from the recreational path would be towards existing airfield and not existing scenic views. The RSA improvements would be in keeping with the nature of the existing airfield.

As described in Section 4.12, "Noise and Compatible Land Use," the Proposed Action Alternative would not generate noticeable changes in noise off LIH property. Accordingly, there would be no noise-related impacts to the recreational facilities in the Study Area. The development of the Proposed Action Alternative would be limited to the LIH airfield. As discussed in Section 4.9, no known historic or cultural resources are in the vicinity of the Study Area and none would be impacted by operation of the Proposed Action Alternative.

Given the nature of the Study Area setting, 4(f) resources within the Study Area are subject to emissions and noise from existing airport operations. Views of the Proposed Action Alternative would be of the active airfield and similar in nature to the No Action Alternative. Operation of the Proposed Action Alternative would not represent a significant change in noise or air quality for nearby 4(f) resources when compared to the No Action Alternative. The Proposed Action Alternative does not constitute a constructive use because it would not substantially diminish the activities, features, or attributes that contribute to the significance or enjoyment of any Section 4(f) resource. Therefore, no significant impacts to Section 4(f) resources would occur with implementation of the proposed RSA improvements associated with the Proposed Action Alternative.

4.6.5 MITIGATION MEASURES

No significant impacts related to Department of Transportation Section 4(f) resources are anticipated. Therefore, no mitigation measures are necessary.

4.7 Farmlands

4.7.1 METHODOLOGY

The County of Kauai Lihue Community Plan[31] was reviewed for existing land use, land use designations and proposed land use within and surrounding the Study Area.

4.7.2 NO ACTION ALTERNATIVE

Under the No Action Alternative, no development or change in land use would occur at LIH; therefore, no impacts to farmlands would occur.

[31] County of Kauai, *Lihue Community Plan*, Ordinance 989, June 2015.

4.7.3 PROPOSED ACTION ALTERNATIVE

Hawaii State Land Use Districts designate areas within the Study Area as agricultural. However these areas are currently vacant land and the Kauai Marriott Resort golf course. As discussed in Section 3.7, there are no prime or unique farmlands within the Study Area. The nearest farmlands are located approximately 350 feet to the northwest of the Study Area. Additionally, there are no prime or unique farmlands located within the Study Area. No development outside of the existing airfield or change in land use would occur. As such, no direct or indirect impacts from construction or operation of the Proposed Action Alternative would occur to farmlands.

4.8 Hazardous Materials, Solid Waste, and Pollution Prevention

4.8.1 METHODOLOGY

The FAA has not established a significance threshold for hazardous materials, solid waste, or pollution prevention. To identify the potential for impacts, the Proposed Action and No Action Alternative were reviewed to determine whether either would:

- violate hazardous waste or solid waste management laws and regulations,
- affect a contaminated site,
- produce an appreciably different quantity or type of hazardous waste,
- produce an appreciably different quantity or type of solid waste that would exceed local capacity, or
- adversely affect human health and the environment.

4.8.2 SIGNIFICANCE THRESHOLDS

Several federal acts regulate the handling of hazardous wastes, substances, and materials:

1. The Resource Conservation and Recovery Act of 1976 (RCRA) is intended to provide "cradle to grave" management of hazardous and solid wastes and regulation of underground storage tanks containing chemical and petroleum products. The RCRA empowers the U.S. EPA to set standards for entities producing, storing, handling, transporting, and disposing of hazardous waste. The RCRA was amended by the Hazardous and Solid Waste Amendments of 1984, which addressed corrective actions and permitting of hazardous waste. Wastes are considered hazardous under the RCRA if they exhibit hazardous characteristics, such as corrosivity, reactivity, or ignitibility, or if they are specifically listed as such by the U.S. EPA. Wastes excluded from regulation as hazardous waste include household wastes, animal wastes, fly ash, slag, and wastes from ore processing.
2. The Toxic Substances Control Act of 1976 was enacted by the U.S. Congress to provide the U.S. EPA the ability to track the 75,000 industrial chemicals currently produced or imported into the United States. The U.S. EPA repeatedly screens for these chemicals and can require reporting or testing of those that may pose an environmental or human-health hazard. In addition, the U.S. EPA can ban the manufacture and import of those chemicals that pose an unreasonable risk. Specifically, the Toxic Substances Control

Act includes regulations for polychlorinated biphenyls (PCBs) and defines the use and disposal of products and items containing them.

3. The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA or Superfund) provides the authority for the federal government to compel people and companies responsible for creating hazardous waste sites to clean them up. CERCLA created a public trust fund to assist with the cleanup of inactive and abandoned hazardous waste sites and accidentally spilled or illegally dumped hazardous materials. Only sites listed on the National Priorities List are eligible for funding from the Superfund. Hazardous substances under CERCLA include those pursuant to the Clean Water Act, Solid Waste Disposal Act, and Toxic Substances Control Act, and substances that present a danger to public health or welfare or to the environment, hazardous wastes, toxic pollutants, and hazardous air pollutants. Hazardous substances under CERCLA do not include petroleum products or natural gas substances or materials.
4. The Oil Pollution Control Act was signed in August 1990 and provides regulations for the prevention of and response to oil spills. The Oil Spill Liability Trust Fund was created to provide assistance with removal costs and damages for discharges of oil and petroleum products.

Hazardous materials are defined under 49 CFR 172 as substances or materials that have been determined to be capable of posing an unreasonable risk to health, safety, and property when transported. Hazardous materials under 49 CFR 172 include hazardous substances, hazardous wastes, marine pollutants, and elevated temperature materials. Management of hazardous materials during transportation is regulated under 49 CFR 171-199.

4.8.3 CONSTRUCTION IMPACTS

4.8.3.1 No Action Alternative

The No Action Alternative would not involve construction or other subsurface activities that could encounter hazardous materials or environmental contamination nor would it have any effect on the types or quantities of hazardous materials currently used at LIH. Therefore the No Action Alternative would not have any construction impacts due to hazardous materials, solid waste and pollution prevention.

4.8.3.2 Proposed Action Alternative

Due to the historic use of the Study Area for agriculture and the current use as an airport, historic records and database searches indicate that a number of potential hazardous material sites are located within the Study Area. **Section 3.8** lists the known and potential sites of hazardous materials within the Study Area. However no known or listed hazardous material or clean-up sites are located within the ground disturbance portion of the Study Area. As such, the potential for hazardous or contaminated materials to be encountered during construction activities is not anticipated to be significant. 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.

Construction of the Proposed Action Alternative would involve construction of runway and taxiway pavement to accommodate the runway shift, and construction of retaining walls at each runway end. The Proposed Action Alternative would involve short-term grading, excavation, and construction activities that would increase the potential for erosion and sedimentation. These activities have the potential to generate water pollutants, such as the following: sediments from grading/ground disturbance; fuels, oil, grease, and solvents from construction equipment fueling and servicing; metals from steel/iron work; paints; miscellaneous chemicals stored and used during construction; and trash and debris. The EPA regulates pollutant discharge through the NPDES. In Hawaii, the NPDES is implemented by the Hawaii Department of Health (DOH).

Potential water quality impacts would be addressed through compliance with the construction activity requirements specified in the LIH SWPCP and the DOH Standard General Permit, which authorizes storm water discharge associated with construction activities. The construction of the Proposed Action Alternative would comply with all stipulations of this permit. Additionally, the Proposed Action Alternative would comply with all measures and BMPs implemented in the LIH SWPCP to minimize or eliminate impacts of pollution, erosion, and sedimentation in surface waters. Potential water quality impacts to nearshore coastal waters during construction will be mitigated by adherence to the State and County of Kauai water quality regulations governing grading, excavation, and stockpiling. Therefore, through compliance with these measures already in place, construction of the Proposed Action Alternative would have less than significant impacts.

As discussed in Section 3.8, the local solid waste disposal facility regulated by Kauai County is the Kekaha Phase II Landfill. According to Kauai County, this facility is anticipated to reach capacity in 2019. Expansion of this facility is currently undergoing environmental evaluation.[32] Construction of the Proposed Action Alternative would occur in 2018, prior to this facility reaching capacity. Construction of the Proposed Action Alternative is not anticipated to generate a significant amount of solid waste. Additional fill would be required to grade the northeastern portion of the ground disturbance area.

Construction of the Proposed Action Alternative therefore is not anticipated to have any significant impacts to hazardous materials, solid waste and pollution prevention.

4.8.4 OPERATIONAL IMPACTS

4.8.4.1 No Action Alternative

Implementation of the No Action Alternative would not generate additional solid waste from operations as compared to existing conditions and, therefore, would not result in any impacts on solid waste at LIH. Operation of the No Action Alternative would not have any impacts to hazardous materials, solid waste, or pollution prevention.

[32] Kauai County, Department of Public Works, Solid Waste Division, *Program Description*, http://www.kauai.gov/publicworks/solidwaste, (accessed October 2016).

4.8.4.2 Proposed Action Alternative

Implementation of the Proposed Action Alternative would not alter the amount or type of aircraft activity at LIH. The operation of the Proposed Action Alternative would not involve the generation, use, or storage of hazardous materials in quantities or types that are different from those that are currently occurring at LIH. The Proposed Action Alternative would not increase or decrease the production of solid waste at LIH. Implementation of the Proposed Action Alternative would result in an increase in impervious surfaces on the airfield. As discussed in Section 4.15, this increase in impervious surface would result in an increase in storm water runoff. Runoff would be maintained through the LIH SWPCP as well as a NPDES permit and the Proposed Action Alternative would follow any guidelines stipulated in those documents. Operation of the Proposed Action Alternative therefore would not have any significant impacts to hazardous materials, solid waste, or pollution prevention.

4.8.5 MITIGATION MEASURES

Storm water runoff would be maintained through the existing 2016 LIH SWPCP as well as a NPDES permit. Increased runoff as a result of the Proposed Action Alternative would be mitigated by existing measures stipulated in the SWPCP and NPDES. Through compliance with these existing measures in place, no significant impacts related to hazardous materials, solid waste, or pollution prevention are anticipated. Therefore, no project-specific mitigation measures are necessary.

4.9 Historical, Architectural, Archeological, and Cultural Resources

4.9.1 METHODOLOGY

The consequences of the Proposed Action and No Action Alternative on historical, architectural, archeological, and cultural resources were evaluated for effects from both construction activities and operation of LIH.

For evaluation of historic properties within the Area of Potential Effects (APE), adverse effects include, but are not limited to those effects that:

- physically destroy or damage the property,
- alter the property in a way that is inconsistent with the Secretary of the Interior's Standards for Treatment of Historic Properties,
- remove the property from its historic location,
- change the character of the property's use, or of physical features within the property's setting that contribute to its historic significance,
- introduce an atmospheric, audible, or visual feature to the area that would diminish the integrity of the property's significant historic features, or
- result in neglect of a property that would cause its deterioration or the transfer, sale, or lease of a property out of federal ownership or control without adequate protection to ensure the long-term preservation of the property's historic significance.

4.9.2 SIGNIFICANCE THRESHOLDS

The FAA has not established a significance threshold for cultural resources. If the potential for an adverse effect on a cultural resource is identified, the effects of the action are evaluated and determined through the Section 106 consultation process with the SHPD and Native Hawaiian Organizations. Examples of adverse effects include physical destruction, damage, or alteration of a historic property; removal of the property from its historic location; change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance; introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features; neglect of a property that causes its deterioration; and transfer, lease, or sale of a property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.[33]

4.9.3 CONSTRUCTION IMPACTS

4.9.3.1 No Action Alternative

Under the No Action Alternative, no construction activities would occur at the project site. Therefore, no construction impacts related to hazardous materials or solid waste would occur.

4.9.3.2 Proposed Action Alternative

Construction of the Proposed Action Alternative would involve ground disturbance in areas within the existing LIH property boundary that have been previously disturbed due to the former agricultural use of this land and conversion of this land into an airfield. As discussed in Section 3.9, no previously recorded State Inventory of Historical Places (SIHP) were found during archeological field surveys or literature research conducted for the 2007 EIS within the ground disturbance area of the Study Area. The CIA performed as part of the 2007 EIS for Lihue Airport Improvements concluded that there were no remaining indigenous Hawaiian heiau sites in the area of the airport and that any historical heiau had been previously destroyed by agricultural uses predating LIH. Traditional cultural practices in the area primarily consist of diving, pole fishing, and net throwing along the coast line and at 'Ahukini Landing. Access to these areas would not be impacted by the Proposed Action Alternative; thus, traditional cultural practices would not be affected by the Proposed Action Alternative.

One previously unrecorded cultural resource/historic property, a piggery, or other animal enclosure, was identified during EIS site surveys. This resource identified during the field survey was recommended eligible to the National and Hawaii Registers under criterion D, for its information content. The SHPD concurred with this finding. Construction activities and equipment would be limited to the APE, within the airfield portion of LIH property. Construction haul routes would access the APE through airport roadways or the public service road along the west/northwest APE boundary. The resource (SIHP #50-30-08-3958) is located beyond the service road and APE boundary. This area is outside of the airfield, in an unused portion of LIH property. Construction

[33] Title 36 CFR 800.5, *Assessment of Adverse Effects.*

activity, equipment, and haul routes would be restricted from this area. As such, this resource would not be disturbed by implementation of the Proposed Action Alternative.

The FAA initiated Section 106 consultation with the SHPD by letter dated November 22, 2016 as part of the agency scoping process (**Appendix G**).[34] In this letter, the FAA determined the APE as part of the concurrent NEPA and Section 106 processes. Also in this letter, in accordance with 36 CFR 800, the FAA determined there were no properties listed or eligible for listing on the NRHP. The FAA made a finding that the proposed undertaking would not affect any properties listed or eligible for listing on the NRHP. The FAA did not receive an objection from the SHPD to its determinations and findings during the 30-day period following receipt of the FAA's letter by the SHPD. Pursuant to 36 CFR § 800.4(d)(1), the FAA has fulfilled its obligations under Section 106 of the NHPA. Therefore, FAA's responsibilities under Section 106 are complete.

FAA conducted Native Hawaiian Organization (NHO) consultation for the Proposed Action Alternative that was initiated with a letter from FAA to the Office of Hawaiian Affairs dated January 6, 2017. A response was received from the Office of Hawaiian Affairs, dated February 13, 2017. This letter expressed concern that previous historic sites near the Area of Potential Effect (APE) have been destroyed and/or only fragments remain. OHA has requested "utmost care be taken in all of these sensitive areas" to avoid any further destruction of historic sites. The FAA consultation letter as well as the subsequent correspondence is included in Appendix F. As detailed above, previous site historical record searches and on-site surveys have found no indication of historic or cultural resources located within the APE.

As such, the construction of the Proposed Action Alternative would have less than a significant impact on historical, architectural, archeological and cultural resources within the APE. While the Proposed Action Alternative would not have any significant impacts, BMPs are recommended to be followed during construction in order to minimize any potential impact in the event unanticipated resources should be discovered during construction. These BMPs are discussed in detail in Section 4.9.5.

4.9.4 OPERATIONAL IMPACTS

4.9.4.1 No Action Alternative

Under the No Action Alternative, current land uses would continue. There would be no adverse impacts to any historic, architectural, archeological, or cultural resources.

4.9.4.2 Proposed Action Alternative

Under the Proposed Action Alternative, current land uses would continue and the APE would continue to be used as an active airfield. The Proposed Action Alternative would not result in any changes to the number or size of aircraft operating at LIH. The Proposed Action Alternative shifts Runway 3-21 to the southwest which would result in minor changes to aircraft operations. As discussed above, the FAA initiated Section 106 Consultation with the SHPD and determined that no resources were present or would be affected as a result of

[34] U.S. Department of Transportation, Federal Aviation Administration, Certified letter to Mr. Alan Downer, Administrator, State Historic Preservation Division, November 22, 2016 (see Appendix G).

the Proposed Action Alternative. No objection to this determination was received from the SHPD. Therefore, no impacts to historic, architectural, archeological, or cultural resources are anticipated due to operation of the Proposed Action Alternative.

4.9.5 MITIGATION MEASURES

No significant impacts related to historic, architectural, archeological, or cultural resources are anticipated. However, the following BMPs would be followed during construction in order to minimize any potential impact in the event unanticipated resources are discovered during construction:

- In the event an unanticipated discovery of previously unidentified archeological resources is made during construction of the Proposed Action Alternative, the FAA and the HDOT-A will require the construction activities in the vicinity of the discovery to stop, and take all reasonable measures to avoid or minimize harm to the property until the FAA and the HDOT-A conclude consultation with the SHPD.
- If the project's construction-related activities unearth human remains, ground-disturbing activities in the area of the discovery would immediately be halted by the FAA and the HDOT-A while a temporary construction exclusion zone surrounding the site is established to allow for further examination and treatment of the find.
- The FAA and the HDOT-A would also immediately notify the Kauai County Coroner's Office should any remains be discovered. If the Coroner recognizes the remains to be Native Hawaiian, he or she would contact the SHPD, by telephone. The SHPD would then appoint a Most Likely Descendant of the human remains, and a burial treatment plan would be negotiated and implemented. The FAA and the HDOT-A would be responsible for restricting all construction activity from the immediate vicinity of the human remains until treatment is complete.

4.10 Land Use

4.10.1 METHODOLOGY

The Airport Improvement Program (AIP), 49 U.S.C. 47106(a)(1), states the FAA cannot approve funding for an airport project unless it is consistent with public agency development plans (existing at the time the project is approved) for the area in which the airport is located. The Proposed Action Alternative was reviewed for consistency with development plans for the town of Lihue, and the County of Kauai.

Pursuant to 49 U.S.C. 47107(a)(10) of the 1982 Airport and Airway Improvement Act, HDOT-A has provided written assurance to the FAA that appropriate action is being taken, to the extent reasonable, to restrict the use of land adjacent to, or in the immediate vicinity of, LIH to activities and purposes compatible with normal airport operations. A copy of the written assurance is provided in **Appendix H**.

The Proposed Action and No Action Alternative were reviewed for consistency with development plans of the County of Kauai for the areas surrounding the Study Area.

4.10.2 SIGNIFICANCE THRESHOLDS

The FAA has not established a significance threshold for land use. The FAA cannot approve airport project funding unless the project is in compliance with development plans of public agencies responsible for the area in which the airport is located. Additionally, the determination of whether a significant impact exists for land use is often dependent on impacts of the Proposed Action or alternatives on other environmental impact categories. Since the Proposed Action and No Action Alternative do not result in significant effects in other environmental impact categories that could affect land use compatibility, this evaluation was limited to the evaluation of land use changes within the Study Area.

4.10.3 CONSTRUCTION IMPACTS

4.10.3.1 No Action Alternative

Under the No Action Alternative, there would be no construction activities at the Study Area. There would be no change in the noise environment at noise sensitive areas in the vicinity of the Study Area. Therefore, no significant construction impacts related to compatible land use would occur.

4.10.3.2 Proposed Action Alternative

Construction of the RSA improvements would be consistent with current land use designations, as well as with the previously disturbed nature of the ground disturbance portion of the Study Area. This area of LIH is within the airfield and it is actively managed per FAA regulations to ensure safe airport operations at LIH. Therefore, no significant construction impacts related to compatible land use would occur.

4.10.4 OPERATIONAL IMPACTS

4.10.4.1 No Action Alternative

The No Action Alternative would not result in any development or change in land uses; therefore, no impacts to existing land uses or land use designations would occur. The No Action Alternative, however, would result in the RSA at LIH to continue to be in non-compliance with the FAA's standards for Runway Safety Areas, as was determined in the 2008 evaluation and analysis conducted for Lihue Airport.

4.10.4.2 Proposed Action Alternative

The Proposed Action Alternative will be constructed on existing LIH property, on lands that have consistently been in urban use as designated by the State Land Use Commission. Furthermore, the Proposed Action Alternative is considered permissible with regards to the LIH underlying Lihue Community Plan, County of Kauai General Plan, and Kauai County Zoning designations. Operations of the Proposed Action Alternative would occur completely within the existing airfield portion of the Study Area. Implementation of the Proposed Action Alternative would result in a minor change in aircraft operations due to the runway shift. As discussed further in Section 4.12, the minor modifications in operations at LIH would not result in a significant change in noise exposure to residents and sensitive land uses, as compared with the No Action Alternative. Therefore, no impacts to existing land uses or land use designations would occur with implementation of the Proposed Action Alternative.

4.10.5 MITIGATION MEASURES

No significant impacts related to land use are anticipated. Therefore, no mitigation measures are necessary.

4.11 Natural Resources and Energy Supply

4.11.1 METHODOLOGY

Demand for consumable natural resources (e.g., water, oil, and coal) and energy (e.g., electricity and natural gas) under the Proposed Action and the No Action Alternative were determined by evaluating the extent to which the Proposed Action Alternative's construction and operation would change demand in comparison with the No Action Alternative, as well as by assessing whether the change would cause demand to exceed available or future supplies, as compared with the No Action Alternative.

4.11.2 SIGNIFICANCE THRESHOLDS

FAA Order 1050.1F does not establish any significance thresholds for natural resources or energy supply. Significant impacts would occur when an action's construction or operation would cause demand for scarce consumable natural resources and energy to exceed available or future supplies.

4.11.3 CONSTRUCTION IMPACTS

4.11.3.1 No Action Alternative

Under the No Action Alternative, no construction activities would occur at the proposed project site; therefore, no effects related to natural resources or energy supply associated with construction of the No Action Alternative would occur.

4.11.3.2 Proposed Action Alternative

Construction of the proposed RSA improvements associated with the Proposed Action Alternative would use common materials and minerals that are not unusual or in short supply, such as asphalt, concrete, and soil. These materials are readily available in the Lihue area and would not impact natural resource supplies. Operation of construction equipment and vehicles would use diesel and other fuels that are not unusual or in short supply. Due to the readily available nature of both construction materials and equipment fuel, no significant impacts related to natural resources associated with the Proposed Action Alternative are anticipated.

Construction of the proposed RSA improvements associated with the Proposed Action Alternative would use energy for construction lighting, vehicles, and machinery. Construction activities using energy would be temporary, and compared to the overall energy consumption of LIH operations, would be minimal. Therefore, no significant impacts related to energy supply associated with the RSA improvements under the Proposed Action are anticipated.

4.11.4 OPERATIONAL IMPACTS

4.11.4.1 No Action Alternative

Natural Resources

Under the No Action Alternative, the improvements associated with the Proposed Action Alternative would not be constructed. Existing projected aviation activity at LIH would not change. Natural resource use at LIH under the No Action Alternative would be the same as what is currently forecasted and planned. In addition, the No Action Alternative would not cause demands that would exceed available or future natural resource supplies in the area. Therefore, no significant impacts related to natural resources associated with operation of the No Action Alternative are anticipated.

Energy Supply

Energy usage at LIH under the No Action Alternative would be the same as what is currently forecasted and planned. Previously approved projects at LIH would occur; however, these have already been accounted for in forecasted and planned energy supplies and are not anticipated to exceed existing or future energy supplies. Consequently, the No Action Alternative would not cause demands that would exceed available or future energy supplies in the area. Therefore, no significant impacts related to energy supply associated with operation of the No Action Alternative are anticipated.

4.11.4.2 Proposed Action Alternative

Natural Resources

Under the Proposed Action Alternative, natural resources would be used for the ongoing operation and maintenance of improvements of Runway 3-21, including use of water and paving materials. However, these activities would not use resources that are in short supply or unusual in nature. Additionally, the Proposed Acton Alternative would not change existing forecasted aviation activity at LIH that could result in demands exceeding available or future natural resources. Therefore, no significant impacts related to natural resources associated with operation of the RSA improvements are anticipated.

Energy Supply

Under the Proposed Action Alternative, energy would be required for the ongoing operation and maintenance of the new in-pavement lighting, as well as other signaling and lighting associated with the new improvements. Any lighting changes associated with the Proposed Action Alternative would be a minor relocation of existing configurations and would not result in increased energy demands that would exceed available or future energy supplies.

The Proposed Action Alternative would not change existing forecasted aviation activity at LIH that could result in demands that would exceed available or future energy supplies. Therefore, no significant impacts related to energy supplies associated with operation of the Proposed Action Alternative are anticipated.

4.11.5 MITIGATION MEASURES

No significant impacts related to natural resources and energy supply are anticipated. Therefore, no mitigation measures are necessary.

4.12 Noise and Compatible Land Use

This section addresses the future aircraft noise environment and potential noise impacts related to the No Action Alternative and the Proposed Action Alternative in the area surrounding LIH; it also describes the methodology used to determine future aircraft noise exposure. The terms and metrics associated with aircraft noise relative to this analysis are discussed in detail in Appendix C.

4.12.1 METHODOLOGY

The noise analysis compared the Proposed Action with the No Action Alternative for the operational years of 2019 (first full year of operation post-construction) and 2024. More information regarding the modeling methodology and model inputs are provided in Section 3.12 and Appendix C.

4.12.2 SIGNIFICANCE THRESHOLDS

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.

4.12.3 CONSTRUCTION IMPACTS

4.12.3.1 No Action Alternative

Under the No Action Alternative no construction activities for RSA improvements would take place. Therefore, there would be no change in the noise environment at noise-sensitive areas adjoining LIH. No significant construction noise impacts would be anticipated.

4.12.3.2 Proposed Action Alternative

Construction of the Proposed Action Alternative would occur in the year 2018. It is anticipated that in order to limit any impacts to airport operations, construction activities would occur at nighttime. The duration of construction of the Proposed Action Alternative would be approximately 15 to 17 months. Nighttime construction would occur during a portion of the construction period from 12:00 a.m to 10:00 a.m. Runway 3-21 would be closed during nighttime construction, and aircraft operations would be shifted to Runway 17-35. When Runway 3-21 is closed for nighttime construction, approximately seven commercial aircraft operations (five Boeing 717s and two ATR7 operations) would occur on Runway 17-35 rather than Runway 3-21 as they

normally do today during visual flight rule (VFR) conditions. Therefore, aircraft activities for the Proposed Action Alternative would not represent a significant change from the No Action Alternative during the construction period. As such, no difference in aircraft noise would be anticipated from the Proposed Action Alternative as compared to the No Action Alternative.

Construction activities associated with implementation of the Proposed Action Alternative could result in the temporary exposure of LIH employees and patrons and surrounding land uses to the generation of ground-borne vibration and ground-borne noise. Construction activities would also include minor excavation. Because of the ground disturbance portion of the Study Area location relative to the airfield and local roadways, the noise generated by construction activities would not be significantly greater than the noise currently experienced in the surrounding areas. The closest sensitive noise receptor is a residential condominium complex located approximately 950 feet southwest of the ground disturbance portion of the Study Area near the intersection of Kapule Highway and Halau Street. This residential property is buffered from LIH by the adjacent private golf course.

Although construction would take place during night hours, any ground-borne vibration or noise impacts resulting from construction activities would be temporary and would not have a significant effect, due to the distance and private golf course buffer between the ground disturbance portion of the Study Area and the closest sensitive noise receptor. Therefore, construction of the Proposed Action Alternative is not anticipated to have any significant noise and compatible land use impacts.

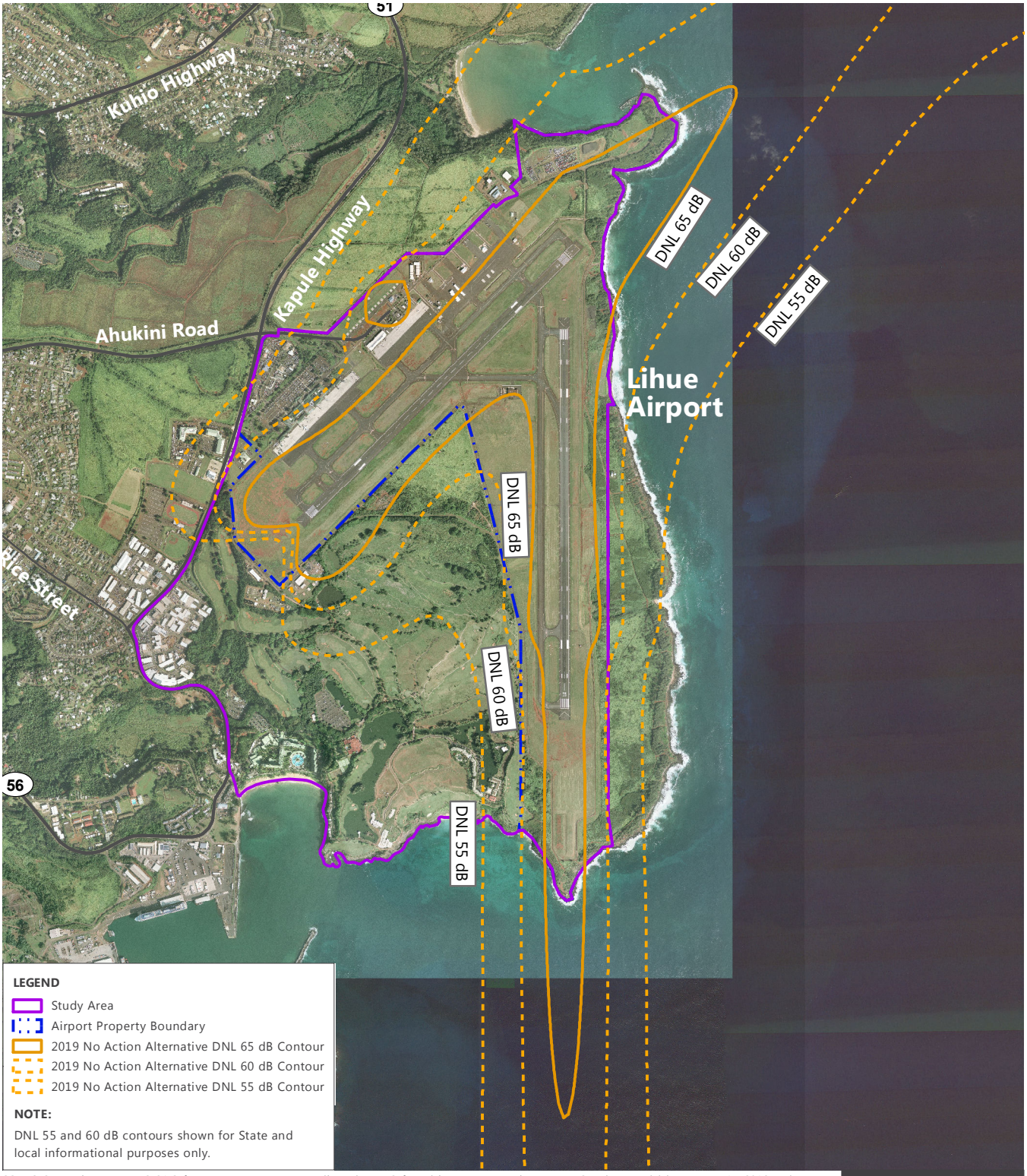
4.12.4 OPERATIONAL IMPACTS

4.12.4.1 Operational Year 2019

No Action Alternative

Under the No Action Alternative, none of the proposed airfield changes would be constructed. The No Action Alternative would not affect (increase or decrease) the number of aircraft operations at LIH or the routing of aircraft in the air to and from LIH. The 2019 No Action Alternative DNL 65 dB noise contours are shown in **Exhibit 4-1**.

Table 4-2 shows that based on existing land uses, no residential units or other sensitive land uses, would be located within the No Action Alternative DNL 65 dB noise contour for the 2019 operational year.



SOURCES: Based on Runway 3-21 Safety Area Improvements at Lihue Airport, Safety Risk Management document, DOT, Airports Division, August 15, 2016; Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, March 2018 (aerial basemap); Comments from Airline Committee of Hawaii to DOT-A's Preferred Alternative - LIH Rwy 3-21 RSA, Ricondo & Associates, Inc..
PREPARED BY: Ricondo & Associates, Inc., December 2016.

EXHIBIT 4-1

NORTH 0 2,500 ft.

No Action Alternative
2019 Noise Exposure

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Table 4-2: No Action Alternative - 2019 Noise Exposure

LAND USE		DNL 65+DB	DNL 70+ DB	DNL 75 DB AND ABOVE
Residential	Population	0	0	0
	Dwelling Units	0	0	0
School		0	0	0
House of Worship		0	0	0
Hospital		0	0	0
Recreation		0	0	0

SOURCES: U.S. Census Bureau, *2010 Decennial Census Block Data*, September 2012; Ricondo & Associates, Inc., February 2016.
PREPARED BY: Ricondo & Associates, Inc., December 2016.

Proposed Action Alternative

The Proposed Action Alternative for operational year 2019 would not result in any change in the number of operations, as compared to the No Action Alternative. Operation of the Proposed Action Alternative would result in a slight change in aircraft operations and taxi routes. Assumptions concerning runway use during operational years of the Proposed Action Alternative were developed and are included in Appendix C.

Exhibit 4-2 illustrates that the 2019 Proposed Action Alternative would create minor changes in noise exposure, as compared with the 2019 No Action Alternative.

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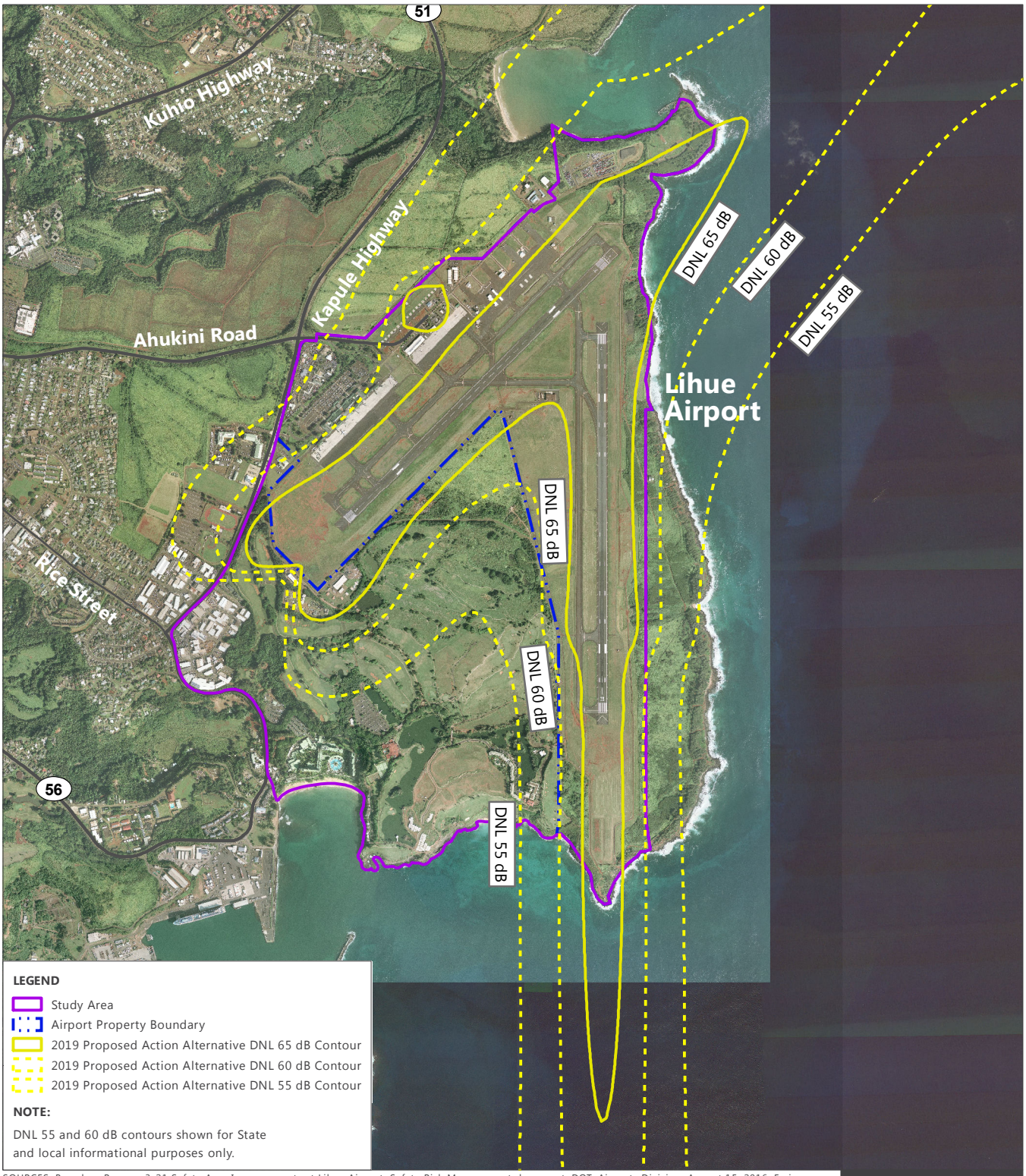

SOURCES: Based on Runway 3-21 Safety Area Improvements at Lihue Airport, Safety Risk Management document, DOT, Airports Division, August 15, 2016; Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, March 2018 (aerial basemap); Comments from Airline Committee of Hawaii to DOT-A's Preferred Alternative - LIH Rwy 3-21 RSA, Ricondo & Associates, Inc..

PREPARED BY: Ricondo & Associates, Inc., December 2016.

NORTH 0 2,500 ft.

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EXHIBIT 4-2

Proposed Action Alternative
2019 Noise Exposure

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The minor shift in operations at LIH would not result in a significant change in noise exposure to residents and sensitive land uses, as compared with the No Action Alternative. **Table 4-3** shows that based on existing land uses, no sensitive land uses would be located within the Proposed Action Alternative DNL 65 dB noise contour for the 2019 operational year.

Table 4-3: Proposed Action Alternative - 2019 Noise Exposure

LAND USE		DNL 65+DB	DNL 70+ DB	DNL 75 DB AND ABOVE
Residential	**Population**	0	0	0
	Dwelling Units	0	0	0
School		0	0	0
House of Worship		0	0	0
Hospital		0	0	0
Recreation		0	0	0

SOURCES: U.S. Census Bureau, *2010 Decennial Census Block Data*, September 2012; Ricondo & Associates, Inc., February 2016.
PREPARED BY: Ricondo & Associates, Inc., September 2016.

For the Proposed Action Alternative for the operational year 2019, no 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 primary areas outside of LIH property that would experience an increase of DNL 1.5 dB or higher in 2019, under the Proposed Action Alternative, are located southwest of LIH. **Exhibit 4-3** illustrates the area that would be exposed to a DNL 1.5 and higher increase for operational year 2019. Within the DNL 60 dB contour, a portion of the Study Area, and areas adjacent to the Study Area, would experience an increase of DNL 3 dB or higher in 2019. However, none of these areas are considered noise-sensitive uses. These areas are depicted on Exhibit 4-3.

According to the 2010 U.S. Census, this area intersects Census Blocks 1005, 1053, 1054, and 1055 of Kauai County Tract 040500, none of which have any population or housing units. The area within the DNL 1.5 dB or greater increase that is outside the LIH property is occupied by the Kauai County Water Treatment Facility and the private golf course adjacent to LIH. The Proposed Action Alternative would not introduce new noise sensitive areas to exposer levels of DNL 65 dB or more, as compared with the No Action Alternative.

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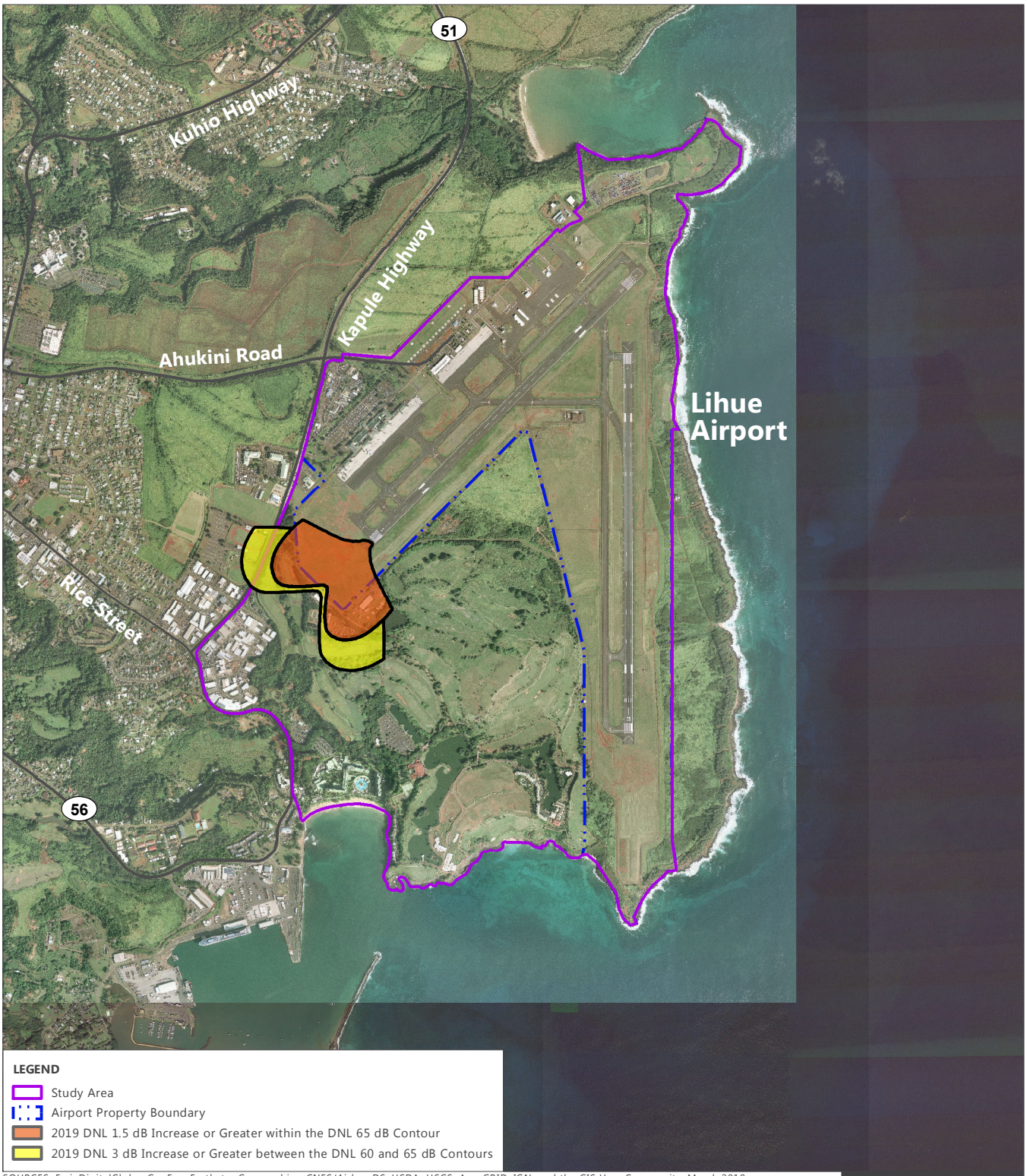

SOURCES: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, March 2018 (aerial basemap); Based on Runway 3-21 Safety Area Improvements at Lihue Airport, Safety Risk Management document, DOT, Airports Division, August 15, 2016; Comments from Airline Committee of Hawaii to DOT-A's Preferred Alternative - LIH Rwy 3-21 RSA. Ricondo & Associates, Inc..
PREPARED BY: Ricondo & Associates, Inc., December 2016.

EXHIBIT 4-3

NORTH 0 2,500 ft.

2019 Noise Differential Contours

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4.12.4.2 Operational Year 2024

No Action Alternative

Under the No Action Alternative, none of the proposed airfield changes would be constructed. The No Action Alternative would not affect (increase or decrease) the number of aircraft operations at LIH or the routing of aircraft in the air to and from LIH. The 2024 No Action Alternative DNL 65 dB noise contours are shown in **Exhibit 4-4**.

Table 4-4 shows that based on existing land uses, no residential units or other sensitive land uses, would be located within the No Action Alternative DNL 65 dB noise contour for the 2019 operational year.

Table 4-4: No Action Alternative - 2024 Noise Exposure

LAND USE		DNL 65+DB	DNL 70+ DB	DNL 75 DB AND ABOVE
Residential	**Population**	0	0	0
	Dwelling Units	0	0	0
School		0	0	0
House of Worship		0	0	0
Hospital		0	0	0
Recreation		0	0	0

SOURCES: U.S. Census Bureau, *2010 Decennial Census Block Data*, September 2012; Ricondo & Associates, Inc., February 2016.
PREPARED BY: Ricondo & Associates, Inc., December 2016.

Proposed Action Alternative

The Proposed Action Alternative for operational year 2024 would not result in any change in the number of operations, as compared to the No Action Alternative. Operation of the Proposed Action Alternative would result in a slight change in aircraft operations and taxi routes, however any change to aircraft emissions would be negligible as the Proposed Action Alternative would shift aircraft routes and not necessarily increase routes.

Exhibit 4-5 illustrates that the 2024 Proposed Action Alternative would create minor changes in noise exposure, as compared with the 2024 No Action Alternative.

The minor modifications in operations at LIH would not result in a significant change in noise exposure to residents and sensitive land uses, as compared with the No Action Alternative. **Table 4-5** shows that based on existing land uses, no sensitive land uses would be located within the Proposed Action Alternative DNL 65 dB noise contour for the 2024 operational year.

For the Proposed Action Alternative for the operational year 2024, no 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.

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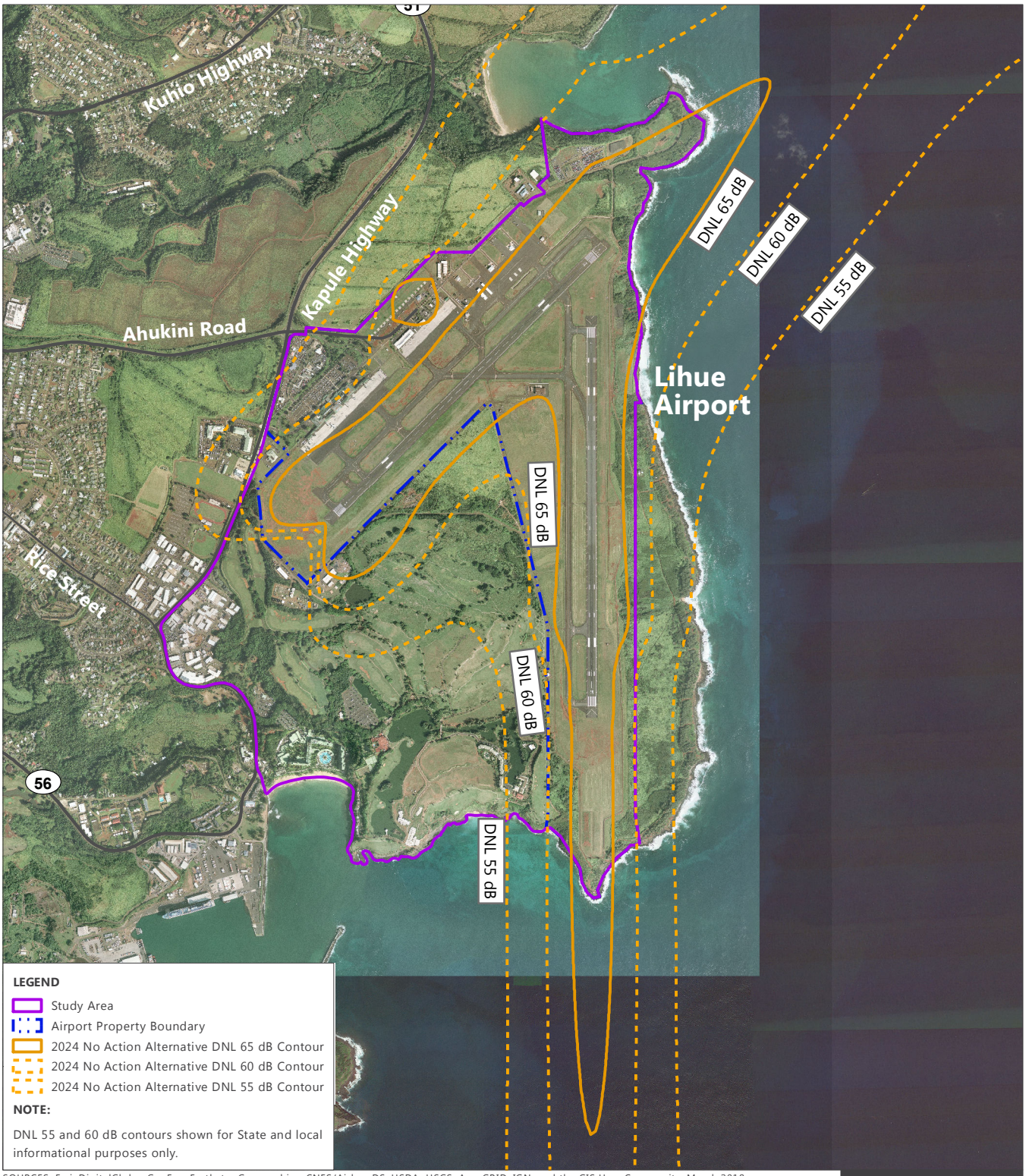

SOURCES: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, March 2018 (aerial basemap); Based on Runway 3-21 Safety Area Improvements at Lihue Airport, Safety Risk Management document, DOT, Airports Division, August 15, 2016; Comments from Airline Committee of Hawaii to DOT-A's Preferred Alternative - LIH Rwy 3-21 RSA, Ricondo & Associates, Inc.
PREPARED BY: Ricondo & Associates, Inc., December 2016.

EXHIBIT 4-4

NORTH 0 2,500 ft.

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No Action Alternative
2024 Noise Exposure

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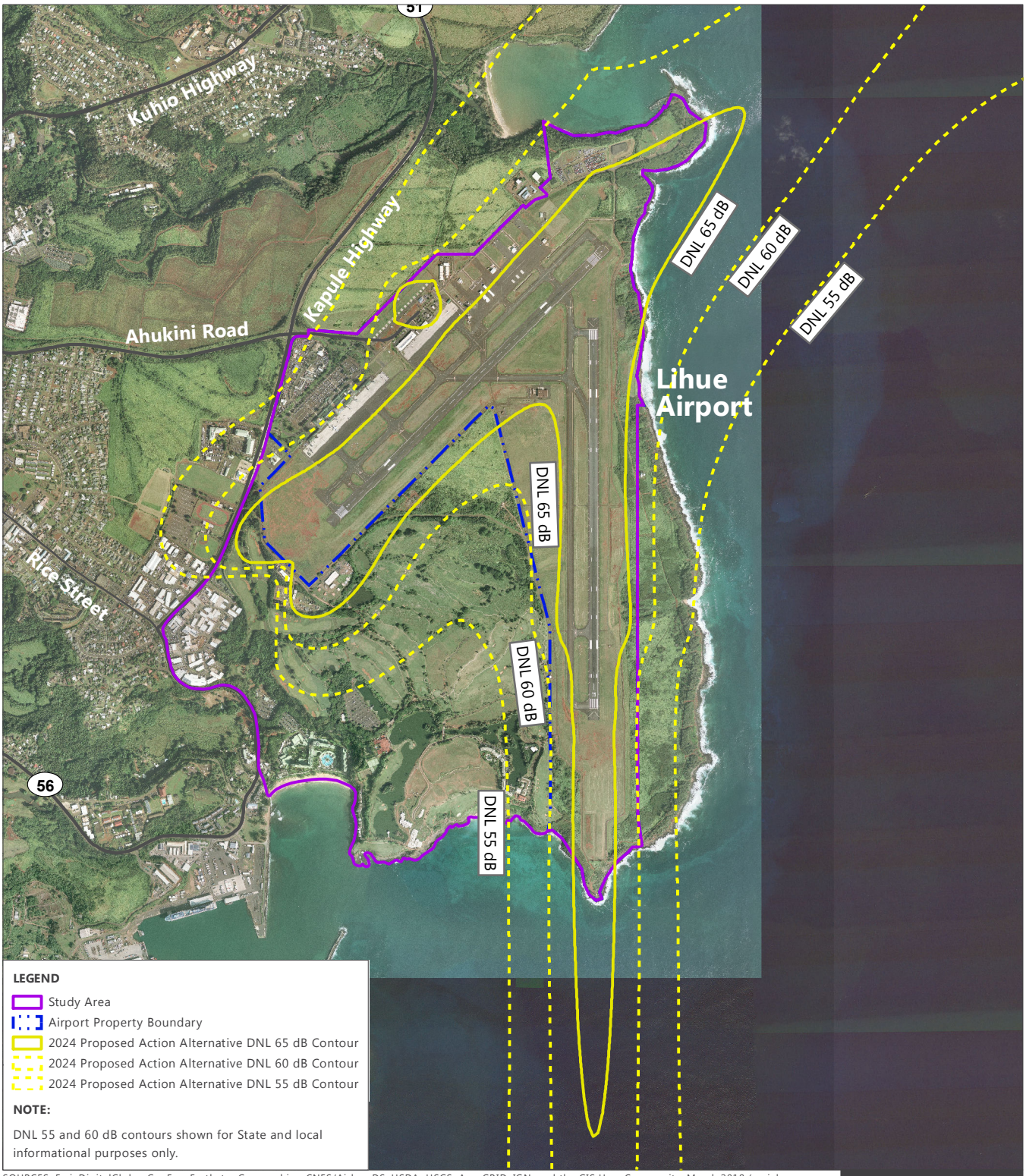

SOURCES: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, March 2018 (aerial basemap); Based on Runway 3-21 Safety Area Improvements at Lihue Airport, Safety Risk Management document, DOT, Airports Division, August 15, 2016; Comments from Airline Committee of Hawaii to DOT-A's Preferred Alternative - LIH Rwy 3-21 RSA, Ricondo & Associates, Inc.
PREPARED BY: Ricondo & Associates, Inc., December 2016.

NORTH 0 2,500 ft.

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EXHIBIT 4-5

Proposed Action Alternative
2024 Noise Exposure

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Table 4-5: Proposed Action Alternative - 2024 Noise Exposure

LAND USE		DNL 65+DB	DNL 70+ DB	DNL 75 DB AND ABOVE
Residential	**Population**	0	0	0
	Dwelling Units	0	0	0
School		0	0	0
House of Worship		0	0	0
Hospital		0	0	0
Recreation		0	0	0

SOURCES: U.S. Census Bureau, *2010 Decennial Census Block Data*, September 2012; Ricondo & Associates, Inc., February 2016.
PREPARED BY: Ricondo & Associates, Inc., September 2016.

Exhibit 4-6 illustrates the DNL 1.5 and higher increase area for operational year 2024. The primary areas outside of LIH property that would experience an increase of DNL 1.5 dB or higher in 2024, under the Proposed Action Alternative, are located southwest of LIH. According to the 2010 U.S. Census, this area intersects Census Blocks 1005, 1053, 1054, and 1055 of Kauai County Tract 040500, none of which have any population or housing units. The area within the DNL 1.5 dB or greater increase that is outside the LIH property is occupied by the Kauai County Water Treatment Facility and the private golf course adjacent to LIH. The Proposed Action Alternative would not introduce new noise sensitive areas to exposure levels of DNL 65 dB or more, as compared with the No Action Alternative. Within the DNL 60 dB contour, a portion of the Study Area, and areas adjacent to the Study Area would experience an increase of DNL 3 dB or higher in 2019, but none of these areas are considered noise-sensitive uses. These areas are depicted on Exhibit 4-3.

4.12.5 MITIGATION MEASURES

No significant impacts related to noise and compatible land use are anticipated. Therefore, no mitigation measures are necessary.

4.13 Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

4.13.1 METHODOLOGY

4.13.1.1 Socioeconomics

Socioeconomic data, including demographics (race and ethnicity), housing characteristics, and employment data, was gathered from the 2014 U.S. Census American Community Survey for census tracts within the town of Lihue. In addition, sensitive land uses were identified within the Study Area and within a quarter-mile using spatial data. Social impacts were determined through the evaluation of how the implementation of the No Action or the Proposed Action Alternative could impact sensitive populations and resources important to surrounding populations.

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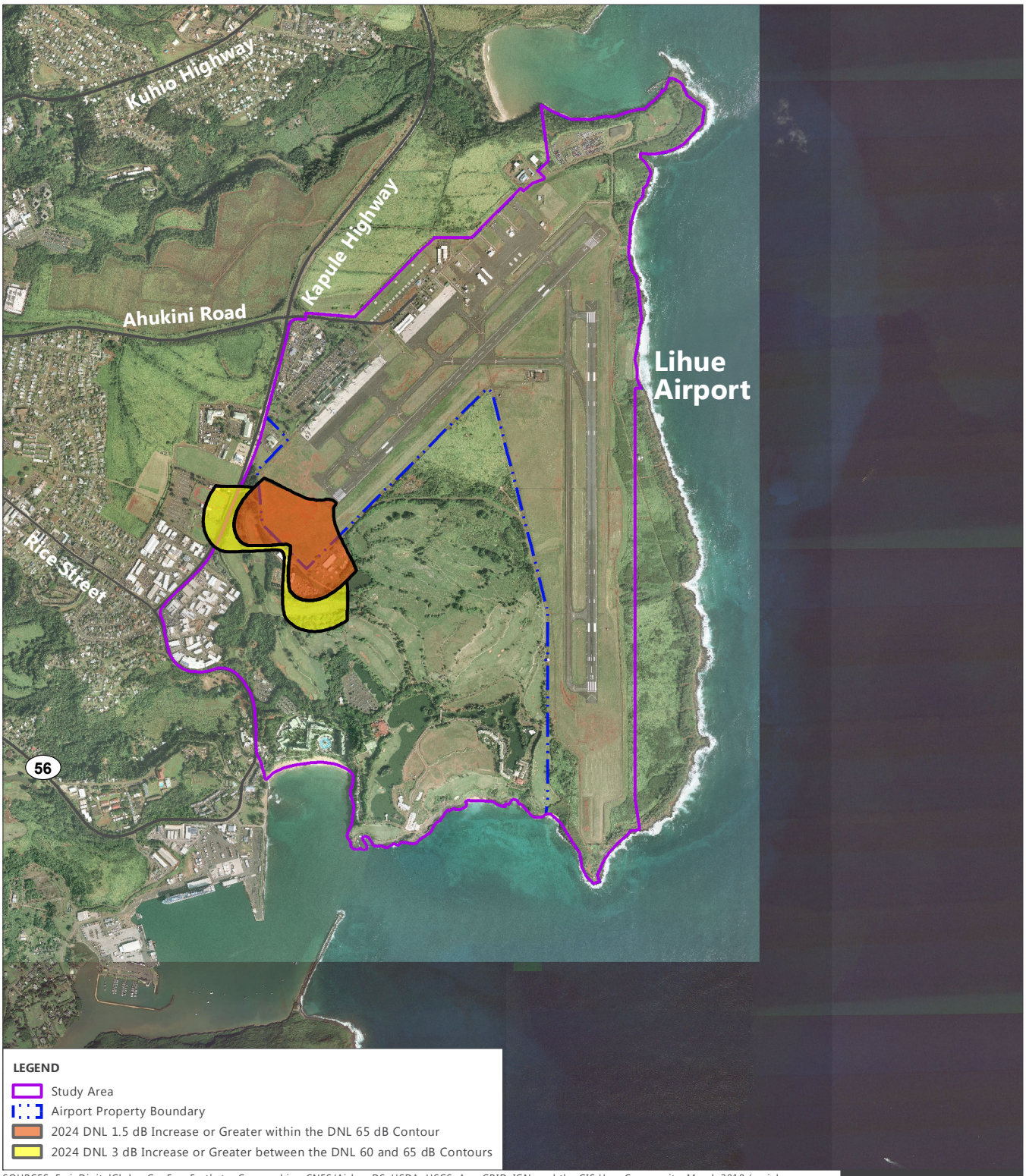

SOURCES: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, March 2018 (aerial basemap); Based on Runway 3-21 Safety Area Improvements at Lihue Airport, Safety Risk Management document, DOT, Airports Division, August 15, 2016; Comments from Airline Committee of Hawaii to DOT-A's Preferred Alternative - LIH Rwy 3-21 RSA. Ricondo & Associates, Inc.
PREPARED BY: Ricondo & Associates, Inc., December 2016.

EXHIBIT 4-6

NORTH 0 2,500 ft.

2024 Noise Differential Contours

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4.13.1.2 Environmental Justice

U.S. DOT Order 5610.2a, *Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (May 2, 2012), directed the environmental justice analysis, as required under Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (February 11, 1994). Environmental justice impacts were evaluated by determining whether the No Action Alternative or the Proposed Action Alternative would have disproportionately high and adverse human health or environmental impacts on minority and low-income populations. Also evaluated were impacts to resources important to communities of environmental justice concern.

A census tract has the potential to contain a community of environmental justice concern when the minority or low-income population of the analysis area is "meaningfully greater" than that of the surrounding areas. Poverty was determined using U.S. Department of Housing and Urban Development, Health and Human Services Poverty Guidelines, as used by the U.S. Census.

4.13.1.3 Children's Health and Safety Risks

Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (April 21, 1997), requires federal agencies to prioritize the identification and assessment of environmental health and safety risks resulting from policies, programs, activities, and standards that may disproportionately affect children. Impacts associated with the Proposed Action and the No Action Alternatives were assessed in regard to compliance with Executive Order 13045. The location of schools and daycare centers in the Study Area were identified, and any specific health concerns for children were qualitatively described.

4.13.1.4 Surface Transportation

Surface transportation was assessed to determine if the Proposed Action Alternative would cause increased traffic that would adversely affect the Study Area when compared to the No Action Alternative.

4.13.2 SIGNIFICANCE THRESHOLDS

A significant impact relative to socioeconomics, environmental justice, children's health and safety risks, and surface transportation would occur if the action would cause:

- extensive relocation when sufficient replacement housing is unavailable,
- disruption or division of the physical arrangement of an established community,
- extensive relocation of community businesses that would cause severe economic hardship for affected communities,
- a substantial loss in community tax base,
- disproportionately high and adverse human health or environmental impacts to minorities and low-income populations, or
- disproportionate health and safety risks to children.

4.13.3 EVALUATION OF ALTERNATIVES

4.13.3.1 Socioeconomic Impacts

No Action Alternative

The No Action Alternative would not result in any residential or business relocations, division or disruption of established communities, alteration of surface transportation patterns, disruption of orderly planned development, or appreciable changes in employment.

Proposed Action Alternative

The Proposed Action Alternative is located entirely on LIH airfield property in an area void of housing or commercial development. Construction and operation of the Proposed Action Alternative would occur on site and would not result in any long term divisions or disruptions of established communities, disruptions of orderly planned development, residential relocations, or appreciable changes in employment. A residential community, Kamamalu Condominiums, is located east of Kapule Highway and north of Halau Street, southwest of the existing Runway 3-21 RSA. The Kamamalu Condominiums face the adjacent private golf course with LIH beyond. The community was initially marketed as an affordable housing complex, however, due to a lack of demand for housing the project was opened to all buyers.[35] Anticipated effects to the housing complex are minimal. Short term effects may include increased noise pollution from construction; however, the complex is buffered by the adjacent private golf course and the potential for noise disruptions would be minimal. In addition, arrivals on Runway 3 occur less than 0.1 percent of the time and the Proposed Action Alternative would not increase the number of departures or arrivals from Runway 3.

4.13.3.2 Environmental Justice

No Action Alternative

The No Action Alternative would not result in any residential or business relocations, division or disruption of established communities, or affect a disproportionate amount of low-income or minority individuals.

Proposed Action Alternative

Under the Proposed Action Alternative, the ground disturbance portion of the Study Area is located on LIH property, in an area where no housing has been developed and no residents are located. As noted above, the closest residential area, Kamamalu Condominiums, was originally intended as affordable housing; however, the development was opened to individuals of all economic backgrounds and does not limit the total income of individuals living in the housing complex. No other residences are anticipated to be impacted from implementation of the Proposed Action Alternative. Therefore, the implementation of RSA improvements would not result in disproportionately high and adverse human health or environmental effects on minority or low-income populations.

[35] Kauai Communities & Condominiums, *Kamamalu Condominiums*, http://www.kauairocks.com/kamamalu/ (accessed December 13, 2016).

4.13.3.3 Children's Health and Safety Risks

No Action Alternative

The No Action Alternative would not result in any residential or business relocations, division or disruption of established communities, or disruption of established schools or other facilities primarily intended for child or adolescent usage, and would not pose a threat to children's health or propagate any safety risks for the area.

Proposed Action Alternative

The Study Area is located on LIH airfield property in areas where no housing has been developed or residents are located. The ground disturbance portion of the Study Area is not located near a school or other facility where children's activities would occur. The nearest school, Olelo Christian Academy, is located southwest of LIH on Rice Street, in between Hardy Street and Hoolako Street. This school is located approximately 2,000 feet west of the Study Area. Therefore, the implementation of the Proposed Action Alternative would not result in adverse effects on the health or safety of children.

4.13.4 MITIGATION MEASURES

No significant impacts related to socioeconomics, environmental justice, and children's environmental health and safety risks are anticipated. Therefore, no mitigation measures are necessary.

4.14 Visual Effects

4.14.1 METHODOLOGY

Light emission impacts associated with the No Action Alternative and the Proposed Action Alternative were determined by evaluating construction-related impacts, the extent to which airfield lighting would change, and the potential for the change to create an annoyance among sensitive land uses within the Study Area, which could interfere with normal activities or contrast with existing visual character. The evaluation of visual impacts considered the potential changes in landscape and views within the Study Area, and it also considered whether conflicts with existing visual character would occur.

4.14.2 SIGNIFICANCE THRESHOLDS

Per FAA Order 1050.1F, thresholds to determine the significance of light emissions and visual effects impacts have not been established. Factors to consider when evaluating the context and intensity of potential environmental impacts for visual effects are as follows:

- Light Emissions
  - The degree to which the action would have the potential to create annoyance or interfere with normal activities from light emissions; and
  - The degree to which the action would have the potential to affect the visual character of the area due to the light emissions, including the importance, uniqueness, and aesthetic value of the affected visual resources.

- Visual Effects
  - The degree to which the action would have the potential to affect the nature of the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources;
  - The degree to which the action would have the potential to contrast with the visual resources and/or visual character in the study area; and
  - The degree to which the action would have the potential to block or obstruct the views of visual resources, including whether these resources would still be viewable from other locations.

4.14.3 CONSTRUCTION IMPACTS

4.14.3.1 No Action Alternative

The No Action Alternative would not result in any construction, development or change in land uses; therefore, no change to existing light emission or visual impacts would occur.

4.14.3.2 Proposed Action Alternative

Light Emissions

Nighttime light emissions already occur within the Study Area to support existing airport operations. Any use of nighttime construction lighting would be temporary and restricted to the areas of the ground disturbance portion of the Study Area which is completely within the airfield area of LIH. Additionally, construction lighting would be shielded and focused to eliminate unnecessary light spillover and glare. Measures to reduce the impact of nighttime construction lighting are discussed further in Section 4.3. Therefore, no significant impacts relative to light emissions would occur during construction.

Visual Impacts

During construction, large trucks and other large-scale construction equipment would be present within the Study Area. The construction activity would be short-term and temporary. Construction activities would be restricted to the ground disturbance portion of the Study Area, completely within the LIH airfield. Construction fencing would be used to screen construction equipment, materials, and activity where visible from adjacent land uses.

The area adjacent to the ground disturbance portion of the Study Area is a private golf course and Kauai County Water Treatment Facility to the southwest and an unpaved public service road to the northeast. These land uses are currently adjacent to the airport airfield; construction of the Proposed Action Alternative would not result in any significant visual impacts. No viewsheds of unique or critical value have been identified; therefore, no significant construction-related visual effects would occur.

4.14.4 OPERATIONAL IMPACTS

4.14.4.1 No Action Alternative

The No Action Alternative would not result in any development or change in land uses; therefore, no change to existing light emission or visual impacts would occur.

4.14.4.2 Proposed Action Alternative

Light Emissions

The existing LIH terminal, runway facilities and surrounding areas have lighting standards and are illuminated for security and navigational purposes. In addition, airport roadways feature standard roadway lighting consistent with the urban environment. The Proposed Action Alternative would not require significant additional lighting sources beyond what currently exists, and would maintain the same lighting standards currently in effect on the airfield area. Potential additional lighting could include areas along the shifted taxiway and runway pavement, as well as signage. Since minimal additional lighting is required for the Proposed Action Alternative, no residences or other sensitive land uses would be impacted by the operation of the Proposed Action Alternative. Similarly, although the private golf course adjacent to LIH and the Ahukini Recreation Pier State Park are in proximity to the Study Area, the Proposed Action Alternative is not anticipated to create an annoyance for users of these amenities because of the minimal additional lighting required. Therefore, no adverse impacts in terms of light emissions are anticipated.

Visual Impacts

The ground disturbance portion of the Study Area, where the Proposed Action Alternative would be constructed, is located immediately adjacent to the existing Runway 3-21. Surrounding the ground disturbance portion of the Study Area are the LIH terminal building to the north with the Ahukini Recreation Pier State Park beyond and the Kauai County Water Treatment Facility to the south with the private golf course beyond. The ground disturbance portion of the Study Area is also in close proximity to Kauai's eastern coast and the Pacific Ocean.

The architectural aesthetic of both on- and off-airport areas is largely utilitarian in nature, dominated by roadside commercial buildings and light and general industrial structures. The buildings are fairly uniform in height and are usually at-grade structures. The most distinct visual features within areas surrounding the Study Area are the coast and Lihue town. Although Lihue town is not located on or adjacent to the ground disturbance portion of the Study Area, the coast is located in close proximity.

The Study Area is part of the existing LIH property. The Proposed Action Alternative represents low profile improvements of the existing RSA. The RSA is approximately 100 feet inland of the shoreline at its closest point, and outside the shoreline area. The proposed improvements are limited to the development of an approximately 855-foot long runway pavement required to shift Runway 3-21, a new blast pad, improvements to an existing taxiway at the southwestern end of the affected runway, and a retaining wall at each RSA end. At the southwestern end, the retaining wall would reach a maximum height of approximately 11 feet. At the northeastern end, the retaining wall would reach a maximum height of approximately 14 feet. Each of these walls would have an eight-foot tall chain-link fence at the top. These retaining walls however, would only extend up to the existing grade of the airfield. Only the chain-link fence would be constructed above existing airfield

grade, which would be similar to the existing security fencing surrounding the LIH airfield. The proposed retaining walls would be adjacent to airfield facilities and would not interrupt any viewsheds of unique or critical value. Therefore the development of the retaining walls and fencing would have a less than significant impact to visual resources.

The proposed improvements, being fairly low profile in nature, are not anticipated to have a substantial visual impact.

4.14.5 MITIGATION MEASURES

No significant impacts related to light emissions or visual impacts are anticipated. Therefore, no mitigation measures are necessary.

4.15 Water Resources

4.15.1 METHODOLOGY

Potential surface water, groundwater, wetland, or floodplain impacts were evaluated by comparing the location of the Study Area with water resources identified in Section 3.15. The Study Area is largely developed with impervious surfaces (paved) and grassed areas; no water resources exist within the Study Area. Thus, this analysis provides a discussion of potential secondary effects on water resources, such as storm water runoff.

4.15.2 SIGNIFICANCE THRESHOLDS

FAA Order 1050.1F, which defines the water resources impact categories, specifies the consideration of surface waters, groundwater, wetlands, floodplains, and Wild and Scenic Rivers. As stated at the beginning of this chapter, Wild and Scenic Rivers are not present in the Study Area. Significance thresholds for other water resources include:

- A significant impact to surface waters or groundwater would exist if the action would cause an exceedance of water quality standards established by federal, state, local, or tribal regulatory agencies or contaminate the public drinking water supply, including an aquifer used for public water supply, such that public health may be adversely affected.
- A significant impact to wetlands would occur if the action would:
  - Adversely affect the function of a wetland relative to the protection of the quality and quantity of municipal water supplies, and maintenance of natural systems
  - Substantially alter the hydrology necessary to sustain a wetland
  - Substantially reduce the ability of a wetland to retain floodwaters or storm runoff
  - Promote development of secondary activities that would cause the circumstances listed above
  - Be inconsistent with applicable state wetland strategies
- A significant impact to floodplains would exist if the action would cause notable adverse impacts on

natural and beneficial values of a floodplain.

4.15.3 EVALUATION OF ALTERNATIVES

The No Action Alternative would not involve grading, development, or changes within the Study Area; therefore, no construction or operational impacts to surface waters, groundwater, wetlands, or floodplains would occur under the No Action Alternative.

4.15.3.1 Surface Waters

Construction Impacts

According to the technical report prepared for Wetlands and Waters of the U.S. for the Proposed Action Alternative, the ground disturbance portion of the Study Area lies on a broad and gently sloping ridge top with absolutely no gulches or gullies. No permanent, intermittent or even ephemeral streams occur here. There are no identifiable natural stream channels and there are no stream beds, or banks visible in the entire ground disturbance portion of the Study Area. Before the construction of Lihue Airport all storm flow was apparently by sheet flow to the coastal bluffs. A field survey of the area found that the ground disturbance portion of the Study Area has excellent natural drainage which has been enhanced by airport development improvements.[36]

Proposed short-term grading, excavation, and construction activities would increase the potential for erosion and sedimentation. These activities have the potential to generate water pollutants, such as the following: sediments from grading/ground disturbance; fuels, oil, grease, and solvents from construction equipment fueling and servicing; metals from steel/iron work; paints; miscellaneous chemicals stored and used during construction; and trash and debris. The EPA regulates pollutant discharge through the NPDES.

In Hawaii, the NPDES is implemented by the DOH. Potential water quality impacts would be addressed through compliance with the construction activity requirements and BMPs specified in the LIH SWPCP[37] and the DOH Standard General Permit, which authorizes storm water discharge associated with construction activities. Proposed construction activities would also comply with Kauai County Public Works Department regulations to minimize or eliminate impacts from erosion and sedimentation. LIH currently operates under NDPES permit file number HI R80A416.[38] However, this permit expires on December 8, 2017 and would need to be renewed for any discharge after that date. Construction of the Proposed Action Alternative would comply with all stipulations of this permit. Additionally, the Proposed Action Alternative would comply with all measures and BMPs implemented in the LIH SWPCP to minimize or eliminate impacts of pollution, erosion, and sedimentation in surface waters. Potential water quality impacts to nearshore coastal waters during construction would be mitigated by adherence to the State and County of Kauai water quality regulations governing grading,

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36 Robert W. Hobdy, *Wetlands and Waters of the U.S. Analysis Studies Lihue Airport RSA EA Project Area Lihue, Kauai,* June 2016.

37 Hawaii Department of Transportation, Airports Division, *Lihue Airport Storm Water Pollution Control Plan, NDPES Permit No. HI 80A416*, August 2016.

38 Hawaii Department of Health, *Renewal Notice of General Permit Coverage (NGPC), National Pollutant Discharge Elimination System (NPDES), HI DOT Lihue Airport, File No. HI R80A416*, December 9, 2013.

excavation, and stockpiling. Therefore, through compliance with these measures already in place, construction of the Proposed Action Alternative would have less than significant impacts to surface waters.

Operational Impacts

Implementation of the Proposed Action Alternative would require additional pavement to shift Runway 3-21 and associated taxiway components, which would result in converting approximately seven undeveloped acres of existing airfield to paved surfaces. Runway and taxiway pavement design and permeability would be addressed during the design phase of the project consistent with FAA Advisory Circular 150/5320-6E, *Airport Pavement Design and Evaluation*.[39]

The net change in pervious to impervious surfaces would likely result in increased runoff; however there would be no significant change to existing runoff patterns and there are no sensitive species or bodies of water that would be impacted. At LIH a network of underground culverts were installed to channel water from every surface area away from the airport airfield. Within the airfield small grassy islands between paved surfaces have swales leading to these underground culverts. As a result, even substantial storm flows are quickly channeled off LIH property, eventually to the Pacific Ocean. There is no place within the ground disturbance portion of the Study Area where water can pond.[40]

Storm water runoff would be maintained through the LIH SWPCP as well as the NPDES permit as discussed above. Additionally, where feasible the project design will incorporate BMPs and guidance provided by the Hawaii Office of Planning to manage storm water, sediment, and polluted runoff. Watershed, storm water impact and low impact development guidelines are provided by the Hawaii Office of Planning and will be utilized as resources during project design.[41, 42, 43] Therefore, through compliance with applicable guidelines, and measures already in place, operation of the Proposed Action Alternative would have less than significant impacts to surface waters.

4.15.3.2 Groundwater

Construction Impacts

No impact to groundwater aquifers is anticipated as a result of construction of the Proposed Action Alternative. As discussed in Section 3.15, the nearest groundwater access is located at the Garlinghouse Tunnel, approximately 3 miles inland from the Study Area. LIH and the Study Area are not located in an aquifer recharge

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39 U.S. Department of Transportation, Federal Aviation Administration, *Advisory Circular 150/5320-6E, Airport Pavement Design and Evaluation*, September 30, 2009.

40 Robert W. Hobdy, *Wetlands and Waters of the U.S. Analysis Studies Lihue Airport RSA EA Project Area Lihue, Kauai,* June 2016.

41 Hawaii, Office of Planning, *Hawaii Watershed Guidance*, August 2010.

42 Hawaii, Office of Planning, *Stormwater Impact Assessments: Connecting Primary, Secondary and Cumulative Impacts to Hawaii's Environmental Review Process*, May 2013.

43 Hawaii, Office of Planning, *Low Impact Development, A Practitioner's Guide,* June 2006.

area or over an aquifer used for domestic water supply. Groundwater in the vicinity of LIH is brackish. Therefore, construction of the Proposed Action Alternative is not anticipated to have any impact to groundwater.

Operational Impacts

Operation of the Proposed Action Alternative would result in a net increase of approximately seven acres of impervious surfaces. The net change in pervious to impervious surfaces would likely result in increased runoff; however there would be no significant change to existing runoff patterns and there are no sensitive species or bodies of water that would be impacted. Additionally, LIH and the Study Area are not located in an aquifer recharge area or over an aquifer used for domestic water supply. Groundwater in the vicinity of LIH is brackish. Therefore, operation of the Proposed Action Alternative is not anticipated to have any impact to groundwater.

4.15.3.3 Wetlands

Construction Impacts

According to the June 2016 Wetlands and Waters of the U.S. analysis (Appendix D), the ground disturbance portion of the Study Area lies on a broad and gently sloping ridge top with absolutely no gulches or gullies. No permanent, intermittent or even ephemeral streams occur here. There are no identifiable natural stream channels and there are no stream beds, or banks visible in the entire ground disturbance portion of the Study Area. Before the construction of Lihue Airport all storm flow was apparently by sheet flow to the coastal bluffs. There were no aquatic features to consider or analyze. No positive wetland indicators occurred in any of the three parameters of vegetation, soil, and hydrology. The entire ground disturbance portion of the Study Area was determined to be a non-wetland.[44]

The June 2016 Wetlands and Waters of the U.S. assessment concluded the ground disturbance portion of the Study Area does not contain any Waters of the U.S. Therefore, since no wetlands or Waters of the U.S. are present, construction of the Proposed Action Alternative would have no impacts to wetlands.

Operational Impacts

As discussed above, the Proposed Action Alternative would result in converting approximately seven undeveloped acres of existing airfield to paved surfaces. No sensitive species or positive wetland indicators are located in the ground disturbance portion of the Study Area or in the vicinity of the additional paved surfaces. While the increase in impervious surfaces is likely to result in increased runoff, there are no wetland resources that would be impacted by the increased runoff. No significant change would occur to existing runoff patterns.

Storm water runoff would be maintained through the LIH SWPCP as well as the NPDES permit as discussed above. The June 2016 Wetlands and Waters of the U.S. assessment concluded the ground disturbance portion of the Study Area does not contain any wetlands or Waters of the U.S. Therefore, since no wetlands or Waters

[44] Robert W. Hobdy, *Wetlands and Waters of the U.S. Analysis Studies Lihue Airport RSA EA Project Area Lihue, Kauai,* June 2016.

of the U.S. are present, and through compliance with storm water measures already in place, operation of the Proposed Action would have no impacts to wetlands.

4.15.3.4 Floodplains

Construction Impacts

The ground disturbance portion of the Study Area is located entirely within FEMA FIRM Zone X, which is outside the 100-year flood zone (see Exhibit 3-5). Construction of the Proposed Action Alternative would not adversely affect or alter existing floodplains. During construction, storm water would be handled in accordance with all applicable regulations. LIH currently operates under NDPES permit file number HI R80A416. However, this permit expires on December 8, 2017 and would need to be renewed for any discharge after that date. Construction of the Proposed Action Alternative would comply with all stipulations of this permit. Additionally, the Proposed Action Alternative would comply with all measures and BMPs implemented in the LIH SWPCP to minimize or eliminate impacts to floodplains. Therefore construction of the Proposed Action Alternative is not anticipated to have any significant impacts to floodplains.

Operational Impacts

Implementation of the Proposed Action Alternative would result in converting approximately seven undeveloped acres of existing airfield to paved surfaces. At LIH a network of underground culverts were installed to channel water from every surface area away from the airport airfield. Within the airfield small grassy islands between paved surfaces have swales leading to these underground culverts. As a result even substantial storm flows are quickly channeled off LIH property, eventually to the Pacific Ocean. There is no place within the ground disturbance portion of the Study Area where water can pond. While the increase in impervious surfaces is likely to result in increased runoff, these surfaces would not adversely affect or alter existing floodplains. Therefore no significant impacts to floodplains would be anticipated from operation of the Proposed Action Alternative.

4.15.4 MITIGATION MEASURES

Storm water runoff would be maintained through the existing 2016 LIH SWPCP as well as a NPDES permit. Increased runoff as a result of the Proposed Action Alternative would be mitigated by existing measures stipulated in the SWPCP and NPDES. Through compliance with these existing measures in place, no significant impacts related to water resources are anticipated. Therefore, no project-specific mitigation measures are necessary.

4.16 Cumulative Impacts

CEQ Regulations, Section 1508.7, define cumulative impacts as the incremental effects of a proposed action when added to other past, present, and reasonably foreseeable future actions, regardless of the agency (i.e., federal or nonfederal) or person undertaking such actions. In some cases, individually minor, but collectively significant, actions occurring over a defined period of time can cause cumulative impacts.

The past, present, and reasonably foreseeable actions (Cumulative Impact Projects) considered in this EA are identified in Table 3-7 in Section 3.16. For a project to have potential cumulative effects with the Proposed Action Alternative, the project must result in impacts on the same resources impacted by the Proposed Action Alternative. As documented, no significant construction or operational impacts are anticipated to occur as a result of the Proposed Action Alternative.

The potential for the Proposed Action Alternative to cumulatively contribute to effects on resource categories discussed in this chapter with other past, present, and reasonably foreseeable future projects are described in **Table 4-6**. As shown, the implementation of the Proposed Action Alternative is not anticipated to be cumulatively significant when considered with other past, present and reasonably foreseeable actions.

4.17 Other Considerations

The Proposed Action Alternative is not likely to be environmentally controversial. The Proposed Action Alternative is consistent with the plans, goals, and policies of the HDOT-A as well as local plans and policies. In addition, the Proposed Action Alternative is not likely to directly, indirectly, or cumulatively create a significant impact on the human environment.

4.18 Summary of Unavoidable Environmental Impacts and Mitigation

As discussed throughout the Environmental Consequences chapter, construction and operation of the Proposed Action Alternative would not be anticipated to have any significant impacts to any environmental categories within the Study Area. While no unavoidable environmental impacts are anticipated, the following summarizes mitigation measures and BMPs that would ensure that no environmental resources would be impacted by the Proposed Action Alternative.

Table 4-6 (1 of 4): Cumulative Impacts Summary

RESOURCE	PAST ACTIONS	PRESENT ACTIONS	PROPOSED ACTIONS	FUTURE ACTIONS	CUMULATIVE IMPACT
Air Quality	No significant past changes in automobile traffic, airport operations, or other action that would increase emissions within the Study Area.	No significant present actions in automobile traffic, airport operations, or other action that would increase emissions within the Study Area.	Temporary construction emissions would be generated.	No significant change in automobile traffic. Airport operations would experience minor modifications, however no anticipated increase in emissions.	Temporary construction emissions would occur, but would not be anticipated to be cumulatively significant.
Biological Resources	No significant past actions that would impact fish, wildlife, or plant resources within the Study Area.	Ongoing redevelopment of existing private resort at southern end of Study Area. Residential development of open land north of Study Area.	Conversion of undeveloped land would increase the amount of impervious surfaces and storm water runoff. Nighttime construction activities and associated lighting.	Development of County recycling facility at the north end of the Study Area. Residential property would be developed northwest of the Study Area.	Ongoing environmental review of the proposed County recycling facility and proposed recreational path. These projects, along with the Proposed Action Alternative are not anticipated to have any significant impacts to biological resources.
Climate	No past significant actions within the Study Area that would impact climate. Storm water runoff from developed areas may affect coastal resources impacted by climate change.	No present significant actions within the Study Area that would impact climate. Storm water runoff from developed areas may affect coastal resources impacted by climate change.	The Proposed Action Alternative is not anticipated to result in significant climate impacts. Storm water runoff from increased impervious surfaces may affect coastal resources impacted by climate change.	No future significant actions within the Study Area that would impact climate. Storm water runoff from developed areas may affect coastal resources impacted by climate change.	No significant climate impacts would be anticipated by the past, present or proposed developments. Additional development may indirectly affect coastal resources impacted by climate change through storm water runoff and changes to hydrology. These impacts would be mitigated through implementation of best management practices, the LIH SWPCP, and applicable NPDES permits.
Coastal Resources	No significant past actions that would impact coastal resources within the Study Area.	No significant present actions that would impact coastal resources.	Conversion of undeveloped land would increase the amount of impervious surfaces which may increase runoff to coastal resources.	Conversion of undeveloped land would increase the amount of impervious surfaces which may increase runoff to coastal resources. Development of recreational path to add coastal access.	Increased impervious surfaces may increase storm water runoff. These impacts would be mitigated through implementation of best management practices, the LIH SWPCP, and applicable NPDES permits.

Table 4-6 (2 of 4): Cumulative Impacts Summary

RESOURCE	PAST ACTIONS	PRESENT ACTIONS	PROPOSED ACTIONS	FUTURE ACTIONS	CUMULATIVE IMPACT
DOT Section 4(f) Resources	No significant past actions that would impact Section 4(f) resources within the Study Area.	Ongoing redevelopment of existing private resort at southern end of Study Area. Residential development of open land north of Study Area.	Conversion of undeveloped land would increase the amount of impervious surfaces and storm water runoff. Construction of retaining walls and fencing.	Conversion of undeveloped land would increase the amount of impervious surfaces and storm water runoff. Development of recreational path to add coastal access.	Increased impervious surfaces may increase storm water runoff. These impacts would be mitigated through implementation of best management practices, the LIH SWPCP, and applicable NPDES permits. Ongoing real estate development would not impact Section 4(f) resources within the Study Area.
Hazardous Materials, Pollution Prevention, and Solid Waste	No significant past actions that would result in hazardous materials, pollution prevention, or solid waste impacts within the Study Area.	Construction of new facilities involves the use of hazardous materials, primarily through use of motor fuels, adhesives, etc.	Construction of the Proposed Action Alternative would involve the use of hazardous materials, primarily through use of motor fuels, paints, etc. Operation of the Proposed Action Alternative would not contribute to any additional hazardous materials or solid waste.	Nearby construction would include the use of hazardous materials, primarily through use of motor fuels, adhesives, etc.	Construction of the Proposed Action Alternative and future nearby construction would involve use of hazardous materials, primarily through use of motor fuels, paints, etc. Development of nearby County recycling facility would be at existing waste facility and not result in a change in land use. Implementation of best management practices and adherence to federal, State, and local regulations would mitigate potential risk.
Historical, Archeological, Architectural, and Cultural Resources	No significant past actions that would impact historical, archeological, architectural, or cultural resources within the Study Area.	No significant present actions that would impact historical, archeological, architectural, or cultural resources within the Study Area.	Construction would involve excavation, however the ground disturbance area has been previously surveyed for resource and disturbed for agricultural use and airport development.	Development of nearby agricultural land for residential use. Development of adjacent recreational path routed to avoid known resources, development of County waste recycling facility would occur at existing facility location.	Development of the Proposed Action and adjacent recreational path would avoid areas of known resources. Mitigation and BMPs in place would ensure that should a resource be discovered, construction would halt immediately, the SHPD and other state and local authorities would be notified.
Land Use	No significant past actions that would impact land use within the Study Area.	Redevelopment of existing private resort at the southern end of the Study Area. Development of agricultural land to residential uses north of the Study Area.	Proposed Action would maintain existing land use and would be constructed entirely within the LIH airfield. The Proposed Action complies with all local plans and land use designations.	Development of agricultural land to residential northwest of the Study Area. Development of a county recreational path along the eastern boundary of the Study Area.	No significant changes in land use would occur. Proposed Action construction and resulting aircraft noise changes would be limited and not in the vicinity of existing or proposed sensitive land uses.

Table 4-6 (3 of 4): Cumulative Impacts Summary

RESOURCE	PAST ACTIONS	PRESENT ACTIONS	PROPOSED ACTIONS	FUTURE ACTIONS	CUMULATIVE IMPACT
Natural Resources and Energy Supply	No significant past actions that would impact natural resources or energy supply within the Study Area.	Current residential and resort development would be less than significant. No significant present actions that would impact natural resources or energy supply within the Study Area.	The Proposed Action Alternative would not require significant natural resource use or energy supply for construction. Operations would be similar to existing conditions.	Development of Kauai Water System Energy Conservation would produce additional power for Lihue. Development of nearby projects would not result in significant use of natural resources.	Construction of Proposed Action and nearby projects would increase materials and energy consumption. Energy conservation project would provide additional energy sources to the area. Development projects are not anticipated to have a significant impact to natural resource supply. Implementation of reuse and recycling programs, as well as energy efficiency measures can reduce this impact.
Noise and Compatible Land Use	No past actions that would have significant impacts to noise and compatible land use within the Study Area.	No significant present actions that would have significant impacts to noise and compatible land use within the Study Area. Resort redevelopment at the southern portion of the Study Area and residential development to the north would not represent significant land use changes.	The Proposed Action would increase noise due to construction. This would be temporary and not significant compared to the nearby airport and highway noise. Operation of the Proposed Action would slightly modify aircraft operations. This would not have any significant impacts.	Construction noise and increased surface traffic with the development of residential land uses.	Temporary construction noise, development of new residential land uses would not be in areas subject to significant aircraft or construction noise.
Socioeconomic Impacts, Environmental Justice, & Children's Health	Residential development southwest of the Study Area would provide affordable housing. No past actions would have significant socioeconomic, environmental justice or children's health impacts.	No present actions would have significant socioeconomic, environmental justice or children's health impacts.	The Proposed Action Alternative would result in temporary construction noise at LIH and a minor change in aircraft operations.	Proposed development would be in keeping with existing land uses.	Past, present, and proposed development would be in keeping with existing land uses. No sensitive communities would be exposed to new environmental impacts as a result of development.
Light Emissions and Visual Impacts	Residential development in keeping with surrounding land use. No past actions that would have significant impacts to light emissions or visual impacts within the Study Area.	Residential and private resort development in keeping with surrounding land use. No past actions that would have significant impacts to light emissions or visual impacts within the Study Area.	Construction would require nighttime lighting. Proposed Action Alternative would require retaining walls and chain-link fencing.	Development of residential land north of Study Area. Development of recycling facility and recreational path within the Study Area.	Nighttime construction of the Proposed Action Alternative would be mitigated through directional and shielded lighting. New developments would be in keeping with current land use designations and would not result in significant visual impacts.

Table 4-6 (4 of 4): Cumulative Impacts Summary

RESOURCE	PAST ACTIONS	PRESENT ACTIONS	PROPOSED ACTIONS	FUTURE ACTIONS	CUMULATIVE IMPACT
Surface Water	Conversion of undeveloped land increased the amount of impervious surfaces which may increase runoff.	Conversion of undeveloped land is increasing the amount of impervious surfaces which may increase runoff.	Conversion of undeveloped land would increase the amount of impervious surfaces which may increase runoff.	Proposed development may result in increased impervious surfaces which may increase runoff.	Increased impervious surfaces will increase storm water runoff. These impacts would be mitigated through implementation of best management practices, the LIH SWPCP, and applicable NPDES permits.
Groundwater	No areas of groundwater recharge in the vicinity of the Study Area. No significant impacts from past actions.	No areas of groundwater recharge in the vicinity of the Study Area. No significant impacts from present actions.	No areas of groundwater recharge in the vicinity of the Study Area. No significant impacts from the Proposed Action Alternative.	No areas of groundwater recharge in the vicinity of the Study Area. No significant impacts from future actions.	No areas of groundwater recharge in the vicinity of the Study Area. Any increases in storm water runoff would be mitigated through implementation of best management practices, the LIH SWPCP, and applicable NPDES permits.
Wetlands	No wetlands have been directly impacted from past actions within the Study Area. Storm water runoff from developed areas may affect wetlands.	No wetlands are directly impacted from present actions within the Study Area. Storm water runoff from developed areas may affect wetlands.	The Proposed Action Alternative would be implemented at the LIH airfield and not in the vicinity of any wetlands. Storm water runoff from developed areas may affect wetlands.	No wetlands would be directly impacted from future actions within the Study Area. Storm water runoff from developed areas may affect wetlands.	No direct impacts to wetlands would be anticipated by the past, present or proposed developments. Additional development may indirectly affect wetlands through storm water runoff and changes to hydrology. These impacts would be mitigated through implementation of best management practices, the LIH SWPCP, and applicable NPDES permits.
Floodplains	No floodplains have been directly impacted from past actions within the Study Area. Storm water runoff from developed areas may affect floodplains.	No floodplains are directly impacted from present actions within the Study Area. Storm water runoff from developed areas may affect floodplains.	The Proposed Action Alternative would be implemented at the LIH airfield and not in the vicinity of any floodplains. Storm water runoff from developed areas may affect floodplains.	No floodplains would be directly impacted from future actions within the Study Area. Storm water runoff from developed areas may affect floodplains.	No direct impacts to floodplains would be anticipated by the past, present or proposed developments. Additional development may indirectly affect floodplains through storm water runoff and changes to hydrology. These impacts would be mitigated through implementation of best management practices, the LIH SWPCP, and applicable NPDES permits.

SOURCES: County of Kauai, *Nawiliwili-Ahukini Shared-Use Path Draft Environmental Assessment*, July 29, 2008; County of Kauai, Draft *Environmental Assessment of Materials Recycling Facility for County of Kauai*, February 2016; County of Kauai, *Kauai Water System Energy Conservation Environmental Impact Statement Preparation Notice*, February 2013; Ricondo & Associates, Inc.,, December 2016.

PREPARED BY: Ricondo & Associates, Inc., December 2016.

4.18.1 INCREASED STORM WATER RUNOFF

Implementation of the Proposed Action Alternative would result in an increase in impervious surfaces within the Study Area and have the potential to increase stormwater runoff. The following environmental categories discussed in this chapter could potentially be impacted by this increase in storm water runoff:

- Climate
- Coastal Resources
- Fish, Wildlife, and Plants
- Hazardous Materials, Solid Waste, and Pollution Prevention
- Water Resources

Storm water runoff is maintained through the LIH SWPCP as well as the NPDES permit. Increased runoff as a result of the Proposed Action Alternative would be mitigated by BMPs and measures stipulated in the SWPCP[45] and NPDES permit.[46] Therefore any impacts to the resources listed above as a result of the Proposed Action Alternative would be less than significant.

4.18.2 BIOLOGICAL RESOURCES

In order to avoid impacts to airport operations, nighttime construction of the Proposed Action Alternative may be necessary. Mitigation measures would be implemented in order to limit light exposure to wildlife. As discussed in Section 4.3 this includes, but is not limited to: review of lighting plans, placement of lighting, shielding of lighting, and avoidance of nighttime construction between September 15 and December 15. A biological monitor(s) is recommended for the construction of the Proposed Action Alternative to avoid impacts to Hawaiian geese and Hawaiian waterbirds. The biological monitor would be able to identify any potential individuals at risk and halt construction activities.

4.18.3 HISTORICAL, ARCHITECTURAL, ARCHEOLOGICAL, AND CULTURAL RESOURCES

Construction of the Proposed Action Alternative would not be in the area of any known historical, architectural, archeological, or cultural resources. However, the potential remains for unknown resources to be discovered during construction. BMPs described in Section 4.9 would limit any potential impacts should an unanticipated discovery of a resource occur during construction. These BMPs would include, but are not limited to: halting construction and establishing contact with the SHPD and other state and local authorities.

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45 Hawaii Department of Health, *Renewal Notice of General Permit Coverage (NGPC), National Pollutant Discharge Elimination System (NPDES), HI DOT Lihue Airport, File No. HI R80A416*, December 9, 2013.

46 Hawaii Department of Transportation, Airports Division, *Lihue Airport Storm Water Pollution Control Plan, NDPES Permit No. HI 80A416*, August, 2016.

4.18.4 LIGHT EMISSIONS AND VISUAL IMPACTS

As discussed above, nighttime construction of the Proposed Action Alternative may be necessary. Nighttime lighting mitigation measures would be used to avoid any light emissions to surrounding land uses.

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5. HRS 343 Additional Requirements

This chapter contains additional sections required to comply with Hawaii Revised Statutes, Chapter 343, Environmental Impact Statements (HRS 343). The relationship of the Proposed Action to existing plans, policies, and controls is described, a significance criteria assessment of the Proposed Action is discussed, and a list of permits and approvals required for implementation of the Proposed Action is provided.

5.1 Relationships to Plans, Policies, and Controls

5.1.1 FAA REQUIREMENTS

Implementation of the recommended Lihue Airport improvements requires the approval by the FAA of modifications to the Airport Layout Plan (ALP) showing the proposed improvements. The proposed improvements are needed to bring the Lihue Airport RSAs in conformance with the standards in FAA AC 150/5300-13, *Airport Design*, to the extent practicable.

5.1.2 HAWAII STATE PLAN

Chapter 226, HRS, also known as the Hawaii State Plan, is a long-range comprehensive plan which serves as a guide for the future long-term development of the State by identifying goals, objectives, policies, and priorities, as well as implementation mechanisms. Chapter 226, HRS Parts II and III were found to not be applicable to the Proposed Action. The Proposed Action seeks to improve the safety of the Lihue Airport runways and is consistent with the following Hawaii State Plan objectives and policies:

5.1.2.1 Chapter 226 HRS Part I

HRS 226-4: State Goals

In order to guarantee, for the present and future generations, those elements of choice and mobility that insure that individuals and groups may approach their desired levels of self-reliance and self-determination, it shall be the goal of the State to achieve:

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

(2) A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people.

(3) Physical, social, and economic well-being, for individuals and families in Hawaii, that nourishes a sense of community responsibility, of caring, and of participation in community life.

Improving the safety of the Lihue Airport runways for arriving and departing planes supports the state goals and the well-being of residents and visitors alike.

HRS 226-8: Objective and Policies for the Economy – Visitor Industry

Objective: *Planning for the State's economy with regard to the visitor industry shall be directed towards the achievement of the objective of a visitor industry that constitutes a major component of steady growth for Hawaii's economy.*

The Lihue Airport runways improvement supports the visitor industry while being sensitive to neighboring communities and activities.

HRS 226-9: Objective and Policies for the Economy – Federal Expenditures

Objective: *Planning for the State's economy with regard to federal expenditures shall be directed towards achievement of the objective of a stable federal investment base as an integral component of Hawaii's economy.*

The Proposed Action comply with FAA design standards. The proposed improvements would be completed with Federal assistance and represent a Federal investment in the State's infrastructure, in coordination with state and county agencies.

HRS 226-11: Objectives and Policies for the Physical Environment – Land-Based, Shoreline, and Marine Resources

Objectives: *Planning for the State's physical environment with regard to land-based, shoreline, and marine resources shall be directed towards achievement of the following objectives:*

The Proposed Action supports compatible relationships in the physical environment and examined multiple alternatives to avoid or minimize impacts to the airport and surrounding environment.

HRS 226-14: Objective and Policies for Facility Systems – In General

Objective: *Planning for the State's facility systems in general shall be directed towards achievement of the objective of water, transportation, waste disposal, and energy and telecommunication systems that support statewide social, economic, and physical objectives.*

The Proposed Action supports the State's transportation facility system with the airport runways improvement and is consistent with state and county plans.

HRS 226-17: Objectives and Policies for Facility Systems – Transportation

Objectives: *Planning for the State's facility systems with regard to transportation shall be directed towards the achievement of the following objectives:*

(1) An integrated multi-modal transportation system that services statewide needs and promotes the efficient, economical, safe, and convenient movement of people and goods.

(4) A statewide transportation system that is consistent with and will accommodate planned growth objectives throughout the State.

The Proposed Action supports the state's objectives and policies of an integrated multi-modal transportation system to accommodate planned growth.

5.1.3 STATE FUNCTIONAL PLANS

A key element of the Statewide Planning System is the Functional Plans which set forth the policies, statewide guidelines, and priorities within a specific field of activity. There are 13 Functional Plans which have been developed by the state agency primarily responsible for a given functional area. Together with the County General Plans, the State Functional Plans establish more specific strategies for implementation. In particular, State Functional Plans provide for the following:

- Identify major Statewide priority concerns
- Define current strategies for each functional area
- Identify major relationship among functional areas
- Provide direction and strategies for departmental policies, programs, and priorities
- Provide a guide for the allocation of resources
- Coordinate State and County roles and responsibilities in the implementation of the Hawaii State Plan

Transportation State Functional Plan

Implementation of the Proposed Action is consistent with the objectives of the Transportation State Functional Plan. The State of Hawaii Department of Transportation coordinates the transportation functional plan.

Objective: Development of a safer, more efficient transportation system that is consistent with planned physical and economic growth of the state; construction of facility and infrastructure improvements; develop a transportation system balanced with new alternatives; pursue land use initiatives which help reduce travel demand.

The Proposed Action supports the Transportation State Functional Plan and is consistent with planned physical and economic growth, balanced with new alternatives.

5.1.4 KAUAI COUNTY GENERAL PLAN

The Kauai County General Plan is a direction-setting policy document that is intended to serve as a guide to plan and improve the physical environment and quality of life for the people of Kauai, and to address the overall development of the island. This document also states the County's vision for Kauai and establishes strategies to help achieve that vision. The Kauai County General Plan was last updated in 2000 pursuant to Ordinance No. 753.

The Study Area is designated as "Transportation" in the land use guidelines set forth in the Kauai County General Plan.

The General Plan, Section 4-7, Airports, discusses the existing conditions at the Lihue Airport, as well as known planned development and improvement projects at LIH. Specifically, the Plan discusses improvements that are proposed for the LIH's terminal area, roadways, and support facilities. The Proposed Action is in consonance with the Section as it is related to a safety improvement for LIH.

The Proposed Action is consistent with and supports the following objectives and policies of the Kauai County General Plan.

Section 5-4, Urban Land Uses

5.1.5 LIHUE COMMUNITY PLAN

The Study Area is located within the Lihue Community Plan region, which is one of six Community Plan regions established in the County of Kauai. The respective regional Community Plans are designed to implement the County of Kauai General Plan.

Land use guidelines are set forth on the Lihue Community Plan Land Use Map. The Study Area is designated as "Airport" (see Exhibit 3-3). The land uses depicted on the Lihue Community Plan Map approximate those contained on the County of Kauai General Plan Land Use Map. It is noted that the Lihue Airport is one of two Airport facilities located on Kauai. Port Allen also offers airport facilities, but in a limited capacity.

The Proposed Action location is consistent with "Airport" designation according with the Lihue Community Plan.

5.1.6 ZONING

The Study Area site is located on lands zoned as "I-G/ST-P" according to the County of Kauai zoning map (see **Exhibit 5-1**). The "I-G/ST-P" designation denotes lands zoned as "General Industrial" that are also within the "Special Treatment-Public Facilities" Overlay District. Special Treatment Districts specify additional performance required when critical or valuable social or aesthetic characteristics of the environment or community exist in the same area as a parcel where particular functions or uses may be developed. Special Treatment Districts are implemented as overlays to traditional zoning.

Pursuant to §8-11.3, Kauai County Code (KCC), Generally Permitted Uses, Structures and Development within the Special Treatment Districts, "all uses, structures, or development shall require a [zoning] Use Permit, except repairs or modifications of land and existing structures that do not substantially change the exterior form or appearance of three (3) dimensional structures or land." Furthermore, §8-11.3, KCC also states that "in addition, such repairs or modifications do not require a Zoning Permit".

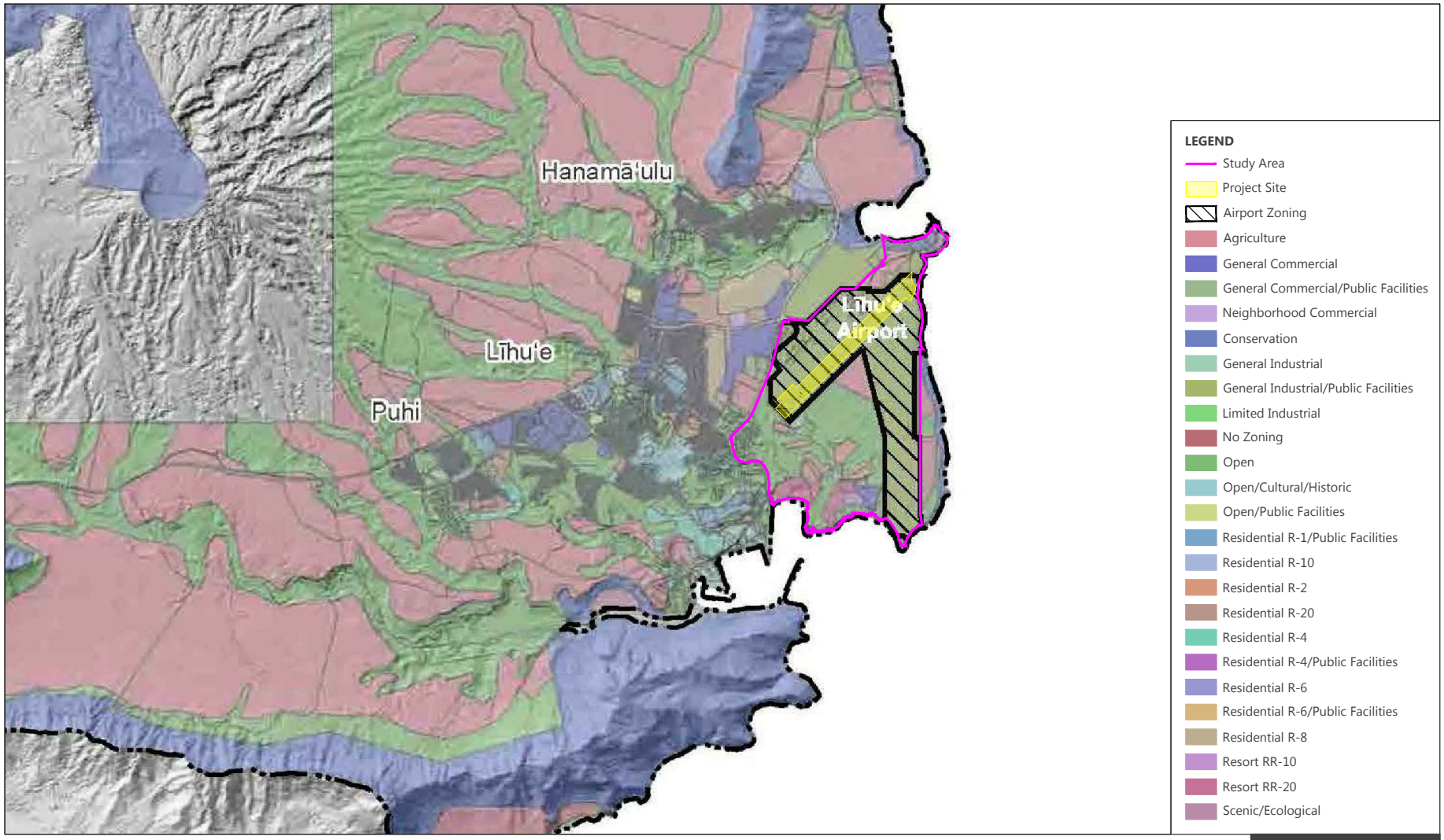
The Proposed Action is considered as modification actions to the existing LIH airfield which would not substantially change the exterior form or appearance of the land. In light of the forgoing, the Proposed Action is considered permissible without the requirement for a Use Permit or Zoning Permit.

5.1.7 COASTAL ZONE MANAGEMENT ACT

This section addresses potential significant coastal resources with regard to consistency with the HRS, Chapter 205A. Hawaii's Coastal Zone Management Program (CZMP) was enacted to provide a common focus for the State and County actions associated with land and water uses and activities.

5.1.7.1 Study Area

The Study Area is located within the CZMP, and a portion is located within the Special Management Area (SMA) boundary for the County. In this regard, the project component located in the SMA will need to comply with the County's SMA rules, which includes seeking a SMA Permit. The County Planning Department will be consulted regarding SMA processing and procedures. The Proposed Action's applicability to Coastal Zone Management considerations, as set forth in HRS, Chapter 205A, is discussed below.



SOURCES: Kauai County, *Lihue Community Plan: Towards a Vibrant Lihue* , June 2015; Kauai County, Ordinance 935, Chapter 8, *Comprehensive Zoning Ordinance* , Update 2000.
PREPARED BY: Ricondo & Associates, Inc., November 2017.

EXHIBIT 5-1

NORTH 0 6,500 ft.

Kauai Zoning

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5.1.7.2 Recreational Resources

Objective:

Provide coastal recreational opportunities accessible to the public.

The Proposed Action is not anticipated to result in any negative impacts on nearby recreational areas.

5.1.7.3 Historic Resources

Objective:

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

In 2007 an Environmental Impact Statement (EIS) was prepared for Lihue Airport Improvements. As part of this EIS, literature reviews and field surveys were conducted for the LIH property. The EIS found that no previously recorded State Inventory of Historical Places (SIHP) were located within the ground disturbance portion of the Study Area. In the event that significant cultural deposits or human skeletal remains are inadvertently encountered, in accordance with Section 6E-43.6, HRS, and Chapter 13-300, HAR, work would stop in the immediate vicinity and the SHPD of the Hawaii Department of Land and Natural Resources (DLNR) would be contacted. Further information on historical, architectural, archeological and cultural resources is provided in Section 4.8.

5.1.7.4 Scenic and Open Space Resources

Objective:

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

The Proposed Action would not impact scenic or open space resources. No impacts to scenic or open space resources are anticipated as a result of construction or operation of the Proposed Action.

5.1.7.5 Coastal Ecosystems

Objective:

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

The Proposed Action is not anticipated to result in adverse impacts to coastal ecosystems. Section 4.6 includes mitigation measures that would reduce the likelihood of impacts to any Special Status Species.

Applicable Best Management Practices (BMPs) and erosion-control measures would be implemented to mitigate runoff during construction-related activities. Stormwater runoff would be maintained through the LIH Stormwater Pollution Control Plan (SWPCP)[1] as well as a National Pollution Discharge Elimination System (NPDES) permit.[2] Additionally, where feasible the project design will incorporate BMPs and guidance provided

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[1] Hawaii Department of Transportation, Airports Division, *Lihue Airport Storm Water Pollution Control Plan, NDPES Permit No. HI 80A416*, August 2016.

[2] Hawaii Department of Health, *Renewal Notice of General Permit Coverage (NGPC), National Pollutant Discharge Elimination System (NPDES), HI DOT Lihue Airport, File No. HI R80A416*, December 9, 2013.

by the Hawaii Office of Planning to manage stormwater, sediment and polluted runoff. Watershed, stormwater impact and low impact development guidelines are provided by the Hawaii Office of Planning and will be utilized as resources during project design.[3, 4, 5]

As discussed in Section 4.3, the Hawaii ICAC is currently preparing a statewide Sea Level Rise Vulnerability Assessment and Adaptation Report, anticipated to be available by 2018. The coastal area adjacent to the Study Area consists of a significant elevation decrease and coastal bluffs. This coastal area would not be as sensitive to erosion as a result of sea level rise as coastal beaches areas. Stormwater management practices at LIH would prevent any significant impacts of sea level rise to Kauai's coastal areas.

Further information on surface water is provided in Section 4.14.

5.1.7.6 Economic Uses

Objective:

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

The Proposed Action provides Runway 3-21 at LIH with a RSA improved to meet FAA standards to the maximum extent practicable. This would provide increased safety for aircraft operations at LIH. All RSA improvements would occur on existing LIH property. Development of the Proposed Action would be compatible with surrounding land uses and in accordance with applicable land use plans (see Exhibit 3-4). As a project designed to enhance LIH safety, the RSA improvements would benefit the State and local economy.

In the short term, the Proposed Action would provide employment during construction and would benefit the local population.

5.1.7.7 Coastal Hazards

Objective:

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

According to the FEMA FIRM for LIH, the majority of the Study Area is located within flood Zone X, areas with 0.2 percent annual chance of flood (see **Exhibit 5-2**). Portions of the Study Area boundary along the coast fall within the VE flood zone. This zone includes areas subject to inundation by the 1-percent-annual-chance flood event with additional hazards due to storm-induced velocity wave action. A portion of the southern boundary of the Study Area is located within the AE flood zone. This zone is considered a floodway and subject to inundation by the 1-percent-annual-chance flood event.[6] The Proposed Action would be designed such that it would not alter flooding characteristics or raise flood heights.

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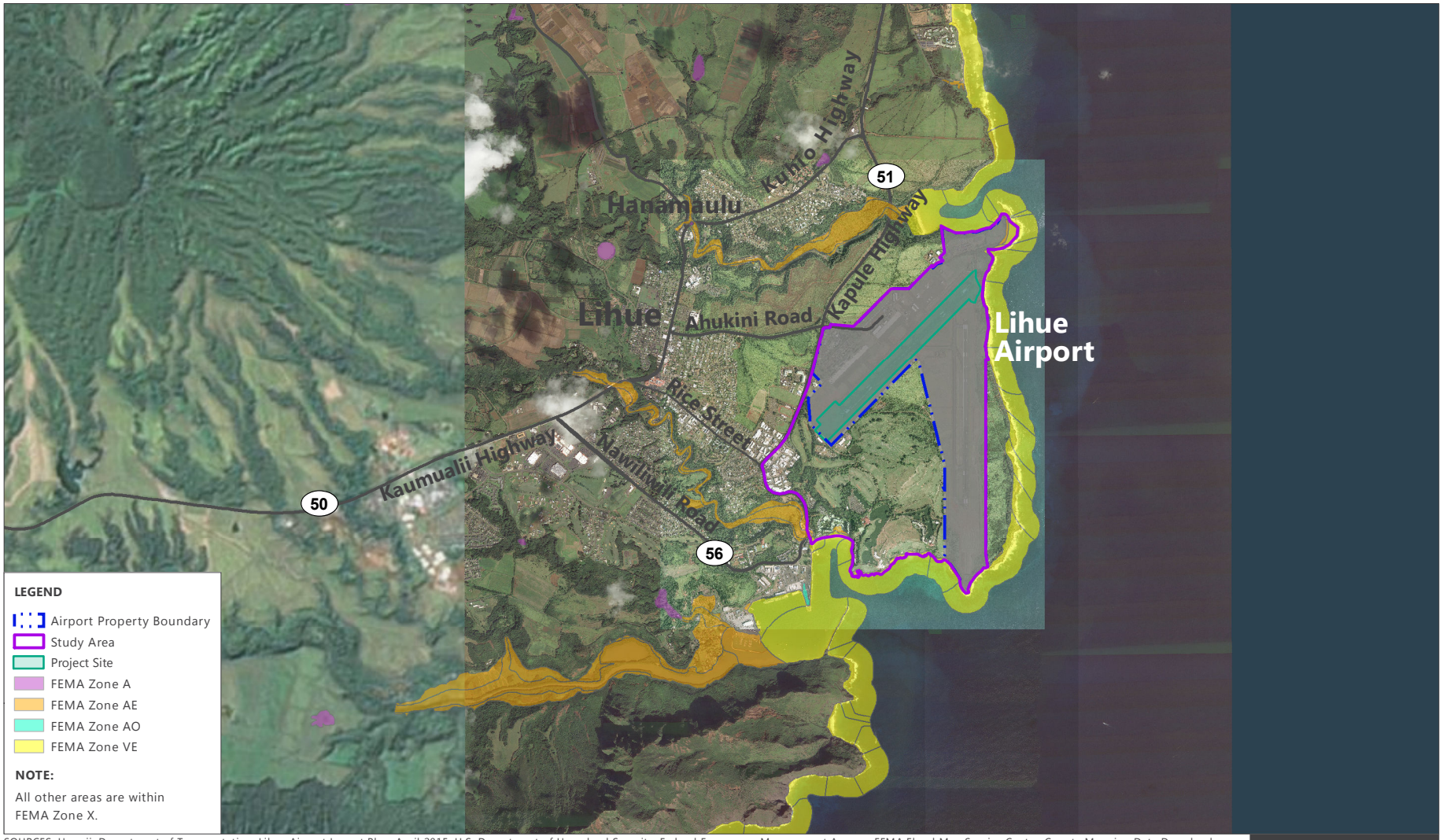
[3] Hawaii, Office of Planning, *Hawaii Watershed Guidance*, August 2010., http://planning.hawaii.gov/czm/initiatives/coastal-nonpoint-pollution-control-program/watershed-approach-to-nonpoint-source-pollution-management/ (accessed December 2016.

[4] Hawaii, Office of Planning, *Stormwater Impact Assessments: Connecting Primary, Secondary and Cumulative Impacts to Hawaii's Environmental Review Process*, May 2013, http://planning.hawaii.gov/czm/initiatives/cumulative-secondary-impact-csi-stormwater-impact-assessment/ (accessed December 2016.

[5] Hawaii, Office of Planning, *Low Impact Development, A Practitioner's Guide,* June 2006, http://planning.hawaii.gov/czm/initiatives/low-impact-development/ (accessed December 2016).

[6] U.S. Department of Homeland Security, Federal Emergency Management Agency, *FEMA Flood Map Service Center, County Mapping Data Downloads*, https://msc.fema.gov/portal (accessed September 21, 2016).



SOURCES: Hawaii, Department of Transportation, Lihue Airport Layout Plan, April 2015; U.S. Department of Homeland Security, Federal Emergency Management Agency, FEMA Flood Map Service Center, County Mapping Data Downloads, https://msc.fema.gov/portal, accessed: September 21, 2016; Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, October 2017 (aerial basemap).
PREPARED BY: Ricondo & Associates, Inc., September 2016.

EXHIBIT 5-2

NORTH 0 5,500 ft.

Floodplains

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The Proposed Action would be located on existing LIH property, away from environmentally sensitive areas and areas prone to other coastal hazards, such as storm waves and coastal erosion. The Proposed Action would be located adjacent to the tsunami evacuation area but would not impede with evacuation efforts in the event of a tsunami.

5.1.7.8 Managing Development

Objective:

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

Opportunities for review and input regarding the Proposed Action are provided through the EA and SMA permit processes. The Proposed Action is compatible with the Lihue Community Plan which designates the Study Area as "Airport" with the underlying use of "Industrial".

Agencies and interested parties were engaged in early consultation during preparation of this Draft EA. Comments received in response to the early consultation letter and responses are included in Appendix F of this Draft EA. The availability of the Draft EA was published in the *Environmental Notice*, a twice-monthly publication from the State of Hawaii, Department of Health, Office of Environmental Quality Control (OEQC), which began a 30-day public comment period. Comments received on the Draft EA are included in Appendix F.

5.1.7.9 Public Participation

Objective:

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

The Proposed Action EA process has engaged relevant agencies and interested parties in early consultation during the preparation of the Draft EA. The EA and SMA permitting processes provide channels for public awareness, education, and participation and will address the technical characteristics of the specific project, as well as environmental impacts and proposed mitigation measures. The Proposed Action is subject to a public hearing before the Kauai County Planning Commission in connection with requirements of the SMA process.

5.1.7.10 Beach Protection

Objective:

Protect beaches for public use and recreation.

The ground disturbance portion of the Study Area is located approximately 2,200 feet southeast of the nearest beach. As such, adverse effects on beach processes are not anticipated. Appropriate BMPs would be implemented to mitigate storm water runoff associated with the project and to ensure that impacts to downstream and adjoining areas are mitigated. Further discussion of these BMPs is provided in Section 4.14.

5.1.7.11 Marine Resources

Objective:

Promote the protection, use, and development of marine and coastal resources to ensure their sustainability.

The Proposed Action would have the potential to increase runoff from the project site. Implementation of appropriate BMPs and the provision of storm water detention basins would mitigate potential impacts to downstream marine and coastal resources.

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

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

   i. Directly illuminates the shoreline and ocean waters; or

      ii. Is directed to travel across property boundaries toward the shoreline and ocean waters.

   b. Subsection (a) shall not apply to special management area use permits for structures with: Artificial lighting provided by a government agency or its authorized users for government operations, security, public safety, or navigational needs provided that a government agency or its authorized users shall make reasonable efforts to properly position or shield lights to minimize adverse impacts.

The Proposed Action does not affect a coastal use or coastal resources. The Proposed Action would be located entirely on LIH property, designated for airport use. Airport property is not available for public use and is not considered a coastal resource.

Lighting installed in conjunction with the proposed project would be temporary in nature and used for construction purposes. Construction lighting would be used in accordance with measures designed to minimize reflection and spillover, further detailed in Section 4.6.

5.1.8 SPECIAL MANAGEMENT AREA

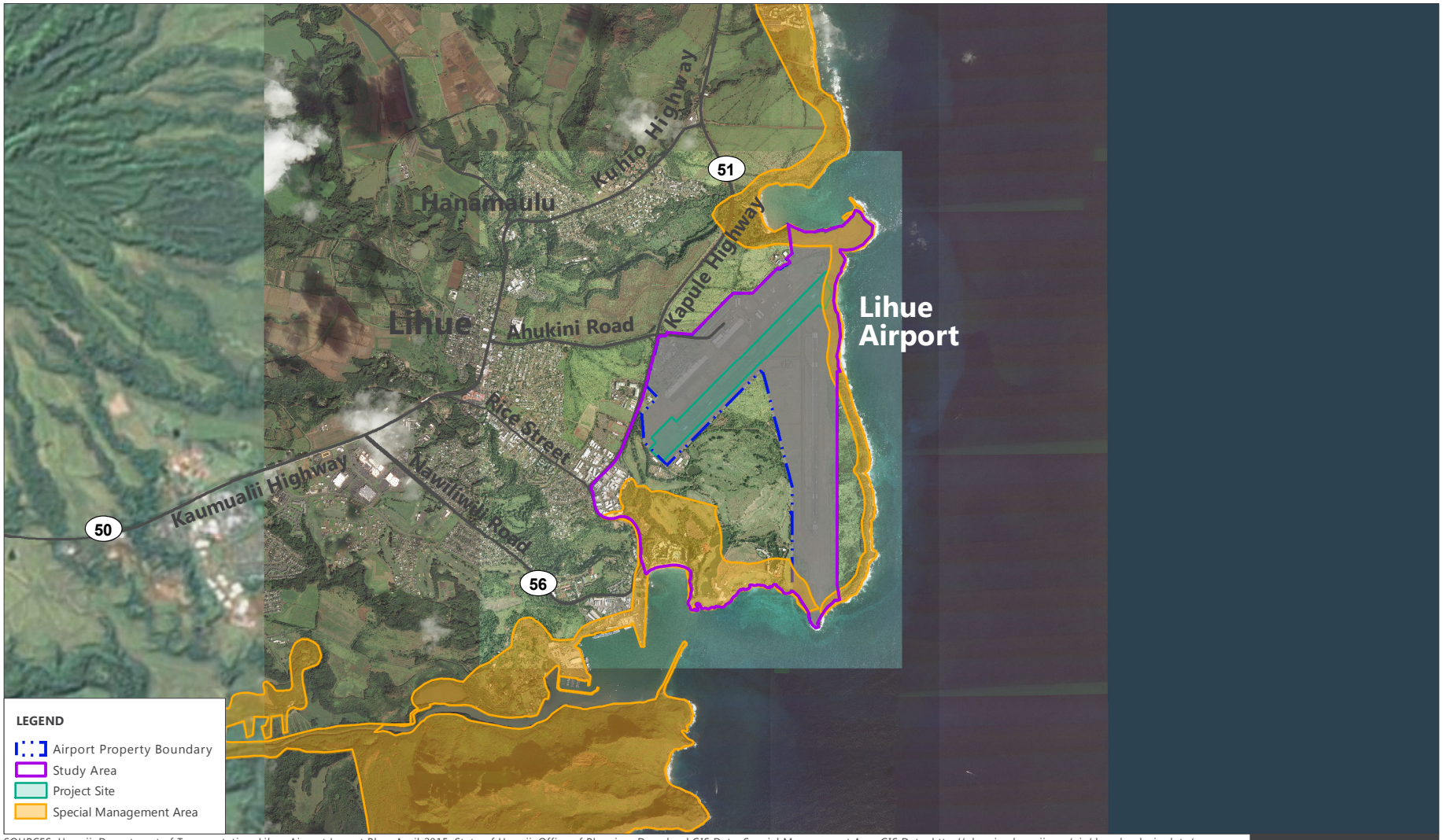
A portion of the Lihue Airport property is located within the Special Management Area (SMA) boundary established pursuant to the State Coastal Zone Management Law (Chapter 205A, Hawaii Revised Statutes). The boundary is established at 300 feet from the shoreline in the airport vicinity (depicted on Exhibit 1-4). A Special Management Area Use Permit (SMP) will be required from the County of Kauai for the components of the Proposed Action within the SMA. These components include fill and grading to level the northeastern portion of the Runway 3-21 RSA to FAA standards, and an approximately 2,600-foot long retaining wall to meet the grade of the RSA fill (see **Exhibit 5-3**).

5.2 Significance Criteria Assessment

The potential impacts of the Proposed Action have been evaluated based on the significance criteria in HAR §11-200-12. The following is a list of the criteria, followed by either a summary of the potential impacts or reference to relevant discussions earlier in this EA.

Involves an irrevocable commitment to loss or destruction of any natural or cultural resource

The Proposed Action would not cause the loss or destruction of any natural or cultural resource because there would be no disturbance of any known natural or cultural resources within the ground disturbance portion of the Study Area. HDOT-A will comply with the recommendations of SHPD including implementation of protocols should there be an inadvertent discovery during any ground altering activity.



SOURCES: Hawaii, Department of Transportation, Lihue Airport Layout Plan, April 2015; State of Hawaii, Office of Planning, Download GIS Data, Special Management Area GIS Data, http://planning.hawaii.gov/gis/download-gis-data/, accessed: November 2017; Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, October 2017 (aerial basemap).
PREPARED BY: Ricondo & Associates, Inc., September 2016.

EXHIBIT 5-3

NORTH 0 5,000 ft.

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Special Management Area

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Curtails the range of beneficial uses of the environment

The Proposed Action would not curtail the range of beneficial uses of the environment. As discussed in Section 4.5, "Department of Transportation Section 4(f) Lands" all project components of the Proposed Action would be within the existing LIH boundaries and they would not be within any public parks; recreation areas; or wildlife or waterfowl refuges. The improvements under the Proposed Action would be in areas without existing beneficial uses of the environment.

Conflicts with the state's long-term environmental policies or goals and guidelines as expressed in Chapter 343, HRS

The Proposed Action would be in conformance with HRS Chapter 343, inclusive of its individual policies, goals, and guidelines for population growth; natural resources; biological resources; parks, recreation, and open space; transportation; energy; and culture, as discussed in the individual resource categories throughout Chapter 4.

Substantially affects the economic or social welfare of the community or State

As discussed in Section 4.12, "Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks," the Proposed Action would not affect the economic or social welfare of the communities surrounding LIH or the State.

Substantially affects public health

As discussed in Section 4.2, "Air Quality," Section 4.11, "Noise and Compatible Land Use," and Section 4.14, "Water Resources," the Proposed Action would not impact resources affecting public health. As discussed in Section 4.12.3.3, "Children's Environmental Health and Safety Risks," the Proposed Action would not affect Children's Environmental Health and Safety.

Involves substantial secondary impacts, such as population changes or effects on public facilities

As discussed in Section 4.12, "Socioeconomic, Environmental Justice, and Children's Environmental Health and Safety Risks," the Proposed Action would not change the number of type of operations at LIH, nor would it cause any population changes.

Involves a substantial degradation of environmental quality

As discussed in Section 4.2, "Air Quality," Section 4.11, "Noise and Compatible Land Use," and Section 4.14, "Water Resources," the Proposed Action would not result in degradation of environmental quality.

Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions

As discussed in Section 4.15, "Cumulative Impacts," the Proposed Action would not result in significant cumulative impacts or involve any commitment to larger actions.

Substantially affects a rare, threatened, or endangered species, or its habitat

As discussed in Section 4.6, "Fish, Wildlife, and Plants," the Proposed Action would not substantially affect any rare, threatened, or endangered species, or its habitat.

Detrimentally affects air or water quality or ambient noise levels

As discussed in Section 4.2, "Air Quality," Section 4.11, "Noise and Compatible Land Use," and Section 4.14, "Water Resources," the Proposed Action would not detrimentally affect air or water quality or ambient noise levels.

Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters

As discussed in Section 4.14.3.4, "Floodplains," the Proposed Action would not affect the 100-year floodplain. As discussed in Section 4.4, "Coastal Resources," the Proposed Action would not conflict with the State's CZMP or be likely to suffer damage from being located in any these environmentally sensitive areas.

Substantially affects scenic vistas and view planes identified in county or states plans or studies

As discussed in Section 4.13, "Light Emissions and Visual Impacts," construction of the Proposed Action would require temporary lighting, but would not substantially affect view corridors or views. The Proposed Action would be implemented at the LIH airfield. No scenic vistas or view planes would be affected by the Proposed Action.

Requires substantial energy consumption

As discussed in Section 4.10, "Natural Resources and Energy Supply," the construction of Proposed Action would require the consumption of petroleum products. Because passenger growth and flight operations growth would be the same under the Proposed Action and No Action Alternative under consideration, there would be no anticipated long-term operational differences in energy consumption. The Proposed Action would result in a minor shift in aircraft operations; however this shift would not significantly increase or decrease fuel consumption.

5.3 List of Permits and Approvals

The following permits and approvals will be required prior to the implementation of the Proposed Action.

5.3.1 FEDERAL GOVERNMENT

- National Environmental Policy Act, Finding of No Significant Impact

5.3.2 STATE OF HAWAII

- Hawaii Revised Statutes, Chapter 343 Compliance

- National Pollutant Discharge Elimination System (NPDES) Permit, as applicable
- Community Noise Permit, as applicable

5.3.3 COUNTY OF KAUAI

- Special Management Area Minor Permit
- Standard Zoning Permit
- Construction Permits, as applicable

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6. Agency and Public Involvement

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

6.1 Agency Scoping

The HDOT-A sent introduction letters regarding the Proposed Action to local elected officials and to individuals representing federal, State, and local agencies with jurisdiction over resources either known to be in the vicinity of the Airport or that could be present in the area. The purpose of the letters was to inform the agencies and elected officials about the proposed project, the EA process, the preliminary purpose and need for the RSA improvements to Runway 3-21, the preliminary alternatives, and to solicit comments on issues of concern that they would like addressed in the EA.

A sample letter and the list of individuals, agencies, and elected officials to whom the letter was sent to are provided in **Appendix F**.

Nine scoping comment letters on the proposed project were received from the following agencies:

- State of Hawaii, 8th Senatorial District, Kauai & Niihau, The Senate Office of the President
- State of Hawaii, Office of Planning
- United States Department of the Interior, U.S. Fish & Wildlife Service, Pacific Island Fish and Wildlife Office
- State of Hawaii, Department of Land and Natural Resources, Land Division
- State of Hawaii, Department of Land and Natural Resources, Engineering Division
- State of Hawaii, Department of Defense, Office of the Adjutant General
- County of Kauai, Office of the Mayor, Department of Parks and Recreation
- County of Kauai, Planning Department
- Contractors Association of Kauai

Four of the nine agencies provided comments and recommendations:

- The State Department of Land and Natural Resources - Engineering Division

- County of Kauai Planning Department
- State Planning Office, Department of Parks and Recreation
- U.S. Fish & Wildlife Service

Copies of the comment letters are included in Appendix A. Coordination with the State Historic Preservation Division (SHPD), the Office of Hawaiian Affairs, and the U.S. Fish & Wildlife Service (USFWS) also was initiated. Copies of letters to these agencies are included in Appendix F.

6.2 Draft EA Agency and Public Review

The Draft EA was circulated for 30 days for public review and comment. During this time, interested parties, responsible agencies, and the general public were able to review the document and provide comments on its contents. The Notice of Availability (NOA) of the Draft EA for review was published on August 23, 2017. The NOA was published in the *Star Advertiser* and the *Garden Island*. Copies of the Draft EA were available for review at the locations listed below:

- Hawaii Department of Transportation, Airports Division, 400 Rodgers Boulevard, 7th Floor, Honolulu, Hawai'i 96819
- Federal Aviation Administration, Honolulu Airports District Office, 300 Ala Moana Blvd. Rm 71-128, Honolulu, Hawai'i 96850
- Lihue Airport, 3901 Mokulele Loop, Lihue, HI 96766
- Lihue Public Library, 4344 Hardy Street, Lihue, HI 96766
- Written comments were due by 5:00 p.m., Friday, September 22, 2017. A total of 4 comments letters were received on the Draft EA, as follows: State of Hawaii, Department of Health
- State of Hawaii, Department of Land and Natural Resources
- State of Hawaii, Office of Hawaiian Affairs
- State of Hawaii, Office of Planning

6.3 Responses to Agency and Public Comments

All agency and public comment letters received during the scoping and Draft EA review periods were cataloged and comments identified. Copies of the comment letters and responses to comments are provided in Appendix F. In addition, in compliance with HRS 343, HDOT-A prepared and mailed out response letters to comments received. Copies of these letters are also contained in Appendix F.

7. List of Preparers

The following individuals contributed to the preparation of this Environmental Assessment. This chapter includes the organizations for which the individuals work, brief synopses of their relative experience and qualifications, and their responsibilities in preparing this document.

7.1 Federal Aviation Administration Principal Reviewer

Gordon Wong, Program Manager, Hawaii Airports District Office

FAA project manager responsible for detailed evaluation and coordination of the FAA review of the Environmental Assessment with federal and State agencies.

Kimberly Evans, Community Planner, Hawaii Airports District Office

Review and coordination with FAA Honolulu Airports District Office and FAA Western Pacific Regional Division.

7.2 State of Hawaii Department of Transportation, Airports Division

Herman Tuiolosega, Planner

Review and coordination with FAA Honolulu Airports District Office and FAA Western Pacific Regional Division.

Lynette Kawaoka, Planner

Review and coordination.

Ray Severn, Planner

Review and coordination.

Priscilla Ligh, Engineer

Review and coordination.

Gene Matsushige, Head Construction Engineer

Overall review and coordination with FAA Honolulu Airports District Office and FAA Western Pacific Regional Division.

Dennis Neves, Airport District Manager

Review and coordination.

7.3 Ricondo & Associates, Inc.

Stephen D. Culberson, Vice President

- Qualifications – Over 20 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.
- Responsibilities – Project management, NEPA documentation, purpose and need, alternatives, affected environment, and environmental consequences.

Ura Quoniou, Director

- Qualifications – Ten years of experience in airport planning, operations, and airspace.
- Responsibilities – Purpose and need, alternatives, and coordination with design firm.

Eliane Grayer, Managing Consultant

- Qualifications – Over 15 years of experience in aviation, aviation management, flight training, and airport planning.
- Responsibilities – Development and analysis of project alternatives.

Brian Philiben, Senior Consultant

- Qualifications – Over 5 years of airport environmental and planning studies, with particular expertise in land-use planning.
- Responsibilities – NEPA documentation: purpose and need, alternatives, affected environment, and environmental consequences.

Monica Manuel, Consultant

- Qualifications – 1 year experience in technical support for airport planning and operations.
- Responsibilities – Responsible for addressing comments and documentation.

John Boulanger, Consultant

- Qualifications – Mr. Boulanger has over a year of experience in airport environmental and planning analyses with experience in preparing a variety of environmental studies including categorical exclusions and environmental assessments.
- Responsibilities – Documentation of the affected environment and environmental consequence chapters.

7.4 Munekiyo & Hiraga, Inc.

Karlynn K. Fukuda, Principal

- Qualifications – 11 years of experience in environmental and planning studies, with significant experience in preparing and managing environmental assessments, Special Management Area Use Permits and other State and County regulatory permitting, as well as community and government relations.
- Responsibilities – Project management, assistance with preparation of Chapter 343, Hawaii Revised Statutes, Environmental Assessment, and Special Management Area Use Permit preparation and processing. Formulation and execution of community outreach and government relations programs.

Bryan Esmeralda, ACIP, Associate

- Qualifications – Masters in Urban and Regional Planning. Mr. Esmeralda has 3.5 years of experience in land use entitlement and environmental planning.
- Responsibilities – Preparation and analysis of sections of the EA regarding existing land use, and the project's compliance with applicable land use plans, policies, and regulations.

7.5 Robert Hobdy, Biological Consultant

Robert Hobdy, Biological Consultant

- Qualifications – Over 30 years of experience in flora, faunal, threatened and endangered species surveys, and wetland identification/delineation with the State of Hawaii, Department of Land and Natural Resources, Division of Forestry and Wildlife.
- Responsibilities – Flora and faunal surveys, wetland investigation, biological assessment.

7.6 Fujita & Miura

Jenny Fujita,

- Qualifications – Over 20 years of communications experience. Ms. Fujita specializes in advising Hawaii and mainland clients on public education and outreach, capacity building, business strategy, regulatory affairs, and communications campaigns.
- Responsibilities – Collaboration with Ricondo & Associates, Inc. and Department of Transportation (DOT) to conduct public outreach during the EA process.

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Lihue Airport
Runway 3-21 Runway Safety Area Improvements
Final Environmental Assessment - Appendices

State Project No. AK1012-09

PREPARED FOR:

State of Hawaii, Department of Transportation – Airports Division

MARCH 2018

Appendix A

Description of Declared Distances

Appendix A Description of Declared Distances

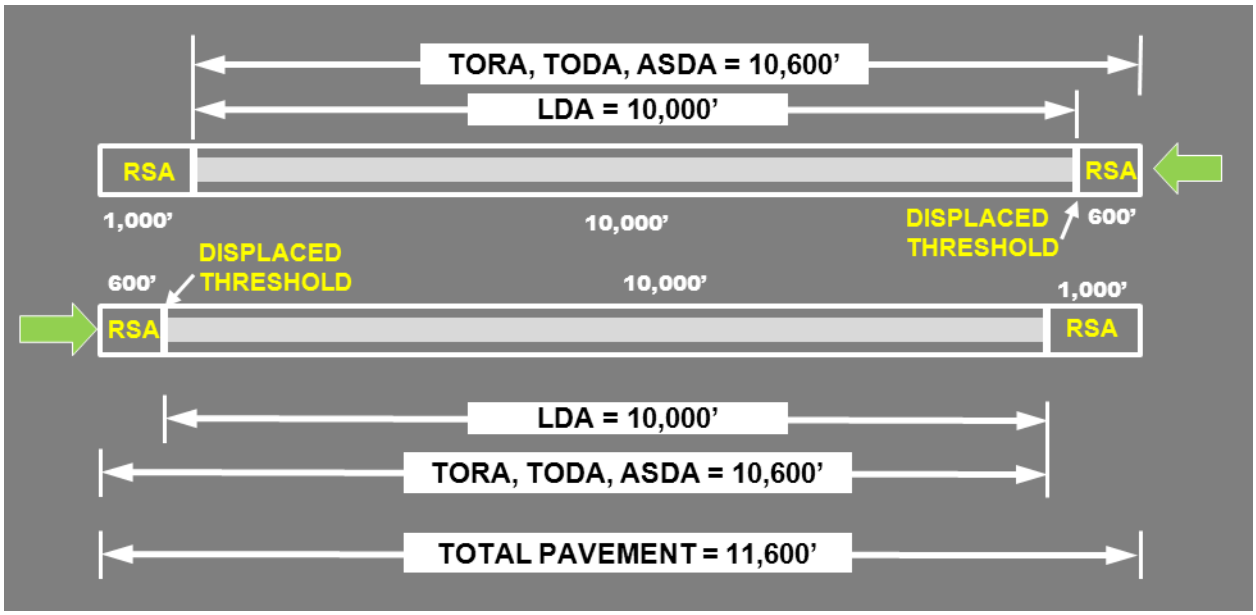
Declared distances at airports are a mechanism by which specific lengths of runway pavement are identified for use in aircraft operations. Declared distances are incorporated into the Operations Specifications of commercial aircraft operators that are part of the air carrier certificates and operations certificates issued by FAA under 14 CFR Part 119, as well as into the internal operations manuals of those operators. Pilots of commercial aircraft are required to comply with such specifications and manuals.

The specified distance available for a particular operation such as landing may be different in each direction on the same runway pavement. The FAA defines four declared distances:

- **Takeoff Run Available (TORA)** – the runway length declared available and suitable for satisfying takeoff run requirements. The TORA is measured from the start of takeoff to a point 200 feet from the beginning of the departure Runway Protection Zone.
- **Takeoff Distance Available (TODA)** – this distance comprises the TORA plus the length of any remaining runway or clearway beyond the far end of the TORA.
- **Accelerate-Stop Distance Available (ASDA)** – the runway plus stopway length declared available and suitable for the acceleration and deceleration of an aircraft that must abort its takeoff. A stopway is an area beyond the takeoff runway able to support the airplane during an aborted takeoff, without causing structural damage to the airplane.
- **Landing Distance Available (LDA)** – the runway length that is declared available and suitable for satisfying aircraft landing distance requirements.

The figure below illustrates how declared distances allow a runway pavement length of 11,600 feet to provide a usable runway length of 10,000 feet for landing and 10,600 feet for takeoffs in both directions while still providing the FAA-required runway safety area dimensions of 600 feet prior to the landing threshold and 1,000 feet beyond the runway end.

Exhibit A-1: Declared Distances



SOURCE: Federal Aviation Administration, Advisory Circular 150/5300-13A, Airport Design, Section 323, September 28, 2012.

PREPARED BY: URS Corporation, 2013

References

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Appendix B

RSA Study Alternatives

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Appendix B Alternatives Analysis

B.1 Scope of the RSA Study Alternative Analysis

This appendix summarizes the screening process that was used to identify, compare, and evaluate Alternatives that were developed for the 2016 *Runway 3-21 Safety Area Study*[1] (RSA Study). The process followed to identify the range of initial alternatives to be considered and the screening process used to determine which alternatives would reasonably satisfy the Purpose of and Need for the *Runway 3-21 Runway Safety Area Improvements Environmental Assessment* (EA).

The Hawaii Department of Transportation – Airports Division (HDOT-A) completed a Runway Safety Area (RSA) Evaluation and Analysis for LIH in 2008 in accordance with FAA Order 5200.8, *Runway Safety Area Program*. The *Lihue Airport Runway Safety Area Practicability Study* (Practicability Study) evaluated RSA improvements and, concluded the RSA would not be practical to improve and the preferred alternative at that time was to "do nothing". [2]

In 2013 and 2015, the Airports District Office (ADO), Western-Pacific Region, of the FAA submitted several RSA improvement alternatives to the HDOT-A, in an attempt to identify an alternative that would meet the FAA standards. None of the alternatives were deemed viable, due to significant operational impacts to aircraft using Runway 3-21. As a result in 2016, the RSA Study was conducted to identify, refine, evaluate, and select a preferred RSA improvement alternative for Runway 3-21.[3]

The alternatives presented in the RSA Study were developed following a review of the previous RSA determination by the FAA, several meetings with LIH airport representatives, HDOT-A representatives, and FAA representatives, and the development of rough order of magnitude construction cost estimates for each of the alternatives. The practicability of RSA improvements was considered based on a review of airport operating characteristics, runway use configurations, and aircraft operational characteristics.

The alternatives presented in this appendix were developed as part of the *Runway 3-21 Safety Area Study*[4], with some refinements.

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1 Ricondo & Associates, Inc., *Runway 3-21 Safety Area Study*, April 2016.

2 Aries Consultants, Ltd., *Lihue Airport Runway Safety Area Practicability Study*, April 2008.

3 Ricondo & Associates, Inc., Lihue Airport, *Runway 3-21 Runway Safety Area Study*, March 2016.

4 Ricondo & Associates, Inc., *Runway 3-21 Safety Area Study*, April 2016.

B.2 Alternatives Screening and Evaluation

Conceptual Alternatives and on-site Alternatives and refinements were developed following FAA guidelines identified in FAA Order 5200.8.[5] The refined Alternatives are additional RSA improvements based on a combination of the conceptual alternatives, consistent with FAA Order 5200.8. The RSA technical team, comprised of HDOT-A and FAA officials, conducted preliminary review and the subsequent evaluation process for the alternatives as part of the RSA Study. The RSA technical team was responsible for identifying the pros and cons of the conceptual alternatives, providing suggestions for refined alternatives, and making final recommendations.

B.2.1 RSA ALTERNATIVES SCREENING EVALUATION CRITERIA

The identification and evaluation of RSA Study Alternatives incorporates information presented in the Practicability Study and RSA Study. The evaluation of RSA Study alternatives was performed using a three step evaluation process:

- Step 1: Would the proposed Alternatives enhance the Runway 3-21 RSAs consistent with FAA Advisory Circular 150/5300-13A, *Airport Design*?
- Step 2: Would the Alternatives be practical and feasible, and consistent with FAA Order 5200.8, *Runway Safety Area Program*, considering existing technology and logistics?
- Step 3: Would the Alternatives result in a safe and efficient use of navigable airspace and minimize airfield operational impacts?

Exhibit B-1 illustrates the Alternatives evaluation screening process.

Each Alternative was first evaluated to determine whether it would meet the purpose of and need for the EA by enhancing RSAs consistent with FAA airport design standards and improve safety for arriving and departing passengers and aircraft. Each Alternatives found to meet the Step 1 criteria was then evaluated in Step 2 to determine whether or not it would be practicable, considering existing technology and logistics in light of the overall project purpose. In Step 3, Alternatives that were found to meet both the Step 1 and Step 2 criteria were further evaluated to determine whether each would result in a safe and efficient use of navigable airspace, and would minimize impacts on existing airfield operations. Each Step and associated criteria are described in Sections B.2.1.1 through B.2.1.3. Alternatives that were found to satisfy the screening criteria were carried forward for evaluation of potential environmental effects, as described in Section 4, *Environmental Consequences,* of the Final EA. In accordance with the requirements of the CEQ Regulations, the implementing regulations for NEPA, the No Action Alternative was retained and carried forward for detailed analysis in the EA.

[5] U.S. Department of Transportation, Federal Aviation Administration, Order 5200.8, *Runway Safety Area Program*, effective date: October 1, 1999.

STEP 1

Would the proposed alternative enhance the Runway 3-21 Runway Safety Areas consistent with FAA Advisory Circular 150/5300-13A, *Airport Design*?

NO → **ELIMINATED** from further consideration

YES ↓

STEP 2

Would the alternative be practicable and consistent with FAA Order 5200.8, *Runway Safety Area Program*, considering existing technology and logistics?

NO → **ELIMINATED** from further consideration

YES ↓

STEP 3

Would the alternative result in a safe and efficient use of navigable airspace and minimize airfield operational impacts?

NO → **ELIMINATED** from further consideration

YES ↓

EVALUATE ENVIRONMENTAL CONSEQUENCES

Retain for detailed analysis of environmental impacts within Chapter 4.0, Environmental Consequences and Mitigation Measures of this EA.

SOURCE: Ricondo & Associates, Inc., May 2016.
PREPARED BY: Ricondo & Associates, Inc., June 2016.

EXHIBIT B-1

Alternatives Screening Process

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B.2.1.1 Step 1 Criteria: Purpose and Need

Would the Alternative improve the Runway 3-21 RSA to satisfy FAA airport design standards, or improve the Runway 3-21 RSA to the maximum extent practicable so that it substantially meets design standards, as articulated in FAA AC 150/5300-13A, *Airport Design*? **Table B-1** depicts the RSA dimensions for runways such as Runway 3-21 that serve commercial aircraft in Approach Category C, per Table 3-8 of FAA AC 150/5300-13A, *Airport Design*.

Table B-1: Runway Safety Area Dimensions for Approach Category C Aircraft

RSA DIMENSION	APPROACH CATEGORY C DIMENSIONS (FEET)
RSA Width	500
RSA Length Prior to Landing	600
RSA Length Beyond each Runway End	1,000

SOURCE: Federal Aviation Administration, Advisory Circular 150/5300-13A, *Airport Design*, February 26, 2014.
PREPARED BY: Ricondo & Associates, Inc., May 2016.

A standard RSA must be capable, under dry conditions, of supporting aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

B.2.1.2 Step 2 Criteria: Practicality and Implementation Schedule

The criteria used in the Step 2 screening evaluation addressed several key considerations:

- Would the Alternative be practical and feasible, considering existing technology, as well as design and construction challenges and relative costs when compared to other alternatives?

  Practical and Feasible: This criterion addressed the relative engineering design and construction complexity of each RSA alternative, and potential environmental impacts, along with the projected construction cost (including any environmental mitigation requirements). For example, the requirement for significant land alteration (e.g., filling coastal areas) would pose substantial design and construction challenges and have a substantially relative higher cost than an alternative that did not affect such facilities. Significant private land acquisition may create implementation complexities and result in increased project costs. As such, alternatives that had fewer complexities in terms of staging, phasing, and construction activities were considered more feasible and practical than those with highly complex construction issues.

- Does the Alternative provide the maximum practicable benefit to aviation safety in accordance with the guidance in FAA Order 5200.8, *Runway Safety Area Program*?

  Provision of Maximum Practical Benefit to Aviation Safety: An explicit goal of FAA Order 5200.8, *Runway Safety Area Program*, is to encourage airport sponsors to provide the maximum practical benefit to aviation safety in developing their RSA program, when provision of standard RSAs specified

in FAA AC 150/5300-13A Change 1, *Airport Design*, is not practical. Order 5200.8 recommends consideration of a sequence of possible improvements, and recommends that for each alternative improvement, the greatest practical conformance with the FAA Airport Design Standards for RSA dimensions and/or performance be implemented.

B.2.1.3 Step 3 Criteria: Safe and Efficient Use of Navigable Airspace and Impact on Airfield Operations

The final step of the screening evaluation considered these two criteria:

- Is the Alternative consistent with the FAA's statutory mission to ensure the safe and efficient use of navigable airspace?

  Safe and Efficient Use of Navigable Airspace: This criterion considered whether or not an Alternative would require significant changes to either local or regional airspace procedures, as well as the potential to cause airspace conflicts.

- Would the Alternative minimize the impact of the RSA improvements on the operation of LIH, including the ability to effectively serve the aircraft fleet currently using and expected to use LIH?

  Airport Operations: This criterion evaluated to what extent an Alternative may affect the efficient use of the airfield, reduce the utility of Runway 3-21, or otherwise substantially impact airfield operations. Examples of such impacts would be increased taxi distances and times; increased delay resulting from increased runway crossings; or reductions in runway length that would impose new operational restrictions on aircraft or make Runway 3-21 unusable for any aircraft type currently utilizing that runway. Operational restrictions would include any increased weight limitations for departing aircraft that reduce the number of passengers, amount of cargo, or amount of fuel that can be carried by the departing aircraft.

B.3 Identification and Description of the RSA Study Alternatives

The alternatives identified in the Practicability Study[6] and the RSA Study[7], incorporate elements of the FAA Order 5200.8 Alternatives. The Practicability Study and includes alternatives lettered "A" through "E" for Runway 3-21. These Alternatives use one of the six FAA Order 5200.8 Conceptual Alternatives or a combination of the Conceptual Alternatives. The Practicability Study concluded that Runway 3-21 could be improved to enhance safety, but the Alternatives examined were not feasible, practicable or would not meet FAA RSA design standards.[8]

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6 Aries Consultants, Ltd., *Lihue Airport Runway Safety Area Practicability Study*, April 2008.

7 Ricondo & Associates, Inc., *Runway 3-21 Safety Area Study*, April 2016.

8 Ricondo & Associates, Inc., *Runway 3-21 Safety Area Study*, April 2016.

From the 2008 Practicability Study Alternatives, FAA's preferred Alternative was developed as Alternative 1 for the RSA Study. The RSA Study was completed in 2016 and includes alternatives numbered "1" through "8". Alternatives 1, 3, and 4 each include three additional refinement alternatives for a total of 17 alternatives evaluated. The RSA Study Alternatives incorporate a combination of the FAA Order 5200.8 Conceptual Alternatives.[9]

B.3.1 ALTERNATIVE 1

Alternative 1 features a pavement extension and EMAS bed at the Runway 3 end. The Runway 21 end would feature an increase in the displaced threshold distance. A retaining wall would be constructed beyond the Runway 21 end to allow for standard RSA grading. Alternative 1 components are depicted on **Exhibit B-2** and include:

- Shift Runway 3 end 855 feet to the southwest; the landing threshold would remain in the same location, resulting in an 855-foot Runway 3 displaced threshold. To accommodate the runway shift, 855 feet of pavement would be constructed at the Runway 3 end.
- Construct a standard EMAS bed beyond the proposed Runway 3 end (295-foot EMAS bed and 35-foot setback from runway end); this EMAS bed configuration is considered standard, as it proposes a 295-foot EMAS bed along with a distance of 450 feet between the EMAS bed and the point where the Runway 21 LDA and ASDA stop.
- Construct taxiway extension to end of Runway 3 pavement
- Relocate Runway 21 displaced threshold to 455 feet, in order to provide a 600-foot arrival RSA to Runway 21.
- Construct a retaining wall along the public road beyond the Runway 21 end. The land between the runway and the retaining wall would be filled and graded to meet RSA standards.
- Total runway length: 7,355 feet.
- Declared Distances: Alternative 1 would result in the implementation of declared distances for operations on Runway 3-21. Declared distances for Alternative 1 are depicted on Exhibit B-2. **Table B-2** below lists the declared distances for Alternative 1 as well as Alternative 1 refinements.

B.3.2 ALTERNATIVE 1 REFINEMENT 1

Alternative 1 Refinement 1 would include all of the components of Alternative 1 described above except for the following components:

- In order to mitigate some of the RPZ penetrations on the Runway 3 end resulting from Alternative 1, a Departure End of Runway (DER) point would be created for this refinement, limiting the extent of the

[9] Ricondo & Associates, Inc., *Runway 3-21 Safety Area Study*, April 2016.

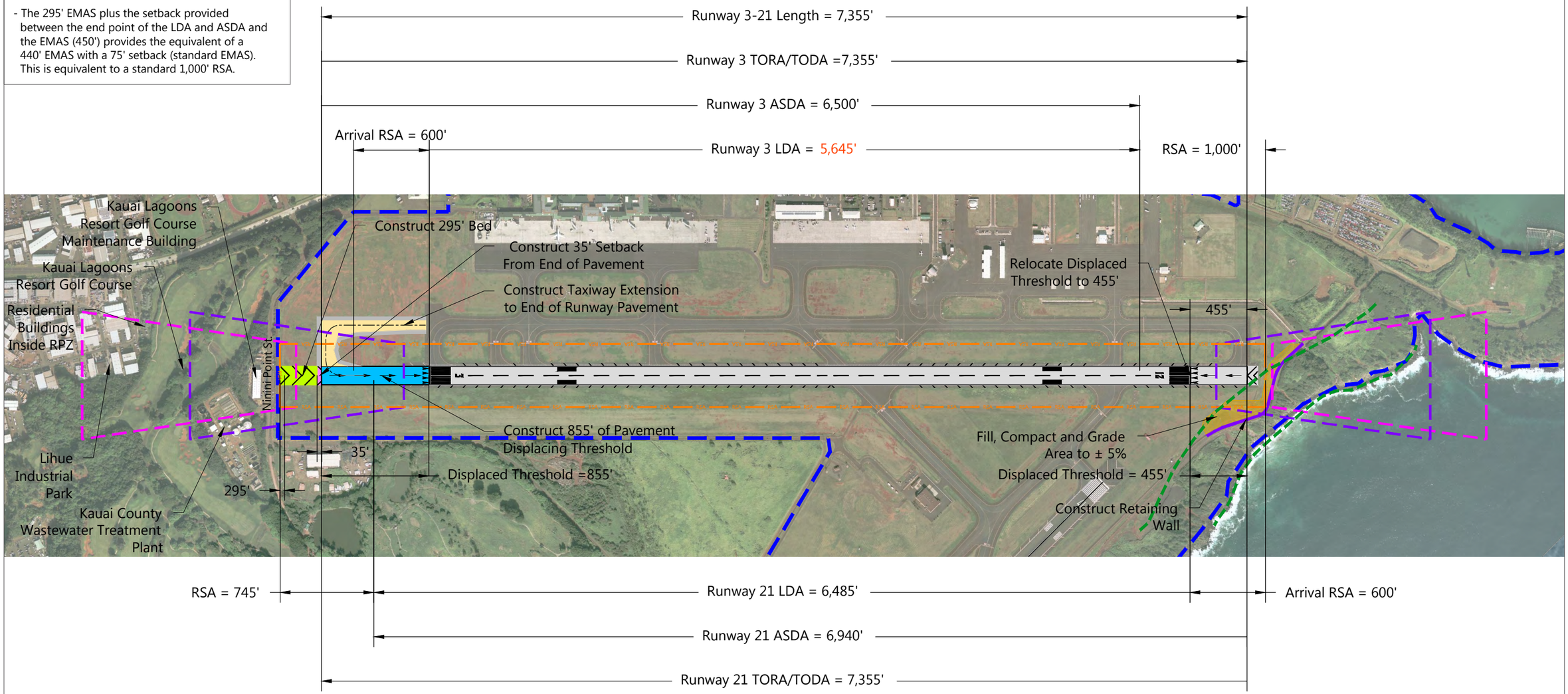
Runway 21 Take-off Run Available (TORA) and Take-off Distance Available (TODA). The DER would coincide with the Runway 3 displaced threshold, which is also the existing Runway 3 end.

- Declared distance change for the Runway 21 TORA/TODA: 6,500 feet.

The physical components of Alternative 1 Refinement 1 are the same as Alternative 1 (see Exhibit B-2); the declared distances and DER for this refinement are depicted on **Exhibit B-3**. Table B-2 below lists the declared distances for Alternative 1 Refinement 1.

Note:

- The 295' EMAS plus the setback provided between the end point of the LDA and ASDA and the EMAS (450') provides the equivalent of a 440' EMAS with a 75' setback (standard EMAS). This is equivalent to a standard 1,000' RSA.



LEGEND

Airport Property Line	Approach Runway Protection Zone	Proposed Runway Pavement	Proposed Taxiway Pavement
Runway Safety Area	Special Management Area	Proposed Setback	Ground Fill
Departure Runway Protection Zone	Existing Pavement	Proposed EMAS	Proposed Retaining Wall

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 800 ft.

Acronyms

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT B-2

Alternative 1
FAA Alternative

Drawing: Z:\Hawaii\LIH\04-RSA EA\12-CAD\LIH_RSA_EA_Alternative_1_20171027.dwg Layout: APDX B_B-2 Plotted: Mar 7, 2018, 02:31PM

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Table B-2: Alternative 1 and Alternative 1 Refinements Declared Distances

	DECLARED DISTANCES RUNWAY 3	DECLARED DISTANCES RUNWAY 21
ALTERNATIVE 1		
Runway Length	7,355′	7,355′
TORA = Take-off Run Available	7,355′	7,355′
TODA = Take-Off Distance Available	7,355′	7,355′
ASDA = Accelerate-Stop Distance Available	6,500′	6,940′
LDA = Landing Distance Available	5,645′ 1/	6,485′
ALTERNATIVE 1 REFINEMENT 1		
Runway Length	No Change From Alternative 1	No Change From Alternative 1
TORA = Take-off Run Available	No Change From Alternative 1	6,500′
TODA = Take-Off Distance Available	No Change From Alternative 1	6,500′
ASDA = Accelerate-Stop Distance Available	No Change From Alternative 1	No Change From Alternative 1
LDA = Landing Distance Available	No Change From Alternative 1	No Change From Alternative 1
ALTERNATIVE 1 REFINEMENT 2		
Runway Length	No Change From Alternative 1	No Change From Alternative 1
TORA = Take-off Run Available	No Change From Alternative 1	No Change From Alternative 1
TODA = Take-Off Distance Available	No Change From Alternative 1	No Change From Alternative 1
ASDA = Accelerate-Stop Distance Available	No Change From Alternative 1	6,685′
LDA = Landing Distance Available	No Change From Alternative 1	6,230′
ALTERNATIVE 1 REFINEMENT 3		
Runway Length	No Change From Alternative 1	No Change From Alternative 1
TORA = Take-off Run Available	No Change From Alternative 1	No Change From Alternative 1
TODA = Take-Off Distance Available	No Change From Alternative 1	No Change From Alternative 1
ASDA = Accelerate-Stop Distance Available	No Change From Alternative 1	6,750′
LDA = Landing Distance Available	No Change From Alternative 1	6,295′

NOTE:

1/ The Runway 3 LDA would be 5,645 feet, starting at the Runway 3 displaced threshold, and ending 1,000 feet before the end of the RSA on the Runway 21 end (the end of the Runway 3 LDA would be prior to the physical Runway 21 end).

SOURCE: Ricondo & Associates, Inc., April 2016.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

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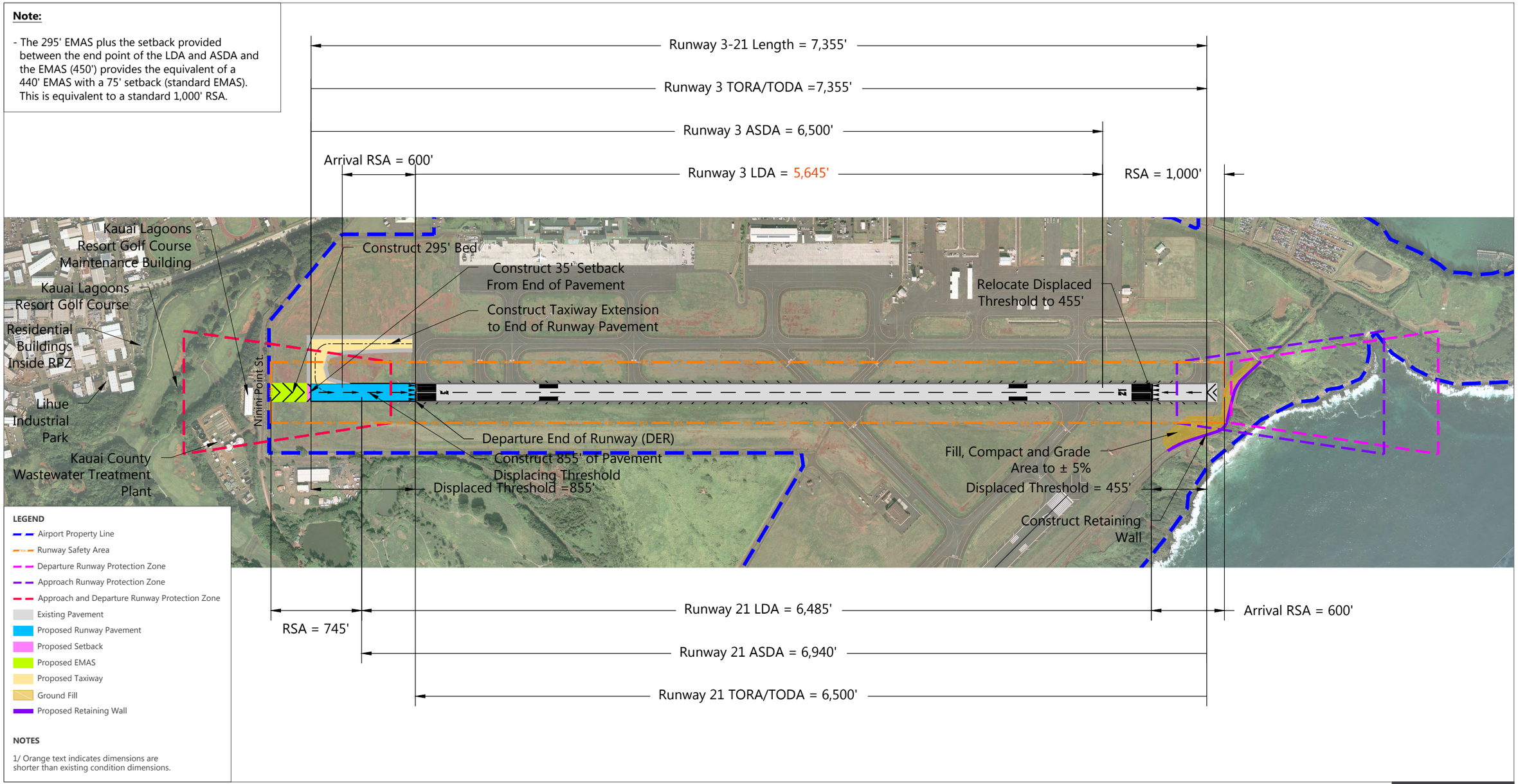
Note:

- The 295' EMAS plus the setback provided between the end point of the LDA and ASDA and the EMAS (450') provides the equivalent of a 440' EMAS with a 75' setback (standard EMAS). This is equivalent to a standard 1,000' RSA.



LEGEND

- Airport Property Line
- Runway Safety Area
- Departure Runway Protection Zone
- Approach Runway Protection Zone
- Approach and Departure Runway Protection Zone
- Existing Pavement
- Proposed Runway Pavement
- Proposed Setback
- Proposed EMAS
- Proposed Taxiway
- Ground Fill
- Proposed Retaining Wall

NOTES

1/ Orange text indicates dimensions are shorter than existing condition dimensions.

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 800 ft.

Acronyms

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT B-3

Alternative 1 Refinement 1

Drawing: Z:\Hawaii\LIH\04-RSA EA\12-CAD\LIH_RSA_EA_Alternative_1_20171027.dwg Layout: APDX B_B-3 Plotted: Mar 7, 2018, 02:32PM

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B.3.3 ALTERNATIVE 1 REFINEMENT 2

Alternative 1 Refinement 2 would include all of the components of Alternative 1 described above except for the following components:

- Declared distance change for Runway 21 Accelerate-Stop Distance Available (ASDA): 6,685 feet and Landing Distance Available (LDA): 6,230 feet.
- No construction of EMAS bed at either runway ends.

Components of Alternative 1 Refinement 2 and declared distances for this alternative are depicted on **Exhibit B-4**. Table B-2 above lists the declared distances for Alternative 1 Refinement 2.

B.3.4 ALTERNATIVE 1 REFINEMENT 3

Alternative 1 Refinement 3 would include all of the components of Alternative 1 described above except for the following components:

- In order to maintain the existing Runway 21 LDA of 6,295 feet, a non-standard RSA (935 feet) is proposed on the Runway 3 end.
- Declared distance change for Runway 21 ASDA: 6,750 feet and LDA: 6,295 feet.
- No construction of EMAS bed at either runway ends.

Components of Alternative 1 Refinement 3 and declared distances for this alternative are depicted on **Exhibit B-5**. Table B-2 above lists the declared distances for Alternative 1 Refinement 3.

B.3.5 ALTERNATIVE 2

Alternative 2 would shift the Runway 3 end and construct a blast pad at this end. A retaining wall would be constructed beyond the Runway 21 end to allow for standard RSA grading. Alternative 2 components are depicted on **Exhibit B-6** and include:

- In order to accommodate the runway shift, this alternative would construct 205 feet of pavement to relocate the Runway 3 end threshold south including new 200-foot long blast pad. There would be no displaced thresholds on the proposed runway.
- Construct a 35-foot setback from the end of pavement at the Runway 21 end.
- Construct a 498-foot standard EMAS beyond the Runway 21 end setback.
- The area beyond the Runway 21 end, approximately 395 feet long, would be filled and graded to RSA standards, in order to provide a 600-foot Runway 21 arrival RSA.
- Construct a retaining wall to contain the earth fill. The public road beyond the Runway 21 end would have to be tunneled.
- Construct new taxiway pavement to both runway ends and demolish existing pavement.
- Total runway length: 6,500 feet.
- Declared Distances: Alternative 2 would not feature declared distances. All distances would equal 6,500 feet.

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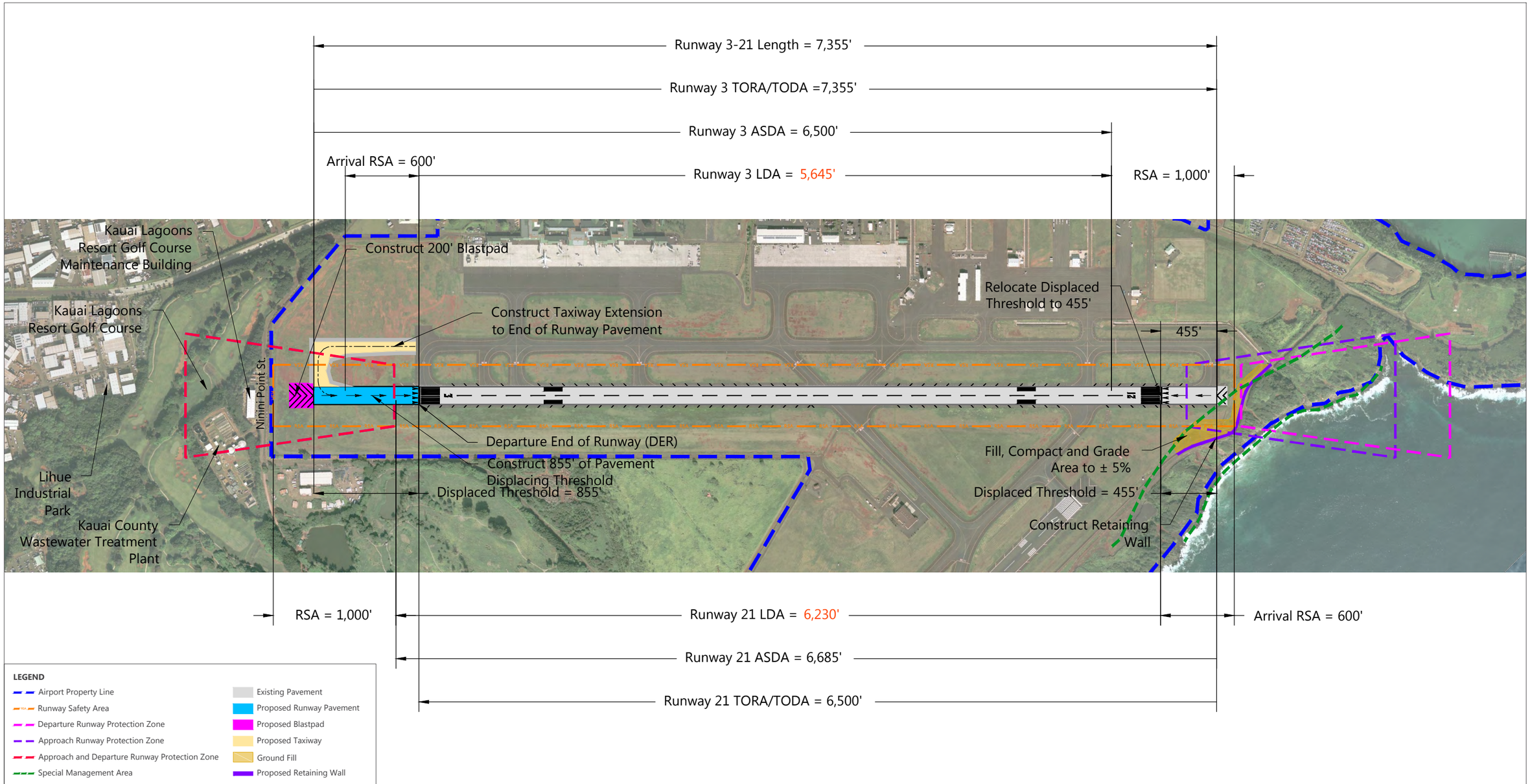

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 800 ft.

Acronyms

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT B-4

Alternative 1 Refinement 2

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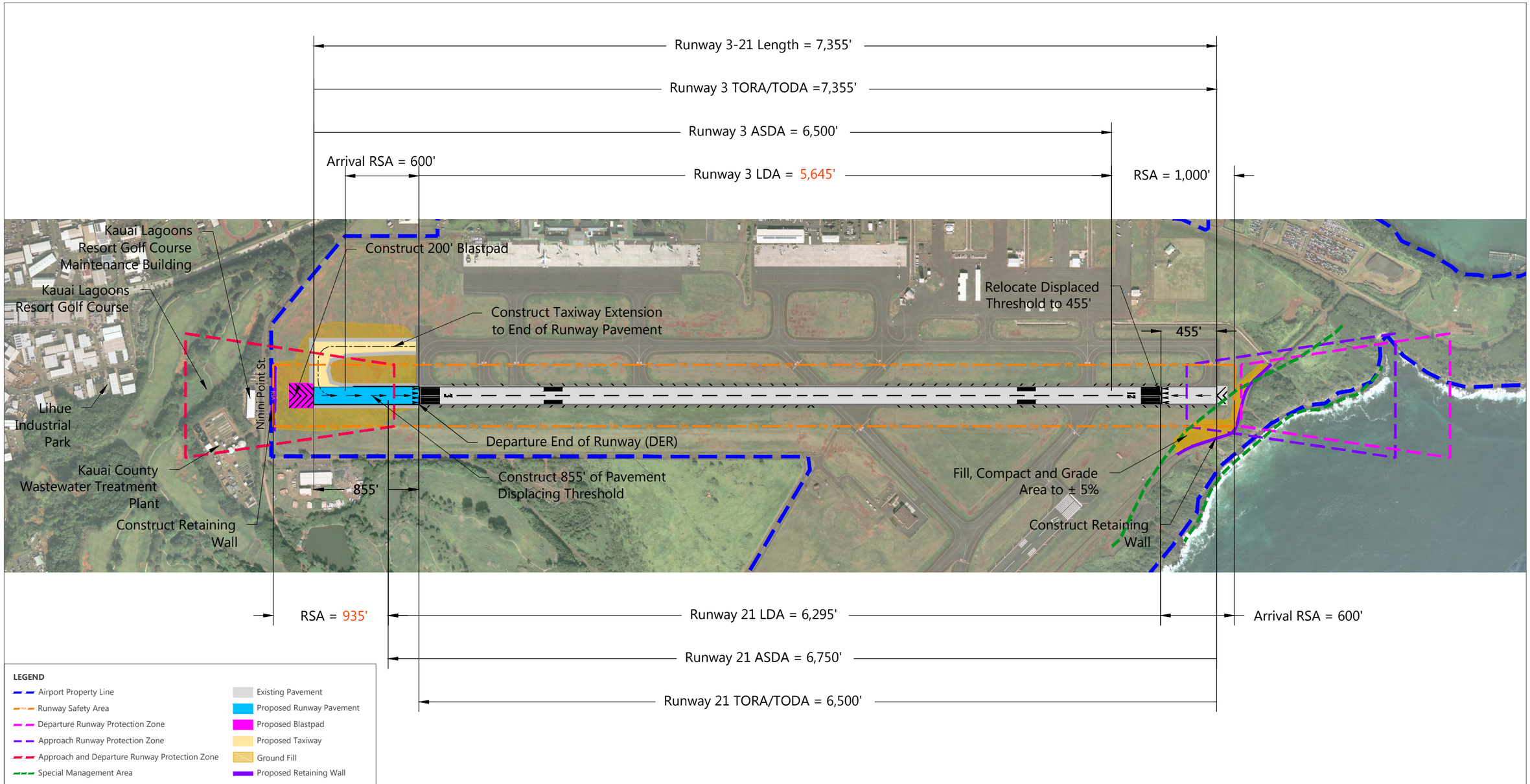

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 800 ft.

Acronyms

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT B-5

Alternative 1 Refinement 3

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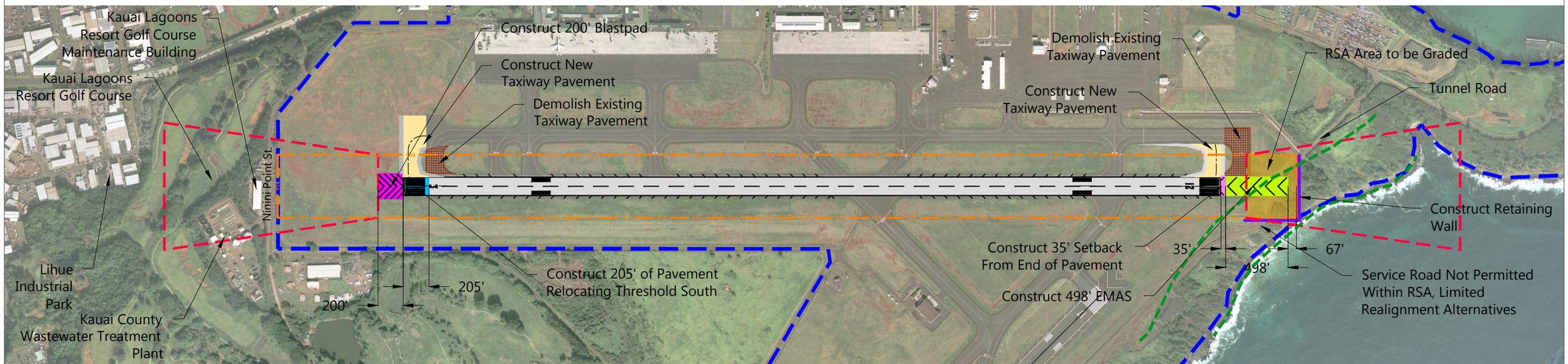

LEGEND

- Airport Property Line
- Runway Safety Area
- Approach and Departure Runway Protection Zone
- Existing Pavement
- Proposed Runway Pavement
- Proposed Blastpad
- Proposed EMAS
- Proposed Taxiway Pavement
- Pavement to be Demolished
- Ground Fill
- Proposed Retaining Wall
- Special Management Area

NOTES

1/ EMAS modeling results averaged out from Zodiac Aerospace and Runway Safe.

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 800 ft.

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Acronyms

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT B-6

Alternative 2

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B.3.6 ALTERNATIVE 3

Alternative 3 features a pavement extension and EMAS bed at the Runway 21 end. The Runway 3 end would feature an increase in the displaced threshold distance. A retaining wall would be constructed beyond the Runway 21 end to allow for standard RSA grading. Alternative 3 components are depicted on **Exhibit B-7** and include:

- Install a standard 450-foot EMAS bed and a 150-foot setback on the Runway 21 end. In order for the EMAS bed to fit on the Runway 21 end, the runway would be shifted 440 feet to the southwest.
- Construct 440 feet of pavement relocating the Runway 3 end threshold south.
- Construct taxiway extension to both runway ends and demolish existing pavement.
- Construct a retaining wall along the public road beyond the Runway 21 end, and the land between the runway and the retaining wall would be filled and graded to meet RSA standards.
- Total runway length: 6,500 feet.
- Declared Distances: Alternative 3 would result in the implementation of declared distances for operations on Runway 3-21. Declared distances for Alternative 3 are depicted on Exhibit B-7. **Table B-3** below lists the declared distances for Alternative 3 as well as Alternative 3 refinements.

B.3.7 ALTERNATIVE 3 REFINEMENT 1

Alternative 3 Refinement 1 would include all of the components of Alternative 3 described above except for the following components:

- Shift Runway 3 end to the north 301 feet only to allow the Runway 3 approach RPZ to remain clear of the residential buildings southwest of the runway. To accommodate the runway shift, 301 feet of pavement would be constructed at the Runway 3 end.
- Total runway length: 6,361 feet.
- Alternative 3 Refinement 1 changes the implementation of declared distances for operations on Runway 3-21.
  - Runway 3 TORA/TODA/ASDA/LDA: 6,361 feet
  - Runway 21 ASDA/LDA: 6,245 feet.
    - Runway 21 TORA/TODA: 6,361 feet.

Components of Alternative 3 Refinement 1 and declared distances for this alternative are depicted on **Exhibit B-8**. Table B-3 above lists the declared distances for Alternative 3 Refinement 1.

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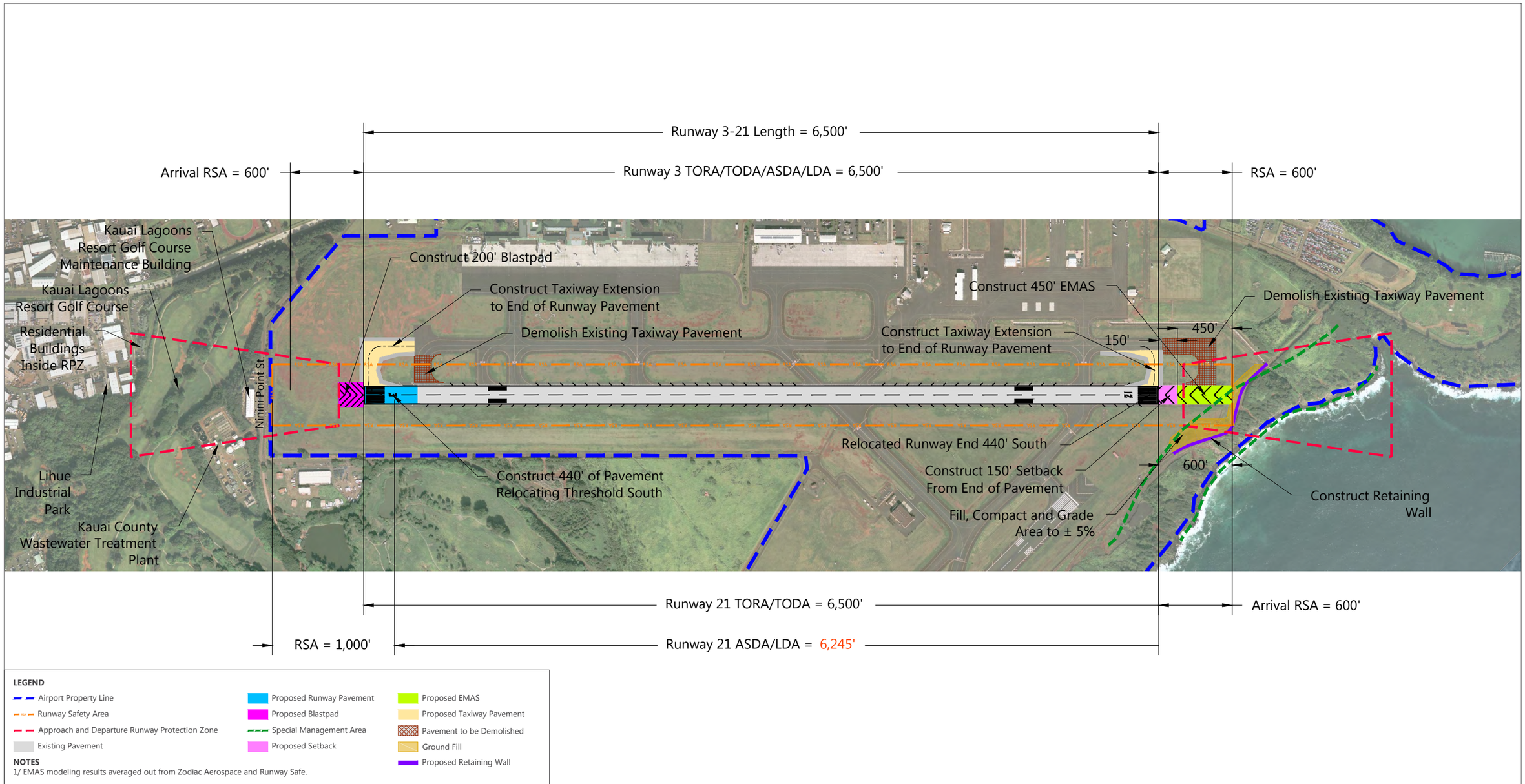

LEGEND

- Airport Property Line
- Runway Safety Area
- Approach and Departure Runway Protection Zone
- Existing Pavement
- Proposed Runway Pavement
- Proposed Blastpad
- Special Management Area
- Proposed Setback
- Proposed EMAS
- Proposed Taxiway Pavement
- Pavement to be Demolished
- Ground Fill
- Proposed Retaining Wall

NOTES

1/ EMAS modeling results averaged out from Zodiac Aerospace and Runway Safe.

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 800 ft.

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Acronyms

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT B-7

Alternative 3

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Table B-3: Alternative 3 and Alternative 3 Refinements Declared Distances

	DECLARED DISTANCES RUNWAY 3	DECLARED DISTANCES RUNWAY 21
ALTERNATIVE 3		
Runway Length	6,500′	6,500′
TORA = Take-off Run Available	6,500′	6,500′
TODA = Take-Off Distance Available	6,500′	6,500′
ASDA = Accelerate-Stop Distance Available	6,500′	6,245′
LDA = Landing Distance Available	6,500′	6,245′
ALTERNATIVE 3 REFINEMENT 1		
Runway Length	6,361′	6,361′
TORA = Take-off Run Available	6,361′	6,361′
TODA = Take-Off Distance Available	6,361′	6,361′
ASDA = Accelerate-Stop Distance Available	6,361′	No Change From Alternative 3
LDA = Landing Distance Available	6,361′	No Change From Alternative 3
ALTERNATIVE 3 REFINEMENT 2		
Runway Length	No Change From Alternative 3	No Change From Alternative 3
TORA = Take-off Run Available	No Change From Alternative 3	6,361′
TODA = Take-Off Distance Available	No Change From Alternative 3	6,361′
ASDA = Accelerate-Stop Distance Available	No Change From Alternative 3	6,500′
LDA = Landing Distance Available	6,361′	6,500′
ALTERNATIVE 3 REFINEMENT 3		
Runway Length	No Change From Alternative 3	No Change From Alternative 3
TORA = Take-off Run Available	No Change From Alternative 3	6,361′
TODA = Take-Off Distance Available	No Change From Alternative 3	6,361′
ASDA = Accelerate-Stop Distance Available	No Change From Alternative 3	6,295′
LDA = Landing Distance Available	6,361′	6,295′

SOURCE: Ricondo & Associates, Inc., April 2016.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

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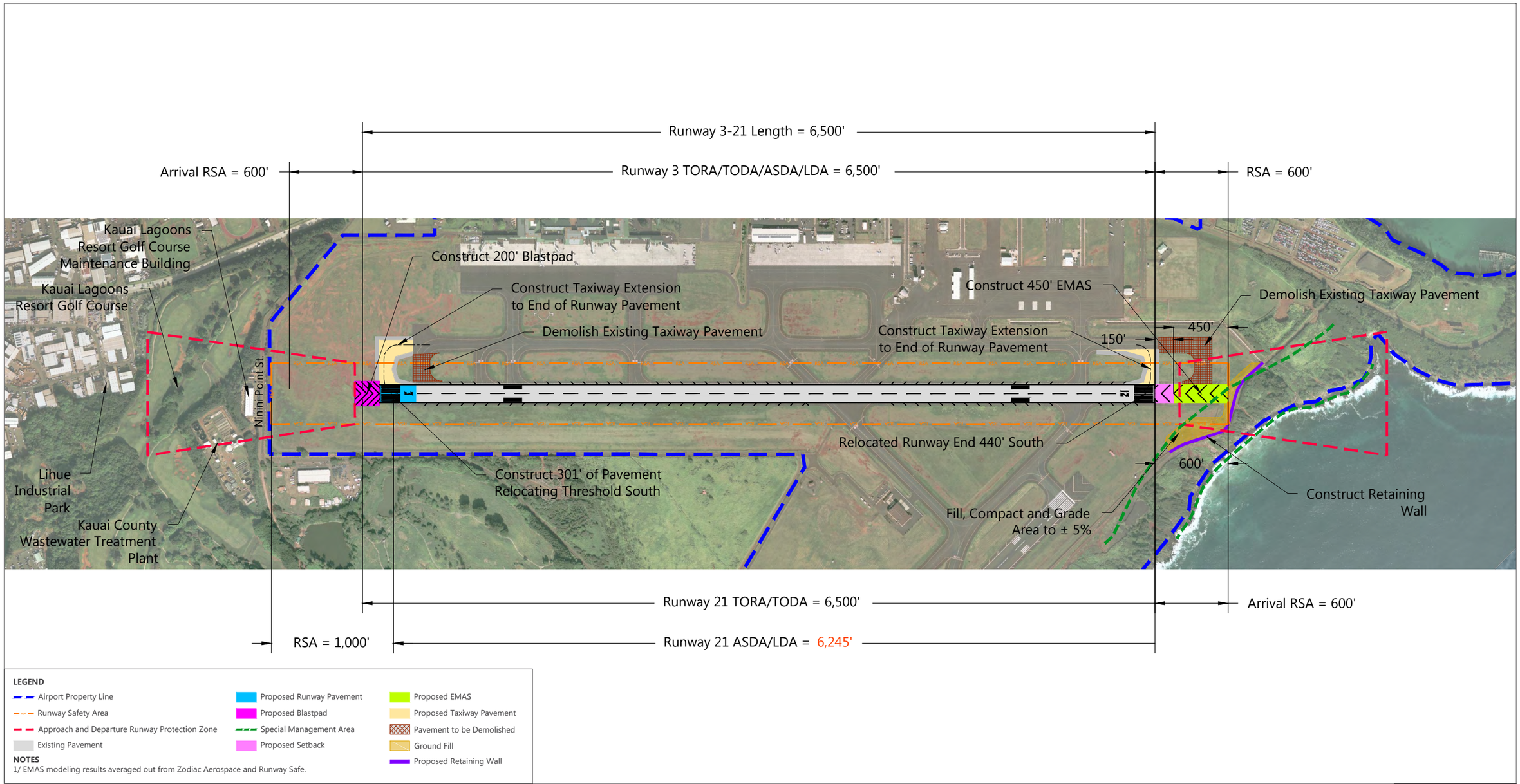

LEGEND

- Airport Property Line
- Runway Safety Area
- Approach and Departure Runway Protection Zone
- Existing Pavement
- Proposed Runway Pavement
- Proposed Blastpad
- Special Management Area
- Proposed Setback
- Proposed EMAS
- Proposed Taxiway Pavement
- Pavement to be Demolished
- Ground Fill
- Proposed Retaining Wall

NOTES

1/ EMAS modeling results averaged out from Zodiac Aerospace and Runway Safe.

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 800 ft.

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Acronyms

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT B-8

Alternative 3 Refinement 1

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B.3.8 ALTERNATIVE 3 REFINEMENT 2

Alternative 3 Refinement 2 would include all of the components of Alternative 3 described above except for the following components:

- Install a standard 450- foot EMAS bed and a 150-foot setback on the Runway 3 end.
- Shift Runway 3 end 440 feet with a 139-foot displaced threshold, to keep the Runway 3 approach RPZ clear of the residential buildings. To accommodate the runway shift, 440 feet of pavement would be constructed at the Runway 3 end.
- Alternative 3 Refinement 2 changes the implementation of declared distances for operations on Runway 3-21:
  - Runway 3 LDA: 6,361 feet
  - Runway 21 ASDA/LDA: 6,500 feet.
    - Runway 21 TORA/TODA: 6,361 feet.

Components of Alternative 3 Refinement 2 and declared distances for this alternative are depicted on **Exhibit B-9**. Table B-3 above lists the declared distances for Alternative 3 Refinement 2.

B.3.9 ALTERNATIVE 3 REFINEMENT 3

Alternative 3 Refinement 3 would include all of the components of Alternative 3 described above except for the following components:

- Shift Runway 3 end to 440 feet, with a 139-foot displaced threshold, to keep the Runway 3 approach RPZ clear of the residential buildings. To accommodate the runway shift, 440 feet of pavement would be constructed at the Runway 3 end.
- A non-standard RSA is proposed on the Runway 3 end to provide a Runway 21 LDA equal to the existing 6,295 feet.
- Alternative 3 Refinement 3 changes the implementation of declared distances for operations on Runway 3-21:
  - Runway 3 LDA: 6,361 feet
  - Runway 21 ASDA/LDA: 6,295 feet.
    - Runway 21 TORA/TODA: 6,361 feet.

Components of Alternative 3 Refinement 3 and declared distances for this alternative are depicted on **Exhibit B-10**. Table B-3 above lists the declared distances for Alternative 3 Refinement 3.

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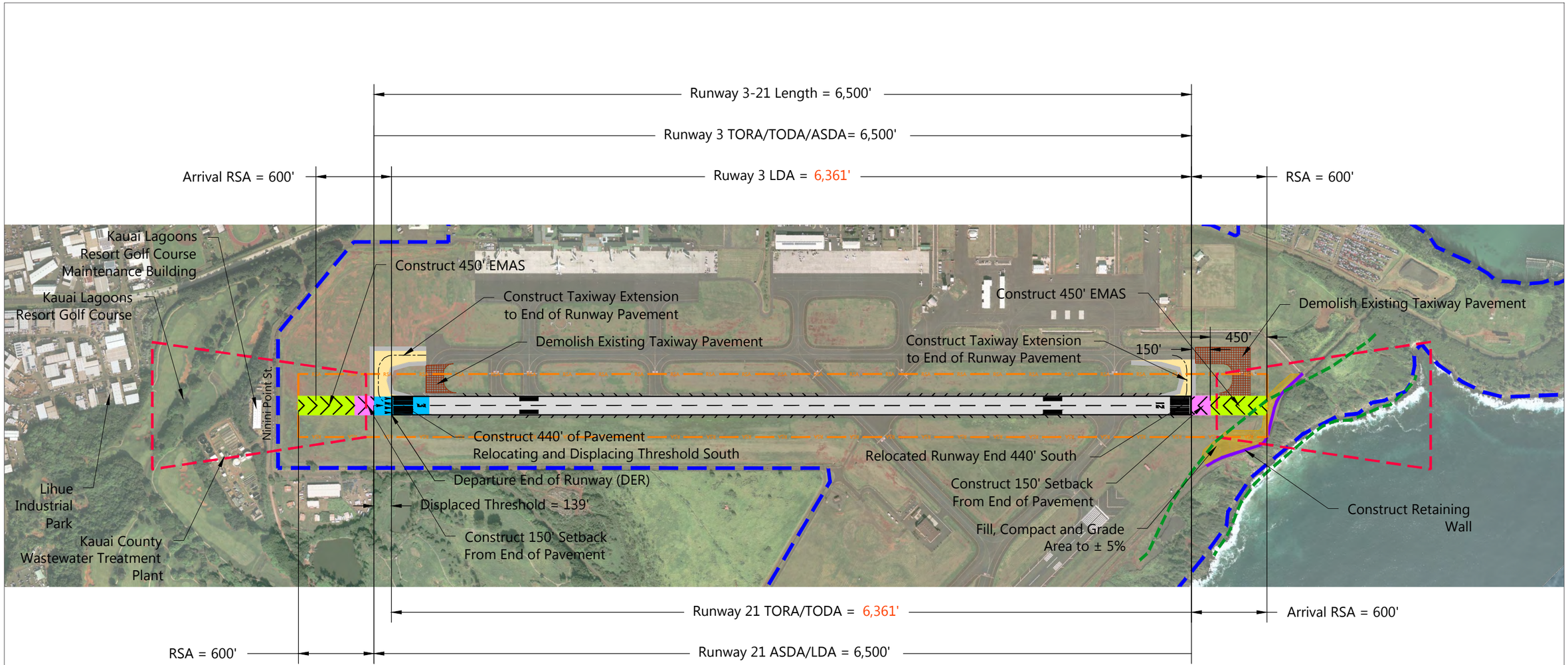

LEGEND

- Airport Property Line
- Runway Safety Area
- Approach and Departure Runway Protection Zone
- Existing Pavement
- Proposed Runway Pavement
- Proposed Setback
- Proposed EMAS
- Proposed Taxiway Pavement
- Pavement to be Demolished
- Ground Fill
- Proposed Retaining Wall
- Special Management Area

NOTES

1/ EMAS modeling results averaged out from Zodiac Aerospace and Runway Safe.

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 800 ft.

Acronyms

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT B-9

Alternative 3 Refinement 2

Drawing: Z:\Hawaii\LIH\04-RSA EA\12-CAD\LIH_RSA_EA_Alternative_3_20171030.dwg Layout: APDX B_B-9 Plotted: Mar 7, 2018, 02:41PM

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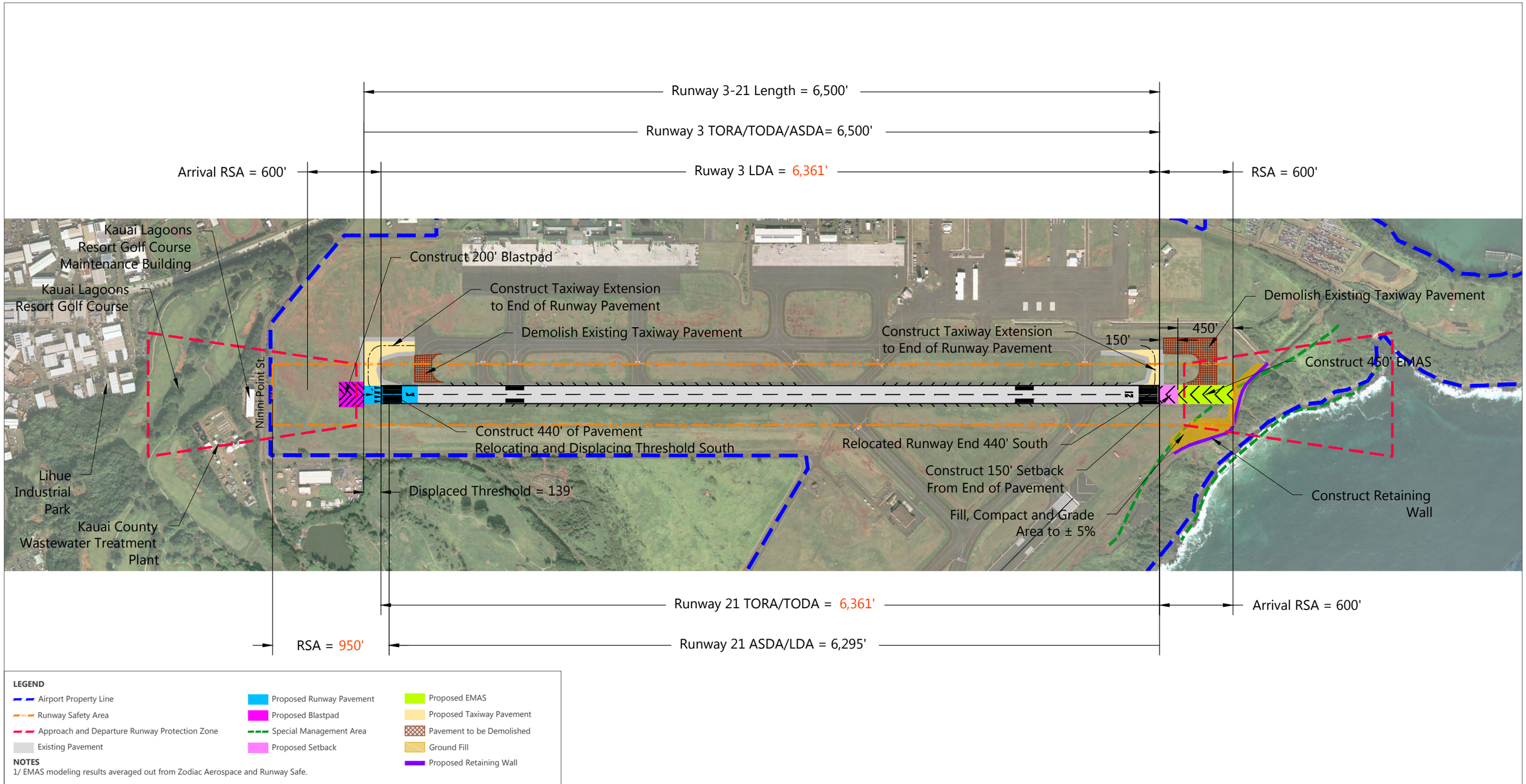

LEGEND

- Airport Property Line
- Runway Safety Area
- Approach and Departure Runway Protection Zone
- Existing Pavement
- Proposed Runway Pavement
- Proposed Blastpad
- Special Management Area
- Proposed Setback
- Proposed EMAS
- Proposed Taxiway Pavement
- Pavement to be Demolished
- Ground Fill
- Proposed Retaining Wall

NOTES

1/ EMAS modeling results averaged out from Zodiac Aerospace and Runway Safe.

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 800 ft.

Drawing: Z:\Hawaii\LIH\04-RSA EA\12-CAD\LIH_RSA_EA_Alternative_3_20171030.dwg Layout: APDX B_B-10 Plotted: Mar 7, 2018, 02:42PM

Acronyms

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT B-10

Alternative 3 Refinement 3

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B.3.10 ALTERNATIVE 4

Alternative 4 features a pavement extension and EMAS bed at the Runway 21 end. Runway 3-21 would be shifted to the southwest under this alternative. Alternative 4 components are depicted on **Exhibit B-11** and include:

- Install a standard EMAS bed on the Runway 21 end (450-foot EMAS bed and 150-foot setback). The far end of the EMAS bed would coincide with the far end of the existing Runway 21 blast pad, thus minimizing the amount of earth fill required.
- To accommodate the EMAS bed and provide for a 600-foot Runway 21 arrival RSA, Runway 3-21 would be shifted 516 feet to the southwest.
- Declared distances are required to meet RSA standards on the Runway 3 end.
- Construct taxiway extension to both Runway ends and demolish existing pavement.
- Total runway length: 6,500 feet.
- Declared Distances: Alternative 4 would result in the implementation of declared distances for operations on Runway 3-21. Declared distances for Alternative 4 are depicted on Exhibit B-11. **Table B-4** below lists the declared distances for Alternative 4 as well as Alternative 4 refinements.

B.3.11 ALTERNATIVE 4 REFINEMENT 1

Alternative 4 Refinement 1 would include all of the components of Alternative 4 described above except for the following components:

- Install a standard 450-foot EMAS bed and a 150-foot setback on the Runway 3 end.
- To allow the Runway 3 approach RPZ to remain clear of the residential buildings southwest of the runway, the Runway 3 end would only be shifted by 301 feet. To accommodate the runway shift, 301 feet of pavement would be constructed at the Runway 3 end.
- Total runway length: 6,285 feet.
- No declared distances. All distances equal 6,285 feet.

Components of Alternative 4 Refinement 1 are depicted on **Exhibit B-12**.

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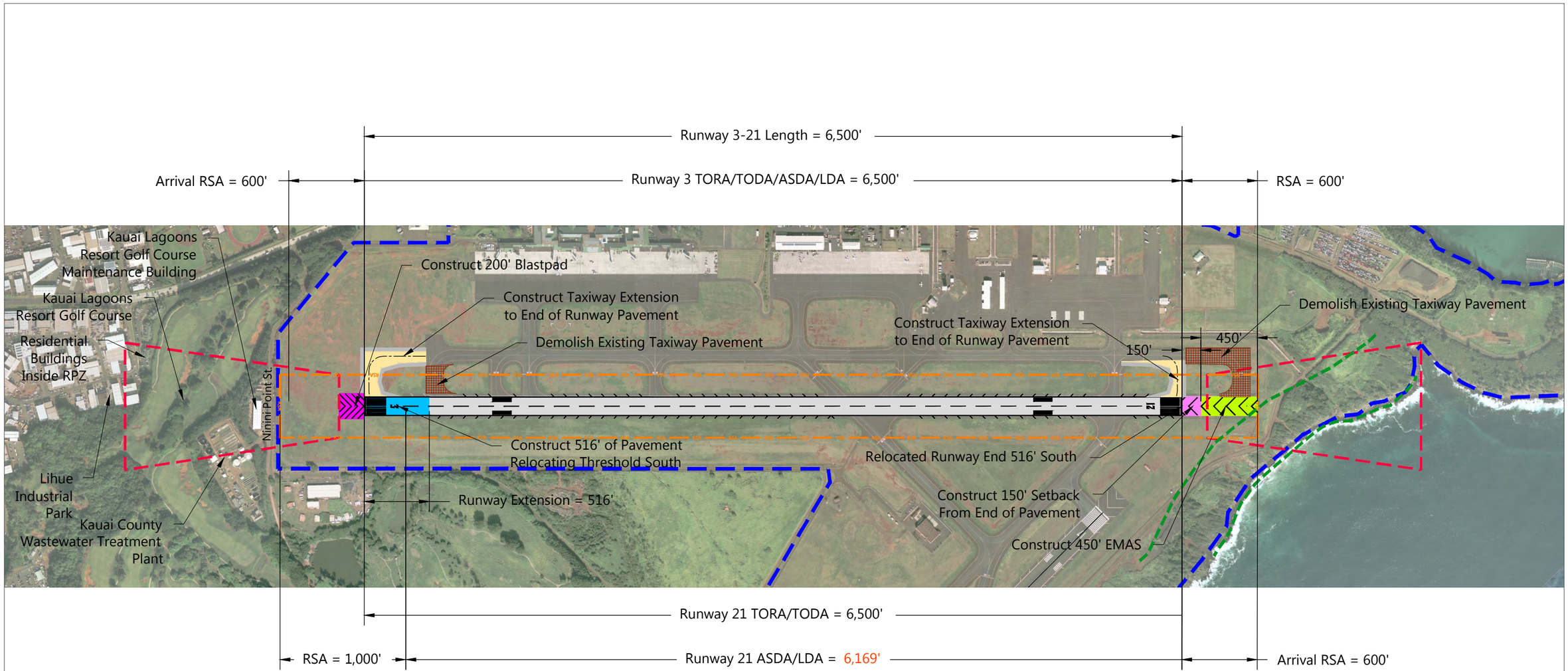

LEGEND

- Airport Property Line
- Runway Safety Area
- Approach and Departure Runway Protection Zone
- Existing Pavement
- Proposed Runway Pavement
- Proposed Blastpad
- Proposed Setback
- Proposed EMAS
- Proposed Taxiway Pavement
- Pavement to be Demolished
- Special Management Area

NOTES

1/ EMAS modeling results averaged out from Zodiac Aerospace and Runway Safe.

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 800 ft.

Acronyms

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT B-11

Alternative 4

Drawing: Z:\Hawaii\LIH\04-RSA EA\12-CAD\LIH_RSA_EA_Alternative_4_20171030.dwg Layout: APDX B_B-11 Plotted: Mar 7, 2018, 02:46PM

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Table B-4: Alternative 4 and Alternative 4 Refinements Declared Distances

	DECLARED DISTANCES RUNWAY 3	DECLARED DISTANCES RUNWAY 21
ALTERNATIVE 4		
Runway Length	6,500′	6,500′
TORA = Take-off Run Available	6,500′	6,500′
TODA = Take-Off Distance Available	6,500′	6,500′
ASDA = Accelerate-Stop Distance Available	6,500′	6,169′
LDA = Landing Distance Available	6,500′	6,169′
ALTERNATIVE 4 REFINEMENT 1		
Runway Length	6,285′	6,285′
TORA = Take-off Run Available	N/A	N/A
TODA = Take-Off Distance Available	N/A	N/A
ASDA = Accelerate-Stop Distance Available	N/A	N/A
LDA = Landing Distance Available	N/A	N/A
ALTERNATIVE 4 REFINEMENT 2		
Runway Length	No Change From Alternative 4	No Change From Alternative 4
TORA = Take-off Run Available	No Change From Alternative 4	5,984′
TODA = Take-Off Distance Available	No Change From Alternative 4	5,984′
ASDA = Accelerate-Stop Distance Available	No Change From Alternative 4	6,295′
LDA = Landing Distance Available	5,984′	6,295′
ALTERNATIVE 4 REFINEMENT 3		
Runway Length	6,285′	6,285′
TORA = Take-off Run Available	N/A	N/A
TODA = Take-Off Distance Available	N/A	N/A
ASDA = Accelerate-Stop Distance Available	N/A	N/A
LDA = Landing Distance Available	N/A	N/A

NOTES: N/A = NOT APPLICABLE

SOURCE: Ricondo & Associates, Inc., April 2016.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

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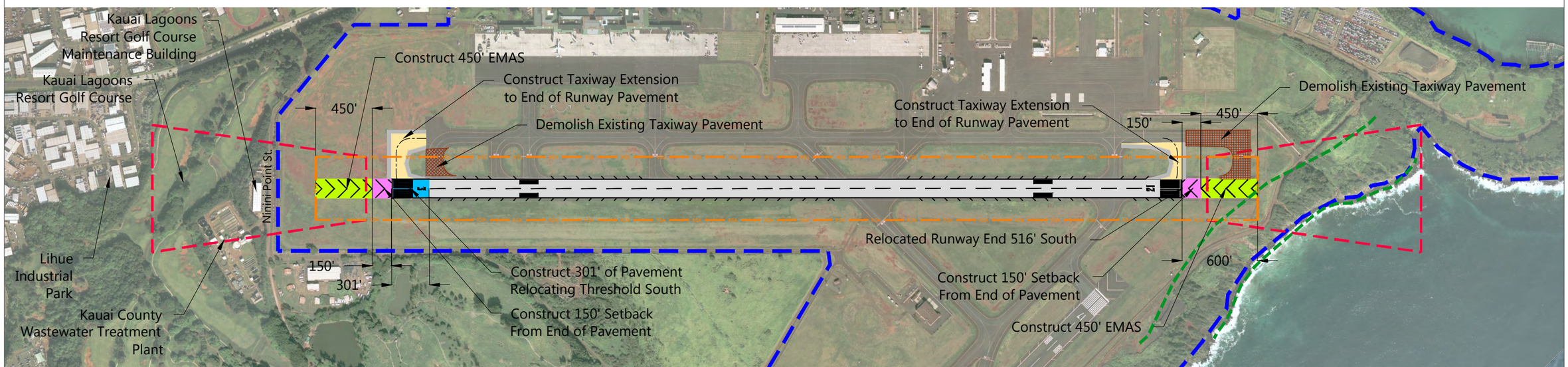

LEGEND

- Airport Property Line
- Runway Safety Area
- Approach and Departure Runway Protection Zone
- Existing Pavement
- Proposed Runway Pavement
- Proposed Setback
- Proposed EMAS
- Proposed Taxiway Pavement
- Pavement to be Demolished
- Special Management Area

NOTES

1/ EMAS modeling results averaged out from Zodiac Aerospace and Runway Safe.

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 800 ft.

Drawing: Z:\Hawaii\LIH\04-RSA EA\12-CAD\LIH_RSA_EA_Alternative_4_20171030.dwg Layout: APDX B_B-12 Plotted: Mar 7, 2018, 02:47PM

Acronyms

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT B-12

Alternative 4 Refinement 1

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B.3.12 ALTERNATIVE 4 REFINEMENT 2

Alternative 4 Refinement 2 would include all of the components of Alternative 4 described above except for the following components:

- Runway 3 landing threshold would remain in its existing location, resulting in a 516-foot displaced threshold on the Runway 3 end. To accommodate the displaced threshold, 516 feet of pavement would be constructed at the Runway 3 end.
- To mitigate the RPZ penetrations on the Runway 3 end, a DER point would be created, limiting the extent of the Runway 21 TORA and TODA. The DER would coincide with the Runway 3 displaced threshold, which is also the existing Runway 3 end.
- In order to maintain the existing Runway 21 LDA of 6,295 feet, a non-standard RSA (874 feet) is proposed on the Runway 3 end.
- Alternative 4 Refinement 2 changes the implementation of declared distances for operations on Runway 3-21:
    - Runway 3 LDA: 5,984 feet
    - Runway 21 TORA/TODA: 5,984 feet.
        - Runway 21 ASDA/LDA: 6,295 feet.

Components of Alternative 4 Refinement 2 and declared distances for this alternative are depicted on **Exhibit B-13**. Table B-4 above lists the declared distances for Alternative 4 Refinement 2.

B.3.13 ALTERNATIVE 4 REFINEMENT 3

Alternative 4 Refinement 3 would include all of the components of Alternative 4 described above except for the following components:

- To accommodate the EMAS bed and provide for a 600-foot Runway 21 arrival RSA, the Runway 21 end would be shifted 516 feet to the southwest; however, the Runway 3 end would only be shifted by 301 feet to mitigate RPZ penetrations of the residential buildings southwest of the runway. To accommodate the runway shift, 301 feet of pavement would be constructed at the Runway 3 end.
- Total runway length: 6,285 feet.
- No declared distances. All distances equal 6,285 feet.

Components of Alternative 4 Refinement 3 are depicted on **Exhibit B-14**.

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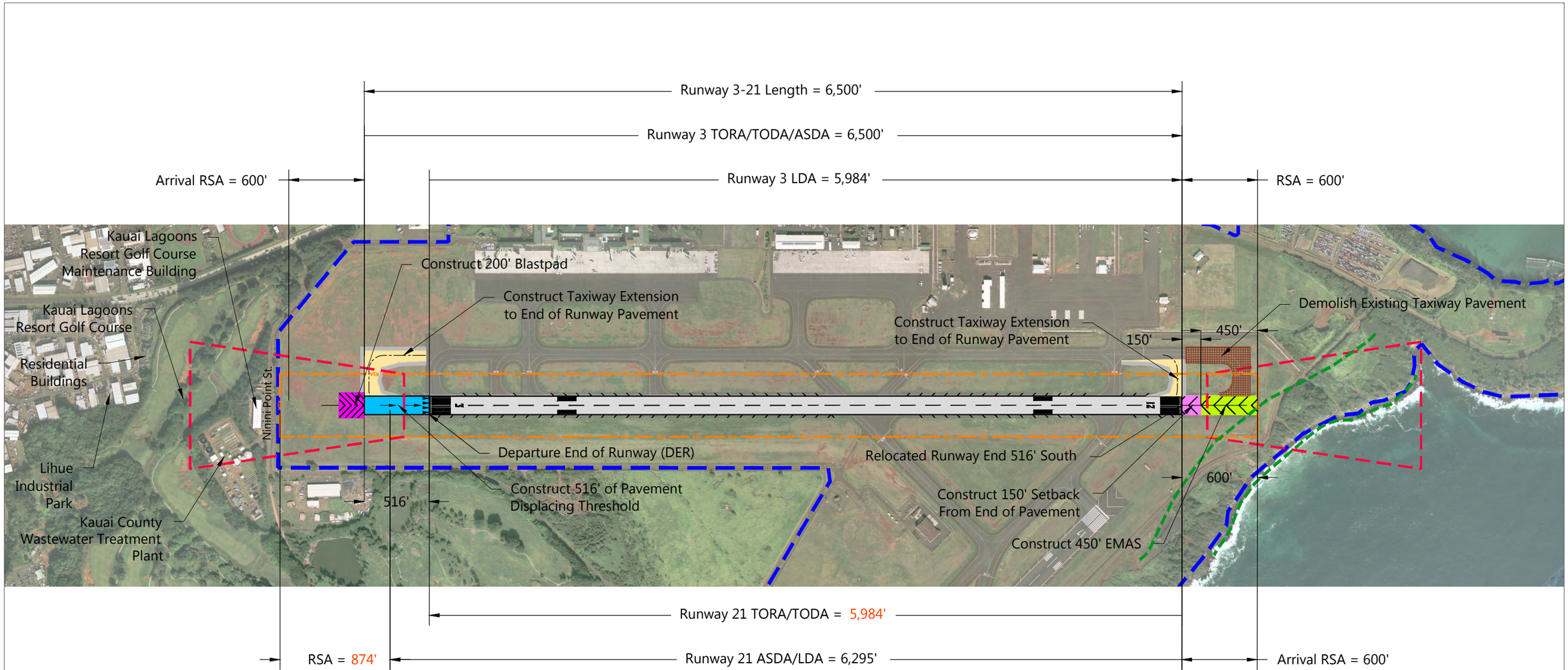

LEGEND

- Airport Property Line
- Runway Safety Area
- Approach and Departure Runway Protection Zone
- Existing Pavement
- Proposed Runway Pavement
- Proposed Blastpad
- Proposed Setback
- Proposed EMAS
- Proposed Taxiway Pavement
- Pavement to be Demolished
- Special Management Area

NOTES

1/ EMAS modeling results averaged out from Zodiac Aerospace and Runway Safe.

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 800 ft.

Drawing: Z:\Hawaii\LIH\04-RSA EA\12-CAD\LIH_RSA_EA_Alternative_4_20171030.dwg Layout: APDX B_B-13 Plotted: Mar 7, 2018, 02:50PM

Acronyms

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT B-13

Alternative 4 Refinement 2

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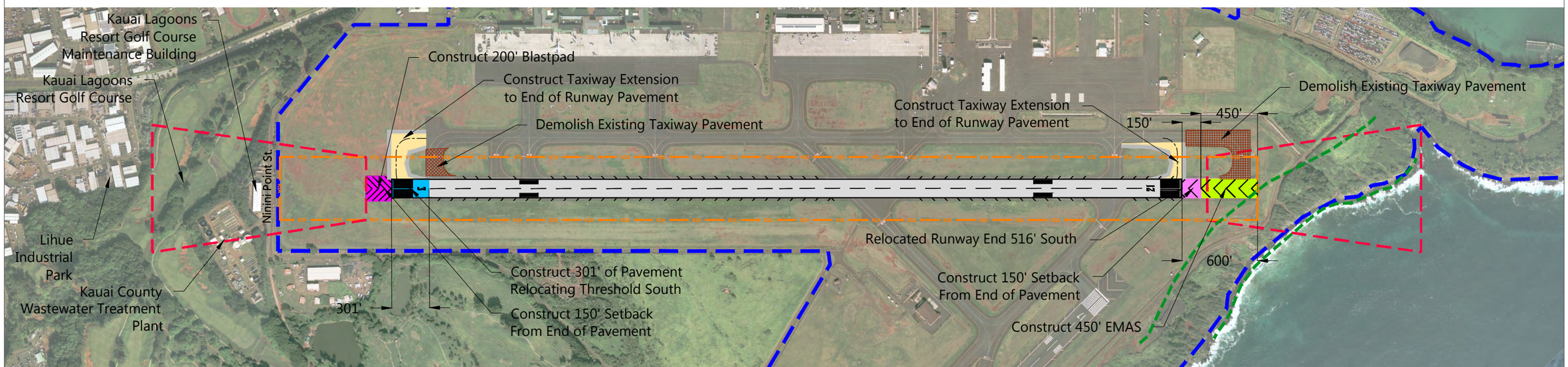

LEGEND

- Airport Property Line
- Runway Safety Area
- Approach and Departure Runway Protection Zone
- Existing Pavement
- Proposed Runway Pavement
- Proposed Blastpad
- Proposed Setback
- Proposed EMAS
- Proposed Taxiway Pavement
- Pavement to be Demolished
- Special Management Area

NOTES

1/ EMAS modeling results averaged out from Zodiac Aerospace and Runway Safe.

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 800 ft.

Acronyms

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT B-14

Alternative 4 Refinement 3

Drawing: Z:\Hawaii\LIH\04-RSA EA\12-CAD\LIH_RSA_EA_Alternative_4_20171030.dwg Layout: APDX B_B-14 Plotted: Mar 7, 2018, 02:50PM

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B.3.14 ALTERNATIVE 5

Alternative 5 would shorten Runway 3-21 and is the alternative that would require minimal construction for implementation. Alternative 5 components are depicted on **Exhibit B-15** and include:

- Shorten the Runway 21 end by 997 feet.
- The portion of Taxiway A between Taxiway B and the Runway 21 end would be decommissioned, and the portion of runway between Taxiways A and B would be converted into a blast pad.
- No grading work required.
- Total runway length: 5,503 feet.
- Declared Distances: Alternative 5 would result in the implementation of declared distances for operations on Runway 3-21. Declared distances for Alternative 5 are depicted on Exhibit B-15. **Table B-5** below lists the declared distances for Alternative 5.

Table B-5: Alternative 5 Declared Distances

	DECLARED DISTANCES RUNWAY 3	DECLARED DISTANCES RUNWAY 21
Runway Length	5,503'	5,503'
TORA = Take-off Run Available	5,503'	5,503'
TODA = Take-Off Distance Available	5,503'	5,503'
ASDA = Accelerate-Stop Distance Available	5,284'	5,503'
LDA = Landing Distance Available	5,284'	5,503'

SOURCE: Ricondo & Associates, Inc., April 2016.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

B.3.15 ALTERNATIVE 6

Alternative 6 would implement separate arrival and departure Runway 21 end RSAs and would not require any construction. Alternative 6 components are depicted on **Exhibit B-16** and include:

- Implement separate arrival and departure RSAs at the Runway 21 end. The Runway 3 departure RSA would end at the Runway 21 displaced threshold, meeting RSA standards; the Runway 21 arrival RSA would extend 600 feet beyond the Runway 21 displaced threshold, where the grading does not meet RSA standards.
- This alternative would not require any construction for implementation; however, the Runway 21 end would not meet RSA design standards.
- Total runway length: 6,500 feet.
- Declared Distances: Alternative 6 would result in the implementation of declared distances for operations on Runway 3-21. Declared distances for Alternative 6 are depicted on Exhibit B-16. **Table B-6** below lists the declared distances for Alternative 6.

Table B-6: Alternative 6 Declared Distances

	DECLARED DISTANCES RUNWAY 3	DECLARED DISTANCES RUNWAY 21
Runway Length	6,500′	6,500′
TORA = Take-off Run Available	6,500′	6,500′
TODA = Take-Off Distance Available	6,500′	6,500′
ASDA = Accelerate-Stop Distance Available	5,295′	6,500′
LDA = Landing Distance Available	5,295′	6,295′

SOURCE: Ricondo & Associates, Inc., April 2016.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

B.3.16 ALTERNATIVE 7

Alternative 7 would implement separate arrival and departure Runway 21 end RSAs and would not require any construction. Alternative 7 components are depicted on **Exhibit B-17** and include:

- Implement separate arrival and departure RSAs for the Runway 21 end. The Runway 3 departure RSA would end at the Runway 21 end, resulting in non-standard grading in the northeast corner of the proposed RSA. The Runway 21 arrival RSA would extend 600 feet beyond the Runway 21 displaced threshold, where the grading does not meet RSA standards.
- This alternative would result in no construction required for implementation; however, the Runway 21 end would not meet RSA design standards.
- Total runway length: 6,500 feet.
- Declared Distances: Alternative 7 would result in the implementation of declared distances for operations on Runway 3-21. Declared distances for Alternative 7 are depicted on Exhibit B-17. **Table B-7** below lists the declared distances for Alternative 7.

Table B-7: Alternative 7 Declared Distances

	DECLARED DISTANCES RUNWAY 3	DECLARED DISTANCES RUNWAY 21
Runway Length	6,500′	6,500′
TORA = Take-off Run Available	6,500′	6,500′
TODA = Take-Off Distance Available	6,500′	6,500′
ASDA = Accelerate-Stop Distance Available	5,500′	6,500′
LDA = Landing Distance Available	5,500′	6,295′

SOURCE: Ricondo & Associates, Inc., April 2016.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

B.3.17 ALTERNATIVE 8

Alternative 8 would implement separate arrival and departure Runway 21 end RSAs and would not require any construction. Alternative 8 components are depicted in **Exhibit B-18**.

- Implement separate arrival and departure RSAs for at the Runway 21 end. The Runway 3 departure RSA would extend 145 feet beyond the Runway 21 end, resulting in non-standard grading in the northeast corner of the proposed RSA. The Runway 21 arrival RSA would extend 600 feet beyond the Runway 21 displaced threshold, where the grading does not meet RSA standards.
- This alternative would result in no construction required for implementation; however, the Runway 21 end would not meet RSA standards.
- Total runway length: 6,500 feet.
- Declared Distances: Alternative 8 would result in the implementation of declared distances for operations on Runway 3-21. Declared distances for Alternative 8 are depicted in Exhibit B-18. **Table B-8** below lists the declared distances for Alternative 8.

Table B-8: Alternative 8 Declared Distances

	DECLARED DISTANCES RUNWAY 3	DECLARED DISTANCES RUNWAY 21
Runway Length	6,500′	6,500′
TORA = Take-off Run Available	6,500′	6,500′
TODA = Take-Off Distance Available	6,500′	6,500′
ASDA = Accelerate-Stop Distance Available	5,645′	6,500′
LDA = Landing Distance Available	5,645′	6,295′

SOURCE: Ricondo & Associates, Inc., April 2016.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

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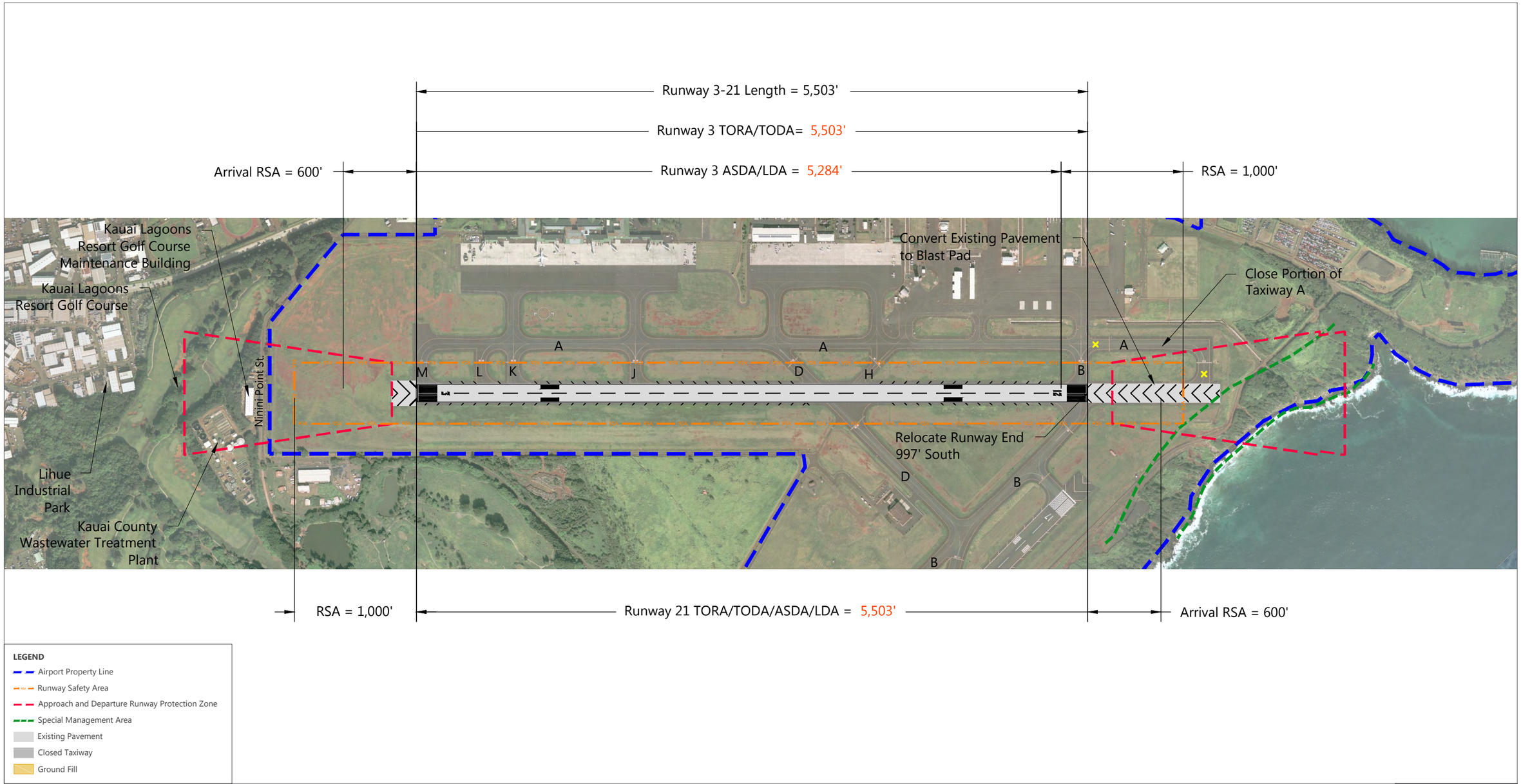

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 800 ft.

Acronyms

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT B-15

Alternative 5

Drawing: Z:\Hawaii\LIH\04-RSA EA\12-CAD\LIH_RSA_EA_Alternative_5_20171030.dwg Layout: APDX B_B-15 Plotted: Mar 7, 2018, 02:56PM

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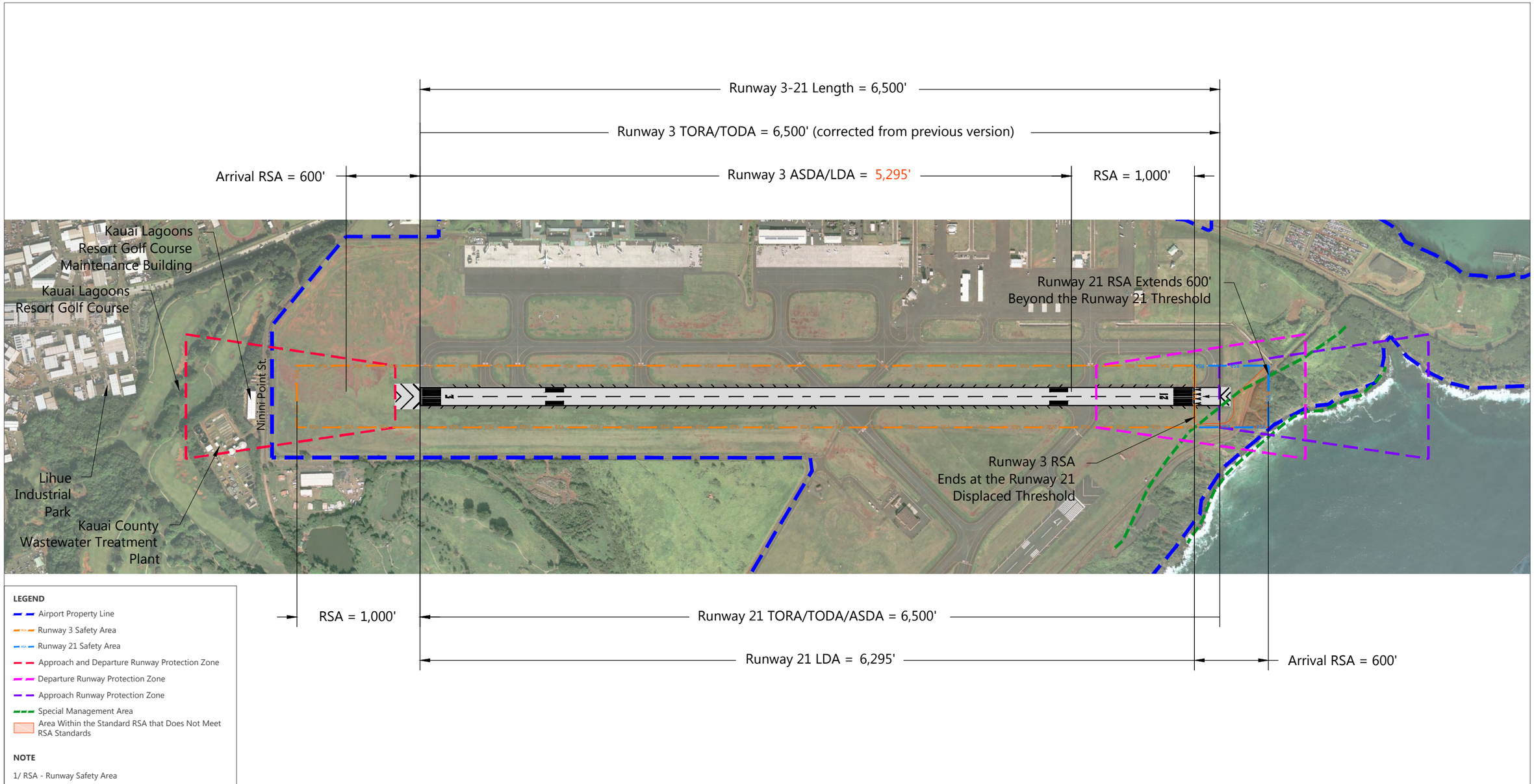

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 800 ft.

Drawing: Z:\Hawaii\LIH\04-RSA EA\12-CAD\LIH_RSA_EA_Alternative_6_20171030.dwg Layout: APDX B_B-16 Plotted: Mar 7, 2018, 03:06PM

Acronyms

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT B-16

Alternative 6

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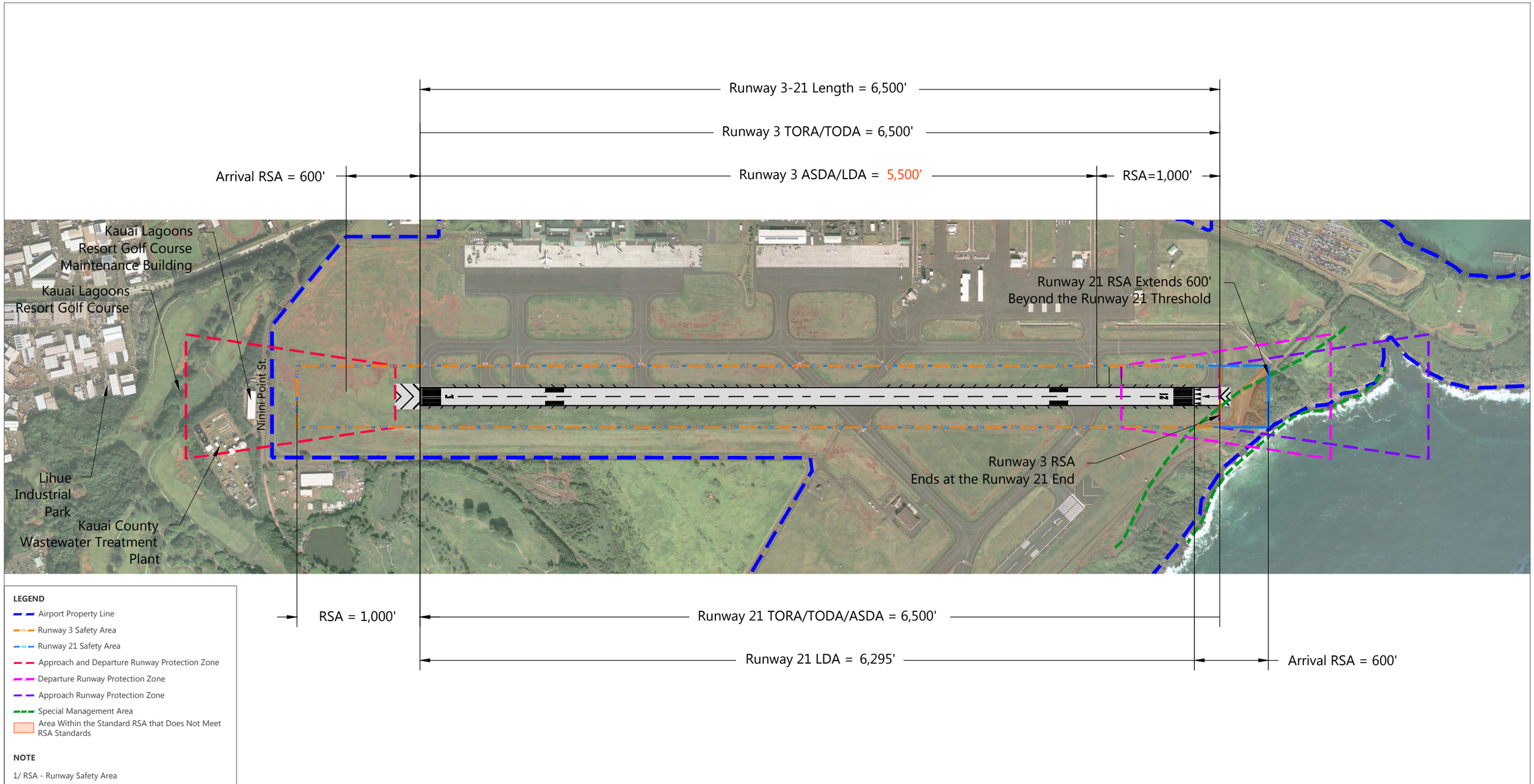

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 800 ft.

Drawing: Z:\Hawaii\LIH\04-RSA EA\12-CAD\LIH_RSA_EA_Alternative_7_20171030.dwg Layout: APDX B_B-17 Plotted: Mar 7, 2018, 03:30PM

Acronyms

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT B-17

Alternative 7

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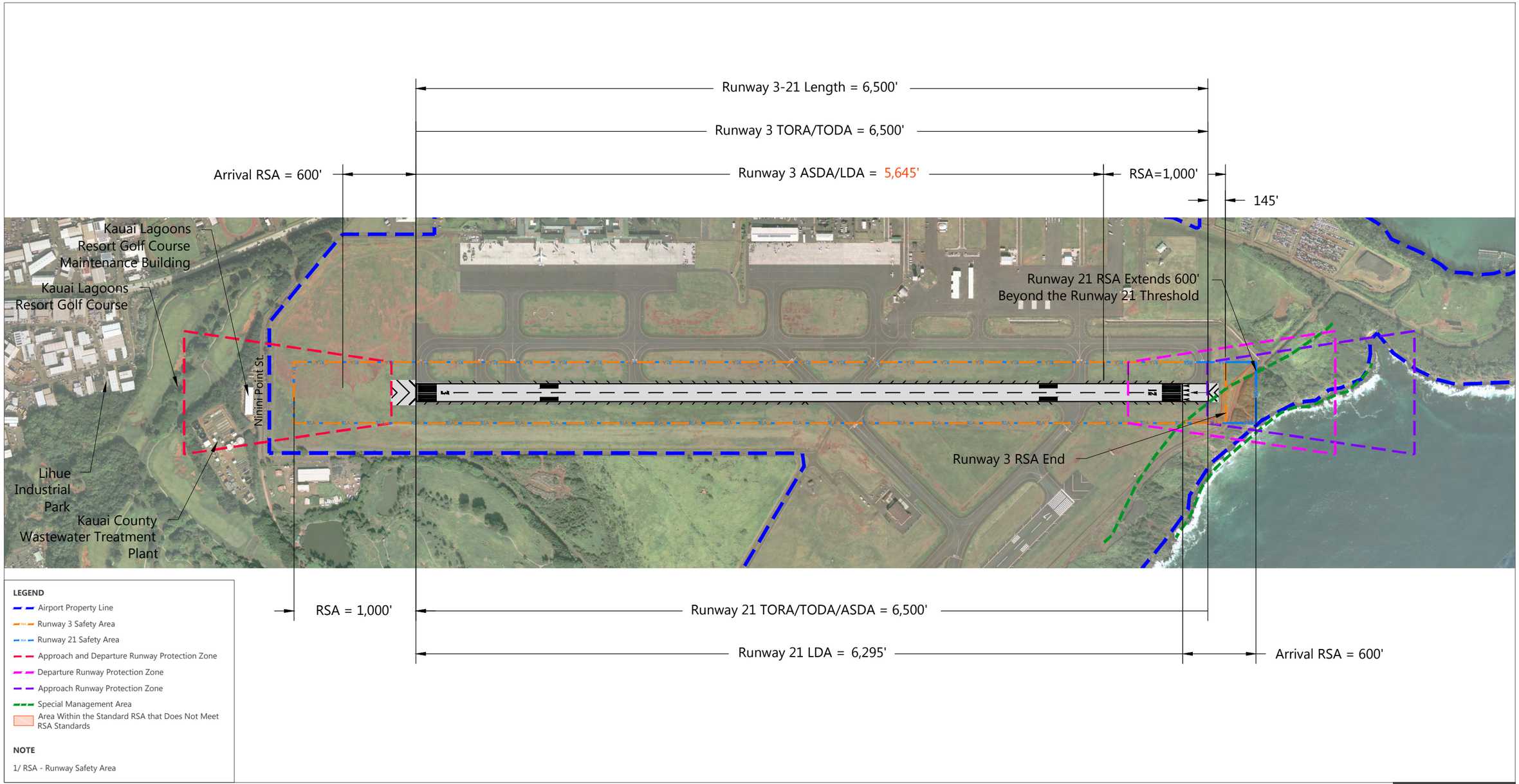

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 800 ft.

Drawing: Z:\Hawaii\LIH\04-RSA EA\12-CAD\LIH_RSA_EA_Alternative_8_20171030.dwg Layout: APDX B_B-18 Plotted: Mar 7, 2018, 03:35PM

Acronyms

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT B-18

Alternative 8

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B.3.18 SUMMARY OF ALTERNATIVES CONSIDERED

Table B-9 below provides a summary of the alternatives considered in the RSA Study and the components included in each alternative.

Table B-9: Summary of Alternatives

ALTERNATIVE	STANDARD RSA	DISPLACED THRESHOLD	RUNWAY SHIFT	DECLARED DISTANCES	EMAS
Alternative 1	X	X	X	X	X
Alternative 1 Refinement 1	X	X	X	X	X
Alternative 1 Refinement 2	X	X	X	X	
Alternative 1 Refinement 3		X	X	X	
Alternative 2	X		X		X
Alternative 3	X		X		X
Alternative 3 Refinement 1	X		X	X	X
Alternative 3 Refinement 2	X	X	X	X	X
Alternative 3 Refinement 3			X	X	X
Alternative 4	X		X	X	X
Alternative 4 Refinement 1	X		X		X
Alternative 4 Refinement 2		X	X	X	X
Alternative 4 Refinement 3			X	X	X
Alternative 5	X		X	X	
Alternative 6		X		X	
Alternative 7		X		X	
Alternative 8		X		X	

SOURCE: Ricondo & Associates, Inc., June 2016.
PREPARED BY: Ricondo & Associates, Inc., June 2016.

B.4 Evaluation of Alternatives

Evaluation of the RSA Study alternatives is based on the Step 1, 2, and 3 screening criteria described in Section B.2.1.

B.4.1 ALTERNATIVE 1

- Step 1 Criteria:
  - Alternative 1 would provide an RSA that meets FAA design standards at the Runway 21 end and a standard EMAS bed at the Runway 3 end. Through the use of the EMAS bed, declared distances and a shift in the Runway 21 displaced threshold, this alternative satisfies Step 1 criteria.
- Step 2 Criteria:
  - Alternative 1 would not require significant land acquisition or landfill for implementation. In order to meet FAA RSA design standards, this alternative includes EMAS at the Runway 3 end. Currently, less than 0.1 percent of departures at LIH occur to the Runway 3 end.[10] As such, construction and maintenance of EMAS at the Runway 3 end would not be a practicable means for providing a standard RSA. Therefore Alternative 1 would not be practicable to implement.

Therefore, since Alternative 1 does not meet Step 2 criteria this alternative was eliminated from further evaluation.

B.4.2 ALTERNATIVE 1 REFINEMENT 1

- Step 1 Criteria:
  - Alternative 1 Refinement 1 would provide an RSA that meets FAA design standards at the Runway 21 end and a standard EMAS bed at the Runway 3 end. Through the use of the EMAS bed, declared distances and a shift in the Runway 21 displaced threshold, this alternative satisfies Step 1 criteria.
- Step 2 Criteria:
  - Alternative 1 Refinement 1 would not require significant land acquisition or landfill for implementation. In order to meet FAA RSA design standards, this alternative includes EMAS at the Runway 3 end. Currently, less than 0.1 percent of departures at LIH occur to the Runway 3 end.[11] As such, construction and maintenance of EMAS at the Runway 3 end would

[10] Hawaii Department of Transportation, Airports Division, *Assessment of Impacts on Airport Utility Associated with Proposed RSA Improvement Alternatives,* February 19, 2015.

[11] Hawaii Department of Transportation, Airports Division, *Assessment of Impacts on Airport Utility Associated with Proposed RSA Improvement Alternatives,* February 19, 2015.

not be a practicable means for providing a standard RSA. Therefore Alternative 1 Refinement 1 would not be practicable to implement.

Therefore, since Alternative 1 Refinement 1 does not meet Step 2 criteria this alternative was eliminated from further evaluation.

B.4.3 ALTERNATIVE 1 REFINEMENT 2

- Step 1 Criteria:
  - Alternative 1 Refinement 2 would provide an RSA that meets FAA design standards for both runway ends. Through the use of a runway pavement extension, declared distances, shift in displaced threshold and retaining wall with fill, this alternative satisfies Step 1 criteria.
- Step 2 Criteria:
  - Alternative 1 Refinement 2 would not require significant land acquisition or landfill for implementation. Therefore Alternative 1 Refinement 2 would be practicable to implement and meets Step 2 criteria.
- Step 3 Criteria:
  - Alternative 1 Refinement 2 would use a DER in order to mitigate some of the Runway 3 end RPZ penetrations. Commercial and public facilities, as well as a public roadway, would penetrate the RPZs on the Runway 3 end. A public road beyond the Runway 21 end would penetrate the RPZ. As a result of Alternative 1 Refinement 2 the Runway 21 LDA (6,230 feet) is less than the existing LDA (6,295 feet). This reduction in LDA from existing conditions would potentially result in significant impacts to airport operations.

Therefore, since Alternative 1 Refinement 2 does not meet Step 3 criteria this alternative was eliminated from further evaluation.

B.4.4 ALTERNATIVE 1 REFINEMENT 3

- Step 1 Criteria:
  - Alternative 1 Refinement 3 would provide an RSA that meets FAA design standards at the Runway 21 end. At the Runway 3 end, this alternative would provide a non-standard RSA that substantially meets FAA RSA design standards. The non-standard RSA on the Runway 3 end has been agreed upon by HDOT-A and FAA as a means of meeting RSA design standards to the maximum extent practicable, since this RSA would provide the required 600-foot arrival RSA and no take-offs by commercial passenger airplanes occur towards the non-standard Runway 3 end 935-foot RSA. Currently, less than 0.1 percent of departures at LIH occur to the

Runway 3 end.[12] Since this alternative has been agreed upon by HDOT-A and FAA as an acceptable non-standard RSA for Runway 3, it meets Step 1 criteria.

- Step 2 Criteria:
  - Alternative 1 Refinement 3 would not require significant land acquisition or landfill for implementation. Therefore Alternative 1 Refinement 3 would be practicable to implement and meets Step 2 criteria.
- Step 3 Criteria:
  - Alternative 1 Refinement 3 would use a DER in order to mitigate some of the Runway 3 end RPZ penetrations. Commercial and public facilities, as well as a public roadway, would penetrate the RPZs on the Runway 3 end. A public road beyond the Runway 21 end would penetrate the RPZ. The resulting Runway 21 LDA (6,230 feet) is less than the existing LDA (6,295 feet). However, these RPZ penetrations and reduction in LDA distance were determined to be less than significant. Similarly, the non-standard RSA at the Runway 3 end that has been agreed upon by FAA, HDOT-A and the airlines would substantially meet FAA design standards and improve airport safety.

Therefore, since Alternative 1 Refinement 3 meets Step 3 criteria this alternative was retained for further evaluation.

B.4.5 ALTERNATIVE 2

- Step 1 Criteria:
  - Alternative 2 would provide an RSA that meets FAA design standards at the Runway 3 end and a standard EMAS bed at the Runway 21 end. Through the use of a runway pavement extension, shift in thresholds, EMAS, and retaining wall with fill, this alternative satisfies Step 1 criteria.
- Step 2 Criteria:
  - Alternative 2 would require an extensive amount of fill to grade the area northeast of the Runway 21 end improvements. Fill and grading in this area would require the public roadway beyond the Runway 21 end to be tunneled below the RSA. Due to the complexity of filling and grading the coastal area beyond the Runway 21 end and tunneling the public roadway, this alternative would not be practicable to implement and does not satisfy Step 2 criteria.

Therefore, since Alternative 2 does not satisfy Step 2 criteria this alternative was eliminated from further evaluation.

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[12] Hawaii Department of Transportation, Airports Division, *Assessment of Impacts on Airport Utility Associated with Proposed RSA Improvement Alternatives,* February 19, 2015.

B.4.6 ALTERNATIVE 3

- Step 1 Criteria:
  - Alternative 3 would provide an RSA that meets FAA design standards at the Runway 3 end and a standard EMAS bed at the Runway 21 end. Through the use of the EMAS bed, declared distances, and a shift in the Runway 21 displaced threshold, this alternative satisfies Step 1 criteria.
- Step 2 Criteria:
  - Alternative 3 would not require significant land acquisition or landfill for implementation. In order to meet FAA RSA design standards, this alternative includes EMAS at the Runway 3 end. Currently, less than 0.1 percent of departures at LIH occur to the Runway 3 end.[13] As such, construction and maintenance of EMAS at the Runway 3 end would not be a practicable means for providing a standard RSA. Therefore Alternative 3 Refinement 1 would not be practicable to implement.

Therefore, since Alternative 3 does not meet Step 2 criteria this alternative was eliminated from further evaluation.

B.4.7 ALTERNATIVE 3 REFINEMENT 1

- Step 1 Criteria:
  - Alternative 3 Refinement 1 would provide an RSA that meets FAA design standards at the Runway 3 end and a standard EMAS bed at the Runway 21 end. Through the use of the EMAS bed, declared distances, and a shift in the Runway 21 displaced threshold, this alternative satisfies Step 1 criteria.
- Step 2 Criteria:
  - Alternative 3 Refinement 1 would not require significant land acquisition or landfill for implementation. Therefore Alternative 3 Refinement 1 would be practicable to implement and meets Step 2 criteria.
- Step 3 Criteria:
  - Implementation of Alternative 3 Refinement 1 would result in in RPZ penetrations by residential, industrial (Lihue Industrial Park), commercial (Kauai Lagoons Resort Golf Course), and public (Kauai County Wastewater Treatment Plant) facilities, as well as a public roadway, on the Runway 3 end. These RPZ penetrations would be a significant impact to the safe and efficient use of navigable airspace and result in an impact to LIH airport operations. As a result of Alternative 3 Refinement 1 the Runway 21 LDA (6,245 feet) would be less than the

[13] Hawaii Department of Transportation, Airports Division, *Assessment of Impacts on Airport Utility Associated with Proposed RSA Improvement Alternatives,* February 19, 2015.

existing LDA (6,295 feet). This reduction in LDA from existing conditions would potentially result in significant impacts to airport operations.

Therefore, since Alternative 3 Refinement 1 does not meet Step 3 criteria this alternative was eliminated from further evaluation.

B.4.8 ALTERNATIVE 3 REFINEMENT 2

- Step 1 Criteria:
  - Alternative 3 Refinement 2 would use standard EMAS beds at both runway ends along with declared distances and runway shifts to meet FAA RSA design standards. Therefore this alternative satisfies Step 1 criteria.
- Step 2 Criteria:
  - Alternative 3 Refinement 2 would not require significant land acquisition or landfill for implementation. In order to meet FAA RSA design standards, this alternative includes EMAS at the Runway 3 end. Currently, less than 0.1 percent of departures at LIH occur to the Runway 3 end.[14] As such, construction and maintenance of EMAS at the Runway 3 end would not be a practicable means for providing a standard RSA. Therefore Alternative 3 Refinement 2 would not be practicable to implement.

Therefore, since Alternative 3 Refinement 2 does not meet Step 2 criteria this alternative was eliminated from further evaluation.

B.4.9 ALTERNATIVE 3 REFINEMENT 3

- Step 1 Criteria:
  - Alternative 3 Refinement 3 through the use of EMAS would provide an RSA that meets FAA design standards at the Runway 21 end. At the Runway 3 end, this alternative would provide a non-standard RSA that substantially meets FAA RSA design standards. The non-standard RSA on the Runway 3 end has been agreed upon by HDOT-A and FAA as a means of meeting RSA design standards to the maximum extent practicable, since this RSA would provide the required 600-foot arrival RSA and no take-offs by commercial passenger airplanes occur towards the non-standard Runway 3 end 950-foot RSA. Currently, less than 0.1 percent of departures at LIH occur to the Runway 3 end.[15] Since this alternative has been agreed upon by HDOT-A and FAA as an acceptable non-standard RSA for Runway 3, it meets Step 1 criteria.

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[14] Hawaii Department of Transportation, Airports Division, *Assessment of Impacts on Airport Utility Associated with Proposed RSA Improvement Alternatives,* February 19, 2015.

[15] Hawaii Department of Transportation, Airports Division, *Assessment of Impacts on Airport Utility Associated with Proposed RSA Improvement Alternatives,* February 19, 2015.

- Step 2 Criteria:
  - Alternative 3 Refinement 3 would not require significant land acquisition or landfill for implementation. Therefore Alternative 3 Refinement 3 would be practicable to implement and meets Step 2 criteria.
- Step 3 Criteria:
  - Implementation of Alternative 3 Refinement 3 would result in RPZ penetrations by industrial (Lihue Industrial Park), commercial (Kauai Lagoons Resort Golf Course) and public (Kauai County Wastewater Treatment Plant) facilities, as well as a public road along the airport property, at the Runway 3 end. A public road beyond the Runway 21 end would penetrate the RPZ. The resulting Runway 21 TORA/TODA (6,361 feet) is less than the existing TORA/TODA (6,500 feet). The resulting Runway 3 LDA (6,361 feet) is less than the existing LDA (6,500 feet). The reduction in the Runway 21 TORA/TODA from existing conditions would result in operational impacts to airlines at LIH.

Therefore, since Alternative 3 Refinement 3 does not meet Step 3 criteria this alternative was eliminated from further evaluation.

B.4.10 ALTERNATIVE 4

- Step 1 Criteria:
  - Alternative 4 would provide an RSA that meets FAA design standards at the Runway 3 end and a standard EMAS bed at the Runway 21 end. Through the use of the EMAS bed, declared distances and a shift in the Runway 3-21, this alternative satisfies Step 1 criteria.
- Step 2 Criteria:
  - Alternative 4 would not require significant land acquisition or landfill for implementation. Therefore Alternative 4 would be practicable to implement and meets Step 2 criteria.
- Step 3 Criteria:
  - Implementation of Alternative 4 would result in residential, industrial (Lihue Industrial Park), commercial (Kauai Lagoons Resort Golf Course), and public (Kauai County Wastewater Treatment Plant) facilities, as well as public roadway penetrations of the Runway 3 end RPZs. The resulting Runway 21 LDA (6,169 feet) would be less than the existing LDA (6,295 feet). These RPZ penetrations as well as the decrease to the Runway 21 LDA would be a significant impact to the safe and efficient use of navigable airspace and result in an impact to LIH airport operations.

Therefore, since Alternative 4 does not meet Step 3 criteria this alternative was eliminated from further evaluation.

B.4.11 ALTERNATIVE 4 REFINEMENT 1

- Step 1 Criteria:
  - Alternative 4 would use standard EMAS beds at both runway ends along with declared distances and runway shifts to meet FAA RSA design standards. Alternative 4 Refinement 1 would provide an RSA that meets FAA design standards at the Runway 3 end and a standard EMAS bed at the Runway 21 end. Through the use of the EMAS bed, declared distances, and a shift of Runway 3-21, this alternative satisfies Step 1 criteria.
- Step 2 Criteria:
  - Alternative 4 Refinement 1 would not require significant land acquisition or landfill for implementation. In order to meet FAA RSA design standards, this alternative includes EMAS at the Runway 3 end. Currently, less than 0.1 percent of departures at LIH occur to the Runway 3 end.[16] As such, construction and maintenance of EMAS at the Runway 3 end would not be a practicable means for providing a standard RSA. Therefore Alternative 4 Refinement 1 would not be practicable to implement.

Therefore, since Alternative 4 Refinement 1 does not meet Step 2 criteria this alternative was eliminated from further evaluation.

B.4.12 ALTERNATIVE 4 REFINEMENT 2

- Step 1 Criteria:
  - Alternative 4 Refinement 2 through the use of EMAS and a runway shift would provide an RSA that meets FAA design standards at the Runway 21 end. At the Runway 3 end, this alternative would provide a non-standard RSA that substantially meets FAA RSA design standards. The non-standard RSA on the Runway 3 end has been agreed upon by HDOT-A and FAA as a means of meeting RSA design standards to the maximum extent practicable, since this RSA would provide the required 600-foot arrival RSA and no take-offs by commercial passenger airplanes occur towards the non-standard Runway 3 end 874-foot RSA. Currently, less than 0.1 percent of departures at LIH occur to the Runway 3 end.[17] Since this alternative has been agreed upon by HDOT-A and FAA as an acceptable non-standard RSA for Runway 3, it meets Step 1 criteria.

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16 Hawaii Department of Transportation, Airports Division, *Assessment of Impacts on Airport Utility Associated with Proposed RSA Improvement Alternatives,* February 19, 2015.

17 Hawaii Department of Transportation, Airports Division, *Assessment of Impacts on Airport Utility Associated with Proposed RSA Improvement Alternatives,* February 19, 2015.

- Step 2 Criteria:
  - Alternative 4 Refinement 2 would not require significant land acquisition or landfill for implementation. Therefore Alternative 4 Refinement 2 would be practicable to implement and meets Step 2 criteria.
- Step 3 Criteria:
  - Implementation of Alternative 4 Refinement 2 would result in RPZ penetrations by industrial (Lihue Industrial Park), commercial (Kauai Lagoons Resort Golf Course) and public (Kauai County Wastewater Treatment Plant) facilities, as well as a public road along the airport property, at the Runway 3 end. A public road beyond the Runway 21 end would penetrate the RPZ. However, these RPZ penetrations were determined to be less than significant. Similarly, the non-standard RSA at the Runway 3 end that has been agreed upon by FAA, HDOT-A, and the airlines would substantially meet FAA design standards and would improve airport safety. However, the resulting Runway 21 TORA/TODA (5,984 feet) is less than the existing TORA/TODA (6,500 feet). The resulting Runway 3 LDA (5,984 feet) is less than the existing LDA (6,500 feet). The reduction in the Runway 21 TORA/TODA and Runway 3 LDA from existing conditions would result in operational impacts to airlines at LIH.

Therefore, since Alternative 4 Refinement 2 does not meet Step 3 criteria this alternative was eliminated from further evaluation.

B.4.13 ALTERNATIVE 4 REFINEMENT 3

- Step 1 Criteria:
  - Alternative 4 Refinement 3 through the use of EMAS and a runway shift would provide an RSA that meets FAA design standards at the Runway 21 end. At the Runway 3 end, this alternative would provide a non-standard RSA that substantially meets FAA RSA design standards. The non-standard RSA on the Runway 3 end has been agreed upon by HDOT-A and FAA as a means of meeting RSA design standards to the maximum extent practicable, since this RSA would provide the required 600-foot arrival RSA and no take-offs by commercial passenger airplanes occur towards the non-standard Runway 3 end 884-foot RSA. Currently, less than 0.1 percent of departures at LIH occur to the Runway 3 end.[18] Since this alternative has been agreed upon by HDOT-A and FAA as an acceptable non-standard RSA for Runway 3, it meets Step 1 criteria.

[18] Hawaii Department of Transportation, Airports Division, *Assessment of Impacts on Airport Utility Associated with Proposed RSA Improvement Alternatives,* February 19, 2015.

- Step 2 Criteria:
  - Alternative 4 Refinement 3 would not require significant land acquisition or landfill for implementation. Therefore Alternative 4 Refinement 3 would be practicable to implement and meets Step 2 criteria.
- Step 3 Criteria:
  - Implementation of Alternative 4 Refinement 3 would result in RPZ penetrations by commercial and public facilities, as well as a public road along the airport property, at the Runway 3 end. A public road beyond the Runway 21 end would penetrate the RPZ. However, these RPZ penetrations were determined to be less than significant. Similarly, the non-standard RSA at the Runway 3 end that has been agreed upon by FAA and HDOT-A would substantially meet FAA design standards and would improve airport safety. However, Alternative 4 Refinement 3 would result in the decrease in declared distances for Runway 3-21 to 6,285 feet for all distances. These decreases in declared distances would result in significant impacts to airport operations.

Therefore, since Alternative 4 Refinement 3 does not satisfy Step 3 criteria this alternative was eliminated from further evaluation.

B.4.14 ALTERNATIVE 5

- Step 1 Criteria:
  - Alternative 5 would provide an RSA that meets FAA design standards for both runway ends. Through reducing runway length and using declared distances, this alternative satisfies Step 1 criteria.
- Step 2 Criteria:
  - Alternative 5 would not require significant land acquisition or landfill for implementation. Therefore Alternative 5 would be practicable to implement and meets Step 2 criteria.
- Step 3 Criteria:
  - Alternative 5 would result in RPZ penetrations by commercial, public facilities, and a public roadway at the Runway 3 end. This alternative would reduce runway length and limit the declared distances available. The reduced runway length and declared distances as a result of Alternative 5 would significantly impact airport operations.

Therefore, since Alternative 5 does not satisfy Step 3 criteria this alternative was eliminated from further evaluation.

B.4.15 ALTERNATIVE 6

- Step 1 Criteria:
  - Alternative 6 would meet FAA RSA design standards at the Runway 3 end but would have a non-standard arrival RSA (350 feet) at the Runway 21 end. Additionally, this alternative would not maintain the required RSA width for the full length of the runway. This alternative would not meet the purpose and need of the project.

Therefore, since Alternative 6 does not satisfy Step 1 criteria, this alternative was eliminated from further evaluation.

B.4.16 ALTERNATIVE 7

- Step 1 Criteria:
  - Alternative 7 would meet FAA RSA design standards at the Runway 3 end but would have a non-standard arrival RSA (350 feet) at the Runway 21 end. Additionally, this alternative would not maintain the required RSA width for the full length of the runway. This alternative would not meet the purpose and need of the project.

Therefore, since Alternative 7 does not satisfy Step 1 criteria, this alternative was eliminated from further evaluation.

B.4.17 ALTERNATIVE 8

- Step 1 Criteria:
  - Alternative 8 would meet FAA RSA design standards at the Runway 3 end but would have a non-standard arrival RSA (350 feet) at the Runway 21 end. Additionally, this alternative would not maintain the required RSA width for the full length of the runway. This alternative would not meet the purpose and need of the project.

Therefore, since Alternative 8 does not satisfy Step 1 criteria, this alternative was eliminated from further evaluation.

B.5 Alternatives Carried Forward for Evaluation

Table B-10 summarizes the results of the alternatives screening evaluation. As stated above, the Runway 3-21 Alternative 1 Refinement 3 has been carried forward for further analysis, because of its ability to meet the three screening level criteria described in Section B.2.

Table B-10: Summary of RSA Alternatives Screening Evaluation

ALTERNATIVE	ALTERNATIVE PASS TO THE NEXT STEP			RETAINED FOR FURTHER ANALYSIS IN THE FINAL EA?
	STEP 1	STEP 2	STEP 3	
Alternative 1	Yes	No		No
Alternative 1 Refinement 1	Yes	No		No
Alternative 1 Refinement 2	Yes	Yes	No	No
Alternative 1 Refinement 3	Yes	Yes	Yes	Yes
Alternative 2	Yes	No		No
Alternative 3	Yes	No		No
Alternative 3 Refinement 1	Yes	Yes	No	No
Alternative 3 Refinement 2	Yes	No		No
Alternative 3 Refinement 3	Yes	Yes	No	No
Alternative 4	Yes	Yes	No	No
Alternative 4 Refinement 1	Yes	No		No
Alternative 4 Refinement 2	Yes	Yes	No	No
Alternative 4 Refinement 3	Yes	Yes	No	No
Alternative 5	Yes	Yes	No	No
Alternative 6	No			No
Alternative 7	No			No
Alternative 8	No			No

SOURCE: Ricondo & Associates, Inc., May 2016.
PREPARED BY: Ricondo & Associates, Inc., May 2016

Appendix C

Noise Analysis

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Appendix C Noise Analysis

C.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 Lihue Airport. 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. 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.[1] The Aviation Environmental Design Tool (AEDT) Version 2c, released in September 2016, 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 2015, 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 2019 (first full year of operation post-construction) and 2024 (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, evening, 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, five standard ranges of DNL noise contours are presented: DNL 55 – 59 decibels (dB), DNL 60 – 64 decibels (dB), DNL 65 – 69 dB, DNL 70 - 75 dB, and DNL 75 dB and above.

The flight tracks modeled in the AEDT are based on current published Standard Instrument Departures (SIDS) and Standard Terminal Arrival Routes (STARS); Letter of Agreement Lihue FAA contract Tower and Lihue Heliport Tenants, 2/28/14; 14 CFR Part 150, Noise Compatibility Planning Program Update for Lihue Airport, October 2008; and discussions with the Lihue Airport Traffic Control Tower (ATCT) and Airport Personnel.. 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); FAA's Airport Traffic ATCT count records from the

[1] U.S. Department of Transportation, Federal Aviation Administration 14 CFR Chapter I, "Noise, Fuel Burn, and Emissions Modeling Using the Aviation Environmental Design Tool Version 2b," *Federal Register 80*, no. 94 (May 15, 2015).

Operations Network (OPSNET); and the Airport Operations records; T-100 Summary, Bureau of Transportation Statistics, U.S. DOT data; and Air Carrier Scheduled Operations data from Innovata Diio.

C.2 Input Data

C.2.1 ACTIVITY LEVEL

The existing activity level is based on the FAA's ATCT counts and the future activity level was estimated using the FAA's Terminal Area Forecast (TAF), issued January 2016. **Tables C-1 through C-4** present annual and average annual day aircraft operations for existing (2015) and future (2019 and 2024) scenarios.

Table C-1: Annual Aircraft Itinerant Operations by User Category

	ANNUAL ITINERANT OPERATIONS		
USER CATEGORY	**2015 1/**	**2019 2/**	**2024 2/**
Air Carrier	23,652	22,621	25,184
Air Taxi	77,971	79,867	83,938
General Aviation	11,039	11,426	11,889
Military	4,463	4,166	4,166
Total	**117,125**	**118,080**	**125,177**

NOTES:

1/ Historical annual operations for calendar year. Average annual day operations are computed by dividing the annual operations by 365 days.

2/ Annual operations from the FAA's TAF for the fiscal year. Average annual day operations are computed by dividing the annual operations by 365 days.

SOURCES: Operations for 2015 are based on the ATCT counts obtained from the FAA's OPSNET; 2019 and 2024 operations are based on the Federal Aviation Administration, Terminal Area Forecast, January 2016.

PREPARED BY: Ricondo & Associates, Inc., December 2016.

Table C-2: Annual Aircraft Local Operations by User Category

	ANNUAL LOCAL OPERATIONS		
USER CATEGORY	**2015 1/**	**2019 2/**	**2024 2/**
Civil	13,454	14,237	15,437
Military	2,091	2,174	2,174
Total	**15,545**	**16,411**	**17,611**

NOTES:

1/ Historical annual operations for calendar year.

2/ Annual operations from the FAA's TAF for the fiscal year. Average annual day operations are computed by dividing the annual operations by 365 days.

SOURCES: Operations for 2015 are based on the ATCT counts obtained from the FAA's OPSNET; 2019 and 2024 operations are based on the FAA's Terminal Area Forecast, issued January 2016..

PREPARED BY: Ricondo & Associates, Inc., December 2016.

Table C-3: Average Annual Day Aircraft Itinerant Operations by User Category

	AVERAGE ANNUAL DAY ITINERANT OPERATIONS		
USER CATEGORY	**2015 1/**	**2019 2/**	**2024 2/**
Air Carrier	64.8	62.0	69.0
Air Taxi	213.6	218.18	230.0
General Aviation	30.2	31.3	32.6
Military	12.2	11.4	11.4
Total 3/	**320.9**	**323.5**	**343.0**

NOTES:

1/ Historical annual operations for calendar year. Average annual day operations are computed by dividing the annual operations by 365 days.

2/ Annual operations from the FAA's TAF for the fiscal year. Average annual day operations are computed by dividing the annual operations by 365 days.

3/ Total may reflect rounding.

SOURCES: Operations for 2015 are based on the ATCT counts obtained from the FAA's OPSNET; 2019 and 2024 operations are based on the FAA's Terminal Area Forecast, issued January 2016.

PREPARED BY: Ricondo & Associates, Inc., December 2016.

Table C-4: Average Annual Day Local Aircraft Operations by User Category

USER CATEGORY	AVERAGE ANNUAL DAY LOCAL OPERATIONS 2015 1/	2019 2/	2024 2/
Civil	36.9	39.0	42.3
Military	5.7	6.0	6.0
Total	**42.6**	**45.0**	**48.3**

NOTES:

1/ Historical annual operations for calendar year. Average annual day operations are computed by dividing the annual operations by 365 days.

2/ Annual operations from the FAA's TAF for the fiscal year. Average annual day operations are computed by dividing the annual operations by 365 days.

SOURCES: Operations for 2015 are based on ATCT counts obtained from the FAA's OPSNET; 2019 and 2024 operations are based on the FAA's Terminal Area Forecast, issued January 2016.6.

PREPARED BY: Ricondo & Associates, Inc., December 2016.

C.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 LIH. The AEDT then uses the appropriate noise-thrust-distance data for each aircraft type in calculating the overall noise exposure.

Tables C-5 through C-10 present the number of itinerant and local operations by arrivals and departures, daytime and nighttime activity, and aircraft type for the years 2015, 2019, and 2024.[2] The aircraft types were selected based on the following considerations:

- Future commercial air service at LIH would resemble current service, in terms of markets served and the size of aircraft providing service; although, the number of operations would be greater.
- Older aircraft types (including 737-200-hushkit)) would be replaced by B737-700/800 series.
- All Stage 2 business jet aircraft would be retired from the domestic fleet and replaced by modern Stage 3 business jets of generally comparable size and range.[3]

[2] Itinerant operations are takeoffs and landings to and from other airports.

[3] This refers to 14 CFR Part 36, *Noise Standards, Aircraft Type and Airworthiness Certification*. Before obtaining permits to operate in the United States, aircraft must be certified for compliance with the requirements of Part 36, which establishes maximum allowable noise levels. Certification levels currently range from Stage 1 (loudest) to Stage 4 (quietest). Stage 1 aircraft were required to cease operating in the United States in 1985. As of December 31, 2015, Stage 2 small jet aircraft are no longer allowed to operate in the United States. Refer to 14 CFR Part 36, *Noise Standards, Aircraft Type and Airworthiness Certification*, Sections 36.103, 36.501, and 36.805.

Table C-5 (1 of 2): Itinerant AAD Operations by AEDT Aircraft Type and Time of Day – 2015

		ARRIVAL			DEPARTURE			
AIRCRAFT CATEGORY	AEDT AIRCRAFT TYPE	DAY [1/]	NIGHT [2/]	TOTAL	DAY [1/]	NIGHT [2/]	TOTAL	TOTAL
Heavy Jet	757PW	2.8134	0.2747	3.0881	2.6262	0.4619	3.0881	6.1761
	757RR	1.2058	0.1177	1.3235	1.1255	0.1979	1.3235	2.6469
	767300	0.2783	0.0272	0.3055	0.2598	0.0457	0.3055	0.6109
	Heavy Jet Total	**4.2975**	**0.4195**	**4.7170**	**4.0115**	**0.7055**	**4.7170**	**9.4340**
Large Jet	717200	17.1723	1.6764	18.8487	16.0297	2.8190	18.8487	37.6974
	737300	1.2629	0.1233	1.3862	1.1789	0.2073	1.3862	2.7724
	737700	0.1293	0.0000	0.1293	0.1293	0.0000	0.1293	0.2586
	737800	4.0257	0.3930	4.4187	3.7579	0.6609	4.4187	8.8375
	737N17	0.9948	0.0971	1.0920	0.9286	0.1633	1.0920	2.1839
	A321-232	0.1720	0.0168	0.1888	0.1606	0.0282	0.1888	0.3776
Small Jet	CL600	0.8692	0.3136	1.1828	0.8712	0.3115	1.1828	2.3655
	CL601	0.2855	0.1481	0.4336	0.2977	0.1359	0.4336	0.8671
	CNA500	0.6574	0.3878	1.0452	0.6975	0.3477	1.0452	2.0903
	CNA750	0.2455	0.1017	0.3472	0.2495	0.0978	0.3472	0.6945
	EMB145	0.0548	0.0148	0.0696	0.0537	0.0159	0.0696	0.1392
	F10062	0.5339	0.2259	0.7599	0.5437	0.2162	0.7599	1.5197
	GIIB	0.4159	0.2270	0.6428	0.4365	0.2063	0.6428	1.2857
	GIV	2.0151	0.9360	2.9511	2.0810	0.8702	2.9511	5.9023
	GV	0.9562	0.4855	1.4416	0.9968	0.4448	1.4416	2.8833
	LEAR35	0.2107	0.0843	0.2949	0.2169	0.0781	0.2949	0.5899
Large and Small Jet Total		**30.0013**	**5.2311**	**35.2324**	**28.6294**	**6.6030**	**35.2324**	**70.4649**
Prop/TurboProp	BEC58P	0.4448	0.2867	0.7315	0.4781	0.2534	0.7315	1.4630
	CNA182	1.6387	0.6194	2.2581	1.6498	0.6083	2.2581	4.5162
	CNA206	0.1458	0.0940	0.2398	0.1568	0.0831	0.2398	0.4797
	CNA208	15.6865	4.2525	19.9390	15.3635	4.5755	19.9390	39.8780
	CNA441	46.8850	13.6675	60.5525	46.1645	14.3880	60.5525	121.1051
	DHC6	0.1363	0.0000	0.1363	0.1363	0.0000	0.1363	0.2726
	DHC830	1.5931	0.1555	1.7486	1.4871	0.2615	1.7486	3.4972
	GASEPV	0.5305	0.3317	0.8622	0.5677	0.2946	0.8622	1.7245
	PA31	2.4967	1.1160	3.6127	2.5577	1.0550	3.6127	7.2254

Table C-5 (2 of 2): Itinerant AAD Operations by AEDT Aircraft Type and Time of Day – 2015

		ARRIVAL			DEPARTURE			
AIRCRAFT CATEGORY	AEDT AIRCRAFT TYPE	DAY 1/	NIGHT 2/	TOTAL	DAY 1/	NIGHT 2/	TOTAL	TOTAL
	SF340	19.1973	5.1741	24.3714	18.7943	5.5771	24.3714	48.7427
	Prop/TurboProp Total	**88.7548**	**25.6974**	**114.4522**	**87.3556**	**27.0965**	**114.4522**	**228.9044**
Military 3/	C130E	0.1960	0.0000	0.1960	0.1960	0.0000	0.1960	0.3919
	C17	0.4681	0.0000	0.4681	0.4681	0.0000	0.4681	0.9361
	P3C	4.8011	0.0000	4.8011	4.8011	0.0000	4.8011	9.6022
	Military Total	**5.4651**	**0.0000**	**5.4651**	**5.4651**	**0.0000**	**5.4651**	**10.9302**
Helicopter 4/	Combined	0.4422	0.1363	0.5785	0.4580	0.1205	0.5785	1.1569
	Helicopter Total	**0.4422**	**0.1363**	**0.5785**	**0.4580**	**0.1205**	**0.5785**	**1.1569**
Total Itinerant Operations		**128.9608**	**31.4844**	**160.4452**	**125.9197**	**34.5255**	**160.4452**	**320.8904**

NOTES:

1/ Day = 7:00 a.m. to 9:59 p.m.

2/ Night = 10:00 p.m. to 6:59 a.m.

3/ Civilian type aircraft operated by military and government agencies are included in large jet, small jet prop/turboprop and helicopter categories.

4/ Helicopter includes: S65, S61, S70, S76, CH47D, SA365N, and SA355F

SOURCES: Airport Operations, FAA Operations Network (OPSNET), https://aspm.faa.gov/opsnet/sys/Airport.asp, Date Accessed: 10/14/2016; Distributed Airport Operations Data from January 1, 2015 to December 31, 2015, Traffic Flow Management System Counts (TFMSC) Aviation System Performance Metrics (ASPM), https://aspm.faa.gov/tfms/sys/main.asp, Date Accessed: 10/11/2016; T-100 Summary Report for flights from LIH for travel between January 2015 and December 2015, Bureau of Transportation Statistics, U.S. DOT, October 2016; Air Carrier Scheduled Operations data from January 1, 2015 to December 31, 2015, Innovata Schedule Diio, LLC, October 2016; Ricondo & Associates, Inc., October 2016.

PREPARED BY: Ricondo & Associates, Inc., December 2016.

Table C-6 (1 of 2): Itinerant AAD Operations by AEDT Aircraft Type and Time of Day – 2019

		ARRIVAL			DEPARTURE			
AIRCRAFT CATEGORY	AEDT AIRCRAFT TYPE	DAY [1/]	NIGHT [2/]	TOTAL	DAY [1/]	NIGHT [2/]	TOTAL	TOTAL
Heavy Jet	757PW	2.6908	0.2627	2.9535	2.5117	0.4417	2.9535	5.9069
	757RR	1.1532	0.1126	1.2658	1.0765	0.1893	1.2658	2.5315
	767300	0.2662	0.0260	0.2921	0.2485	0.0437	0.2921	0.5843
	Heavy Jet Total	**4.1101**	**0.4012**	**4.5114**	**3.8366**	**0.6747**	**4.5114**	**9.0228**
Large Jet	717200	16.4238	1.6033	18.0271	15.3309	2.6962	18.0271	36.0542
	737300	1.2079	0.1179	1.3258	1.1275	0.1983	1.3258	2.6515
	737700	0.1207	0.0000	0.1207	0.1207	0.0000	0.1207	0.2413
	737800	4.8017	0.4688	5.2705	4.4822	0.7883	5.2705	10.5410
	A321-232	0.1645	0.0161	0.1806	0.1536	0.0270	0.1806	0.3612
Small Jet	CL600	0.8926	0.3227	1.2153	0.8949	0.3204	1.2153	2.4305
	CL601	0.2945	0.1530	0.4475	0.3071	0.1403	0.4475	0.8949
	CNA500	0.6794	0.4011	1.0805	0.7209	0.3596	1.0805	2.1610
	CNA750	0.2525	0.1049	0.3574	0.2566	0.1007	0.3574	0.7147
	EMB145	0.0561	0.0151	0.0713	0.0550	0.0163	0.0713	0.1425
	F10062	0.5492	0.2330	0.7822	0.5594	0.2228	0.7822	1.5644
	GIV	2.0684	0.9664	3.0348	2.1367	0.8981	3.0348	6.0696
	GV	1.4129	0.7362	2.1491	1.4765	0.6726	2.1491	4.2983
	LEAR35	0.2133	0.0870	0.3003	0.2197	0.0806	0.3003	0.6006
	Large and Small Jet Total	**29.1375**	**5.2254**	**34.3629**	**27.8417**	**6.5211**	**34.3629**	**68.7257**
Prop/TurboProp	BEC58P	0.4604	0.2968	0.7572	0.4949	0.2622	0.7572	1.5143
	CNA182	1.6836	0.6378	2.3214	1.6954	0.6260	2.3214	4.6428
	CNA206	0.1510	0.0973	0.2482	0.1623	0.0860	0.2482	0.4965
	CNA208	16.0687	4.3563	20.4250	15.7379	4.6872	20.4250	40.8501
	CNA441	48.0546	14.0189	62.0735	47.3188	14.7547	62.0735	124.1471
	DHC6	0.1272	0.0000	0.1272	0.1272	0.0000	0.1272	0.2544
	DHC830	1.5236	0.1487	1.6724	1.4222	0.2501	1.6724	3.3447
	GASEPV	0.5488	0.3432	0.8921	0.5873	0.3048	0.8921	1.7842
	PA31	2.5701	1.1513	3.7214	2.6335	1.0879	3.7214	7.4428
	SF340	19.6641	5.2999	24.9640	19.2513	5.7127	24.9640	49.9280

Table C-6 (2 of 2): Itinerant AAD Operations by AEDT Aircraft Type and Time of Day – 2019

		ARRIVAL			DEPARTURE			
AIRCRAFT CATEGORY	AEDT AIRCRAFT TYPE	DAY 1/	NIGHT 2/	TOTAL	DAY 1/	NIGHT 2/	TOTAL	TOTAL
	Prop/TurboProp Total	**90.8522**	**26.3503**	**117.2024**	**89.4307**	**27.7717**	**117.2024**	**234.4049**
Military 3/	C130E	0.1829	0.0000	0.1829	0.1829	0.0000	0.1829	0.3658
	C17	0.4369	0.0000	0.4369	0.4369	0.0000	0.4369	0.8738
	P3C	4.4816	0.0000	4.4816	4.4816	0.0000	4.4816	8.9632
	Military Total	**5.1014**	**0.0000**	**5.1014**	**5.1014**	**0.0000**	**5.1014**	**10.2029**
Helicopter 4/	Combined	0.4342	0.1411	0.5753	0.4506	0.1247	0.5753	1.1506
	Helicopter Total	**0.4342**	**0.1411**	**0.5753**	**0.4506**	**0.1247**	**0.5753**	**1.1506**
	Total Itinerant Operations	**129.6355**	**32.1180**	**161.7534**	**126.6612**	**35.0923**	**161.7534**	**323.5068**

NOTES:

1/ Day = 7:00 a.m. to 9:59 p.m.

2/ Night = 10:00 p.m. to 6:59 a.m.

3/ Civilian type aircraft operated by military and government agencies are included in large jet, small jet and prop/turboprop categories.

4/ Helicopter includes: S65, S61, S70, S76, CH47D, SA365N, and SA355F.

SOURCES: Future operations are based on the FAA's Terminal Area Forecast, issued January 2016; Fleet mix and time of day distributions based on the existing operations. Ricondo & Associates Inc., December 2016.

PREPARED BY: Ricondo & Associates Inc., December 2016.

Table C-7 (1 of 2): Itinerant AAD Operations by AEDT Aircraft Type and Time of Day – 2024

		ARRIVAL			DEPARTURE			
AIRCRAFT CATEGORY	AEDT AIRCRAFT TYPE	DAY [1/]	NIGHT [2/]	TOTAL	DAY [1/]	NIGHT [2/]	TOTAL	TOTAL
Heavy Jet	757PW	2.9956	0.2924	3.2881	2.7963	0.4918	3.2881	6.5762
	757RR	1.2838	0.1253	1.4092	1.1984	0.2108	1.4092	2.8184
	767300	0.2963	0.0289	0.3252	0.2766	0.0486	0.3252	0.6505
	Heavy Jet Total	**4.5758**	**0.4467**	**5.0225**	**4.2713**	**0.7512**	**5.0225**	**10.0450**
Large Jet	717200	18.2846	1.7850	20.0696	17.0680	3.0016	20.0696	40.1392
	737300	1.3447	0.1313	1.4760	1.2552	0.2207	1.4760	2.9520
	737700	0.1207	0.0000	0.1207	0.1207	0.0000	0.1207	0.2413
	737800	5.3458	0.5219	5.8676	4.9901	0.8776	5.8676	11.7353
	A321-232	0.1832	0.0179	0.2010	0.1710	0.0301	0.2010	0.4021
Small Jet	CL600	0.9358	0.3376	1.2734	0.9380	0.3354	1.2734	2.5469
	CL601	0.3074	0.1594	0.4669	0.3206	0.1463	0.4669	0.9338
	CNA500	0.7080	0.4176	1.1256	0.7511	0.3744	1.1256	2.2511
	CNA750	0.2644	0.1095	0.3739	0.2686	0.1053	0.3739	0.7478
	EMB145	0.0590	0.0159	0.0749	0.0578	0.0171	0.0749	0.1498
	F10062	0.5749	0.2433	0.8182	0.5854	0.2328	0.8182	1.6364
	GIV	2.1578	1.0080	3.1657	2.2287	0.9371	3.1657	6.3315
	GV	1.4735	0.7672	2.2408	1.5396	0.7012	2.2408	4.4815
	LEAR35	0.2211	0.0907	0.3119	0.2278	0.0841	0.3119	0.6237
	Large and Small Jet Total	**31.9808**	**5.6054**	**37.5862**	**30.5225**	**7.0637**	**37.5862**	**75.1724**
Prop/TurboProp	BEC58P	0.4791	0.3088	0.7878	0.5150	0.2729	0.7878	1.5757
	CNA182	1.7643	0.6670	2.4313	1.7763	0.6550	2.4313	4.8626
	CNA206	0.1571	0.1012	0.2583	0.1688	0.0895	0.2583	0.5166
	CNA208	16.8870	4.5779	21.4650	16.5393	4.9257	21.4650	42.9300
	CNA441	50.4743	14.7143	65.1887	49.6988	15.4899	65.1887	130.3773
	DHC6	0.1272	0.0000	0.1272	0.1272	0.0000	0.1272	0.2544
	DHC830	1.6962	0.1656	1.8618	1.5834	0.2785	1.8618	3.7237
	GASEPV	0.5714	0.3572	0.9286	0.6114	0.3172	0.9286	1.8572
	PA31	2.6884	1.2017	3.8901	2.7540	1.1361	3.8901	7.7802
	SF340	20.6664	5.5700	26.2365	20.2326	6.0039	26.2365	52.4730

Table C-7 (2 of 2): Itinerant AAD Operations by AEDT Aircraft Type and Time of Day – 2024

		ARRIVAL			DEPARTURE			
AIRCRAFT CATEGORY	AEDT AIRCRAFT TYPE	DAY 1/	NIGHT 2/	TOTAL	DAY 1/	NIGHT 2/	TOTAL	TOTAL
	Prop/TurboProp Total	**95.5114**	**27.6639**	**123.1753**	**94.0067**	**29.1686**	**123.1753**	**246.3506**
Military 3/	C130E	0.1829	0.0000	0.1829	0.1829	0.0000	0.1829	0.3658
	C17	0.4369	0.0000	0.4369	0.4369	0.0000	0.4369	0.8738
	P3C	4.4816	0.0000	4.4816	4.4816	0.0000	4.4816	8.9632
	Military Total	**5.1014**	**0.0000**	**5.1014**	**5.1014**	**0.0000**	**5.1014**	**10.2029**
Helicopter 4/	Combined	0.4431	0.1468	0.5899	0.4602	0.1297	0.5899	1.1798
	Helicopter Total	**0.4431**	**0.1468**	**0.5899**	**0.4602**	**0.1297**	**0.5899**	**1.1798**
	Total Itinerant Operations	**137.6126**	**33.8628**	**171.4753**	**134.3621**	**37.1132**	**171.4753**	**342.9507**

NOTES:

1/ Day = 7:00 a.m. to 9:59 p.m.

2/ Night = 10:00 p.m. to 6:59 a.m.

3/ Civilian type aircraft operated by military and government agencies are included in large jet, small jet and prop/turboprop categories.

4/ Helicopter includes: S65, S61, S70, S76, CH47D, SA365N, and SA355F.

SOURCES: Future operations are based on the FAA's Terminal Area Forecast, issued January 2016; Fleet mix and time of day distributions based on the existing operations. Ricondo & Associates Inc., December 2016.

PREPARED BY: Ricondo & Associates Inc., December 2016.

Table C-8: Local AAD Operations by AEDT Aircraft Type and Time of Day – 2015

		ARRIVAL			DEPARTURE			
AIRCRAFT CATEGORY	AEDT AIRCRAFT TYPE	DAY 1/	NIGHT 2/	TOTAL	DAY 1/	NIGHT 2/	TOTAL	TOTAL
Small Jet	CL600	0.2577	0.1661	0.4238	0.2770	0.1468	0.4238	0.8477
	CL601	0.2311	0.1489	0.3800	0.2484	0.1316	0.3800	0.7600
	CNA500	0.6843	0.4411	1.1254	0.7356	0.3898	1.1254	2.2508
	CNA750	0.1155	0.0745	0.1900	0.1242	0.0658	0.1900	0.3800
	F10062	0.2666	0.1719	0.4385	0.2866	0.1519	0.4385	0.8769
	GIIB	0.3733	0.2406	0.6139	0.4012	0.2126	0.6139	1.2277
	GIV	1.6897	0.8707	2.5604	1.7910	0.7695	2.5604	5.1209
	GV	0.8749	0.4926	1.3675	0.9322	0.4353	1.3675	2.7350
	LEAR35	0.2849	0.0802	0.3651	0.2943	0.0709	0.3651	0.7303
	Small Jet Total	**4.7780**	**2.6866**	**7.4646**	**5.0905**	**2.3742**	**7.4646**	**14.9293**
Prop/TurboProp	BEC58P	1.9818	1.2774	3.2593	2.1304	1.1289	3.2593	6.5185
	CNA182	0.5777	0.3723	0.9500	0.6210	0.3290	0.9500	1.9000
	CNA206	0.1777	0.1146	0.2923	0.1911	0.1012	0.2923	0.5846
	CNA208	0.0800	0.0516	0.1315	0.0860	0.0456	0.1315	0.2631
	CNA441	3.3504	2.1596	5.5100	3.6016	1.9085	5.5100	11.0201
	DHC6	0.5458	0.0000	0.5458	0.5458	0.0000	0.5458	1.0915
	GASEPV	0.6132	0.3953	1.0085	0.6592	0.3493	1.0085	2.0169

Table C-8 (2 of 2): Local AAD Operations by AEDT Aircraft Type and Time of Day – 2015

		ARRIVAL			DEPARTURE			
AIRCRAFT CATEGORY	AEDT AIRCRAFT TYPE	DAY 1/	NIGHT 2/	TOTAL	DAY 1/	NIGHT 2/	TOTAL	TOTAL
	Prop/TurboProp Total	7.3266	4.3708	11.6974	7.8349	3.8625	11.6974	23.3948
Military 3/	C130E	0.7848	0.0000	0.7848	0.7848	0.0000	0.7848	1.5695
	Military Total	**0.7848**	**0.0000**	**0.7848**	**0.7848**	**0.0000**	**0.7848**	**1.5695**
Helicopter 4/	Combined	1.1816	0.1661	1.3477	1.2009	0.1468	1.3477	2.6955
	Helicopter Total	**1.1816**	**0.1661**	**1.3477**	**1.2009**	**0.1468**	**1.3477**	**2.6955**
	Total Local Operations	**14.0710**	**7.2235**	**21.2945**	**14.9111**	**6.3834**	**21.2945**	**42.5890**

NOTES:

1/ Day = 7:00 a.m. to 9:59 p.m.

2/ Night = 10:00 p.m. to 6:59 a.m.

3/ Civilian type aircraft operated by military and government agencies are included in large jet, small jet prop/turboprop and helicopter categories.

4/ Helicopter includes: S65, S61, S70, S76, CH47D, SA365N, and SA355F

SOURCES: Airport Operations, FAA Operations Network (OPSNET), https://aspm.faa.gov/opsnet/sys/Airport.asp, Date Accessed: 10/14/2016; Distributed Airport Operations Data from January 1, 2015 to December 31, 2015, Traffic Flow Management System Counts (TFMSC) Aviation System Performance Metrics (ASPM), https://aspm.faa.gov/tfms/sys/main.asp, Date Accessed: 10/11/2016; T-100 Summary Report for flights from LIH for travel between January 2015 and December 2015, Bureau of Transportation Statistics, U.S. DOT, October 2016; Air Carrier Scheduled Operations data from January 1, 2015 to December 31, 2015, Innovata Schedule Diio, LLC, October 2016; Ricondo & Associates, Inc., October 2016.

PREPARED BY: Ricondo & Associates, Inc., December 2016.

Table C-9: Local AAD Operations by AEDT Aircraft Type and Time of Day – 2019

		ARRIVAL			DEPARTURE			
AIRCRAFT CATEGORY	AEDT AIRCRAFT TYPE	DAY 1/	NIGHT 2/	TOTAL	DAY 1/	NIGHT 2/	TOTAL	TOTAL
Small Jet	CL600	0.2727	0.1758	0.4485	0.2932	0.1553	0.4485	0.8970
	CL601	0.2445	0.1576	0.4021	0.2628	0.1393	0.4021	0.8042
	CNA500	0.7241	0.4668	1.1909	0.7784	0.4125	1.1909	2.3818
	CNA750	0.1223	0.0788	0.2011	0.1314	0.0696	0.2011	0.4021
	F10062	0.2821	0.1819	0.4640	0.3033	0.1607	0.4640	0.9280
	GIV	1.7818	0.9214	2.7032	1.8889	0.8142	2.7032	5.4063
	GV	1.3187	0.7759	2.0946	1.4090	0.6857	2.0946	4.1893
	LEAR35	0.2986	0.0849	0.3834	0.3084	0.0750	0.3834	0.7668
	Small Jet Total	**5.0448**	**2.8430**	**7.8878**	**5.3754**	**2.5123**	**7.8878**	**15.7756**
Prop/TurboProp	BEC58P	2.0972	1.3518	3.4489	2.2544	1.1946	3.4489	6.8979
	CNA182	0.6113	0.3940	1.0053	0.6571	0.3482	1.0053	2.0106
	CNA206	0.1881	0.1212	0.3093	0.2022	0.1071	0.3093	0.6186
	CNA208	0.0846	0.0546	0.1392	0.0910	0.0482	0.1392	0.2784
	CNA441	3.5454	2.2853	5.8307	3.8112	2.0195	5.8307	11.6614
	DHC6	0.5674	0.0000	0.5674	0.5674	0.0000	0.5674	1.1349
	GASEPV	0.6489	0.4183	1.0672	0.6975	0.3696	1.0672	2.1343
	Prop/TurboProp Total	**7.7429**	**4.6251**	**12.3681**	**8.2808**	**4.0873**	**12.3681**	**24.7361**
Military 3/	C130E	0.8159	0.0000	0.8159	0.8159	0.0000	0.8159	1.6318
	Military Total	**0.8159**	**0.0000**	**0.8159**	**0.8159**	**0.0000**	**0.8159**	**1.6318**
Helicopter 4/	Combined	1.2333	0.1758	1.4091	1.2537	0.1553	1.4091	2.8181
	Helicopter Total	**1.2333**	**0.1758**	**1.4091**	**1.2537**	**0.1553**	**1.4091**	**2.8181**
	Total Local Operations	**14.8369**	**7.6439**	**22.4808**	**15.7259**	**6.7550**	**22.4808**	**44.9616**

NOTES:

1/ Day = 7:00 a.m. to 9:59 p.m.

2/ Night = 10:00 p.m. to 6:59 a.m.

3/ Military aircraft includes: PC3, C130E. Civilian type aircraft operated by military and government agencies are included in large jet, small jet and prop/turboprop categories.

4/ Helicopter includes: S65, S61, S70, S76, CH47D, SA365N, and SA355F.

SOURCES: Future operations are based on the FAA's Terminal Area Forecast, issued January 2016; Fleet mix and time of day distributions based on the existing operations. Ricondo & Associates Inc., December 2016.

PREPARED BY: Ricondo & Associates Inc., December 2016.

Table C-10: Local AAD Operations by AEDT Aircraft Type and Time of Day – 2024

		ARRIVAL			DEPARTURE			
AIRCRAFT CATEGORY	AEDT AIRCRAFT TYPE	DAY 1/	NIGHT 2/	TOTAL	DAY 1/	NIGHT 2/	TOTAL	TOTAL
Small Jet	CL600	0.2957	0.1906	0.4863	0.3179	0.1684	0.4863	0.9726
	CL601	0.2651	0.1709	0.4360	0.2850	0.1510	0.4360	0.8720
	CNA500	0.7852	0.5061	1.2913	0.8440	0.4472	1.2913	2.5825
	CNA750	0.1326	0.0854	0.2180	0.1425	0.0755	0.2180	0.4360
	F10062	0.3059	0.1972	0.5031	0.3288	0.1743	0.5031	1.0062
	GIV	1.9023	0.9990	2.9013	2.0185	0.8829	2.9013	5.8026
	GV	1.4202	0.8413	2.2615	1.5180	0.7435	2.2615	4.5230
	LEAR35	0.3096	0.0920	0.4017	0.3204	0.0813	0.4017	0.8033
	Small Jet Total	**5.4166**	**3.0826**	**8.4992**	**5.7751**	**2.7241**	**8.4992**	**16.9983**
Prop/TurboProp	BEC58P	2.2739	1.4657	3.7396	2.4444	1.2953	3.7396	7.4793
	CNA182	0.6628	0.4272	1.0900	0.7125	0.3775	1.0900	2.1801
	CNA206	0.2039	0.1315	0.3354	0.2192	0.1162	0.3354	0.6708
	CNA208	0.0918	0.0592	0.1509	0.0987	0.0523	0.1509	0.3019
	CNA441	3.8443	2.4779	6.3222	4.1324	2.1897	6.3222	12.6443
	DHC6	0.5674	0.0000	0.5674	0.5674	0.0000	0.5674	1.1349
	GASEPV	0.7036	0.4535	1.1571	0.7563	0.4008	1.1571	2.3142
	Prop/TurboProp Total	**8.3477**	**5.0150**	**13.3627**	**8.9309**	**4.4318**	**13.3627**	**26.7254**
Military 3/	C130E	0.8159	0.0000	0.8159	0.8159	0.0000	0.8159	1.6318
	Military Total	**0.8159**	**0.0000**	**0.8159**	**0.8159**	**0.0000**	**0.8159**	**1.6318**
Helicopter 4/	Combined	1.2563	0.1906	1.4469	1.2784	0.1684	1.4469	2.8937
	Helicopter Total	**1.2563**	**0.1906**	**1.4469**	**1.2784**	**0.1684**	**1.4469**	**2.8937**
	Total Local Operations	**15.8365**	**8.2882**	**24.1247**	**16.8003**	**7.3243**	**24.1247**	**48.2493**

NOTES:

1/ Day = 7:00 a.m. to 9:59 p.m.

2/ Night = 10:00 p.m. to 6:59 a.m.

3/ Civilian type aircraft operated by military and government agencies are included in large jet, small jet and prop/turboprop categories.

4/ Helicopter includes: S65, S61, S70, S76, CH47D, SA365N, and SA355F.

SOURCES: Future operations are based on the FAA's Terminal Area Forecast, issued January 2016; Fleet mix and time of day distributions based on the existing operations. Ricondo & Associates Inc., December 2016.

PREPARED BY: Ricondo & Associates Inc., December 2016.

C.2.3 AIRCRAFT DEPARTURE WEIGHT AND STAGE LENGTH

Aircraft departure weight is a factor in the dispersion of aircraft noise, because it affects the runway length for takeoff and the rate at which an aircraft is able to climb. The nonstop departure trip length is used as a surrogate for varying aircraft weight, as it determines how much fuel the aircraft must carry and, therefore, the weight of the aircraft at takeoff. The AEDT allows for different departure trip lengths, or stage lengths (unrelated to the 14 CFR Part 36 noise "stage" classifications). Stage length refers to the nonstop distance an aircraft travels after departure. Longer stage lengths are correlated with lower climb performance, because aircraft flying longer stage lengths have higher gross takeoff weights, due to the greater fuel loads.

Table C-11 and Table C-12 present the stage lengths by aircraft type, which are assumed for the air carrier jet operations. The stage length assumptions are generally based on the current ratio of stage lengths by aircraft type at LIH, with some allowance for more aircraft at longer stage lengths in the future. The stage lengths were the same for 2019 and 2024.

Table C-11: Air Carrier Departures by Stage Length – 2015

	DEPARTURE STAGE LENGTH					
AIRCRAFT TYPE	**1 (0–500 NM)**	**2 (501–1,000 NM)**	**3 (1,001–1,500 NM)**	**4 (1,501–2,500 NM)**	**5 (2,501–3,500 NM)**	**TOTAL 1/**
Boeing 717-200	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Boeing 737-300	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Boeing 737-700	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Boeing 737-800	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
Boeing 737-N17	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Boeing 757-PW	0.0%	0.0%	0.0%	61.9%	38.1%	100.0%
Boeing 757-RR	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
Boeing 767-300	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
Airbus A321-232	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
Total	**69.7%**	**0.0%**	**0.0%**	**26.5%**	**3.8%**	**100.0%**

NOTES:

NM = Nautical Miles

1/ The stage length is the nonstop distance flown by an aircraft departing the Airport. The greater the stage length, the greater the fuel load and the heavier the aircraft. The heavier aircraft weights result in slower climb performance, which tends to result in greater noise levels on the ground. Only the air carrier jet category (with 60 seats or more) is shown. The departure stage lengths for air taxi, general aviation, and military aircraft are assumed to be 1.

SOURCE: Ricondo & Associates, Inc., December 2016.

PREPARED BY: Ricondo & Associates, Inc., December 2016.

Table C-12: Air Carrier Departures by Stage Length – 2019 and 2024

	DEPARTURE STAGE LENGTH					
AIRCRAFT TYPE	**1 (0–500 NM)**	**2 (501–1,000 NM)**	**3 (1,001–1,500 NM)**	**4 (1,501–2,500 NM)**	**5 (2,501–3,500 NM)**	**TOTAL 1/**
Boeing 717-200	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Boeing 737-300	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Boeing 737-700	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Boeing 737-800	19.8%	0.0%	0.0%	80.2%	0.0%	100.0%
Boeing 757-PW	0.0%	0.0%	0.0%	61.9%	38.1%	100.0%
Boeing 757-RR	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
Boeing 767-300	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
Airbus A321-232	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
Total	**69.7%**	**0.0%**	**0.0%**	**26.5%**	**3.8%**	**100.0%**

NOTES:

NM = Nautical Miles

1/ The stage length is the nonstop distance flown by an aircraft departing the Airport. The greater the stage length, the greater the fuel load and the heavier the aircraft. The heavier aircraft weights result in slower climb performance, which tends to result in greater noise levels on the ground. Only the air carrier jet category (with 60 seats or more) is shown. The departure stage lengths for air taxi, general aviation, and military aircraft are assumed to be 1.

SOURCE: Ricondo & Associates, Inc., December 2016.
PREPARED BY: Ricondo & Associates, Inc., December 2016.

C.2.4 TIME OF DAY

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.). Scheduled carrier operations for the day and night distributions were based on the actual published scheduled times for calendar year 2015. The day and night distributions for the unscheduled operations at LIH was supplemented by the data obtained from the FAA's Traffic Flow Management System Counts (TFMSC), Aviation System Performance Metrics (ASPM) data for twelve months in 2015. 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.

Table C-13 through **Table C-15** present the percentage of daytime and nighttime operations for departures and arrivals by aircraft category for existing (2015), 2019, and 2024.

Table C-13: Percentage of Annual Operations by Aircraft Category, Operation Type, and Time of Day – 2015

		ARRIVAL			DEPARTURE			
	AIRCRAFT CATEGORY	DAY 1/	NIGHT 2/	TOTAL	DAY 1/	NIGHT 2/	TOTAL	TOTAL
Itinerant								
	Heavy Jet	91.1%	8.9%	100.0%	85.0%	15.0%	100.0%	2.9%
	Large Jet	91.2%	8.8%	100.0%	85.1%	14.9%	100.0%	16.2%
	Small Jet	68.1%	31.9%	100.0%	70.3%	29.7%	100.0%	5.7%
	TurboProp	78.2%	21.8%	100.0%	76.8%	23.2%	100.0%	66.5%
	Propeller	68.2%	31.8%	100.0%	70.2%	29.8%	100.0%	4.8%
	Military Aircraft 3/	100.0%	0.0%	100.0%	100.0%	0.0%	100.0%	3.4%
	Helicopter	76.4%	23.6%	100.0%	79.2%	20.8%	100.0%	0.4%
	Total Itinerant Operations	**80.4%**	**19.6%**	**100.0%**	**78.5%**	**21.5%**	**100.0%**	**100.0%**
Local								
	Jet	64.0%	36.0%	100.0%	68.2%	31.8%	100.0%	4.7%
	TurboProp	64.3%	35.7%	100.0%	68.4%	31.6%	100.0%	3.9%
	Propeller	60.8%	39.2%	100.0%	65.4%	34.6%	100.0%	3.4%
	Military Aircraft 3/	100.0%	0.0%	100.0%	100.0%	0.0%	100.0%	0.5%
	Helicopters	87.7%	12.3%	100.0%	89.1%	10.9%	100.0%	0.8%
	Total Local Operations	**66.1%**	**33.9%**	**100.0%**	**70.0%**	**30.0%**	**100.0%**	**13.3%**

NOTES:

1/ Day = 7:00 a.m. to 9:59 p.m.

2/ Night = 10:00 p.m. to 6:59 a.m.

3/ Civilian type aircraft operated by military and government agencies are included in large jet, small jet prop/turboprop and helicopter categories.

SOURCES: Ricondo & Associates, Inc., December 2016. (Based on the day/night percentages calculated for actual operations in 2015)..
PREPARED BY: Ricondo & Associates, Inc., December 2016.

Table C-14: Percentage of Annual Operations by Aircraft Category, Operation Type, and Time of Day – 2019

		ARRIVAL			DEPARTURE			
	AIRCRAFT CATEGORY	DAY 1/	NIGHT 2/	TOTAL	DAY 1/	NIGHT 2/	TOTAL	TOTAL
Itinerant								
	Heavy Jet	91.1%	8.9%	100.0%	85.0%	15.0%	100.0%	2.8%
	Large Jet	91.1%	8.9%	100.0%	85.1%	14.9%	100.0%	15.4%
	Small Jet	68.0%	32.0%	100.0%	70.2%	29.8%	100.0%	5.8%
	TurboProp	78.2%	21.8%	100.0%	76.7%	23.3%	100.0%	67.5%
	Propeller	68.2%	31.8%	100.0%	70.2%	29.8%	100.0%	4.9%
	Military Aircraft 3/	100.0%	0.0%	100.0%	100.0%	0.0%	100.0%	3.2%
	Helicopter	75.5%	24.5%	100.0%	78.3%	21.7%	100.0%	0.4%
	Total Itinerant Operations	**80.1%**	**19.9%**	**100.0%**	**78.3%**	**21.7%**	**100.0%**	**100.0%**
Local								
	Jet	64.0%	36.0%	100.0%	68.1%	31.9%	100.0%	35.1%
	TurboProp	64.2%	35.8%	100.0%	68.4%	31.6%	100.0%	29.1%
	Propeller	60.8%	39.2%	100.0%	65.4%	34.6%	100.0%	25.9%
	Military Aircraft 3/	100.0%	0.0%	100.0%	100.0%	0.0%	100.0%	3.6%
	Helicopter	87.5%	12.5%	100.0%	89.0%	11.0%	100.0%	6.3%
	Total Local Operations	**66.0%**	**34.0%**	**100.0%**	**70.0%**	**30.0%**	**100.0%**	**100.0%**

NOTES:

1/ Day = 7:00 a.m. to 9:59 p.m.

2/ Night = 10:00 p.m. to 6:59 a.m.

3/ Civilian type aircraft operated by military and government agencies are included in large jet, small jet prop/turboprop and helicopter categories.

SOURCES: Ricondo & Associates, Inc., December 2016. (Based on the day/night percentages calculated for actual operations in 2019)..

PREPARED BY: Ricondo & Associates, Inc., December 2016.

Table C-15: Percentage of Annual Operations by Aircraft Category, Operation Type, and Time of Day – 2024

		ARRIVAL			DEPARTURE			
	AIRCRAFT CATEGORY	DAY 1/	NIGHT 2/	TOTAL	DAY 1/	NIGHT 2/	TOTAL	TOTAL
Itinerant								
	Heavy Jet	91.1%	8.9%	100.0%	85.0%	15.0%	100.0%	2.9%
	Large Jet	91.1%	8.9%	100.0%	85.1%	14.9%	100.0%	16.2%
	Small Jet	68.0%	32.0%	100.0%	70.2%	29.8%	100.0%	5.7%
	TurboProp	78.2%	21.8%	100.0%	76.8%	23.2%	100.0%	67.0%
	Propeller	68.2%	31.8%	100.0%	70.2%	29.8%	100.0%	4.8%
	Military Aircraft 3/	100.0%	0.0%	100.0%	100.0%	0.0%	100.0%	3.0%
	Helicopters	75.1%	24.9%	100.0%	78.0%	22.0%	100.0%	0.3%
	Total Itinerant Operations	**80.3%**	**19.7%**	**100.0%**	**78.4%**	**21.6%**	**100.0%**	**100.0%**
Local								
	Jet	63.7%	36.3%	100.0%	67.9%	32.1%	100.0%	35.2%
	TurboProp	64.0%	36.0%	100.0%	68.2%	31.8%	100.0%	29.2%
	Propeller	60.8%	39.2%	100.0%	65.4%	34.6%	100.0%	26.2%
	Military Aircraft 3/	100.0%	0.0%	100.0%	100.0%	0.0%	100.0%	3.4%
	Helicopter	86.8%	13.2%	100.0%	88.4%	11.6%	100.0%	6.0%
	Total Local Operations	**65.6%**	**34.4%**	**100.0%**	**69.6%**	**30.4%**	**100.0%**	**100.0%**

NOTES:

1/ Day = 7:00 a.m. to 9:59 p.m.

2/ Night = 10:00 p.m. to 6:59 a.m.

3/ Civilian type aircraft operated by military and government agencies are included in large jet, small jet prop/turboprop and helicopter categories.

SOURCES: Ricondo & Associates, Inc., December 2016. (Based on the day/night percentages calculated for actual operations in 2024)..
PREPARED BY: Ricondo & Associates, Inc., December 2016.

Table C-16 through **Table C-18** present the annual number of operations by aircraft category, operation type, and time of day for 2019 and 2024. The numbers were calculated by applying the percentages in Table C-13 and Table C-14 to the number of operations by aircraft category presented in Tables C-5 through C-12.

Table C-16: Annual Operations by Aircraft Category, Operation Type, and Time of Day – 2015

		ARRIVAL			DEPARTURE			
	AIRCRAFT CATEGORY	DAY 1/	NIGHT 2/	TOTAL	DAY 1/	NIGHT 2/	TOTAL	GRAND TOTAL
Itinerant								
	Heavy Jet	1,569	153	1,722	1,464	257	1,722	3,443
	Large Jet	8,671	842	9,513	8,097	1,416	9,513	19,027
	Small Jet	2,279	1,067	3,347	2,352	994	3,347	6,693
	TurboProp	30,477	8,486	38,963	29,910	9,053	38,963	77,926
	Propeller	1,919	893	2,812	1,975	837	2,812	5,624
	Military Aircraft 3/	1,995	-	1,995	1,995	-	1,995	3,990
	Helicopter	161	50	211	167	44	211	422
	Total Itinerant Operations	**47,071**	**11,492**	**58,563**	**45,961**	**12,602**	**58,563**	**117,125**
Local								
	Jet	1,744	981	2,725	1,858	867	2,725	5,449
	TurboProp	1,451	807	2,258	1,545	713	2,258	4,517
	Propeller	1,223	788	2,011	1,315	697	2,011	4,022
	Military Aircraft 3/	286	-	286	286	-	286	573
	Helicopter	431	61	492	438	54	492	984
	Total Local Operations	**5,136**	**2,637**	**7,773**	**5,443**	**2,330**	**7,773**	**15,545**
	Total Operations	**52,207**	**14,128**	**66,335**	**51,403**	**14,932,**	**66,335**	**132,670**

NOTES: Totals may not be additive due to rounding.

1/ Day = 7:00 a.m. to 9:59 p.m.

2/ Night = 10:00 p.m. to 6:59 a.m.

3/ Civilian type aircraft operated by military and government agencies are included in large jet, small jet prop/turboprop and helicopter categories.

SOURCES: Airport Operations, FAA Operations Network (OPSNET), https://aspm.faa.gov/opsnet/sys/Airport.asp, Date Accessed: 10/14/2016; Distributed Airport Operations Data from January 1, 2015 to December 31, 2015, Traffic Flow Management System Counts (TFMSC) Aviation System Performance Metrics (ASPM), https://aspm.faa.gov/tfms/sys/main.asp, Date Accessed: 10/11/2016; T-100 Summary Report for flights from LIH for travel between January 2015 and December 2015, Bureau of Transportation Statistics, U.S. DOT, October 2016; Air Carrier Scheduled Operations data from January 1, 2015 to December 31, 2015, Innovata Schedule Diio, LLC, October 2016; Ricondo & Associates, Inc., October 2016.

PREPARED BY: Ricondo & Associates, Inc., December 2016.

Table C-17: Annual Operations by Aircraft Category, Operation Type, and Time of Day – 2019

		ARRIVAL			DEPARTURE			
	AIRCRAFT CATEGORY	DAY 1/	NIGHT 2/	TOTAL	DAY 1/	NIGHT 2/	TOTAL	GRAND TOTAL
Itinerant								
	Heavy Jet	1,500	146	1,647	1,400	246	1,647	3,293
	Large Jet	8,292	805	9,097	7,743	1,354	9,097	18,195
	Small Jet	2,343	1,102	3,445	2,419	1,026	3,445	6,890
	TurboProp	31,185	8,696	39,881	30,608	9,273	39,881	79,761
	Propeller	1,976	922	2,898	2,034	864	2,898	5,796
	Military Aircraft 3/	1,862	-	1,862	1,862	-	1,862	3,724
	Helicopter	158	51	210	164	46	210	420
	Total Itinerant Operations	**47,317**	**11,723**	**59,040**	**46,231**	**12,809**	**59,040**	**118,080**
Local								
	Small Jet	1,841	1,038	2,879	1,962	917	2,879	5,758
	TurboProp	1,532	854	2,386	1,631	755	2,386	4,772
	Propeller	1,294	834	2,128	1,391	737	2,128	4,256
	Military Aircraft 3/	298	-	298	298	-	298	596
	Helicopter	450	64	514	458	57	514	1,029
	Total Local Operations	**5,415**	**2,790**	**8,206**	**5,740**	**2,466**	**8,206**	**16,411**
	Total Operations	**52,732**	**14,513**	**67,246**	**51,971**	**15,274**	**67,246**	**134,491**

NOTES:

1/ Day = 7:00 a.m. to 10:00 p.m.

2/ Night = 10:00 p.m. to 7:00 a.m. In the calculation of DNL, an extra 10 decibels is assigned to nighttime operations.

3/ Civilian-type aircraft operated by military and government agencies are included in large jet, small jet prop/turboprop, and helicopter categories.

4/ Total may reflect rounding.

SOURCE: Future operations are based on the FAA's Terminal Area Forecast, issued January 2016; Fleet mix and time of day distributions based on the existing operations. Ricondo & Associates Inc., December 2016.

PREPARED BY: Ricondo & Associates, Inc., December 2016.

Table C-18: Annual Operations by Aircraft Category, Operation Type, and Time of Day – 2024

	ARRIVAL			DEPARTURE			
AIRCRAFT CATEGORY	DAY 1/	NIGHT 2/	TOTAL	DAY 1/	NIGHT 2/	TOTAL	GRAND TOTAL
Itinerant							
Heavy Jet	1,670	163	1,833	1,559	274	1,833	3,666
Large Jet	9,227	896	10,123	8,616	1,507	10,123	20,247
Small Jet	2,446	1,150	3,596	2,525	1,071	3,596	7,191
TurboProp	32,796	9,135	41,931	32,186	9,745	41,931	83,862
Propeller	2,066	962	3,028	2,126	902	3,028	6,056
Military Aircraft 3/	1,862	-	1,862	1,862	-	1,862	3,724
Helicopter	162	54	215	168	47	215	431
Total Itinerant Operations	**50,229**	**12,360**	**62,589**	**49,042**	**13,546**	**62,589**	**125,177**
Local							
Small Jet	1,977	1,125	3,102	2,108	994	3,102	6,204
TurboProp	1,644	926	2,570	1,751	818	2,570	5,140
Propeller	1,403	904	2,308	1,508	799	2,308	4,615
Military Aircraft 3/	298	-	298	298	-	298	596
Helicopter	459	70	528	467	61	528	1,056
Total Local Operations	**5,780**	**3,025**	**8,806**	**6,132**	**2,673**	**8,806**	**17,611**
Total Operations	**56,009**	**15,385**	**71,394**	**55,174**	**16,220**	**71,394**	**142,788**

NOTES:

1/ Day = 7:00 a.m. to 10:00 p.m.

2/ Night = 10:00 p.m. to 7:00 a.m. In the calculation of DNL, an extra 10 decibels is assigned to nighttime operations.

3/ Civilian-type aircraft operated by military and government agencies are included in large jet, small jet prop/turboprop, and helicopter categories.

SOURCE: Future operations are based on the FAA's Terminal Area Forecast, issued January 2016; Fleet mix and time of day distributions based on the existing operations. Ricondo & Associates Inc., December 2016

PREPARED BY: Ricondo & Associates, Inc., December 2016.

C.2.5 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 C-19 through Table C-21 summarizes the current and future pattern of runway use at LIH, based on an analysis of radar data throughout 2015. Runway use percentage by aircraft user category derived based on the following sources: future 5-year noise exposure map included in the 14 CFR Part 150, Noise Compatibility Planning Program Update for Lihue Airport, October 2008; discussions provided in Runway 3-21 Safety Area Improvements at Lihue Airport, Safety Risk Management document, DOT, Airports Division, August 15, 2016; Runway use discussions during the briefing meeting with LIH ATCT on August 24, 2015; and Comments from Airline Committee of Hawaii to DOT-A's Preferred Alternative - LIH Runway 3-21. The runway use percentages were verified by LIH ATCT and the Airport personnel. Runway-use percentages are provided and broken down by type of operation (arrival, departure, and local) and time of day. These percentages are expected to remain the same in the future with or without the proposed RSA improvements.

Table C-19: Arrival Runway Use Percentages for Existing (2015) and Future (2019 and 2024) Scenarios

	RUNWAY				
AIRCRAFT CATEGORY	**35**	**3**	**17**	**21**	**TOTAL**
Daytime 1/ Arrivals					
Heavy Jet	90.0%	0.0%	2.0%	8.0%	100.0%
Large Jet	90.0%	0.0%	2.0%	8.0%	100.0%
Small Jet	90.0%	0.1%	2.4%	7.5%	100.0%
Military Aircraft 3/	87.0%	0.0%	0.0%	13.0%	100.0%
Propeller	90.0%	0.1%	2.4%	7.5%	100.0%
TurboProp	90.0%	0.1%	2.4%	7.5%	100.0%
Daytime Arrivals All Aircraft	**89.9%**	**0.1%**	**2.2%**	**7.8%**	**100.0%**
Nighttime 2/ Arrivals					
Heavy Jet	90.0%	0.0%	2.0%	8.0%	100.0%
Large Jet	90.0%	0.0%	2.0%	8.0%	100.0%
Small Jet	90.0%	0.1%	2.4%	7.5%	100.0%
Military Aircraft 3/	0.0%	0.0%	0.0%	0.0%	0.0%
Propeller	90.0%	0.1%	2.4%	7.5%	100.0%
TurboProp	90.0%	0.1%	2.4%	7.5%	100.0%
Nighttime Arrivals All Aircraft	**90.0%**	**0.1%**	**2.4%**	**7.5%**	**100.0%**
All Arrivals	**89.9%**	**0.1%**	**2.2%**	**7.8%**	**100.0%**

NOTES:

1/ Day = 7:00 a.m. to 9:59 p.m.

2/ Night = 10:00 p.m. to 6:59 a.m.

3/ Civilian type aircraft operated by military and government agencies are included in large jet, small jet prop/turboprop and helicopter categories.

SOURCES: Based on Runway 3-21 Safety Area Improvements at Lihue Airport, Safety Risk Management document, DOT, Airports Division, August 15, 2016; Comments from Airline Committee of Hawaii to DOT-A's Preferred Alternative - LIH Rwy 3-21 RSA. Ricondo & Associates, Inc. December 2016.

PREPARED BY: Ricondo & Associates Inc., December 2016.

Table C-20: Departure Runway Use Percentages for Existing (2015) and Future (2019 and 2024) Scenarios

	RUNWAY				
AIRCRAFT CATEGORY	**35**	**3**	**17**	**21**	**TOTAL**
Daytime 1/ Departures					
Heavy Jet	1.0%	89.0%	10.0%	0.0%	100.0%
Large Jet	1.0%	89.0%	10.0%	0.0%	100.0%
Small Jet	1.0%	89.1%	9.8%	0.1%	100.0%
Military Aircraft 3/	0.0%	90.0%	10.0%	0.0%	100.0%
Propeller	1.0%	89.1%	9.8%	0.1%	100.0%
TurboProp	1.0%	89.1%	9.8%	0.1%	100.0%
Daytime Departures All Aircraft	**1.0%**	**89.1%**	**9.9%**	**0.1%**	**100.0%**
Nighttime 2/ Departures					
Heavy Jet	1.0%	89.0%	10.0%	0.0%	100.0%
Large Jet	1.0%	89.0%	10.0%	0.0%	100.0%
Small Jet	1.0%	89.1%	9.8%	0.1%	100.0%
Military Aircraft 3/	0.0%	0.0%	0.0%	0.0%	0.0%
Propeller	1.0%	89.1%	9.8%	0.1%	100.0%
TurboProp	1.0%	89.1%	9.8%	0.1%	100.0%
Nighttime Departures All Aircraft	**1.0%**	**89.1%**	**9.8%**	**0.1%**	**100.0%**
All Departures	**1.0%**	**89.1%**	**9.8%**	**0.1%**	**100.0%**

NOTES:

1/ Day = 7:00 a.m. to 9:59 p.m.

2/ Night = 10:00 p.m. to 6:59 a.m.

3/ type aircraft operated by military and government agencies are included in large jet, small jet prop/turboprop and helicopter categories.

SOURCES: Based on Runway 3-21 Safety Area Improvements at Lihue Airport, Safety Risk Management document, DOT, Airports Division, August 15, 2016; Comments from Airline Committee of Hawaii to DOT-A's Preferred Alternative - LIH Rwy 3-21 RSA. Ricondo & Associates, Inc. December 2016.

PREPARED BY: Ricondo & Associates Inc., December 2016.

Table C-21: Local Runway Use Percentages for Existing (2015) and Future (2019 and 2024) Scenarios

	RUNWAY				
AIRCRAFT CATEGORY	**35**	**3**	**17**	**21**	**TOTAL**
Daytime 1/ Operations					
Military Aircraft 3/	87.00%	0.00%	13.00%	0.00%	100.00%
General Aviation	87.00%	0.00%	13.00%	0.00%	100.00%
Daytime Operations All Aircraft	**87.00%**	**0.00%**	**13.00%**	**0.00%**	**100.00%**
Nighttime 2/ Operations					
Military Aircraft 3/	0.00%	0.00%	0.00%	0.00%	0.00%
General Aviation	87.00%	0.00%	13.00%	0.00%	100.00%
Nighttime Operations All Aircraft	**87.00%**	**0.00%**	**13.00%**	**0.00%**	**100.00%**
All Operations	**87.00%**	**0.00%**	**13.00%**	**0.00%**	**100.00%**

NOTES:

1/ Day = 7:00 a.m. to 9:59 p.m.

2/ Night = 10:00 p.m. to 6:59 a.m.

3/ Civilian type aircraft operated by military and government agencies are included in large jet, small jet prop/turboprop and helicopter categories.

SOURCES: Runway use percentage for local operations derived based on the future 5-year noise exposure map included in the 14 CFR Part 150, Noise Compatibility Planning Program Update for Lihue Airport, October 2008 and conversation with ATCT and Airport personnel. Ricondo & Associates, Inc. December 2016.

PREPARED BY: Ricondo & Associates Inc., December 2016.

C.2.6 GENERALIZED FLIGHT TRACKS

The location of flight routes to and from LIH is a required input to the AEDT. **Exhibit C-1** depicts .generalized arrival flight tracks to each runway at LIH. **Exhibit C-2** depicts generalized departure flight tracks, and **Exhibit C-3** depicts generalized touch-and-go flight tracks.

The generalized flight tracks were developed based on the discussions with the ATCT and the Airport personnel and through the following sources, published SIDS and STARS; Letter of Agreement Lihue FAA contract Tower and Lihue Heliport Tenants; 14 CFR Part 150, Noise Compatibility Planning Program Update for Lihue Airport, October 2008.

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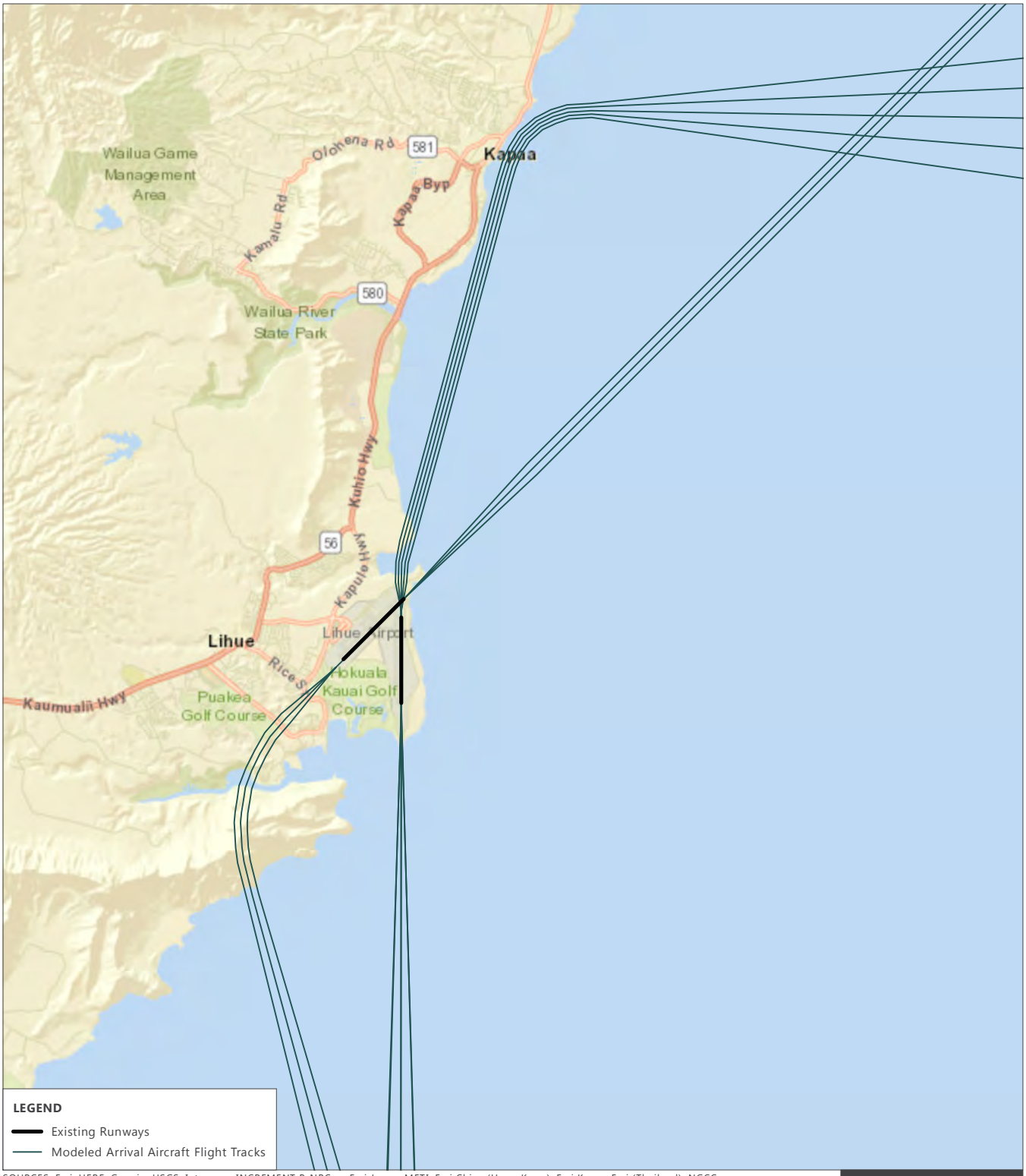

SOURCES: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, OpenStreetMap contributors, and the GIS User Community, March 2018 (basemap); Ricondo & Associates, Inc., December 2016 (modeled flight tracks).
PREPARED BY: Ricondo & Associates, Inc., December 2016.

EXHIBIT C-1

NORTH 0 12,000 ft.

Generalized Arrival Flight Tracks for Noise Modeling

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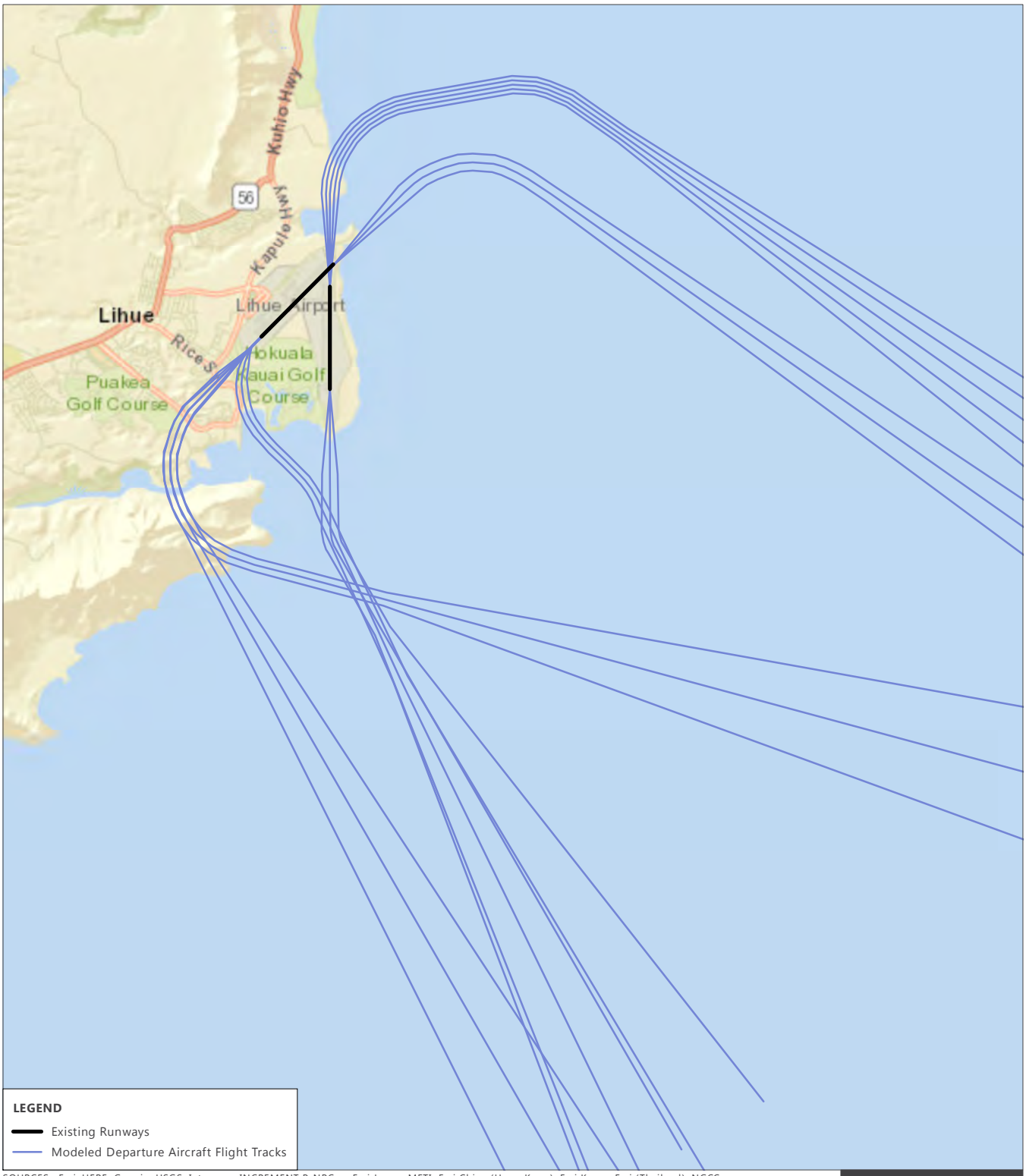

SOURCES: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, OpenStreetMap contributors, and the GIS User Community, March 2018 (basemap); Ricondo & Associates, Inc., December 2016 (modeled flight tracks).
PREPARED BY: Ricondo & Associates, Inc., December 2016.

EXHIBIT C-2

NORTH 0 10,000 ft.

Generalized Departure Flight Tracks for Noise Modeling

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SOURCES: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, OpenStreetMap contributors, and the GIS User Community, March 2018 (basemap); Ricondo & Associates, Inc., December 2016 (modeled flight tracks).
PREPARED BY: Ricondo & Associates, Inc., December 2016.

EXHIBIT C-3

NORTH 0 9,000 ft.

Generalized Helicopter and Touch-and-Go Flight Tracks for Noise Modeling

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Appendix D

Wetlands and Waters of the U.S. Analysis Studies

WETLANDS AND WATERS OF THE U.S. ANALYSIS STUDIES

LIHUE AIRPORT RSA EA PROJECT AREA

LIHUE, KAUAI

By:
Robert W. Hobdy
Environmental Consultant
June 2016

For:
Ricondo Associates

WETLANDS AND WATERS OF THE U.S. ANALYSIS STUDIES
LIHUE AIRPORT RSA EA PROJECT AREA

The Lihue Airport RSA EA Project is located on the east side of Lihue town near the southeast coast of Kauai. The project involves proposed improvements on a portion of the Airport on and around Runway 3-21 fronting the terminal (see Figures 1 & 2). These Wetlands and Waters of the U.S. analyses were initiated in compliance with environmental requirements of the planning process.

SITE DESCRIPTION

The project area includes the entirety of Runways 3-21 and the peripheral corridor surrounding it on all sides, including a small localizer structure near the northeast end of the Runway. The total acreage surveyed is roughly 280 acres and is delineated on Figure 1. This Runway lies on a broad and gently sloping ridge top that extends well beyond the Airport on the north, west and south sides. Beyond the east end of Runway 21, however, the land slopes down more steeply to a rocky shoreline, a distance of about 1,000 feet. The elevation at the western end of the Runway is about 150 feet while the seaward eastern end lies at about 90 feet above sea level. This translates to a slope of approximately 1% over its 6,500 foot length. The soils in the project area are characterized as Lihue silty clay, 0 – 8% slopes (LhB), and the closely related Lihue, gravelly, silty clay, 0 – 8% slopes (LiB) (Foote et al, 1972). Both of these soils are described as "well drained soils of uplands on the tops of broad interfluves". Rainfall here averages 45 inches per year with slightly more of it occurring during the winter months. The vegetation consists mostly of grass species and low-growing plants that can survive frequent mowing.

ANALYSES OF RESOURCES

The U.S. Army Corps of Engineers (the Corps) has established guidelines for determining whether aquatic resources are Wetlands or Waters of the U.S. and whether they qualify as jurisdictional resources under their oversight. These guidelines are laid out in three documents: Corps of Engineers Wetlands Delineation Manual (1987), and its Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Hawaii and Pacific Islands Region (2012), and the U.S. Army Corps of Engineers Jurisdictional Determination Instructional Guidebook (2007).

The Lihue Airport RSA EA project's aquatic resources potential was analyzed and a provisional assessment of their jurisdictional status was made, subject to the Corps final determination.

A Wetland is a subset of the larger concept of a Waters of the U.S. and one of the latter's specialized constituents that requires a separate and focused assessment process. Potential Wetlands were thus addressed first.

WETLANDS ANALYSIS AND ASSESSMENT

The Corps guidelines for assessing wetlands focuses on three parameters for analysis: vegetation, soils and hydrology, each with its own specialized guidelines that lead to a positive or negative wetlands status rating. To qualify as a Wetland all of the three parameters must exhibit positive wetland ratings.

The Lihue Airport RSA EA Project area lacked any areas that approximated a potential wetlands so the analyses of three parameters was broadened to address the entire project area in toto as one would address an individual sampling point.

VEGETATION

The vegetation is made up mainly of grasses. Many other low-growing species are interspersed with the grasses and are kept low by the frequent mowing that occurs on more than 99% of the project area. A small strip just outside the airport fence, where one improvement option is being considered, consists of unmowed grasses and shrubs.

A total of 67 plant species were observed during three site visits. Two species of grasses were rated as abundant: (*Bothriochloa bladhii*) no common name and pitted beardgrass (*Bothriochloa pertusa*). Both of these are upland grasses. Seven species were rated as common: Carolina lovegrass (*Eragrostis pectinacea*) – Facultative Upland, Guinea grass (*Megathyrsus maximus*) – Facultative, sweet clockvine (*Thunbergia fragrans*) – Upland, mat chaff flower (*Alternanthera caracasana*) – Upland, wedelia (*Sphagneticola trilobata*) – Facultative, fourspike heliotrope (*Heliotropium procumbens*) – Facultative and siratro (*Macroptilium atropurpureum*) – Facultative.

Of the 67 plant species observed 18 were rated as Facultative plants, 32 were rated as Facultative Upland plants and 17 were rated as Upland plants. No Facultative Wetland plants or Obligate Wetland plants were found.

Many of the Facultative Plants were found growing along the fringes of the runways. These fringe strips receive additional amounts of runoff from the impervious surfaces that allows these species to survive in an otherwise drier environment.

If the vegetation in the entire project area were to treated as a single sampling point, and the nine species that were rated abundant and common were treated as Dominant species, neither a Dominance test or Prevalence Index would find the vegetation to be hydrophytic.

SOIL

The soils in the entire project area are Lihue silty clay or Lihue gravelly, silty clay which are both deep and well-drained soils. They are clearly described as being upland soils on broad, gently sloping interfluves. There are no undrained depressions anywhere in the project area where hydric soils could develop and none of the positive indicators were seen. It is clear that there are no hydric soils present.

HYDROLOGY

This project area has excellent natural drainage throughout, but the terrain was altered when the Airport was constructed to even further enhance this drainage. First the runways were raised slightly above the surrounding terrain and were built with a slight crown so that water would not accumulate on the landing and taxiing surfaces. Beyond the paved surfaces the terrain sloped slightly down and away. Finally, a network of underground culverts were installed to channel water from every surface area away from the airport. Even the small grassy islands between paved surfaces have swales leading to these underground culverts. As a result even substantial storm flows are quickly channeled off property. There is no place within the project area where water can pond, even temporarily, and no wetland hydrology is evident.

SUMMARY

No positive wetland indicators occurred in any of the three parameters of vegetation, soil and hydrology. The entire Lihue Airport RSA EA project area is determined to be a non-wetland, but this is subject to the Corps assessment and final determination.

WATERS OF THE U.S. ANALYSIS AND ASSESSMENT

The Lihue Airport RSA EA Project area lies on a broad and gently sloping ridge top with absolutely no gulches or gullies (see Figure 3). No permanent, intermittent or even ephemeral streams occur here. There are no identifiable natural stream channels and there are no stream beds, or banks visible in the entire project area. Before the construction of Lihue Airport all storm flow was apparently by sheet flow to the coastal bluffs.

When Lihue Airport was first constructed and opened in 1949 it succeeded sugar cane production by Lihue Plantation Company. The soils had already been altered by plowing, cultivation and harvesting activities, and irrigation had introduced contour furrowing. Any natural features were obliterated. The alteration of surface features for the installation of swales channeling water into underground drainage pipes, then to large open cement channels and then off property about 1,000 feet to a rocky shoreline completes documentation of changes to the landscape.

As a result of the above described terrain and subsequent surface alterations, none of the nine described aquatic feature categories on the Approved Jurisdictional Determination Form (Section II-B-1-a) were discernable and were likely not previously present. There were no aquatic features to consider or analyze. It is here determined that the Lihue Airport RSA EA project area does not contain any Waters of the U.S. This determination is subject to the review and Final Determination by the Corps.

FINAL SUMMARY

The Preliminary Wetland and Waters of the U.S. studies for the Lihue Airport RSA EA project are to be submitted to:

The U.S. Army Corps of Engineers
Honolulu District
Regulatory Branch
Building 230
Fort Shafter, HI 96858-5440

for their review and Final Determination.

[DRAFT]

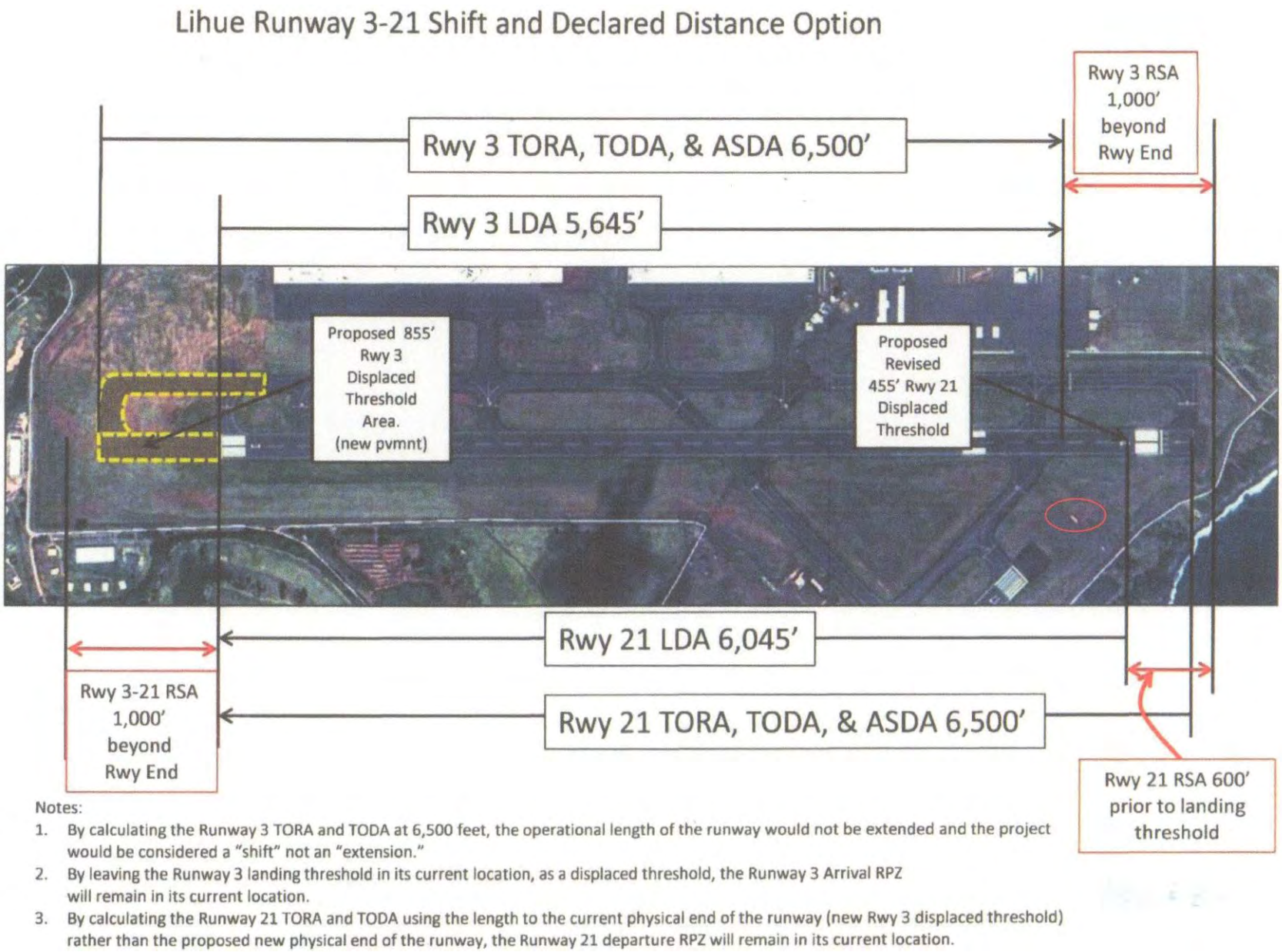
SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015. ESRI Database (Aerial Imagery), ESRI, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community, Obtained March 15, 2016.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

FIGURE 1

NORTH 0 800 ft.

Lihue Airport RSA EA Project Area

Drawing: Z:\Hawaii\LIH\04-RSA EA\12-CAD\LIH_RSA_EA_20160315.dwg Layout: Wetlands-Fig1 Plotted: Jun 27, 2016, 05:21PM



Notes:

1. By calculating the Runway 3 TORA and TODA at 6,500 feet, the operational length of the runway would not be extended and the project would be considered a "shift" not an "extension."
2. By leaving the Runway 3 landing threshold in its current location, as a displaced threshold, the Runway 3 Arrival RPZ will remain in its current location.
3. By calculating the Runway 21 TORA and TODA using the length to the current physical end of the runway (new Rwy 3 displaced threshold) rather than the proposed new physical end of the runway, the Runway 21 departure RPZ will remain in its current location.

Figure 2. Lihue Airport RSA EA Project showing proposed improvements along Runway 3-21.

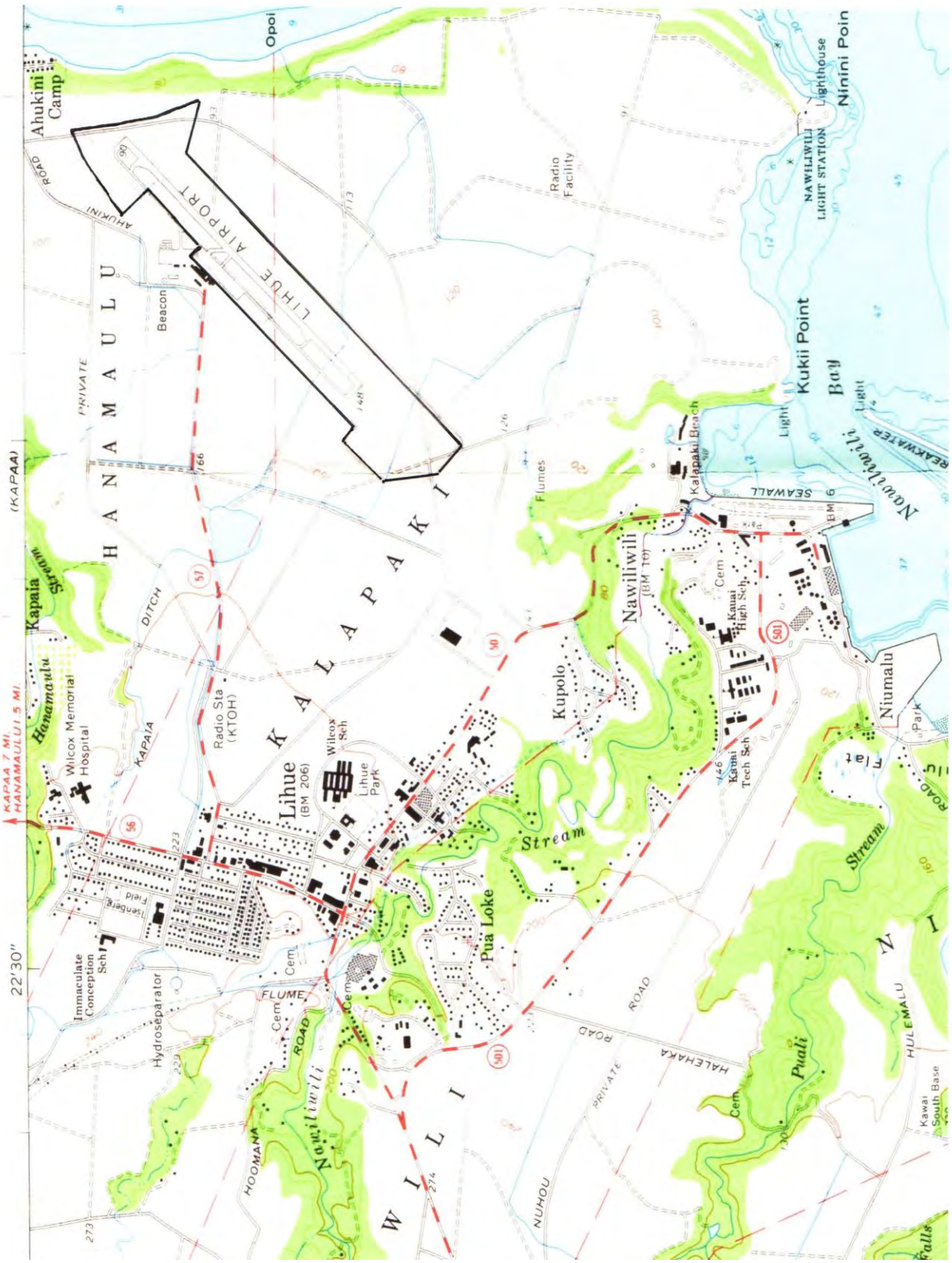


Figure 3. Project Area with Topographic Detail – USGS 1/24,000 Lihue Quad (1963)

Figure 4. View northeast toward Runway 21 showing typical open mowed terrain

Figure 5. View southwest along main cement culvert exiting airport property.

Appendix E

Biological Resources Study

BIOLOGICAL RESOURCES STUDY

LIHUE AIRPORT RSA EA PROJECT

LIHUE, KAUAI

by

Robert W. Hobdy
Environmental Consultant
Kokomo, Maui
June 2016

Prepared for:
Ricondo & Associates

BIOLOGICAL RESOURCES STUDY
LIHUE AIRPORT RSA EA PROJECT
LIHUE, KAUAI

INTRODUCTION

The Lihue Airport RSA EA Project is located on the east side of Lihue Town near the southeast coast of Kauai. The project involves proposed improvements on a portion of the airport on and around Runways 3/21 fronting the Terminal (see Figures 1 & 2). This biological resources study was initiated in compliance with environmental requirements of the planning process.

SITE DESCRIPTION

The project area includes the entirety of Runways 3/21 and the peripheral corridor surrounding it on all sides, including a small localizer structure near the northeast end of the runway. The total acreage surveyed is roughly 280 acres. This runway lies on a broad, gently sloping ridgetop on all sides, but beyond the northeast end of Runway 21 the land begins to slope more steeply down to the coastline. Elevations range from 150 feet at the southwest inland end down to 90 feet at the northeast seaward end. Soils are characterized as Lihue Silty clay, 0 – 8% slopes (LhB) with small areas of Lihue gravelly silty clay, 0 – 8% slopes (LiB) (Foote et al, 1972.). Both of these soils are described as "well-drained soils of uplands on the tops of broad interfluves". Rainfall here averages 45 inches per year with slightly more of it occurring during the winter months. The vegetation consists mostly of grass species and low-growing plants that can survive frequent mowing.

The airport terrain has been engineered to create an ideal runway surface. Runway surfaces are gently crowned so that rainfall flows off the surface, and the surrounding terrain also gently slopes away so that water does not accumulate. Runoff ultimately is directed into drainages that channel storm waters off airport property. As a result water does not accumulate or pond on or around runways.

SURVEY OBJECTIVES

This report summarizes the findings of a botanical and fauna survey of the proposed Lihue Airport RSA EA Project which was conducted in June 2016.
The objectives of the survey were to:

1. Document what plant and animal species may occur on the property or may likely occur in the existing habitat.

2. Determine the status and abundance of each species.

3. Determine the presence or likely occurrence of any native flora and fauna, particularly any that are Federally listed as Threatened or Endangered. If such occur, identify what features of the habitat may be essential for these species.

4. Determine if the project area contains any special habitats which if lost or altered might result in a significant negative impact on the flora and fauna in this part of the island.

BOTANICAL SURVEY REPORT

SURVEY METHODS

The botanical survey was conducted according to airport security guidelines and tower protocols and instructions. An official vehicle with an authorized individual accompanied me to various locations where more intensive survey work could be conducted on foot. All parts of the project area were examined. Notes were made on plant species, distribution and abundance as well as on terrain and substrate.

DESCRIPTION OF THE VEGETATION

Almost the entire project area along and around the paved surfaces is frequently mowed to maintain the vegetation at a height of about 6 inches. A small strip about 50 feet wide lies outside the fence off the end of the end of Runway 21 where an improvement alternative is being considered. Here the vegetation is not maintained and consists of dense grass and shrubs.

A total of 67 plant species were identified during three site visits to the project area. Two non-native grass species were abundant throughout the area: (*Bothriochloa bladhii*) no common name and pitted beardgrass (*Bothriochloa pertusa*). Another seven non-native species were common: Carolina lovegrass (*Eragrostis pectinacea*), Guinea grass (*Megathyrsus maximus*), sweet clockvine (*Thunbergia fragrans*), matt chaff flower (*Alternanthera caracasana*), wedelia (*Sphagneticola trilobata*), fourspike heliotrope (*Heliotropium procumbens*) and siratro (*Macroptilium artropurpureum*). The remaining 58 species were uncommon or rare.

Three native Hawaiian plants were found: koali awahia (*Ipomoea indica*), ʻilima (*Sida fallax*) and ʻuhaloa (*Waltheria indica*). These three plants are all indigenous species that are found throughout Hawaii as well as on other Pacific islands. The ʻuhaloa was uncommon but scattered throughout the project area. The koali awahia and ʻilima were both of rare occurrence here and found only at the lower boundary of the project. All three of these native species, however are common throughout Hawaii and are not of any conservation concern. The remaining sixty four species were common non-native plants.

DISCUSSION AND RECOMMENDATIONS

The vegetation throughout the project area is comprised mainly of non-native species with just three common indigenous species scattered about, mostly along the coastal fringe. No Federally listed Threatened or Endangered plant species (USFWS, 2016) were found on the property nor were any found that are candidates for such status.

Because of the above existing conditions there is little of botanical concern with regard to the property, and the proposed project is not expected to have a significant negative impact on the botanical resources in this part of Kauai. No recommendations regarding the flora on this property are deemed necessary or appropriate.

PLANT SPECIES LIST

Following is a checklist of all those vascular plant species inventoried during the field studies. Plant families are arranged alphabetically within three groups: Ferns, Monocots and Dicots. Taxonomy and nomenclature of the Ferns are in accordance with Palmer (2003). Taxonomy and nomenclature of the flowering plants (Monocots and Dicots) are in accordance with Wagner et al. (1999) and Staples & Herbst (2005).

For each species, the following information is provided:

1. Scientific name with author citation.

2. Common English or Hawaiian name.

3. Bio-geographical status. The following symbols are used:

   endemic = native only to the Hawaiian Islands; not naturally occurring anywhere else in the world.
   indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).
   Polynesian = all those plants brought to Hawaii by the Polynesians during the course of their migrations.
   non-native = all those plants brought to the islands intentionally or accidentally after western contact.

4. Abundance of each species within the project area:

   abundant = forming a major part of the vegetation within the project area.

   common = widely scattered throughout the area or locally abundant within a portion of it.

   uncommon = scattered sparsely throughout the area or occurring in a few small patches.

   rare = only a few isolated individuals within the project area.

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
FERNS			
LOMARIOPSIDACEAE (Vine Fern Family)			
Nephorolepis brownii (Desv.) Hovenc. & Miaym.	Asian sword fern	non-native	rare
MONOCOTS			
CYPERACEAE (Sedge Family)			
Cyperus rotundus L.	nut sedge	non-native	rare
POACEAE (Grass Family)			
Bothriochloa bladhii S.J. Blake	beardgrass	non-native	abundant
Bothriochloa pertusa (L.) A. Camus	pitted beardgrass	non-native	abundant
Chloris barbata (L.) Sw.	swollen fingergrass	non-native	uncommon
Cynodon dactylon (L.) Pers.	Bermuda grass	non-native	uncommon
Digitaria ciliaris (Retz.) Koeler	Henry's crabgrass	non-native	rare
Digitaria violascens Link	kukae pua'a	non-native	rare
Eleusine indica (L.) Gaertn.	wiregrass	non-native	uncommon
Eragrostis pectinacea (Michx.) Nees	Carolina lovegrass	non-native	common
Megathyrsus maximus (Jacq.) Morrone	Guinea grass	non-native	common
Melinis repens (Willd.) Zizka	Natal redtop	non-native	rare
Paspalum conjugatum Bergius	Hilo grass	non-native	uncommon
Paspalum dilatatum Poir.	Dallis grass	non-native	uncommon
Paspalum fimbriatum Kunth	Panama grass	non-native	rare
Setaria parviflora (Poir.) Kerguelen	yellow foxtail	non-native	rare
Sporobolus diander (Retz.) P. Beauv.	Indian dropseed	non-native	uncommon
Sporobolus indicus (L.) R. Br.	West Indian dropseed	non-native	rare
Urochloa distachya (L.) T.Q. Nguyen	----------	non-native	uncommon
DICOTS			
ACANTHACEAE (Acanthus Family)			
Asystasia gangetica (L.) T. Anderson	Chinese violet	non-native	uncommon
Thunbergia fragrans Roxb.	sweet clockvine	non-native	common
AMARANTHACEAE (Amaranth Family)			
Alternanthera caracasana Kunth	mat chaff flower	non-native	common
Alternanthera pungens Kunth	khaki weed	non-native	rare
Amaranthus viridis L.	slender amaranth	non-native	rare
ANACARDIACEAE (Mango Family)			
Schinus terebinthifolius Raddi	Christmas berry	non-native	rare
ASTERACEAE (Sunflower Family)			
Bidens alba (L.) DC.	romerilla	non-native	uncommon
Bidens pilosa L.	Spanish needle	non-native	uncommon
Emilia fosbergii Nicolson	red pualele	non-native	rare
Parthenium hysterophorus L.	Santa Maria	non-native	uncommon
Sonchus oleraceus L.	pualele	non-native	rare
Sphagneticola trilobata (L.) Pruski	wedelia	non-native	common
Tridax procumbens L.	coat buttons	non-native	uncommon
Verbesina encelioides (Cav.) Benth. & Hook.	golden crown-beard	non-native	uncommon

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
BORAGINACEAE (Borage Family)			
Heliotropium amplexicaule Vahl	summer heliotrope	non-native	uncommon
Heliotropium procumbens Mill.	four spike heliotrope	non-native	common
BRASSICACEAE (Mustard Family)			
Lepidium virginicum L.	pepperwort	non-native	uncommon
CASUARINACEAE (She-oak Family)			
Casuarina equisetifolia L.	common ironwood	non-native	rare
CONVOLVULACEAE (Morning Glory Family)			
Ipomoea indica (J. Burm.) Merr.	koali awahia	indigenous	rare
Ipomoea obscura (L.) Ker. Gawl.	obscure morning glory	non-native	uncommon
Ipomoea triloba L.	little bell	non-native	rare
CUCURBITACEAE (Gourd Family)			
Momordica charantia L.	bitter melon	non-native	rare
EUPHORBIACEAE (Spurge Family)			
Euphorbia hirta L.	hairy spurge	non-native	rare
Euphorbia hypericifolia L.	graceful spurge	non-native	uncommon
Euphorbia thymifolia L.	thyme-leaved spurge	non-native	rare
Macaranga tanarius (L.) Mull. Arg.	parasol leaf tree	non-native	rare
Ricinus communis L.	Castor bean	non-native	rare
FABACEAE (Pea Family)			
Acacia confusa Merr.	Formosa koa	non-native	rare
Alysicarpus vaginalis (L.) DC.	alyce clover	non-native	rare
Canavalia cathartica Thouars	maunaloa	non-native	rare
Chamaecrista nictitans (L.) Moench	partridge pea	non-native	uncommon
Desmanthus pernambucanus (L.) Thellung	slender mimosa	non-native	uncommon
Indigofera spicata Forssk.	creeping indigo	non-native	rare
Leucaena leucocephala (Lam.) de Wit	koa haole	non-native	uncommon
Macroptilium atropurpureum (DC.) Urb.	siratro	non-native	common
Mimosa pudica L.	sensitive plant, hilahila	non-native	uncommon
MALVACEAE (Mallow Family)			
Abutilon grandifolium (Willd.) Sweet	hairy abutilon	non-native	rare
Malvastrum coromandelianum (L.) Garcke	false mallow	non-native	uncommon
Sida ciliaris L.	bracted fantpetals	non-native	rare
Sida fallax Walp.	'ilima	indigenous	rare
Sida rhombifolia L.	arrowleaf sida	non-native	rare
Sida spinosa L.	prickly sida	non-native	rare
Waltheria indica L.	'uhaloa	indigenous	uncommon
MYRTACEAE (Myrtle Family)			
Psidium guajava L.	common guava	non-native	uncommon
NYCTAGINACEAE (Four-o'clock Family)			
Boerhavia coccinea Mill.	scarlet spiderling	non-native	uncommon
PASSIFLORACEAE (Passion Flower Family)			
Passiflora foetida L.	love-in-a-mist	non-native	rare

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
PLANTAGINACEAE (Plantain Family)			
Plantago lanceolata L.	narrow-leaved plantain	non-native	rare
VERBENACEAE (Verbena FamilY)			
Verbena littoralis Kunth	ha'uōwī	non-native	rare

FAUNA SURVEY REPORT

SURVEY METHODS

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

RESULTS

MAMMALS

No mammals were observed in the project area during three site visits. While not seen during the survey, rats (*Rattus* spp.), mice (*Mus domesticus*) and cats (*Felis catus*) would be expected to occur on the property. Rats and mice feed on fruits, seeds and herbaceous vegetation, while cats would hunt for these rodents and birds.

A special effort was made to detect any occurrence of the Hawaiian hoary bat by conducting an evening survey in the area. A bat detecting device (Batbox IIID) was employed, set to the frequency of 27,000 Hertz that these bats are known to use when echolocating for flying nocturnal insects. No bats were detected with the use of this device at two locations.

BIRDS

Birdlife was moderate in both species represented and in total numbers in this open and sparsely vegetated habitat. Nine species of non-native birds were observed during three site visits. Taxonomy and nomenclature follow American Ornithologists' Union (2014). Just two species were common: the common myna (*Acridotheres tristis*) and the zebra dove (*Geopelia striata*). Uncommon were: the spotted dove (*Streptopelia chinensis*), the house sparrow (*Passer domesticus*) and the house finch (*Carpodacus mexicanus*). Four other species were rare: the northern cardinal (*Cardinalis cardinalis*), the northern mocking bird (*Mimus polyglottos*), the red-crested cardinal (*Paroaria coronata*) and the chestnut mannikin (*Lonchura malacca*). Other non-native birds that could occasionally show up include: the nutmeg mannikin (*Lonchura punctulata*), the Japanese white-eye (*Zosterops japonicus*), the cattle-egret (*Bubulcus ibis*) and the common chicken (*Gallus gallus*). During the winter months the migratory Pacific golden-plover (*Pluvialis fulva*) shows up in significant numbers. Occasionally the indigenous great frigate bird (*Fregata minor palmerstoni*) can be seen flying high above the project area but these seabirds would not land in the project area. During the evening hours the owl species: the native pueo (*Asio flameus sandwichensis*) and the non-native barn owl (*Tyto alba*) can sometimes hunt for rodents over the open grasslands. The native nēnē goose (*Branta sandvicensis*) has also been known to forage along runway margins from time to time.

The Lihue Airport management tries to maintain the peripheral grassy aprons in a closely mowed condition so that it is unattractive to bird usage, and they also pursue an active program of driving away the larger bird species from the airport because of the very serious threat they pose to aircraft and human safety. The lack of large species of birds encountered during the survey attests to the relative success of their bird deterrent program.

INSECTS

Insect life was rather sparse in this open, windy and rather barren habitat alongside the runways. Just four non-native species were observed during three site visits. One butterfly species was uncommon, the long tail blue (*Lampides boeticus*). This small butterfly was seen in a few different parts of the project area. Rarely encountered insects included: the honey bee (*Apis mellifera*), the Sonoran carpenter bee (*Xylocopa sonorina*) and the fiery skipper butterfly (*Hylephila phyleus*). No native insects were seen.

MOLLUSKS

The shells of just one non-native mollusk, the giant East African snail (*Achatina fulica*) were seen in two places in the project area.

CONCLUSIONS AND RECOMMENDATIONS

The fauna species observed within the Lihue Airport RSA EA project area were entirely non-native in character. Not a single native mammal, bird, insect or mollusk species was observed.

No Hawaiian hoary bats were detected during the survey, but they are known to occur on Kauai. These Endangered bats are highly mobile creatures that utilize a wide range of habitats and Move around to take advantage of spikes in nocturnal insect activity that provide their food. It is thus possible that these bats may periodically show up in the project area. These bats often roost in trees during the day and they place their newborn pups in trees during the summer months when they are too young to fly. The Lihue Airport RSA EA project area, however, is devoid of trees so this would not be an issue.

There are also two species of protected seabirds, the Endangered ʻuaʻu or Hawaiian petrel *Pterodroma sandwichensis*) and the Threatened ʻaʻo or Newell's shearwater (*Puffinus newelli*) that nest in burrows high in the mountains. They would not physically land in the project area but do fly over the coastal lowlands to and from their burrows at dusk and at dawn respectively. Young fledglings, in particular, can be drawn to and confused by bright lights and crash into or around light structures with fatal results. It is recommended that the use of any significant outdoor flood lights that may be associated with this project be hooded to direct the light downward to mitigate this threat.

ANIMAL SPECIES LIST

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

1. Common name.

2. Scientific name.

3. Bio-geographical status. The following symbols are used:

   endemic = native only to Hawaii; not naturally occurring anywhere else in the world.

   indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).

   non-native = all those animals brought to Hawaii intentionally or accidentally after western contact.

   migratory = spending a portion of the year in Hawaii and a portion elsewhere. In Hawaii the migratory birds are usually in the overwintering/non- breeding phase of their life cycle.

4. Abundance of each species within the project area:

   abundant = many flocks or individuals seen throughout the area at all times of day.

   common = a few flocks or well scattered individuals throughout the area.

   uncommon = only one flock or several individuals seen within the project area.

   rare = only one or two seen within the project area.

MAMMALS
None

BIRDS

Acridotheres tristis L.	common myna	non-native	common
Geopelia striata L.	zebra dove	non-native	common
Streptopelia chinensis Scopoli	spotted dove	non-native	uncommon
Passer domesticus L.	house sparrow	non-native	uncommon
Carpodacus mexicanus Muller	house finch	non-native	uncommon
Cardinalis cardinalis L.	northern cardinal	non-native	rare
Mimus polyglottos L.	northern mockingbird	non-native	rare
Paroaria coronata Miller	red-crested cardinal	non-native	rare
Lonchura malacca L.	chestnut mannikin	non-native	rare

MOLLUSKS

Achatina fulica Ferussac	giant East African snail	non-native	rare

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
INSECTS			
Order HYMENOPTERA - bees, wasps, ants			
APIDAE (Honey Bee Family)			
Apis mellifera L.	honey bee	non-native	rare
Xylocopa sonorina Smith	Sonoran carpenter bee	non-native	rare
Order LEPIDOPTERA - butterflies, moths			
HESPERIIDAE (Skipper Butterfly Family)			
Hylephila phyleus Drury	fiery skipper	non-native	rare
LYCAENIDAE (Gossamer-winged Butterfly Family)			
Lampides boeticus L.	long tail blue butterfly	non-native	uncommon

[DRAFT]

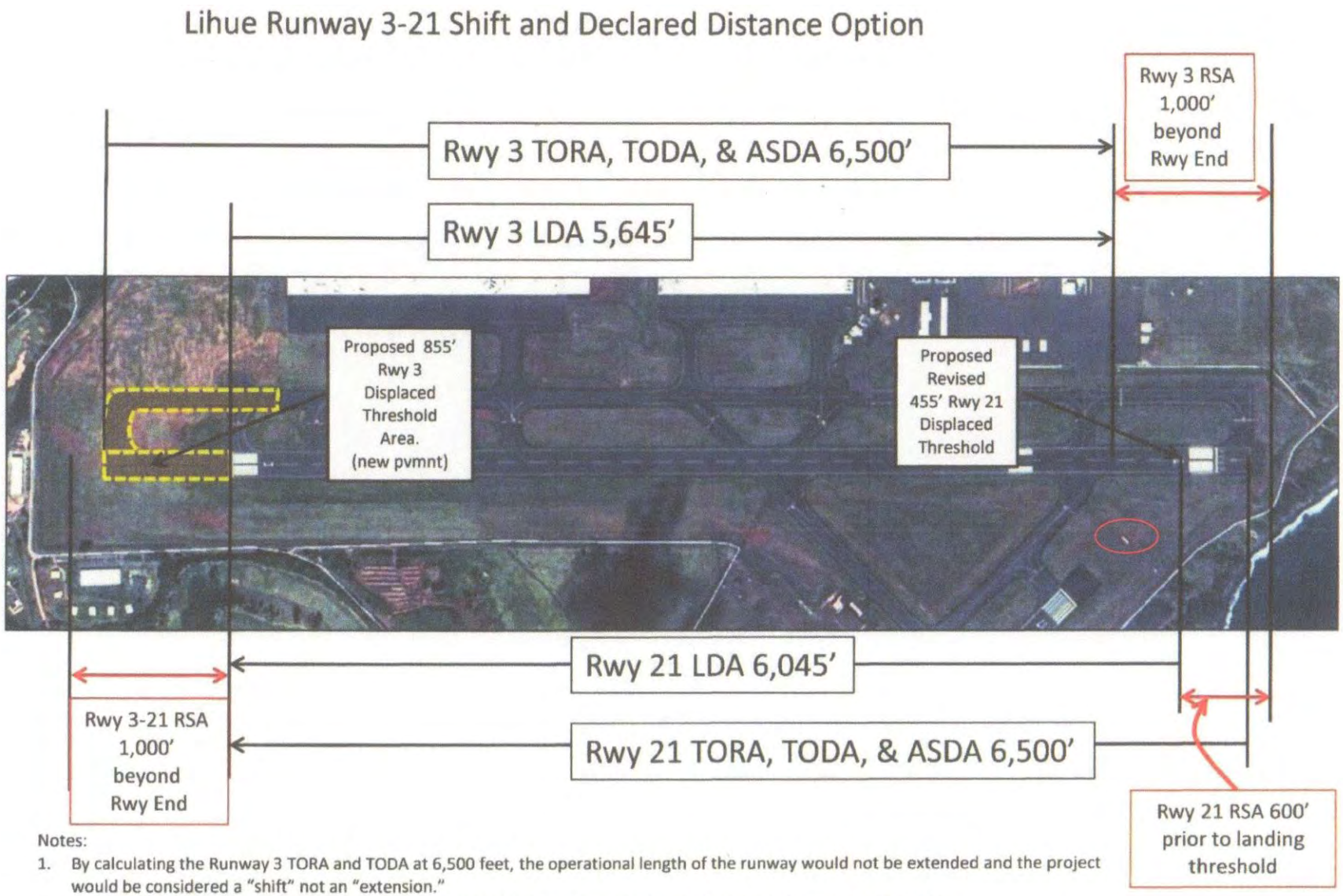
SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015. ESRI Database (Aerial Imagery), ESRI, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community, Obtained March 15, 2016.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

FIGURE 1

NORTH 0 800 ft.

Lihue Airport RSA EA Project Area

Drawing: Z:\Hawaii\LIH\04-RSA EA\12-CAD\LIH_RSA_EA_20160315.dwg Layout: Flora-Fauna-Fig1 Plotted: Jun 27, 2016, 05:15PM



Notes:

1. By calculating the Runway 3 TORA and TODA at 6,500 feet, the operational length of the runway would not be extended and the project would be considered a "shift" not an "extension."
2. By leaving the Runway 3 landing threshold in its current location, as a displaced threshold, the Runway 3 Arrival RPZ will remain in its current location.
3. By calculating the Runway 21 TORA and TODA using the length to the current physical end of the runway (new Rwy 3 displaced threshold) rather than the proposed new physical end of the runway, the Runway 21 departure RPZ will remain in its current location.

Figure 2. Lihue Airport RSAA EA Project showing proposed improvements along Runway 3-21.

Figure 3. Lihue Airport- view eastward toward the terminal on the left and the end of Runway 3 on the right showing the open character of the project area which is frequently mowed.

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Appendix F

Agency Coordination and Public Involvement

F.1 Agency Coordination Overview

F.2 Project Introduction Letter and Agency Responses

F.3 Native Hawaiian Organization Consultation

F.4 Draft EA Comments Received

F.5 Scoping and Draft EA Comment Responses

F.6 Scoping and Draft EA Comment Response Letters

Appendix F.1

Agency Coordination Overview

Appendix F Agency Coordination

Project introduction letters were sent to 53 individuals represent federal, State, and local agencies with jurisdiction over resources either known to be in the vicinity of LIH or for resources that could potential be present in the area. Letters were also sent to surrounding communities. The purpose of the letters was to inform agencies and communities about the Environmental Assessment (EA) process, the proposed project, preliminary purpose and need, and preliminary alternatives and to solicit input on issues of concern that they would like addressed in the EA. The list of individuals, agencies, and communities the letter was sent to is provided on the following page. A sample introduction letter follows the mailing list. Agency correspondence received in response to the letter appears within this appendix, as well as coordination letters with the Office of Hawaiian Affairs and U.S. Fish & Wildlife Service. National Historic Preservation Act Section 106 consultation with the State Historic Preservation Division can be found in **Appendix G**.

F.1 Project Introduction Letter Mailing List

Federal Agencies

- Mr. Gordon Wong, Lead Program Manager, Federal Aviation Administration, Honolulu Airport District office, Honolulu, Hawaii
- Ms. Jenna Dunn, District Conservationist, Lihue Natural Resources Conservation Service, U.S. Department of Agriculture, Lihue, Hawaii
- Mr. Shane McCoy, Acting Chief, U.S. Army Corp of Engineers, Honolulu, Fort Shafter, Hawaii
- Ms. Mary Abrams, Field Supervisor, U.S. Fish & Wildlife Service, Pacific Island Fish and Wildlife Office

State Agencies

- Mrs. Leo Asuncion Jr. Director, State of Hawaii, Office of Planning, Honolulu, Hawaii
- Mr. William ((Bill) Arakaki, Complex Area Superintendent, State of Hawaii, Kapaa-Kauai-Waimea Complex Area, Lihue, Hawaii
- Major General Arthur J. Logan, Director, State of Hawaii, Department of Defense, Honolulu, Hawaii
- Ms. Laura McIntyre, Office Manager, Environmental Planning Office, Department of Health, Honolulu, Hawaii
- Ms. Kathryn Matayoshi, State of Hawaii, Department of Education, Honolulu, Hawaii
- Mr. Craig Hirai, Executive Director, Hawaii Housing Finance and Development Corporation, Honolulu, Hawaii
- Ms. Suzanne Case, Chairperson, State of Hawaii, Department of Land and Natural Resources, Honolulu, Hawaii
- Ms. Jobie Masgatani, Chairperson, State of Hawaii, Department of Hawaiian Home Lands, Honolulu, Hawaii
- Mr. Scott Glenn, Director, State of Hawaii, Office of Environmental Quality Control, Department of Health, Honolulu, Hawaii
- Dr. Kamanaopono Crabbe, Chief Executive Officer, Office of Hawaiian Affairs, Honolulu, Hawaii
- Mr. Alan Downer, Administrator, State of Hawaii, State Historic Preservation Division, Kapolei, Hawaii
- Senator Ronald D. Kouchi, Senate President, Hawaii State Senate (District 8), Hawaii State Captirol, Room 409, Honolulu, Hawaii
- Representative James K. Tokioka, House of Representatives (District 15), Hawaii State Capitol, Room 322, Honolulu, Hawaii
- Representative Derek S. K. Kawakami, House of Representatives (District 14), Hawaii State Capitol, Room 314, Honolulu, Hawaii
- Representative Dee Morikawa, House of Representatives (District 16), Hawaii State Capitol, Room 442 Honolulu, Hawaii

Local Agencies/Communities

- Mr. Elton Ushio, Emergency Management Administrator, Kauai Civil Defense Agency, Lihue, Hawaii
- Mr. Bernard P. Caravlho Jr., Mayor, County of Kauai, Lihue, Hawaii
- Mr. Jay Furfaro, Director, County of Kauai, Office of Boards and Commissions, Lihue, Hawaii
- Mr. George Costa, Director, County of Kauai, Office of Economic Development, Lihue, Hawaii
- Ms. Susan Tai Kaneko, President/CEO, County of Kauai, Kauai Economic Development Board, Lihue, Hawaii

- Mr. Ken Shimonishi, Director, County of Kauai, Department of Finance, Lihue, Hawaii
- Chief Robert Westerman, County of Kauai, Kauai Fire Department, Lihue, Hawaii
- Chief Darryl Perry, County of Kauai, Kauai Police Department, Lihue, Hawaii
- Ms. Kanani Fu, Director, County of Kauai, Housing Agency, Lihue, Hawaii
- Mr. Lyle Tabata, Acting County Engineer, County of Kauai, Department of Public Works, Lihue, Hawaii
- Mr. Michael Dahilig, Director, County of Kauai, Planning Department, Lihue, Hawaii
- Mr. Kirk Saiki, Manager, County of Kauai, Department of Water, Lihue, Hawaii
- Ms. Celia Wooton, Mahikoa, Executive on Transportation, County of Kauai, Transportation Agency, Lihue, Hawaii
- Mr. Mark Perriello, President, Kauai Chamber of Commerce, Lihue, Hawaii
- Councilmember Ross Kagawa, Council Vice Chair, Kauai County Council, Lihue, Hawaii
- Councilmember Mel Rapozo, Council Chair, Kauai County Council, Lihue Hawaii
- Councilmember Mason Chock, Kauai County Council, Lihue, Hawaii
- Councilmember Gary Hooser, Kauai County Council, Lihue, Hawaii
- Councilmember KipuKai Kuali`I, Kauai County Council, Lihue, Hawaii
- Councilmember Arryl Kaneshiro, Kauai County Council, Lihue, Hawaii
- Councilmember JoAnn A. Yukimura, Kauai County Council, Lihue, Hawaii
- Mr. Lenny Rapozo, Director, County of Kauai, Department of Parks and Recreation, Lihue, Hawaii
- Mr. Ian Costa, Deputy Director, County of Kauai, Department of Parks and Recreation, Lihue, Hawaii
- Ms. Alison Fraley, County of Kauai, Solid Waste Division, Lihue, Hawaii
- Kauai State Historic Preservation Division, Lihue, Hawaii
- Kauai District Office Department of Land and Natural Resources-Land Division, Lihue, Hawaii
- Ms. Sue Kanoho, Executive Director, Kauai Visitors Bureau, Lihue, Hawaii
- Ms. Cristina Gabriel, Kauai Chapter Chairperson, Kauai Hotel & Lodging Association, Koloa, Hawaii
- Ms. Jody Kono Kjeldsen, Executive Director, Poipu Beach Resort Association, Koloa, Hawaii
- Mr. Mike Cuthbertson, Managing Director, Hokuala Resort, Lihue, Hawaii
- Ms. Karen Taketa, Executive Director, Contractors Association of Kauai, Lihue, Hawaii
- Mr. Warren Haruki, CEO, Grove Farm, Lihue, Hawaii
- Hawaiian Telecom, Lihue, Hawaii
- Kauai Island Utility Cooperative, Lihue, Hawaii

Appendix F.2

Project Introduction Letter and Agency Responses

DAVID Y. IGE
GOVERNOR

FORD N. FUCHIGAMI
DIRECTOR

Deputy Directors
JADE T. BUTAY
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:
AIR-EP
16.0051

August 1, 2016

Dear Consulted Party:

Subject: Environmental Assessment for Runway Safety Area (RSA) Improvements for Runway 3-21 Lihue Airport, Island of Kauai, Hawaii

The State of Hawaii, Department of Transportation, Airports Division (HDOT-A) has initiated the preparation of an Environmental Assessment (EA) for the proposed Runway Safety Area (RSA) improvements to Runway 3-21 at Lihue Airport (LIH). The EA is being prepared to comply with both Federal Aviation Administration (FAA) requirements under the National Environmental Policy Act (NEPA) and State of Hawaii requirements under the Hawaii Environmental Policy Act (HEPA).

The primary components of the proposed RSA improvements project (Proposed Action), as shown on **Exhibit 1**, include:

- Runway 3 (Southwest End):
  - Shift of the Runway 3 end 855 feet to the southwest; the landing threshold would remain in the same location, resulting in an 855-foot Runway 3 displaced threshold.
  - Construction of a 200-foot blast pad.
  - Construction of a taxiway extension to the new Runway 3 end.
  - In order to mitigate the Runway Protection Zone (RPZ) penetrations on the Runway 3 end, a Departure End of Runway (DER) point would be created. The DER would coincide with the Runway 3 displaced threshold, which is also the existing Runway 3 end.
- Runway 21 (Northeast End):
  - Relocated Runway 21 displaced threshold.
  - Construction of a retaining wall along the public road beyond the Runway 21 end. The land between the runway and the retaining wall would be filled and graded to meet RSA standards. The public road would remain open.
- Implement declared distances
  - Declared distances are "the distances the airport operator declares available and suitable for satisfying an aircraft's takeoff run, take-off distance, accelerate-stop distance, and landing distance requirements."[1]

[1] U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13A, *Airport Design*, February 26, 2014.

Purpose and Need for Project

The purpose of the Proposed Action is to comply with Public Law 109-115, which states that the owner or operator of an airport certificated under 14 Code of Federal Regulations Part 139 shall improve the airport's runway safety areas to comply with FAA design standards. In response to an FAA request, HDOT-A prepared a Runway Safety Area Practicability Study in 2008. This study concluded that the Runway 3-21 RSA could be improved to enhance safety, however the full improvements required would be impracticable and infeasible. Additional studies found that other improvement alternatives would result in negative impacts to the utility of Lihue Airport.

On December 31, 2015, FAA issued a Runway 3-21 RSA final determination that stated, "the existing RSA does not meet current standards and is not practicable to improve." Although FAA has determined the Runway 3-21 RSA is not practicable to improve to meet FAA design standards, in early 2016, HDOT-A committed to pursue a permanent solution so that the end of Runway 21 complies with FAA design standards and to make improvements to Runway 3. Therefore, the EA, which is required to be compliant with FAA guidance, NEPA and HEPA, will study RSA practicable improvements, alternatives, and impacts.

The need for the proposed project is to construct an RSA that is in compliance with the design standards set forth by the FAA Advisory Circular (AC) 150/5300-13A. An RSA is a "defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft in the event of an undershoot, overshoot, or excursion from the runway." It must be 500 feet wide, have a minimum of 1,000 feet beyond the runway end for departures and 600 feet prior to the runway threshold for arrivals. Currently, the RSA at the northeast end of Runway 3-21 is 855 feet short and the RSA 600-foot length requirement prior to the Runway 21 arrival threshold is 250 feet short.

Alternatives

Based on the guidelines in FAA Order 5200.8, *Runway Safety Area Program*, several RSA conceptual alternatives, in addition to the No Action Alternative, were developed for Runway 3-21 for comparative purposes. These alternatives include the alternatives identified in the *Lihue Airport Runway Safety Area Practicability Study*[2] and the *Runway 3-21 Safety Area Study*.[3]

A range of alternatives from the studies above, including the No Action alternative, will be further evaluated in the EA. **Exhibits 2-5** illustrate the on-site alternatives retained for detailed evaluation in the EA.

EA Process and Schedule

The DOTA is in the process of developing the EA, and plans to release the draft EA for public and agency review in the spring of 2017. The EA will document the project's purpose and need, the Proposed Action and alternatives to the Proposed Action, the affected environment, and environmental consequences. If you or someone in your organization has any specific concerns with the project, alternatives to the Proposed Action, or recommend that a particular issue(s)

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2 Aries Consultants, Ltd., *Lihue Airport Runway Safety Area Practicability Study*, April 2008.

3 Ricondo & Associates, Inc., *Runway 3-21 Safety Area Study*, April 2016.

should be addressed in the EA, we would appreciate an email, or letter by **August 31, 2016** to discuss your concerns. Please address all comments to:

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

Please forward a copy of any comments to:

Ms. Ura Quoniou-Yvan
Ricondo & Associates, Inc.
3239 Ualena Street, 3rd Floor
Honolulu, Hawaii 96819

The Lihue Airport RSA Project:

- Proposes construction of a RSA that will improve compliance with design standards set forth by the FAA.
- Will improve safety of Lihue Airport operations.
- Will not change takeoff and arrival schedules.
- Will not increase Lihue Airport's capacity.
- Will not change the types of aircraft that can land or takeoff at Lihue Airport.
- Will not change flight patterns at Lihue Airport.
- Requires an EA that has recently been initiated.

Please contact Mr. Herman Tuiolosega, Head Planner at (808) 838-8810 to clarify any questions you may have.

Sincerely,

FORD N. FUCHIGAMI
Director of Transportation

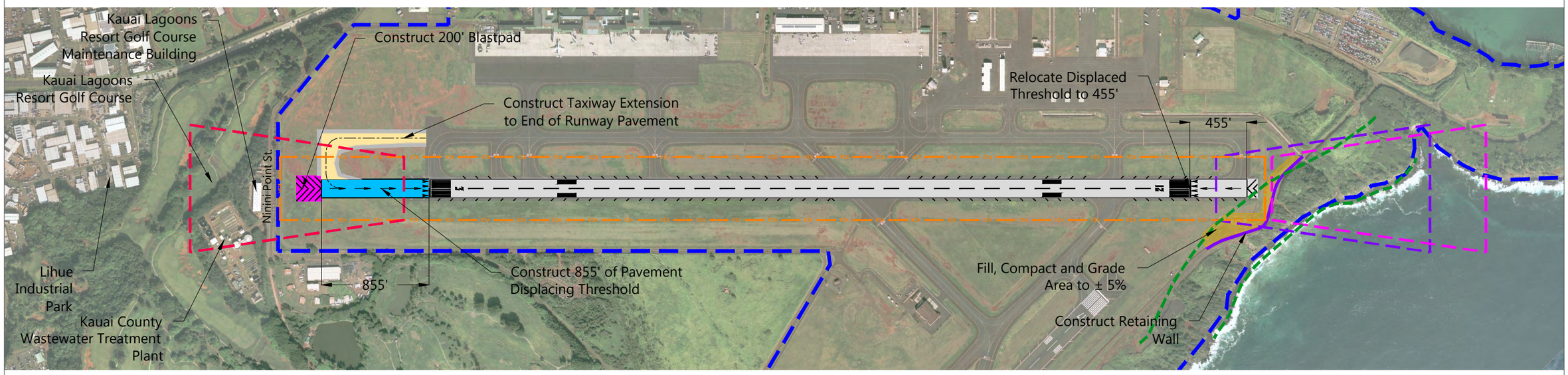
Attachments: Exhibits 1-5

[DRAFT]

Notes:
- *Runway 3-21 Safety Area Study* Alternative 1, Refinement 3.
- The new Runway 3 Approach RPZ and Runway 21 Departure RPZ extend beyond the airport property line resulting in portions of the Kauai County Wastewater Treatment Plant and Kauai Lagoons Golf Course and Maintenance Building, to fall within their boundaries.
- Per FAA Memorandum, *Interim Guidance on Land Uses Within a Runway Protection Zone* , buildings and structures including commerical/industrial buildings, golf courses, and wastewater treatment facilities are considered land uses which require the FAA Regional and ADO staff to consult with the National Airport Planning and Environmental Division (APP-400).

Proposed Airfield Improvements:

- Construct 855' of pavement displacing the Runway 3 end threshold
- Construct a 200' blastpad beyond the Runway 3 end
- Construct taxiway extension to end of Runway 3 pavement
- Relocated the Runway 21 displaced threshold to 455'
- Construct retaining wall along the existing public road off the north end of Runway 21
- Fill, compact, and grade land off the north end of Runway 21.



LEGEND

- Airport Property Line
- Runway Safety Area
- Departure Runway Protection Zone
- Approach Runway Protection Zone
- Approach and Departure Runway Protection Zone
- Special Management Area
- Existing Pavement
- Proposed Runway Pavement
- Proposed Blastpad
- Proposed Taxiway
- Ground Fill
- Proposed Retaining Wall

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 800 ft.

Acronyms

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT 1

Proposed Action Overview

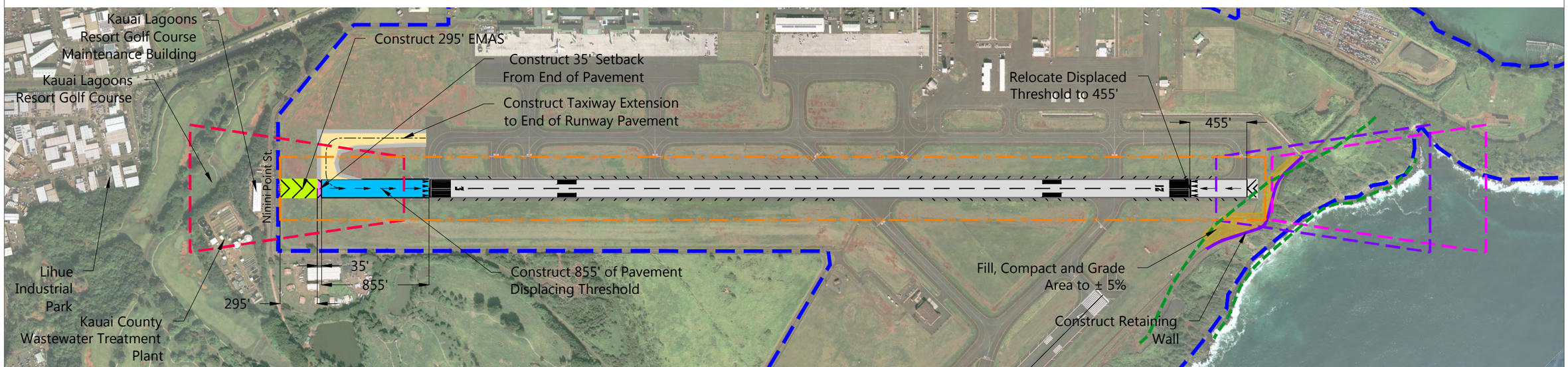
Drawing: Z:\Hawaii\LIH\04-RSA EA\CAD\LIH_RSA_EA_Alternative_1_20160505.dwg Layout: Agency Coord_EX-1_Alt1_R3 Plotted: May 11, 2016, 04:42PM

[DRAFT]

Notes:
- *Runway 3-21 Safety Area Study* Alternative 1, Refinement 1.
- The new Runway 3 Approach RPZ and Runway 21 Departure RPZ extend beyond the airport property line resulting in portions of the Kauai County Wastewater Treatment Plant and Kauai Lagoons Golf Course and Maintenance Building, to fall within their boundaries.
- Per FAA Memorandum, *Interim Guidance on Land Uses Within a Runway Protection Zone* , buildings and structures including commerical/industrial buildings, golf courses, and wastewater treatment facilities are considered land uses which require the FAA Regional and ADO staff to consult with the National Airport Planning and Environmental Division (APP-400).

Proposed Airfield Improvements:

- Construct 855' of pavement displacing the Runway 3 end threshold
- Construct a 35' setback from the end of pavement at the Runway 3 end
- Construct a 295' EMAS beyond the Runway 3 end setback (standard EMAS)
- Construct taxiway extension to end of Runway 3 pavement
- Relocated the Runway 21 displaced threshold to 455'
- Construct retaining wall along the existing public road off the north end of Runway 21
- Fill, compact, and grade land off the north end of Runway 21.



LEGEND

- Airport Property Line
- Runway Safety Area
- Departure Runway Protection Zone
- Approach Runway Protection Zone
- Approach and Departure Runway Protection Zone
- Special Management Area
- Existing Pavement
- Proposed Runway Pavement
- Proposed Setback
- Proposed EMAS
- Proposed Taxiway
- Ground Fill
- Proposed Retaining Wall

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 800 ft.

Acronyms

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT 2

Alternative 1 Overview

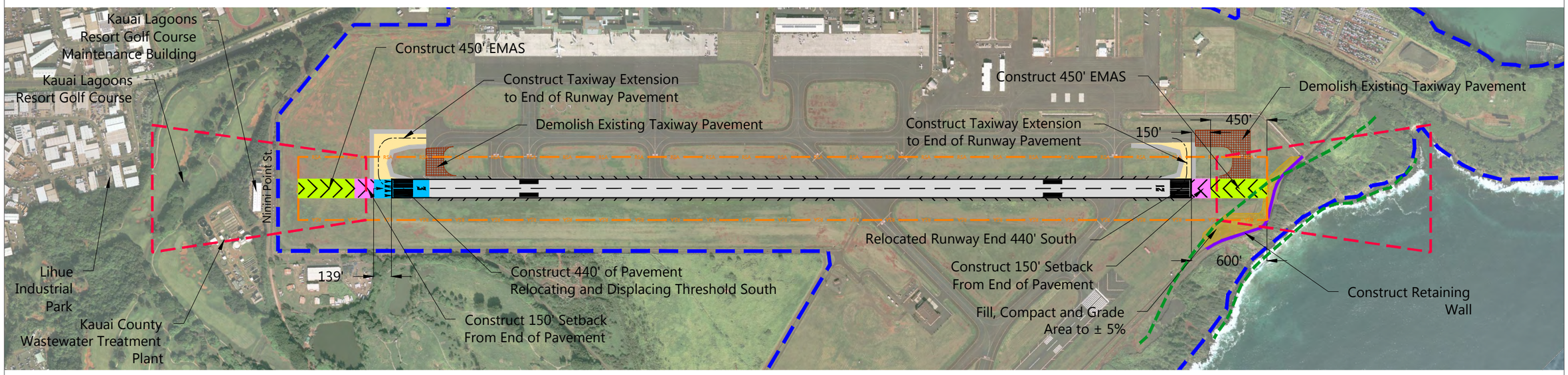
Drawing: Z:\Hawaii\LIH\04-RSA EA\CAD\LIH_RSA_EA_Alternative_1_20160505.dwg Layout: Agency Coord_EX-2_Alt1_R1 Plotted: May 11, 2016, 04:43PM

[DRAFT]

Notes:
- *Runway 3-21 Safety Area Study* Alternative 3, Refinement 2.
- The new Runway 3 Approach RPZ and Runway 21 Departure RPZ extend beyond the airport property line resulting in portions of the Kauai County Wastewater Treatment Plant, Kauai Lagoons Golf Course and Maintenance Building, and Lihue Industrial Park to fall within their boundaries.
- Per FAA Memorandum, *Interim Guidance on Land Uses Within a Runway Protection Zone* , buildings and structures including commerical/industrial buildings, golf courses, and wastewater treatment facilities are considered land uses which require the FAA Regional and ADO staff to consult with the National Airport Planning and Environmental Division (APP-400).

Proposed Airfield Improvements:

- Construct 440' of pavement relocating the Runway 3 end threshold south resulting in a 139' displaced threshold
- Relocated Runway 21 End 440' south
- Construct 150' setback from the end of pavement at the Runway 3 end
- Construct a 450' EMAS beyond the Runway 3 end setback (standard EMAS)
- Construct 150' setback from the end of pavement at the Runway 21 end
- Construct a 450' EMAS beyond the Runway 21 end setback (standard EMAS)
- Construct taxiway extension to end of Runway 3 and demolish existing pavement
- Construct new taxiway pavement to the end of Runway 21 and demolish existing pavement
- Construct retaining wall along the existing public road off the north end of Runway 21
- Fill, compact, and grade land off the north end of Runway 21.



LEGEND

- Airport Property Line
- Runway Safety Area
- Approach and Departure Runway Protection Zone
- Existing Pavement
- Proposed Runway Pavement
- Proposed Setback
- Proposed EMAS
- Proposed Taxiway Pavement
- Pavement to be Demolished
- Ground Fill
- Proposed Retaining Wall
- Special Management Area

NOTES

1/ EMAS modeling results averaged out from Zodiac Aerospace and Runway Safe.

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 800 ft.

Acronyms

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT 3

Alternative 2 Overview

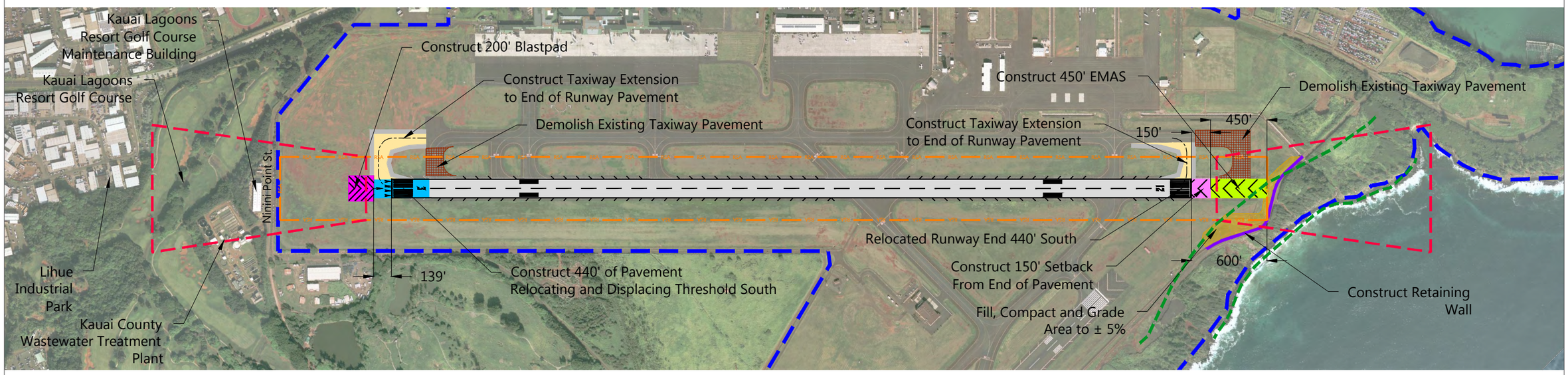
Drawing: Z:\Hawaii\LIH\04-RSA EA\CAD\LIH_RSA_EA_Alternative_3_20160505.dwg Layout: Agency_Coord_EX-3_Alt3_R2 Plotted: May 25, 2016, 10:07AM

[DRAFT]

Notes:
- *Runway 3-21 Safety Area Study* Alternative 3, Refinement 3.
- The new Runway 3 Approach RPZ and Runway 21 Departure RPZ extend beyond the airport property line resulting in portions of the Kauai County Wastewater Treatment Plant, Kauai Lagoons Golf Course and Maintenance Building, and Lihue Industrial Park to fall within their boundaries.
- Per FAA Memorandum, *Interim Guidance on Land Uses Within a Runway Protection Zone* , buildings and structures including commerical/industrial buildings, golf courses, and wastewater treatment facilities are considered land uses which require the FAA Regional and ADO staff to consult with the National Airport Planning and Environmental Division (APP-400).

Proposed Airfield Improvements:

- Construct 440' of pavement relocating the Runway 3 end threshold south resulting in a 139' displaced threshold
- Relocated Runway 21 End 440' south
- Construct 150' setback from the end of pavement at the Runway 21 end
- Construct a 450' EMAS beyond the Runway 21 end setback (standard EMAS)
- Construct taxiway extension to end of Runway 3 and demolish existing pavement
- Construct new taxiway pavement to the end of Runway 21 and demolish existing pavement
- Construct retaining wall along the existing public road off the north end of Runway 21
- Fill, compact, and grade land off the north end of Runway 21.



LEGEND

- Airport Property Line
- Runway Safety Area
- Approach and Departure Runway Protection Zone
- Existing Pavement
- Proposed Runway Pavement
- Proposed Blastpad
- Special Management Area
- Proposed Setback
- Proposed EMAS
- Proposed Taxiway Pavement
- Pavement to be Demolished
- Ground Fill
- Proposed Retaining Wall

NOTES
1/ EMAS modeling results averaged out from Zodiac Aerospace and Runway Safe.

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 800 ft.

Acronyms

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT 4

Alternative 3 Overview

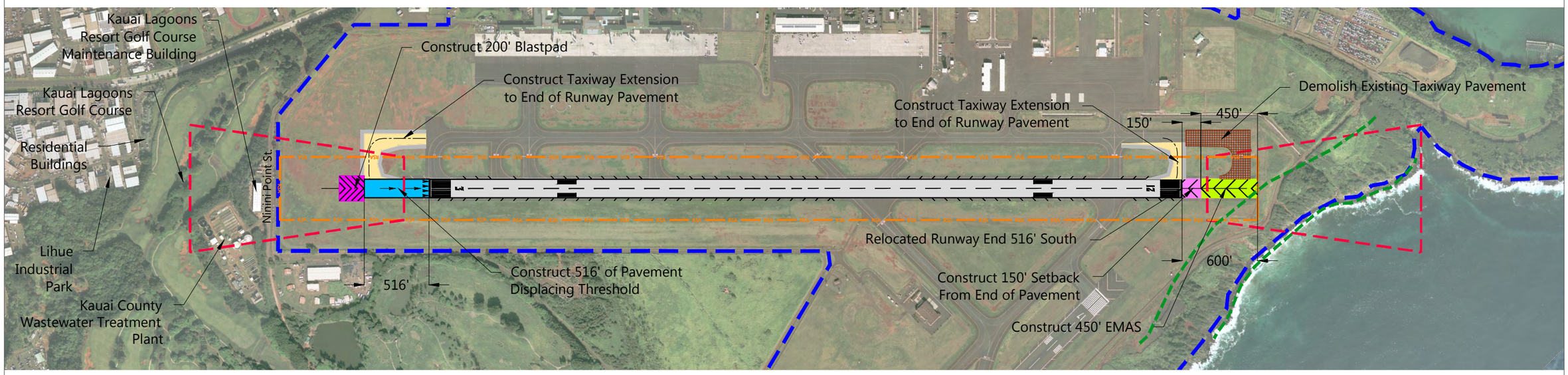
Drawing: Z:\Hawaii\LIH\04-RSA EA\CAD\LIH_RSA_EA_Alternative_3_20160505.dwg Layout: Agency_Coord_Ex-4_Alt3_R3 Plotted: May 25, 2016, 10:11AM

[DRAFT]

Notes:
- *Runway 3-21 Safety Area Study* Alternative 4, Refinement 2.
- The new Runway 3 Approach RPZ and Runway 21 Departure RPZ extend beyond the airport property line resulting in portions of the Kauai County Wastewater Treatment Plant, Kauai Lagoons Golf Course and Maintenance Building falling within their boundaries.
- Per FAA Memorandum, *Interim Guidance on Land Uses Within a Runway Protection Zone* , buildings and structures including commerical/industrial buildings, golf courses, and wastewater treatment facilities are considered land uses which require the FAA Regional and ADO staff to consult with the National Airport Planning and Environmental Division (APP-400).

Proposed Airfield Improvements:

- Construct 516' of pavement displacing Runway 3 threshold south
- Relocate Runway 21 End 516' South
- Construct 150' setback from the end of pavement at the Runway 21 end
- Construct 450' EMAS beyond the Runway 21 end setback (standard EMAS)
- Construct taxiway extension to end of Runway 3 and demolish existing pavement
- Construct new taxiway pavement to the end of Runway 21 and demolish existing pavement



LEGEND

- Airport Property Line
- Runway Safety Area
- Approach and Departure Runway Protection Zone
- Existing Pavement
- Proposed Runway Pavement
- Proposed Blastpad
- Proposed Setback
- Proposed EMAS
- Proposed Taxiway Pavement
- Pavement to be Demolished
- Special Management Area

NOTES

1/ EMAS modeling results averaged out from Zodiac Aerospace and Runway Safe.

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 800 ft.

Acronyms

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT 4

Alternative 4 Overview

Drawing: Z:\Hawaii\LIH\04-RSA EA\CAD\LIH_RSA_EA_Alternative_4_20160505.dwg Layout: Agency_Coord_Ex-4_Alt4_R2 Plotted: May 25, 2016, 10:22AM

The Senate
Office of the President

STATE CAPITOL
HONOLULU, HAWAII 96813

September 2, 2016

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

Re: Environmental Assessment (EA) for Runway Safety Are (RSA)
Improvements for Runway 3-21 Lihue Airport, Island of Kauai, Hawaii

Please accept these comments regarding the above-referenced EA, in support of the long term alternative solution of "No-Action" with regard to the Lihue Airport RSA, as this long term alternative solution is the only option that properly addresses economical, ecological, and logistical issues for the island of Kauai and the State of Hawaii.

This matter was initially addressed as the Federal Aviation Administration (FAA) required a short term solution to the Lihue Airport RSA in 2015. Via letter dated December 2, 2016, to Eduardo A. Angeles, Associate Administrator for Airports, FAA, request was made for a "determination of impracticality" for the proposed short term recommendation for the Lihue Airport RSA, allowing the Lihue Airport to continue operations status quo – pending implementation of a long term solution. All stake holders agreed that the status quo short term solution was the only viable option that would not severely restrict airline payloads that would be detrimental to our island and state economy.

On December 31, 2015, the FAA issued its "determination of impracticality", keeping the status quo while attempting to address a long term solution. In the "determination of impracticality", the FAA stated "the existing RSA does not meet current standards and is not practicable to improve." This "determination of impracticality" exists with regard to the proposed long term solution and all alternatives other than the "No Action" alternative and the status quo should be the long term solution for the Lihue Airport RSA.

The proposed long term solution for the RSA adds an 855 foot displaced threshold and a 200-foot blast zone on to beginning of Runway 3 (R3). As outlined in FAA Memorandum dated September 27, 2012, RE: *Interim Guidance on Land Uses Within a Runway Protection Zone*, the resulting additional 1055 feet of construction to R3/21 will change the approach and departure protection zone necessitating additional action and consultation by the FAA Regional and Airport District Office (ADO) with the National Airport Planning and Environmental Division, as the land adjacent to LIH is occupied by multiple commercial/industrial buildings, the Kauai Lagoons Golf Course, and a County of Kauai sewage treatment plant.

OFFICE OF SENATE PRESIDENT RONALD D. KOUCHI
415 South Beretania Street, Room 409 | Honolulu, Hawai'i 96813
Tel: (808) 586-6030 | Fax: (808) 586-6031 | Email: senkouchi@capitol.hawaii.gov

With regard to Runway 21 (R21) and the addition of the 455-foot displaced threshold; this addition would reduce the runway length of R3/21 from 6,500 feet to 6,045 feet. A reduction in runway length will require a similar reduction in plane weight and aircraft type, decreased load capacity, decreased revenue for the airline industry, and decreased revenue for Kauai's primary economic driver. Furthermore, construction of the displaced threshold, stop way and retaining wall to support the addition, will require expansion of the current airport footprint. Acquisition of the parcel of land in question and creation of the retaining wall would directly affect the publics' ability to access the beaches and shoreline in this area as required by Hawaii Revised Statues (HRS) §115, sections 1-5.

The alternative proposed solutions and their respective implementation(s) raise identical problems and concerns as outlined above for the proposed RSA. Additions to the beginning of R3 will still change its approach and departure protection zone and will necessitate additional action and consultation by the FAA-ADO with the National Airport Planning and Environmental Division. Likewise, condemnation of land for the additions to R21 will be unduly costly and public access to the beach and shoreline. The addition of the Engineered Material Arresting System (EMAS) included in the alternative proposed solutions. While the FAA has identified the EMAS system to be effective in safely and efficiently bringing an aircraft to a complete stop in a relatively short linear distance with minimal or no damage to the aircraft, and minimal to no injuries to passengers and crew, the FAA has also acknowledged that an EMAS installation is cost prohibitive and therefore impractical for may airports and their respective jurisdictions, such as Lihue Airport.

The island of Kauai has some 70,000 residents. Annually, about 1.1 million visitors and tourists fly into and out of, Lihue Airport. Tourism is Kauai's primary economic engine and any adverse components to air travel to and from Kauai will cause extremely negative domino effects to the economy. Tourists and Hawaii State and Kauai residents depend solely upon flying through Lihue Airport for travel to and from Kauai. Many residents commute on a daily basis as a part of their jobs. I am informed by stake holders that if any proposal other than the "No Action" alternative is implemented, gravely negative impacts will occur in the form of decreased airline passengers, airline reservation cancellations due to reduced airplane payloads, and safety risks impacting future flight schedules serving the island due to unfavorable wind and crosswind components.

Consideration must be given to non-aviation factors that are equally daunting to adopting any proposed long term solution other than the "No Action" alternative, including permitting and land use issues and roadblocks, environmental and condemnation litigation, and the cost prohibitive nature of this project.

Thank you for your time and consideration in this matter. Should you have any questions with regard to the foregoing, please do not hesitate to contact this office.

Sincerely,

RONALD D. KOUCHI
Senate President
Senator – 8th Senatorial District, Kauai & Niihau

cc: Ms. Ura Quoniou-Yvan, Ricondo & Associates, Inc.
Mr. Ford Fuchigami, Director – Hawaii Department of Transportation

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

RECEIVED SEP 1 9 2016

In Reply Refer To:
01EPIF00-2016-TA-0460

SEP 0 7 2016

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

Subject: Pre-consultation for Draft Environmental Assessment for Runway Safety Area Improvements, Lihue Airport, Kauai

Dear Mr. Tuiolosega:

The U.S. Fish and Wildlife Service (Service) received your letter, dated August 4, 2016, requesting our comments on the proposed Runway Safety Area (RSA) improvements to Runway 3-21 at Lihue Airport on the island of Kauai, as a pre-consultation for the associated draft Environmental Assessment (EA). The State of Hawaii, Department of Transportation, Airports Division (HDOT-A) proposes to construct an RSA that is in compliance with Federal Aviation Administration (FAA) design standards. The EA will study RSA practical improvements, alternatives, and impacts. The following comments are in accordance with the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C 1531 *et seq.*).

We reviewed the information you provided and pertinent information in our files, including data compiled by the Hawaii Biodiversity and Mapping Program, as it pertains to federally listed species and designated critical habitat. The following species are known to occur or transit through the proposed project area: the endangered Hawaiian goose (*Branta sandvicensis*); the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*); the endangered Hawaiian stilt (*Himantopus mexicanus knudseni*), Hawaiian moorhen (*Gallinula chloropus sandvicensis*), Hawaiian coot (*Fulica alai*), Hawaiian duck (*Anas wyvilliana*) (hereafter collectively referred to as Hawaiian waterbirds), and the endangered Hawaiian petrel (*Pterodroma sandwichensis*), the threatened Newell's shearwater (*Puffinus auricularis newelli*), and a species proposed for listing the band-rumped storm-petrel (*Oceanodroma castro*) (hereafter collectively referred to as seabirds). There is no designated critical habitat within the vicinity of the proposed project area.

To aid in the drafting of your EA we provide the following recommendations to avoid and minimize project impacts to listed species and species proposed for listing. Our recommendations are provided separate from technical assistance regarding impacts to threatened and endangered species from hazing and other airport operations. We understand

FAA is consulting with the Service on updates to the Wildlife Hazard Assessments and Wildlife Hazard Management Plans for Hawaii Airports.

Hawaiian Goose and Hawaiian Waterbirds
A biological monitor(s) should be present on the project site during all construction or earth moving activities to ensure that Hawaiian geese and Hawaiian waterbirds are not adversely impacted. If a listed Hawaiian waterbird is observed within the project site, or flies into the site while activities are occurring, the biological monitor should halt all activities within 100 feet of the individual(s). Work should not resume until the Hawaiian waterbird(s) leave the area on their own accord.

Hawaiian Hoary Bat
Hawaiian Hoary bats forage for insects from as low as three feet to higher than 500 feet above the ground. When barbed wire is used for fencing, Hawaiian hoary bats can become entangled. Barbed wire should not be used for fencing as part of the proposed project.

Seabirds
Seabirds, including the Newell's shearwater, Hawaiian petrel, and band-rumped storm petrel fly at night and are attracted to artificially-lighted areas resulting in disorientation and subsequent fallout due to exhaustion. Seabirds are also susceptible to collision with objects that protrude above the vegetation layer, such as utility lines, guy-wires, and communication towers. Additionally, once grounded, they are vulnerable to predators and are often struck by vehicles along roadways. To reduce potential impacts to seabirds, construction activities should only occur during daylight hours. Any increase in the use of nighttime lighting, particularly during peak fallout period (September 15 through December 15), could result in additional seabird injury or mortality. If lights cannot be eliminated due to safety or security concerns, then they should be positioned low to the ground, be motion-triggered, and be shielded and/or full cut-off. Effective light shields should be completely opaque, sufficiently large, and positioned so that the bulb is only visible from below.

Your draft EA should examine all potential impacts to listed species that may occur as a result of construction of RSA improvements and outline conservation measures to minimize these impacts. We appreciate your efforts to conserve endangered species. Please contact Adam Griesemer, Endangered Species Biologist (phone: 808-285-8261, email: adam_griesemer@fws.gov) should you have any questions pertaining to this response.

Sincerely,

Aaron Nadig
Island Team Manager
Oahu, Kauai, Northwestern Hawaiian Islands, and American Samoa

cc: Ms. Ura Quoniou-Yvan, Ricondo & Associates, Inc.

OFFICE OF PLANNING
STATE OF HAWAII

DAVID Y. IGE
GOVERNOR

LEO R. ASUNCION
DIRECTOR
OFFICE OF PLANNING

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/

Ref. No. P-15286

RECEIVED SEP 19 2016

August 30, 2016

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

From: Leo R. Asuncion, Director

Attention: Herman Tuiolosega, Head Planner
Airports Division

Subject: Pre-Draft Environmental Assessment – Runway Safety Area for Runway 3-21, Lihue Airport, Island of Kauai

Thank you for the opportunity to provide comments on the Pre-Draft Environmental Assessment for the Runway Safety Area (RSA) for Runway 3-21, Lihue Airport. The Pre-Draft review material was transmitted to our office via letter dated August 1, 2016.

It is our understanding that the State of Hawaii, Department of Transportation, Airports Division is preparing a Draft Environmental Assessment (Draft EA) proposing improvements to Runway 3-21 at Lihue Airport to comply with Federal Aviation Administration (FAA) design standards. The purpose of this project is to construct a RSA that meets safety standards set forth by FAA Advisory Circular 150/5300-13A.

The Office of Planning (OP) has reviewed the transmitted material and has the following comments to offer:

1. Pursuant to Hawaii Administrative Rules (HAR) § 11-200-10(4) – general description of the action's technical, economic, social, and environmental characteristics; this project must demonstrate that it is consistent with a number of state environmental, social, economic goals, and policies for land use. Hawaii Revised Statutes (HRS) Chapter 226, the Hawaii State Planning Act (Hawaii State Plan), provides goals, objectives, policies, and priority guidelines for growth, development, and the allocation of resources throughout the state in areas of state interest. These include, but are not limited to, the economy, agriculture, the visitor industry, federal expenditure, the physical environment, facility systems, socio-cultural advancement, climate change adaptation, and sustainability.

   The Draft EA should include analysis that addresses whether the proposed project conforms to or is in conflict with the goals, objectives, policies, and priority guidelines listed in the Hawaii State Plan. This analysis should address the project's consistency with HRS Chapter 226 in its entirety. If any of the themes listed within

the Hawaii State Plan are not applicable, the Draft EA should state that they are "not applicable." The most efficient method is summarizing these in tabular form, followed by discussion of the passages.

2. The coastal zone management area is defined as "all lands of the State and the area extending seaward from the shoreline to the limit of the State's police power and management authority, including the U.S. territorial sea" (see HRS § 205A-1, definition of "coastal zone management area").

   HRS Chapter 205A requires all state and county agencies to enforce the coastal zone management (CZM) objectives and policies. The Draft EA should include an assessment as to how the proposed project conforms to the CZM objectives and its supporting policies set forth in HRS § 205A-2, which is an important component for satisfying the requirements of HRS Chapter 343.

3. It is noted that proposed actions along the makai end of Runway 3-21 may fall within the Special Management Area (SMA) boundary delineated by the County of Kauai, Department of Planning. Therefore, this project may be subject to the requirements for SMA permitting. Please consult with the Department of Planning on the need for an SMA permit.

4. The Draft EA should provide a list of any federal, state, or county permits required for this project. A listing of required permits will allow OP to verify the project's potential impact on plans, policies, and programs that fall under our jurisdiction (e.g., Federal Consistency).

5. Pursuant to HAR § 11-200-10(6) – the identification and summary of impacts and alternatives considered; in order to ensure that the natural resources of Kauai remain protected, the negative effects of stormwater runoff originating from human land-based activities should be evaluated. The Draft EA should summarize the potential impact to nearshore marine resources and actions proposed to ensure the coastal ecosystem is protected and potential hazards mitigated. Issues that should be examined in the Draft EA include, but are not limited to, land use classification and density, hydrologic resources (wetlands, perennial streams, and channels) in the area, tsunami inundation risks, and current erosion controls in place for flood prone areas. These items, as well as the marine water quality classification, should be considered when developing mitigation measures to protect the coastal ecosystem.

6. The review material, and maps available to OP, indicate that the Lihue Airport and its runways are aligned with close proximity to the coastline. The Draft EA should

examine the proposed project's cumulative impact on coastal resources from polluted runoff and sediment loss. It should examine the natural processes of the land such as water resources, topographic contours, open spaces, vegetated and hardened land surfaces, soil absorption rates, the connecting non-permeable airport service roadways, and any existing drainage infrastructure that may connect the airport area to the coastline and vulnerable nearshore marine resources. Additionally, due to the runway's close proximity to the coastline, the Draft EA should consider issues such as sea-level rise and coastal erosion impacts on the runway complex.

Since this project may involve rebuilding a portion of the airport tarmac and runway, if not in conflict with FAA safety design standards, please consider the use of permeable surfaces and vegetated filter to treat the water in place, rather than allow the rainfall to flow into storm drains or pond within the airport facilities. Permeable surfaces may allow rainfall to be filtered on site, rather than to sheet flow offsite and ultimately inundate the nearby marine resources.

OP has a number of resources available to assist in the development of projects which ensure sediment and stormwater control on land, thus protecting the nearshore environment. OP recommends consulting these guidance documents and stormwater evaluative tools when developing strategies to address polluted runoff. They offer useful techniques to keep soil and sediment in place and prevent contaminating nearshore waters, while considering the practices best suited for each project. The evaluative tools that are available to be used during the design process include:

- Hawaii Watershed Guidance provides direction on site-appropriate methods to safeguard Hawaii's watersheds and implement watershed plans http://files.hawaii.gov/dbedt/op/czm/initiative/nonpoint/HI Watershed Guidance Final.pdf

- Stormwater Impact Assessments can be used to identify and evaluate information on hydrology, stressors, sensitivity of aquatic and riparian resources, and management measures to control runoff, as well as consider secondary and cumulative impacts to the area http://files.hawaii.gov/dbedt/op/czm/initiative/stomwater_imapct/final_storm water_impact_assessments_guidance.pdf

- Low Impact Development (LID), A Practitioners Guide covers a range of structural best management practices for stormwater control management that minimizes flooding and mitigates stormwater runoff environmental impacts

http://files.hawaii.gov/dbedt/op/czm/initiative/lid/lid_guide_2006.pdf

If you have any questions regarding this comment letter, please contact Joshua Hekekia of our office at (808) 587-2845.

c: Ms. Ura Quoniou-Yvan, Ricondo & Associates, Inc. ✓

Federal Aviation Administration
Box 50244
Honolulu, HI 96850

Honolulu Airports District Office

September 01, 2016

TO:
Dept. of Tranportation, Airports Division
Attn: Lynette Kawaoka
400 Rodgers Blvd
Suite 700
Honolulu, HI 96819
lynette.kawaoka@hawaii.gov

CC:
Dennis Neves
Lihue Airport
HONOLULU, HI 96819
dennis.l.neves@hawaii.gov

CC:
Ricondo & Associates, Inc.
Attn: Uratua Quoniou
3239 Ualena Street
Third Floor
Honolulu, HI 96819
u_quoniou@ricondo.com

RE: *(See attached Table 1 for referenced case(s))*
FINAL DETERMINATION

Table 1 - Letter Referenced Case(s)

ASN	Prior ASN	Location	Latitude (NAD83)	Longitude (NAD83)	AGL (Feet)	AMSL (Feet)
2016-AWP-1890-NRA		LIHUE, HI	21-58-14.25N	159-21-04.65W	1	141
2016-AWP-1891-NRA		LIHUE, HI	21-58-16.47N	159-21-02.17W	1	160
2016-AWP-1892-NRA		LIHUE, HI	21-59-08.59N	159-20-06.27W	1	81
2016-AWP-1893-NRA		LIHUE, HI	21-59-09.01N	159-20-05.28W	1	76
2016-AWP-1894-NRA		LIHUE, HI	21-59-09.56N	159-20-05.22W	12	70

Description: The proposed Runway 3-21 Safety Area (RSA) improvements include: 1)Construct 855' of pavement resulting in a displaced Runway 3 end threshold, 2) Construct 200' blastpad beyond the Runway 3 end, 3) Construct taxiway extension to end of Runway 3 pavement, 4) relocate Runway 21 threshold, 5) Construct retaining wall along existing public road off the north end of Runway 21, and 6) Fill, compact, and grade RSA north end of Rwy 21 end. For purposes of the 7460, coordinates for 5 points of the proposed project are provided. The coordinates listed above are for point #1 (see attachment).

We do not object with conditions to the construction described in this proposal provided:

You comply with the requirements set forth in FAA Advisory Circular 150/5370-2, "Operational Safety on Airports During Construction."

All work proposed for the RSA improvement will require proper coordination with LIH Airport Manager, FAA ATCT Manager, FAA HCF, FAA SSC prior to construction. The LIH Airport Manager shall ensure proper NOTAM issuance prior to construction. All equipment should be airspaced to ensure that they do not pose an obstruction hazard.

Your proposal impacts the following National Airspace System (NAS) equipment:
This project involves several alterations to Runway 3/21 at Lihue Airport. During any periods of runway closure, it is standard FAA policy to secure (shut down) all associated visual landing aids (visaids). The purpose

of this policy is to minimize pilot risk of landing to a closed or altered runway by inadvertent use of inaccurate landing aids. This is advisable for non-FED facilities as well. The associated FED facilities include the Runway 21 PAPI and Runway 21 REIL. To schedule any necessary temporary outages for the FED facilities, please coordinate at least 30 days in advance with Rick Ambriz, Manager, Kauai System Support Center (SSC), at 808-245-6421, rick.ambriz@faa.gov. The associated non-FED facilities include the Runway 3 PAPI and Runway 3 REIL. To schedule any necessary temporary outages for the non-FED facilities, please coordinate at least 30 days in advance with Dennis L. Neves, Manager, Lihue Airport, at 808-274-3800.
Runway 21 landing threshold is to be relocated. Runway 21 PAPI and Runway 21 REIL will need to be either relocated and decommissioned, re-sited and flight checked in accordance with the siting criteria specified in FAA Order JO 6850.2B. In addition, NOTAMs to report current airfield and facility status must be issued and kept up to date. Any activities that block operational visaids on an open runway are not permitted. Consider use of a "Lighted/Flashing X" appropriately placed to provide visual notification of runway closure. Prior to commencement of any excavation, the proponent shall coordinate all project work in the vicinity of underground power utility and communication cables in advance, preferably a minimum of one week, with the SSC Manager and Local Airport Authority.

The Airport sponsor shall notify the FAA's Air Traffic Organization (ATO) Planning and Requirements (P&R) Service Area office a minimum of 45 days prior to the "physical construction start date" for this project. Submit FAA Form entitled Airport Sponsor Strategic Event Submission Form including all date, time and/or duration changes via email to 9-AJV-SEC-WSA@faa.gov.

A separate notice to the FAA is required for any construction equipment, such as temporary cranes, whose working limits would exceed the height and lateral dimensions of your proposal.

This determination does not constitute FAA approval or disapproval of the physical development involved in the proposal. It is a determination with respect to the safe and efficient use of navigable airspace by aircraft and with respect to the safety of persons and property on the ground.

In making this determination, the FAA has considered matters such as the effects the proposal would have on existing or planned traffic patterns of neighboring airports, the effects it would have on the existing airspace structure and projected programs of the FAA, the effects it would have on the safety of persons and property on the ground, and the effects that existing or proposed manmade objects (on file with the FAA), and known natural objects within the affected area would have on the airport proposal.

When your Airport Layout Plan is updated, please include this new development. In the meantime, we will show this feature on your current ALP approved on July 13, 2011.

This determination expires on March 1, 2018 unless:
(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for the completion of construction, or the date the FCC denies the application.

NOTE: Request for extension of the effective period of this determination must be obtained at least 15 days prior to expiration date specified in this letter.

If you have any questions concerning this determination contact Kandyce Watanabe (808) 312-6031 kandyce.watanabe@faa.gov.

Kandyce Watanabe
ADO

Bernard P. Carvalho, Jr.
Mayor

Wallace G. Rezentes, Jr.
Managing Director

OFFICE OF THE MAYOR
County of Kaua'i, State of Hawai'i
4444 Rice Street, Suite 235, Līhu'e, Hawai'i 96766
TEL (808) 241-4900 FAX (808) 241-6877

August 31, 2016

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

Subject: The Lihue Airport RSA Project

Dear Mr. Tuiolosega,

The County of Kauai is sending this communication to respond as a consulted party for the Environmental Assessment for Runway Safety Area (RSA) Improvements for Runway 3-21 Lihue Airport, Island of Kauai, Hawaii.

The following are comments which we would like to convey toward this project:

1. The County of Kauai Department of Parks and Recreation

Ahukini Coastal Park and Nawiliwili to Ahukini Landing Bike/Pedestrian Path

The County of Kauai would like bring awareness to the planned Ahukini Coastal Park and the Nawiliwili to Ahukini Landing Bike/Pedestrian Path. The Ahukini Coastal Park (Parcel TMK (4) 3-5-001:102) is planned to include passive park amenities such as picnic areas, scenic outlooks, and access road. The Nawiliwili to Ahukini Landing Bike/Pedestrian Path alignment is makai and separated from the public dirt road and currently under environmental review.

RSA Alternates 1, 2, 3 and 4 propose construction of a retaining wall at the north-east end of Runway 21 along the mauka edge of the public access road, which is to remain open according to DOT's information. Under Alt 5, Runway 21 improvements are mauka from the public dirt road and do not include construction of a retaining wall. Under all alternatives, the proposed

improvements at the south-west end of Runway 3 do not extend into the Ahukini Coastal Park nor the proposed path alignment along the edge of the airport perimeter road. Therefore, there doesn't appear to be any physical encroachment on the park or proposed path improvements under any of the alternatives.

Under all alternatives, the proposed extension of both ends of runway 3-21 will result in portions of the park and path alignment to fall within the Approach and Departure Runway Protection Zones (RPZ), including:

- a segment of the shoreline path, including two of the proposed bridge crossings over existing drainageways;
- a segment of the path along the airport perimeter road; and
- a segment of the path along Limo Road.

There is no alternative path alignment outside of the RPZ along the shoreline. On the south-west end of the runway, there is no practical alternative path alignment outside of the RPZ: a new path would have to be created across the golf course to avoid the RPZ.

2. The County of Kauai Department of Public Works Waste Water Division

Under all alternatives, the proposed extension of the south end of runway 3-21 will result in existing County Līhu'e Wastewater Treatment Plant (WWTP) facilities to fall within the Approach and Departure Runway Protection Zones (RPZ), including:

- two existing concrete biotowers;
- two existing concrete anaerobic digesters;
- the plant electrical utility building; and
- other biosolids processing facilities.

There is no alternative that does not result in the Līhu'e WWTP being within the RPZ.

Per FAA Memorandum, Interim Guidance on Land Uses Within a RPZ (attached), wastewater treatment facilities and recreational land uses and transportation facilities, such as the County's proposed park and bicycle/pedestrian path, are uses which require FAA Regional and Airport District Office (ADO) staff to consult with the National Airport Planning and Environmental Division (NAPED) to determine measures that might be taken to mitigate risk to people and property on the ground.

The County requests the ADO staff to include the existing Līhu'e WWTP and the proposed park and bicycle/pedestrian path in their RPZ consultation with NAPED. The runway extension project could result in significant requirements for relocation of WWTP treatment facilities, along with requirements for project improvements to depress and/or protect the bicycle/pedestrian path through the RPZ, which would add to the bicycle/pedestrian path construction costs.

Sincerely,

Lyle Tabata
Acting County Engineer

Leonard A. Rapozo, Jr.
Director, Department of Parks and Recreation

CONTRACTORS ASSOCIATION OF KAUA'I
4231 Ahukini Road • Lihu'e, Kaua'i, Hawai'i 96766
Phone: (808) 246-2662 • Fax: (808) 246-8642

CAK
CONTRACTORS ASSOCIATION OF KAUA'I

August 26, 2016

Ms. Ura Quoniou-Yvan
Ricondo & Associates, Inc.
3239 Ualena Street, 3rd Floor
Honolulu, HI 96819

Dear Ura:

Thank you very much for taking time from a busy schedule to come to Kaua'i on Thursday to do a presentation for the Contractors Association of Kaua'i's (CAK) Board of Directors and some of our members.

The Board appreciated learning about this project and its necessity and probably urgency. Ura, at this time the CAK Board decided not to provide comments. However, the Board asked that I communicate with you about wanting the Association to be kept informed as the Environmental Assessment progresses. If comments or testimony is warranted further into the process, the Board will be willing to do that. We hope your company or Priscilla will keep CAK on your mailing list for this project.

Thank you very much again for accepting our invitation to do a presentation on Thursday.

With Warm Regards,
CONTRACTORS ASSOCIATION OF KAUA'I

Karen Taketa
Executive Director

copy to: Joy Koerte, Fujita & Miura Public Relations

DIR 1149

Bernard P. Carvalho, Jr.
Mayor

Wallace G. Rezentes, Jr.
Managing Director

Michael A. Dahilig
Director of Planning

Ka'āina S. Hull
Deputy Director of Planning

PLANNING DEPARTMENT
County of Kaua'i, State of Hawai'i
4444 Rice Street, Suite A-473, Līhu'e, Hawai'i 96766
TEL (808) 241-4050 FAX (808) 241-6699

AUG 17 2016

DIRECTOR'S OFFICE
DEPT. OF
TRANSPORTATION
2016 AUG 22 P 1:09

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

RE: Environmental Assessment for Runway Safety Area Improvements
Lihue Airport, Kauai

Dear Mr. Fuchigami,

Based on the information submitted, the Planning Department has completed its review and assessment of the proposed development and offer the following comments:

1. The proposed improvements would be subject to the Special Management Area Rules and Regulations and could be considered "Development". A Special Management Area Permit Assessment form would be required to determine if the improvements would be considered a Special Management Area Minor Permit or a Special Management Area Use Permit.

2. If the proposed improvements are within five hundred and fifty (550') of the shoreline, a Shoreline Setback Determination Application will also need to be submitted for review and approval.

Should there be any questions regarding this matter, please contact Planner Jody Galinato at 241-4050.

Sincerely,

Michael A Dahilig
Planning Director

An Equal Opportunity Employer

V:\2017 Master FIles\Regulatory\SMA Permits\SMA Correspondence\Lihue Airport Expansion Comments.docx

EP 16.0121

DAVID Y. IGE
GOVERNOR

ARTHUR J. LOGAN
MAJOR GENERAL
ADJUTANT GENERAL

KENNETH S. HARA
BRIGADIER GENERAL
DEPUTY ADJUTANT GENERAL

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 DIAMOND HEAD ROAD
HONOLULU, HAWAII 96816-4495

August 23, 2016

Department of Transportation
Airports Division
State of Hawaii
400 Rodgers Boulevard, Suite 700
Honolulu, Hawaii 96819

Attention: Mr. Herman Tuiolosega

Subject: Environmental Assessment for Runway Safety Area (RSA) Improvements for Runway 3-21 Lihue Airport, Island of Kauai, Hawaii

Dear Mr. Tuiolosega:

Thank you for the opportunity to comment on the above project. The State of Hawaii Department of Defense has no comments to offer relative to the project.

If you have any questions or concerns, please have your staff contact Mr. Lloyd Maki, Assistant Chief Engineering Officer at (808) 733-4250.

Sincerely,

Neal S. Mitsuyoshi, P.E.
Colonel, Hawaii National Guard
Chief Engineering Officer

c: Ms. Havinne Okamura, Hawaii Emergency Management Agency
Ms. Ura Quoniou-Yvan, Ricondo & Associates, Inc.

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

August 30, 2016

State of Hawaii
Department of Transportation
Attention: Mr. Herman Tuiolosega, Head Planner via email: herman.tuiolosega@hawaii.gov
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Ricondo & Associates
Attention: Ms. Ura Quoniou-Yvan
3239 Ualena Street, 3rd Floor
Honolulu, Hawaii 96819

Dear Mr. Tuiolosega and Ms. Quonion-Yvan:

SUBJECT: Environmental Assessment for Runway Safety Area (RSA) Improvements for Runway 3-21 Lihue Airport

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 (a) Engineering Division, (b) Land Division – Kauai District and (c) Office of Conservation & Coastal Lands on the subject matter. Should you have any questions, please feel free to call Lydia Morikawa at 587-0410. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)
cc: Central Files

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

'16 AUG 10 AM 11:37 ENGINEERING
RECEIVED
LAND DIVISION
2016 AUG 17 AM 11:17
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

August 8, 2016

MEMORANDUM

TO: **DLNR Agencies:**
X Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
X Office of Conservation & Coastal Lands
X Land Division – Kauai District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Environmental Assessment for Runway Safety Area (RSA) Improvements for Runway 3-21 Lihue Airport
LOCATION: Lihue Airport, Island of Kauai; TMK: (4) 3-5-001:008
APPLICANT: Department of Transportation, Airports Division

Transmitted for your review and comment is information on the above referenced project. We would appreciate your comments on this project. Please submit any comments by **August 29, 2016.**

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 Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed: _____

Print Name: Carty S. Chang, Chief Engineer
Date: 8/16/16

cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

To: Land Division
Ref: Environmental Assessment for the Runway Safety Area Improvements for Runway 3-21, Lihue Aiport, Kauai

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 or 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.hawaiinfip.org/FHAT).

National Flood Insurance Program establishes the rules and regulations of the NFIP - Title 44 of the Code of Federal Regulations (44CFR). The NFIP Zone X is a designation where there is no perceived flood impact. Therefore, the NFIP does not regulate any development within a Zone X designation.

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:

- Oahu: City and County of Honolulu, Department of Planning and Permitting (808) 768-8098.
- Hawaii Island: County of Hawaii, Department of Public Works (808) 961-8327
- Maui/Molokai/Lanai County of Maui, Department of Planning (808) 270-7253.
- 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: 2/18/16

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

RECEIVED
LAND DIVISION
2016 AUG 22 AM 11: 11
DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

August 8, 2016

MEMORANDUM

TO: **DLNR Agencies:**
X Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
X Office of Conservation & Coastal Lands
X Land Division – Kauai District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Environmental Assessment for Runway Safety Area (RSA) Improvements for Runway 3-21 Lihue Airport
LOCATION: Lihue Airport, Island of Kauai; TMK: (4) 3-5-001:008
APPLICANT: Department of Transportation, Airports Division

Transmitted for your review and comment is information on the above referenced project. We would appreciate your comments on this project. Please submit any comments by **August 29, 2016.**

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 Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
(X) We have no comments.
( ) Comments are attached.

Signed: [signature]

Print Name: Marvin Mikasa
Date: Aug. 15, 2016

cc: Central Files

KA-17-32

DAVID Y. IGE
GOVERNOR OF HAWAII

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

OFFICE OF CONSERVATION AND COASTAL LANDS

2016 AUG 11 A 8:29

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 8, 2016

RECEIVED LAND DIVISION
2016 AUG 24 AM 10:53
DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

MEMORANDUM

FROM:
~~TO:~~

DLNR Agencies:
X Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
X Office of Conservation & Coastal Lands
X Land Division – Kauai District
X Historic Preservation

TO:
~~FROM:~~ Russell Y. Tsuji, Land Administrator
SUBJECT: Environmental Assessment for Runway Safety Area (RSA) Improvements for Runway 3-21 Lihue Airport
LOCATION: Lihue Airport, Island of Kauai; TMK: (4) 3-5-001:008
APPLICANT: Department of Transportation, Airports Division

Transmitted for your review and comment is information on the above referenced project. We would appreciate your comments on this project. Please submit any comments by **August 29, 2016.**

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 Lydia Morikawa at 587-0410. Thank you.

Attachments

NO WORK IN CON DISTRICT.

( ) We have no objections.
(X) We have no comments.
( ) Comments are attached.

Signed: [signature]

Print Name: SAM LEMMO

Date: 8.23.16

cc: Central Files

Appendix F.3

Native Hawaiian Organization Consultation

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

January 6, 2017

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

Subject: Environmental Assessment for Runway Safety Area (RSA) Improvements for Runway 3-21, Lihu'e Airport, Island of Kaua'i, Hawai'i

Dear Dr. Crabbe:

The State of Hawai'i, Department of Transportation, Airports Division (HDOT-A) in cooperation with the Federal Aviation Administration (FAA) have initiated the preparation of an Environmental Assessment (EA) for the proposed Runway Safety Area (RSA) Improvements to Runway 3-21 at Lihu'e Airport (LIH). The EA is being prepared to comply with both FAA requirements under the National Environmental Policy Act (NEPA) and State of Hawai'i requirements under the Hawai'i Environmental Protection Act (HEPA).

RSAs are clear areas around a runway, free of objects and structures to enhance safety if an aircraft undershoots, overruns, or veers off the runway, and to provide greater accessibility for firefighting and rescue equipment during such incidents. The purpose of the Proposed Action is to comply with the Public Law 109-115, which states that the owner or operator of an airport certificated under 14 Code of Federal Regulations Part 139 shall improve the airport's runway safety areas to comply with FAA design standards.

Project Information

The proposed RSA improvements would occur completely within the existing LIH property boundary. An overview of the LIH layout and facilities is provided on **Exhibit 1**. There are two runways at LIH, Runway 3-21 and Runway 17-35. LIH houses a passenger terminal, an air cargo terminal, helicopter operations, and general aviation facilities, all located on the northwest side of Runway 3-21.

LIH RSA should be 500 feet wide, have a minimum of 1,000 feet beyond the runway end for departures and 600 feet prior to the runway threshold for arrivals. Currently, Runway 3-21 meets FAA RSA design standards at the Runway 3 end. Due to the proximity to the coastal area and Pacific Ocean, the RSA at the Runway 21 northeast end is 855 feet short of meeting the RSA

standard beyond the runway end for Runway 21 departures. The RSA prior to the Runway 21 arrival threshold is 250 feet short of meeting the FAA standard.

The primary components of the proposed RSA improvements project, as shown in **Exhibit 2**, include:

- Runway 3 (Southwest End):
  - Shift of the Runway 3 end 855 feet to the southwest; the landing threshold would remain in the same location, resulting in an 855-foot Runway 3 displaced threshold
  - Construction of a 200-foot blast pad
  - Construction of a taxiway extension to the new Runway 3 end
  - In order to mitigate the Runway Protection Zone (RPZ) penetrations on the Runway 3 end, a Departure End of Runway (DER) point would be created. The DER would coincide with the Runway 3 displaced threshold, which is also the existing Runway 3 end
- Runway 21 (Northeast End):
  - Relocated Runway 21 displaced threshold
  - Construction of a retaining wall along the public road beyond the Runway 21 end. The land between the runway and the retaining wall would be filled and graded to meet RSA standards. The public road would remain open.

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

Exhibit 3 illustrates the Area of Potential Effect APE) for the proposed RSA project. The APE for this undertaking is entirely within the existing LIH property and includes a generally rectangular shape that includes the entire length of Runway 3-21. The APE encompasses approximately 118 acres. At the southwestern end, the APE follows the proposed RSA boundary as well as an area expanded to the north to accommodate the proposed taxiway construction described above. At the northeastern end, the APE follows the coastal area before the grade decreases significantly to the Pacific Ocean and expands slightly to the south to accommodate the grading, fill, and retaining wall required for the proposed project.

Historical Background

In 2007 an Environmental Impact Statement (EIS) was prepared for Lihu'e Airport Improvements. As part of this EIS, an archaeological survey and a Cultural Impact Assessment (CIA) were conducted for the airport property. The CIA included a literature review and site survey. The EIS found that no previously recorded State Inventory of Historical Places (SIHP) were located within the area described above for the APE of the proposed undertaking.

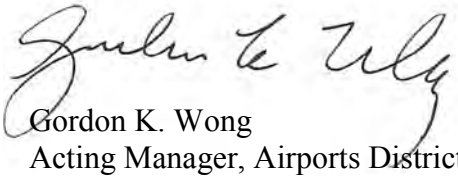
During the archaeological field survey, a single, previously unrecorded cultural resource/historic property was identified northeast of the existing Runway 3-21 RSA. It was assigned SIHP # 50-30-08-3958. The property consists of two features; a remnant linear alignment of at least five concrete enclosures, and a lone cement foundation. Both features appear to be plantation-era, based on construction materials and techniques, and likely functioned as a piggery or other animal enclosure. This resource identified during the field survey was recommended eligible to the National and Hawai'i Registers under criterion D, for its information content. The SHPD concurred with this finding. This site would not be within any area of potential ground disturbance from the proposed undertaking.

The CIA concluded that there were no remaining indigenous Hawaiian heiau sites in the area of the airport; any historical heiaus had been previously destroyed by agricultural uses predating the airport. Traditional cultural practices in the area primarily consist of diving, pole fishing, and net throwing along the coast line and at ʻAhukini Landing. Access to these areas would not be impacted by the proposed undertaking; thus, traditional coastal practices would not be affected by the proposed undertaking.

In compliance with the statutory requirements of the Federal National Environmental Policy Act (NEPA), and with the State of Hawaiʻi Revised Statute (HRS) Chapter 343 Environmental Impact Statements Law, the Federal Aviation Administration (FAA) is seeking input on any information that you or other individuals have which might contribute to the knowledge of traditional cultural activities that were, or are currently, conducted in the proposed project area. We are also asking for any information pertaining to traditional cultural activities or traditional rights which may be impacted by the proposed improvements.

If you have questions or would like to discuss this project further, I can be reached at 808.312.6029 or at gordon.wong@faa.gov. We would appreciate any input you may have within 30 days of receipt of this letter. Thank you for your review and assistance on this matter.

Sincerely,



Gordon K. Wong
Acting Manager, Airports District Office

Enclosures
EXHIBIT 1 – Airport Overview
EXHIBIT 2 – Proposed Action Overview
EXHIBIT 3 – Area of Potential Effect

cc: (w/encls.)
Herman Tuiolosega, HDOTA
Stephen Culberson, Ricondo & Associates, Inc.

[DRAFT]

NOTES: msl = Above Mean Sea Level.

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.

PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 1,800 ft.

EXHIBIT 1

Airport Overview

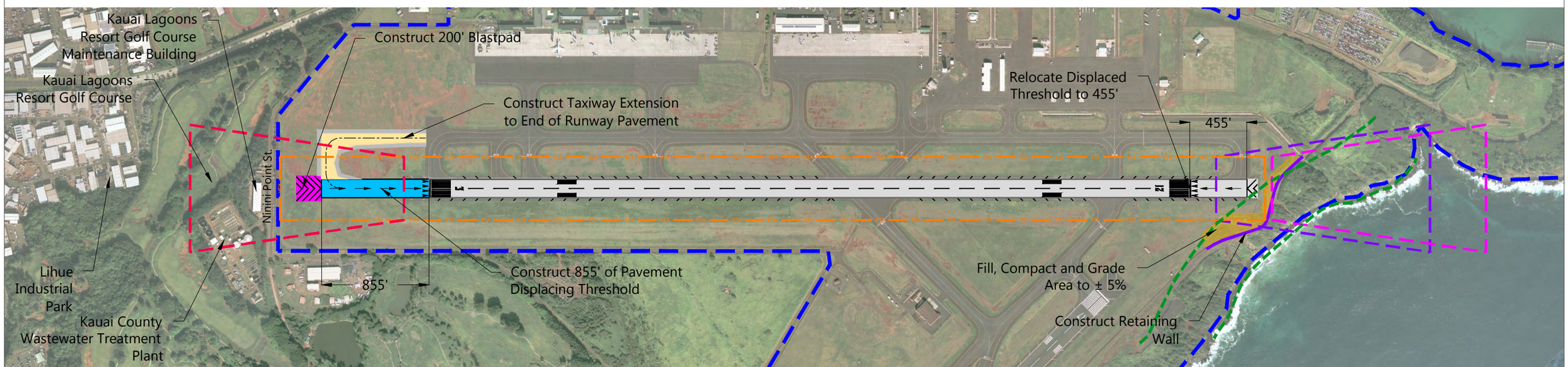
Drawing: Z:\Hawaii\LIH\04-RSA EA\12-CAD\LIH_RSA_EA_Airport Overview_20160414.dwg Layout: SHPD Exh 1 Plotted: Sep 19, 2016, 06:07PM

[DRAFT]

Notes:
- *Runway 3-21 Safety Area Study* Alternative 1, Refinement 3.
- The new Runway 3 Approach RPZ and Runway 21 Departure RPZ extend beyond the airport property line resulting in portions of the Kauai County Wastewater Treatment Plant and Kauai Lagoons Golf Course and Maintenance Building, to fall within their boundaries.
- Per FAA Memorandum, *Interim Guidance on Land Uses Within a Runway Protection Zone* , buildings and structures including commerical/industrial buildings, golf courses, and wastewater treatment facilities are considered land uses which require the FAA Regional and ADO staff to consult with the National Airport Planning and Environmental Division (APP-400).

Proposed Airfield Improvements:

- Construct 855' of pavement displacing the Runway 3 end threshold
- Construct a 200' blastpad beyond the Runway 3 end
- Construct taxiway extension to end of Runway 3 pavement
- Relocated the Runway 21 displaced threshold to 455'
- Construct retaining wall along the existing public road off the north end of Runway 21
- Fill, compact, and grade land off the north end of Runway 21.



LEGEND

- Airport Property Line
- Runway Safety Area
- Departure Runway Protection Zone
- Approach Runway Protection Zone
- Approach and Departure Runway Protection Zone
- Special Management Area
- Existing Pavement
- Proposed Runway Pavement
- Proposed Blastpad
- Proposed Taxiway
- Ground Fill
- Proposed Retaining Wall

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 800 ft.

Acronyms

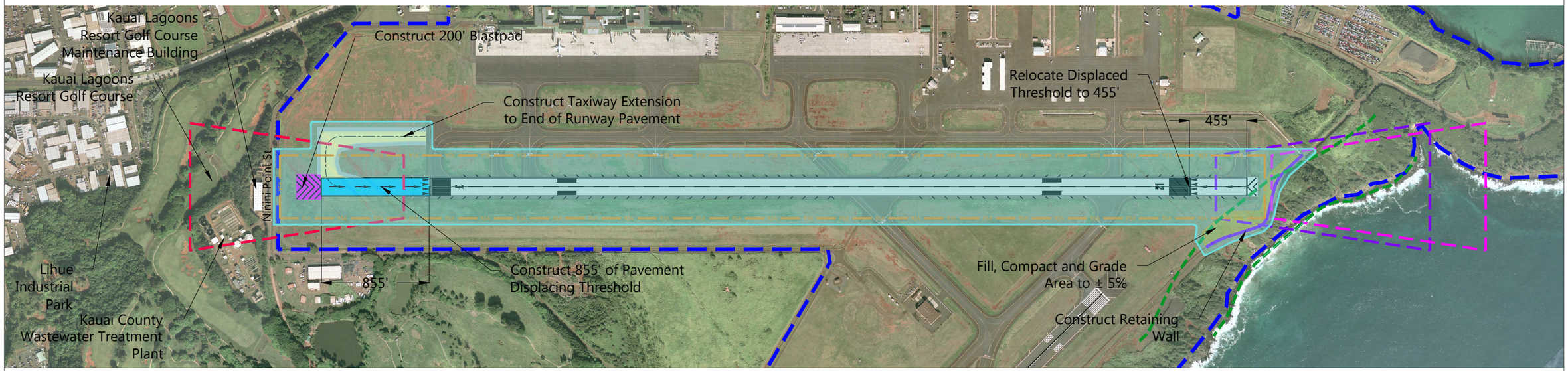
ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT 2

Proposed Action Overview

Drawing: Z:\Hawaii\LIH\04-RSA EA\12-CAD\LIH_RSA_EA_Alternative_1_20160613.dwg Layout: SHPD_EX-2_Alt1_R3 Plotted: Sep 19, 2016, 06:24PM

[DRAFT]



LEGEND

- Airport Property Line
- Runway Safety Area
- Departure Runway Protection Zone
- Approach Runway Protection Zone
- Approach and Departure Runway Protection Zone
- Special Management Area
- Existing Pavement
- Proposed Runway Pavement
- Proposed Blastpad
- Proposed Taxiway
- Ground Fill
- Proposed Retaining Wall
- Area of Potential Effect

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., June 2016.

NORTH 0 800 ft.

Acronyms

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT 3

Area of Potential Effect

Drawing: Z:\Hawaii\LIH\04-RSA EA\12-CAD\LIH_RSA_EA_Affected Environment_20160616.dwg Layout: SHPD Ex - 3 Plotted: Sep 19, 2016, 06:27PM

PHONE (808) 594-1888

FAX (808) 594-1938

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
560 N. NIMITZ HWY., SUITE 200
HONOLULU, HAWAI'I 96817

HRD17-0932E

February 13, 2017

Gordon K. Wong
Acting Manager, Airports District Office
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 50244
Honolulu, HI 96850-0001

Re: Preparation for an Environmental Assessment
Līhu'e Airport, Runway Safety Area Improvments for Runway 3-21
Kalapakī Ahupua'a, Puna Moku, Kaua'i Mokupuni
Tax Map Key: (4) 3-5-001:008

Aloha e Gordon K. Wong:

The Office of Hawaiian Affairs (OHA) is in receipt of your January 6, 2017 letter, for the preparation of an environmental assessment (EA), seeking comments for the proposed Runway Safety Area (project) improvements to runway 3-21 at Līhu'e Airport. According to your letter, the project proposes to improve the airport's runway safety areas and comply with the Federal Aviation Administration (FAA) design standards under the National Environmental Policy Act and the State of Hawai'i requirements under the Hawai'i Environmental Protection Act.

The purpose of this project will improve the safety of runway 3-21. Currently the project area should be 500 feet wide, have a minimum of 1,000 feet beyond the runway end for departures and 600 feet prior to the runway threshold for arrivals. At this time, Runway 3 meets Runway Safety Area FAA design standards however, because of the proximity to the coastal area and ocean, runway 21 falls short of 855 feet on the northeast end therefore failing to meet the RSA for departures. The arrival threshold is 250 feet short of meeting the FAA standard.

The final environmental impact statement noted in the cultural impact assessment (CIA) dated November 2007; several historical sites were identified in the project area. Our records confirmed some of these sites include Kalapakī old wall remnant (State Site 50-30-11-00423 and

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MAR - 7 2017
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AIRPORTS DISTRICT OFFICE

50-30-11-00422), Kalapakī shell midden scatter (50-30-11-00421), Ahukini Heiau (State Site 50-30-11-00101), and Ninini Heiau (State Site 50-30-11-00100). State Site 50-30-11-00100 is located near the site of the Nāwiliwili lighthouse on the bluff and according the final environmental impact statement report, 4.3 CIA, Ninini Heiau is located on the airport property, outside of the action area. Given the previous extensive historic sites mentioned above, all sites have been destroyed and only remnants or fragments remain, therefore, OHA urges the utmost care be taken in all of these sensitive areas.

OHA will rely on the project's plan to continue consultation with, and seek the input of, cultural practitioners, community members, and family descendants in this district and the ahupua'a of Kalapakī, who best know the area.

OHA does request assurances that should iwi kūpuna or Native Hawaiian cultural deposits be identified during any ground altering activities, all work will immediately cease and the appropriate agencies, including OHA, will be contacted pursuant to applicable law.

Mahalo for the opportunity to provide comments. Should you have any questions, please contact Kathryn Keala at (808) 594-0272 or kathyk@oha.org.

'O wau iho nō me ka 'oia 'i'o,

Kamana'opono M. Crabbe, Ph.D.
Ka Pouhana, Chief Executive Officer

KC:kk

C: Kaliko Santos – Kaua'i Community Outreach Coordinator (via email)

**Please address replies and similar, future correspondence to our agency:*
Dr. Kamana'opono Crabbe
Attn: OHA Compliance Enforcement
560 N. Nimitz Hwy., Ste. 200
Honolulu, HI 96817

Appendix F.4

Draft EA Comments Received

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

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

In reply, please refer to:
File:

EPO 17-213

September 14, 2017

Mr. Steve Culberson, Vice President
Ricondo & Associates, Inc.
3239 Ualena Street, Third Floor
Honolulu, Hawaii 96819
Email: s_culberson@ricondo.com

Dear Mr. Culberson:

SUBJECT: Draft Environmental Assessment (DEA) for Lihue Airport Runway 3-21 Runway Safety Area Improvements, Kauai
TMK: (4)3-5-001:008

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your DEA to our office via the OEQC link:
http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2017-08-23-KA-DEA-Lihue-Airport-Runway-Safety-Area-Improvements.pdf

We understand from the OEQC publication form project summary that *"The proponent is proposing improvements to the Lihue Airport Runway 3-21 Runway Safety Area (RSA) to comply with Federal Aviation Administration (FAA) design standards. The primary components of the improvements include: shifting the Runway 3 end 855 feet to the southwest, resulting in an 855-foot displaced threshold; construction of a 200-foot blast pad; construction of a taxiway extension to the new Runway 3 end; construction of a retaining wall beyond the Runway 3 end; creation of a Departure End of Runway (DER) point, thereby increasing the existing Runway 21 displaced threshold from 205 feet to 455 feet in order to provide a 600-foot arrival RSA to Runway 21; and construction of a retaining wall along the roadway beyond the Runway 21 end."*

Hawaii's environmental review laws require Environmental Assessments (EAs) and Environmental Impact Statements (EISs) to consider health in the discussion and the mitigation measures to reduce negative impacts. In its definition of 'impacts,' §11-200-2, Hawaii Administrative Rules (HAR) includes health effects, whether primary (direct), secondary (indirect), or cumulative. Further, §11-200-12(b)(5), HAR, lists public health as one of the criteria for determining whether an action may have a significant impact on the environment.

We advocate that you consider health from a broad perspective; one that accounts for the social, economic, and environmental determinants of health and wellbeing. Community well-being can be impacted by access to physical activity, health care, feelings of social connectedness and safety. Design solutions that take these factors into consideration positively contribute to the social determinants of health in a community, improving the well-being of those who live there by influencing health promoting behaviors. Social determinants contribute to preventable chronic diseases such as asthma, diabetes, obesity, and cardiovascular disease.

In the development and implementation of all projects, EPO strongly recommends regular review of State and Federal environmental health land use guidance. State standard comments to support sustainable healthy design are provided at: http://health.hawaii.gov/epo/landuse. Projects are required to adhere to all applicable standard

comments. EPO has an updated environmental Geographic Information System (GIS) website page http://health.hawaii.gov/epo/egis It compiles various maps and viewers from our environmental health programs.

We suggest you review the requirements of the Clean Water Branch (Hawaii Administrative Rules {HAR}, Chapter 11-54-1.1, -3, 4-8) and/or the National Pollutant Discharge Elimination System (NPDES) permit (HAR, Chapter 11-55) at: http://health.hawaii.gov/cwb. If you have any questions, please contact the Clean Water Branch (CWB), Engineering Section at (808) 586-4309 or cleanwaterbranch@doh.hawaii.gov. If your project involves waters of the U.S., it is highly recommended that you contact the Army Corps of Engineers, Regulatory Branch at: (808) 835-4303.

If temporary fugitive dust emissions could be emitted when the project site is prepared for construction and/or when construction activities occur, we recommend you review the need and/or requirements for a Clean Air Branch (CAB) permit (HAR, Chapter 11-60.1 "Air Pollution Control"). Effective air pollution control measures need to be provided to prevent or minimize any fugitive dust emissions caused by construction work from affecting the surrounding areas. This includes the off-site roadways used to enter/exit the project. The control measures could include, but are not limited to, the use of water wagons, sprinkler systems, and dust fences. For questions contact the Clean Air Branch via e-mail at: Cab.General@doh.hawaii.gov or call (808) 586-4200.

Any waste generated by the project (that is not a hazardous waste as defined in state hazardous waste laws and regulations), needs to be disposed of at a solid waste management facility that complies with the applicable provisions (HAR, Chapter 11-58.1 "Solid Waste Management Control"). The open burning of any of these wastes, on or off site, is strictly prohibited. You may wish you review the Minimizing Construction & Demolition Waste Management Guide at: http://health.hawaii.gov/shwb/files/2016/05/constdem16.pdf Additional information is accessible at: http://health.hawaii.gov/shwb. For specific questions call (808) 586-4226.

If noise created during the construction phase of the project may exceed the maximum allowable levels (HAR, Chapter 11-46, "Community Noise Control") then a noise permit may be required and needs to be obtained before the commencement of work. Relevant information is online at: http://health.hawaii.gov/irhb/noise EPO recommends you contact the Indoor and Radiological Health Branch (IRHB) at (808) 586-4700 with any specific questions.

A phase I Environmental Site Assessment (ESA) and site investigation should be conducted for residential development or redevelopment projects in current or formerly used industrial areas and on formerly and currently zoned agricultural land used for growing sugar, pineapple or other agricultural products. If the investigation shows that a release of petroleum, hazardous substance, pollutants or contaminants may have occurred at the site, the site should be properly characterized through an approved Hawaii State Department of Health (DOH)/Hazard Evaluation and Emergency Response Office (HEER) soil and/or groundwater sampling plan. Please refer to Sections 3 and 4 of the HEER Office Technical Guidance Manual http://www.hawaiidoh.org. If the site is found to be contaminated, then all removal and remedial actions to clean up hazardous substance or oil releases by past and present owners/tenants must comply with State Law (HRS, Chapter 128D, "Environmental Response Law", Chapter 451, "State Contingency Plan"). To identify HEER records related to the property, visit http://eha-web.doh.hawaii.gov/eha-cma/Leaders/HEER/public-records. For information on site assessment and cleanup programs review: http://eha-web.doh.hawaii.gov/eha-cma/Leaders/HEER/site-assessment-and-cleanup-programs. Any specific questions should be directed to the HEER office at (808) 586-4249.

EPO also encourages you to examine and utilize the Hawaii Environmental Health Portal at: https://eha-cloud.doh.hawaii.gov. This site provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings.

You may also wish to review the draft Office of Environmental Quality Control (OEQC) viewer at: http://eha-web.doh.hawaii.gov/oeqc-viewer. This viewer geographically shows where some previous Hawaii Environmental Policy Act (HEPA) {Hawaii Revised Statutes, Chapter 343} documents have been prepared.

To better protect public health and the environment, the U.S. Environmental Protection Agency (EPA) has developed a new environmental justice (EJ) mapping and screening tool called EJSCREEN. It is based on nationally consistent data and combines environmental and demographic indicators in maps and reports. EPO encourages you to explore, launch and utilize this powerful tool in planning your project. The EPA EJSCREEN tool is available at: http://www.epa.gov/ejscreen.

We hope this information is helpful. If you have any questions please contact us at DOH.epo@doh.hawaii.gov or call us at (808) 586-4337. Thank you for the opportunity to comment.

Mahalo nui loa,

Laura Leialoha Phillips McIntyre, AICP
Program Manager, Environmental Planning Office

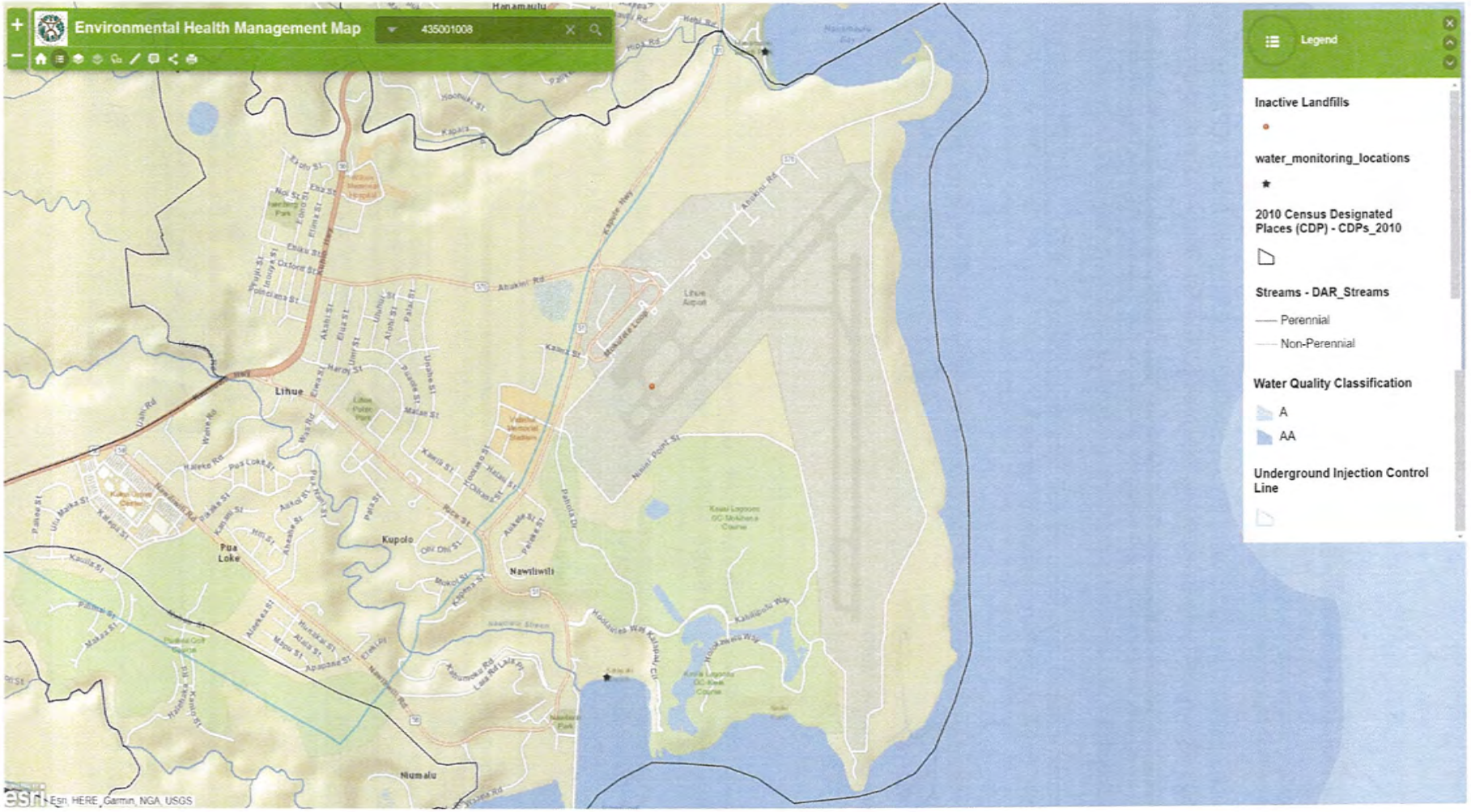
LM:nn

c: Herman Tuiolosega, DOT, Airports Division (via email: airplanning@hawaii.gov)
DOH: DHO Kauai, HEER, CWB, CAB, SHWB, IRHB {via email only}

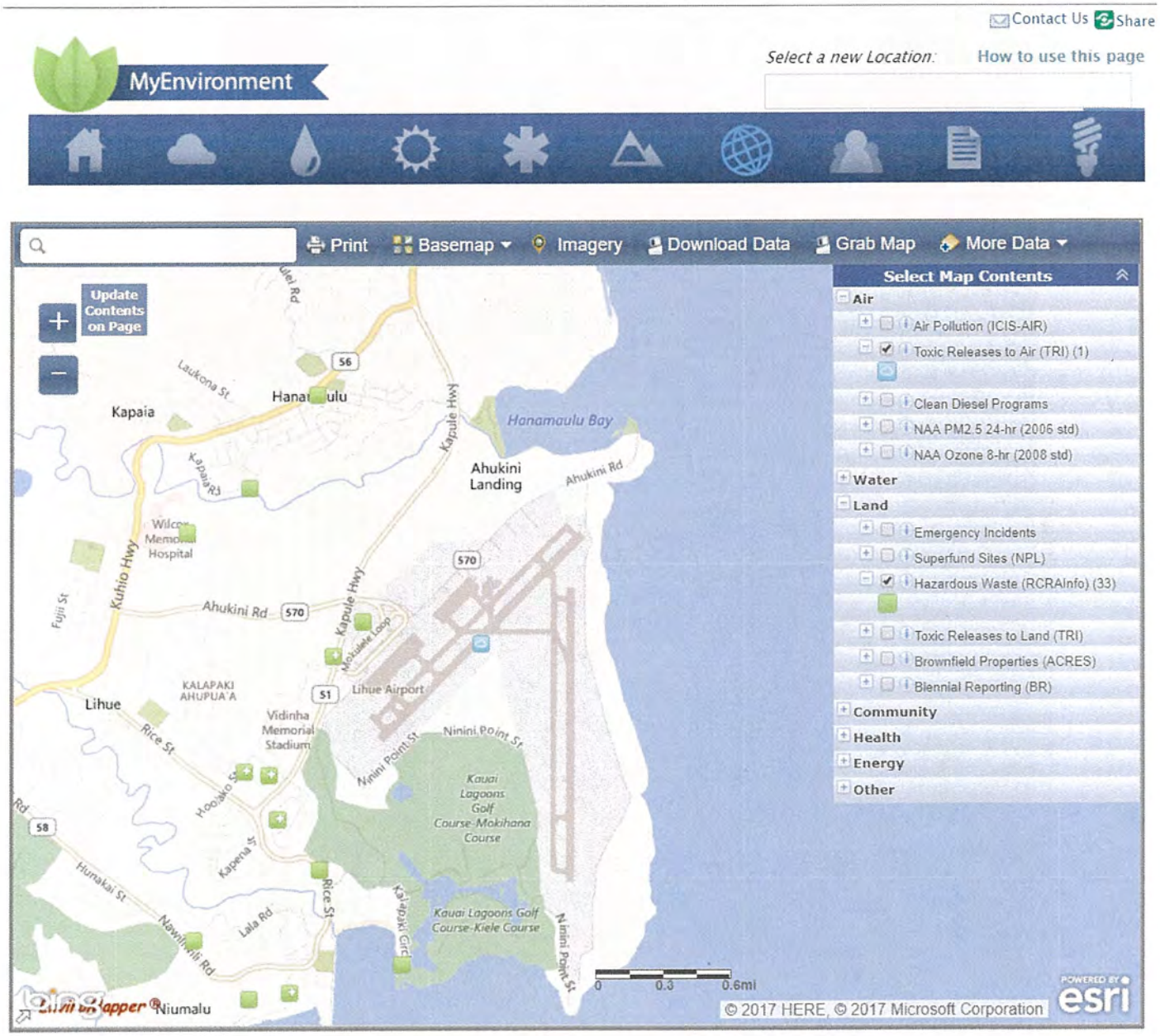
Attachment 1: Environmental Health Management Web App Snipit of Project Area: http://health.hawaii.gov/epo/egis
Attachment 2: U.S. Environmental Protection Agency (EPA) Cleanup Site viewer
Attachment 3: Office of Environmental Quality Control (OEQC) viewer (of some past EA's, EIS's in area)
Attachment 4: U.S. EPA EJSCREEN Report for Project Area

Please be advised:
The Environmental Planning Office (EPO), along with the Clean Air, Clean Water, and Wastewater Branches will be moving in December 2017. The new address, for EPO, ***as of January 1, 2018****, will be:* ***Environmental Planning Office***
DOH, Hale Ola, 2827 Waimano Home Road #109,
Pearl City, Hawaii 96782
Please feel free to come and visit our new offices anytime. Please note that there is a security guard at the bottom of the hill (before entering DOH property). Our office phone numbers, email and website will all remain the same.

Attachment 1: Environmental Health Management Web App Snipit of Project Area: http://health.hawaii.gov/epo/egis



Attachment 2: U.S. Environmental Protection Agency (EPA) Cleanup Site viewer



Attachment 3: Office of Environmental Quality Control (OEQC) viewer (of some past EA's, EIS's in area)

Attachment 4: U.S. EPA EJSCREEN Report for Project Area

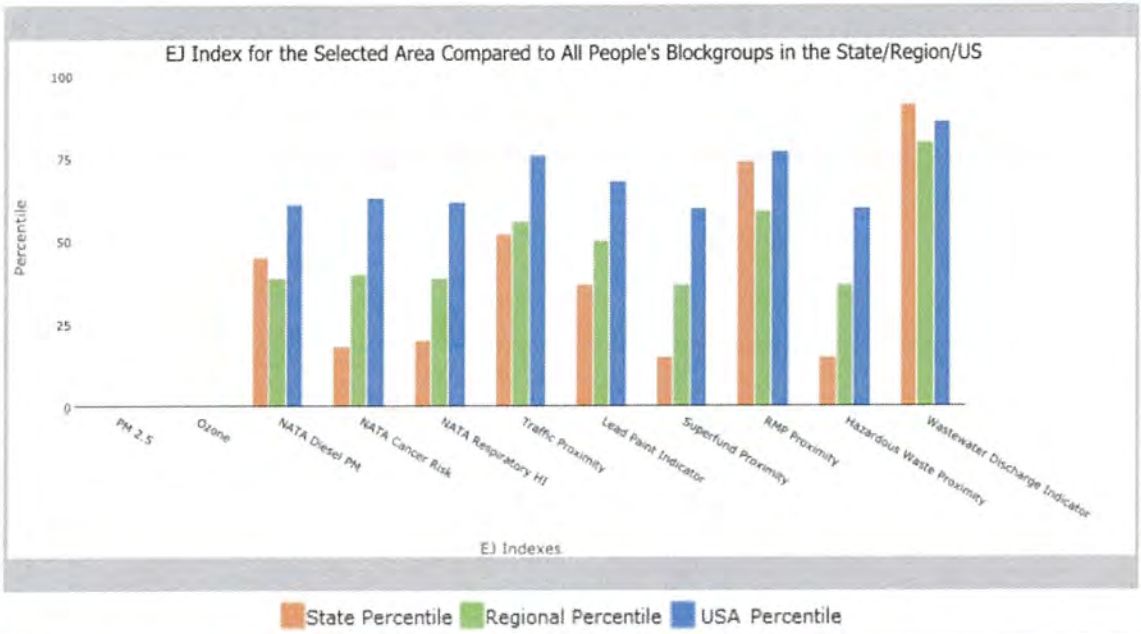
EJSCREEN Report (Version 2017)

1 mile Ring Centered at 21.975707,-159.341850, HAWAII, EPA Region 9

Approximate Population: 18

Input Area (sq. miles): 3.14

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	N/A	N/A	N/A
EJ Index for Ozone	N/A	N/A	N/A
EJ Index for NATA* Diesel PM	45	39	61
EJ Index for NATA* Air Toxics Cancer Risk	18	40	63
EJ Index for NATA* Respiratory Hazard Index	20	39	62
EJ Index for Traffic Proximity and Volume	52	56	76
EJ Index for Lead Paint Indicator	37	50	68
EJ Index for Superfund Proximity	15	37	60
EJ Index for RMP Proximity	74	59	77
EJ Index for Hazardous Waste Proximity	15	37	60
EJ Index for Wastewater Discharge Indicator	91	80	86



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

EJSCREEN Report (Version 2017)

1 mile Ring Centered at 21.975707,-159.341850, HAWAII, EPA Region 9

Approximate Population: 18

Input Area (sq. miles): 3.14

Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

EJSCREEN Report (Version 2017)

1 mile Ring Centered at 21.975707,-159.341850, HAWAII, EPA Region 9

Approximate Population: 18

Input Area (sq. miles): 3.14

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m³)	N/A	N/A	N/A	9.9	N/A	9.14	N/A
Ozone (ppb)	N/A	N/A	N/A	41.8	N/A	38.4	N/A
NATA* Diesel PM (µg/m³)	0.227	0.149	81	0.978	<50th	0.938	<50th
NATA* Cancer Risk (lifetime risk per million)	28	34	32	43	<50th	40	<50th
NATA* Respiratory Hazard Index	0.89	1	48	2	<50th	1.8	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	420	1000	63	1100	56	590	75
Lead Paint Indicator (% Pre-1960 Housing)	0.11	0.16	49	0.24	46	0.29	38
Superfund Proximity (site count/km distance)	0.0069	0.1	28	0.15	6	0.13	1
RMP Proximity (facility count/km distance)	1.6	0.39	96	0.98	81	0.73	86
Hazardous Waste Proximity (facility count/km distance)	0.0062	0.1	24	0.12	2	0.093	2
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0.003	0.04	92	13	73	30	74
Demographic Indicators							
Demographic Index	68%	51%	91	47%	78	36%	87
Minority Population	70%	77%	28	59%	59	38%	79
Low Income Population	66%	26%	97	36%	87	34%	90
Linguistically Isolated Population	0%	6%	22	9%	19	5%	44
Population With Less Than High School Education	0%	9%	3	17%	3	13%	3
Population Under 5 years of age	12%	6%	92	7%	92	6%	93
Population over 64 years of age	38%	16%	98	13%	97	14%	98

* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: https://www.epa.gov/national-air-toxics-assessment.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

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 21, 2017

State Department of Transportation, Airports Division
Attention: Airports Planning
400 Rodgers Boulevard, 7th Floor
Honolulu, Hawaii 96819

via email: airplaning@hawaii.gov

Dear Sir or Madam:

SUBJECT: Draft Environmental Assessment (DEA) for Availability – Runway Safety Area (RSA) Improvements for Runway 3-21, Lihue Airport

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 (a) Engineering Division, (b) Land Division – Kauai District and (c) Office of Conservation & Coastal Lands on the subject matter. Should you have any questions, please feel free to call Lydia Morikawa at 587-0410. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)
cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

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

RECEIVED
LAND DIVISION
2017 SEP -1 AM 11:0

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 28, 2017

MEMORANDUM

'17 AUG-30 AM 8:23 ENGINEERING

TO: **DLNR Agencies:**
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
X Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
X Office of Conservation & Coastal Lands
X Land Division – Kauai District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Assessment (DEA) for Availability – Runway Safety Area (RSA) Improvements for Runway 3-21, Lihue Airport
LOCATION: Lihue, Island of Kauai; TMK: (4) 3-5-001:008
APPLICANT: State Department of Transportation

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by **September 21, 2017**.

The DEA can be found on-line at: http://health.hawaii.gov/oeqc/ (Click on the Current Environmental Notice in the middle of the page.)

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 Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(✔) Comments are attached.

Signed: _____

Print Name: Carty S. Chang, Chief Engineer
Date: 9/1/17

cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Russell Y. Tsuji
Ref: Draft Environmental Assessment (DEA) for Availability – Runway Safety Area (RSA) Improvements for Runway 3-21, Lihue Airport, Lihue, Island of Kauai; TMK: (4) 3-5-001:008

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.hawaiinfip.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:

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

Signed: _____
CARTY S. CHANG, CHIEF ENGINEER

Date: 9/1/17

DAVID Y. IGE
GOVERNOR OF HAWAII

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

RECEIVED
LAND DIVISION
2017 SEP 11 AM 11:0

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 28, 2017

MEMORANDUM

~~TO:~~ FROM

DLNR Agencies:
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
X Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
X Office of Conservation & Coastal Lands
X Land Division – Kauai District
X Historic Preservation

TO ~~FROM:~~ Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Assessment (DEA) for Availability – Runway Safety Area (RSA) Improvements for Runway 3-21, Lihue Airport
LOCATION: Lihue, Island of Kauai; TMK: (4) 3-5-001:008
APPLICANT: State Department of Transportation

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by **September 21, 2017**.

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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 Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
(✓) We have no comments.
( ) Comments are attached.

Signed: [signature]

Print Name: Wesley T. Matsunaga

Date: 9/7/17

cc: Central Files

A.J. Cor: KA 18-44

DAVID Y. IGE
GOVERNOR OF HAWAII

RECEIVED
LAND DIVISION
2017 SEP 13 AM 10:11

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

RECEIVED
OFFICE OF CONSERVATION AND COASTAL LANDS
2017 AUG 29 P 12:34
DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

August 28, 2017

MEMORANDUM

TO:
FROM:

DLNR Agencies:
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
X Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
X Office of Conservation & Coastal Lands
X Land Division – Kauai District
X Historic Preservation

TO:
FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Assessment (DEA) for Availability – Runway Safety Area (RSA) Improvements for Runway 3-21, Lihue Airport
LOCATION: Lihue, Island of Kauai; TMK: (4) 3-5-001:008
APPLICANT: State Department of Transportation

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by **September 21, 2017**.

The DEA can be found on-line at: http://health.hawaii.gov/oeqc/ (Click on the Current Environmental Notice in the middle of the page.)

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 Lydia Morikawa at 587-0410. Thank you.

Attachments
NO PROPOSED WORK W/IN SLU CONSERVATION DISTRICT.

( ) We have no objections.
(X) We have no comments.
( ) Comments are attached.

Signed:

Print Name: ALEX J. ROY
Date: 9-12-17

cc: Central Files

Date: 10/03/2017

State of Hawaii
DEPARTMENT OF TRANSPORTATION

Log No: **DIR 1262**

Suspense: **10/17/2017**

FROM: **DIRECTOR**

TO: **STP**

- (1) ☒ DIR
- ☐ DEP-S
- ☐ DEP-A
- ☐ DEP-H
- (2) ☒ DEP-HWY
- ☐ DIR-CZ
- ☐ DIR-P
- ☐ OCR
- ☐ PER
- ☐ PMN
- ☐ PPB
- (3) ☒ STP
- ☐ _____
- ☑ AIR (4)
- ☐ HAR
- ☐ HWY
- ☐ BUS
- ☐ BUS-F
- ☐ BUS-O
- ☐ CON
- ☐ CSS
- ☐ LEG

FOR: **APPROPRIATE ATTENTION & ACTION; DRAFT REPLY**

- ☒ Appropriate Attention & Action
- ☐ Arrange Meeting
- ☐ Investigate & Report Back
- ☐ Comments & Recommendations
- ☒ Draft Reply
- ☐ Final Reply for Gov's Sig
- ☐ Direct Action/Reply
- ☐ Information
- ☐ See Me
- ☐ Signature
- ☐ Submit Copy of Response
- ☐ File
- ☐ Review
- ☐ Return
- ☐ Phone Call _____
- ☐ Follow-up Interim Reply

Subject: DRAFT ENVIRONMENTAL ASSESSMENT-RUNWAY SAFETY AREA FOR RUNWAY 3-21, LIHUE AIRPORT, ISLAND OF KAUAI; TMK: (4) 3-5-001:008

OCT 3 '17 PM1:52

Attn: Herman
Tuiolosega

DO NOT REMOVE FROM CORRESPONDENCE

2017 OCT -3 A 11:26

DIR 1262

OFFICE OF PLANNING
STATE OF HAWAII

DAVID Y. IGE
GOVERNOR

LEO R. ASUNCION
DIRECTOR
OFFICE OF PLANNING

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/

Ref. No. P-15762

September 29, 2017

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

From: for Leo R. Asuncion, Director
Office of Planning

Attention: Herman Tuiolosega, Head Planner
Airports Division

STP
OCT 3 '17 PM1:52

Subject: Draft Environmental Assessment – Runway Safety Area for Runway 3-21, Lihue Airport, Island of Kauai; TMK: (4) 3-5-001:008

Thank you for the opportunity to provide comments on the Draft Environmental Assessment (Draft EA) for the Runway Safety Area (RSA) for Runway 3-21, Lihue Airport, Island of Kauai. The Draft EA review material was transmitted to our office by letter dated August 21, 2017.

It is our understanding that the Airports Division (HDOT-Airports) proposes improvements at Lihue Airport that will: shift the end of Runway 3 855 feet to the southwest; shift the end of Runway 21's displaced landing threshold from 205 feet to 455 feet; implement declared distances; and construct retaining walls at both RSA ends.

These improvements are expected to meet the Federal Aviation Administration (FAA) standards for safety and efficiency at U.S. airports. The Draft EA is intended to serve as both a National Environmental Policy Act and Hawaii Environmental Policy Act disclosure document.

The Office of Planning (OP) has reviewed the transmitted Draft EA and has the following comments to offer:

1. Our pre-consultation letter (Reference No. P-15286), dated August 30, 2016, recommended that the Draft EA:

   - examine the project's ability to meet the objectives and policies of the Hawaii CZM program, as listed in HRS § 205A-2;
   - list the applicable permits needed for this project;
   - contain an evaluation of water resources pursuant to FAA Order 1050.1F, which defines the water resources impact categories, specifies the consideration of surface waters, groundwater, wetlands, floodplains, and wild and scenic rivers; and

- evaluate the impact of polluted stormwater runoff during the construction and operational phases. The project will follow best management practices during both these phases to limit the impact of polluted runoff on nearby surface water and marine resources.

OP recognizes that the comments and concerns cited above from our pre-consultation letter have been addressed.

2. SMA Permit:
Please note that when the HRS § 205A first became law in 1975 (Act 176, Session Law of Hawaii), the legislature established the SMA regulatory function at the county level. The county authorities administer SMA permits and shoreline setback provisions. In section 2.6, page 2-25, the issuing agency listing is incorrect. The issuing agency for this SMA permit should be the County of Kauai, as listed in Section 5.3, page 5-16.

Whether or not the proposed project is a "development" as defined under HRS § 505A-22, and needs a Minor Permit, or SMA Major Permit, should be assessed and determined by the Department of Planning, County of Kauai.

3. Federal Consistency:
Appendix D of the Draft EA contains a Waters of the U.S. analysis and assessment. Appendix D maintains that that the Lihue Airport RSA project area does not contain any Waters of the U.S. This determination is subject to the review and Final Determination by the U.S Army Corps of Engineers (USACE). If it is deemed by the USACE that a Department of the Army Permit is required, the project may require a federal consistency review.

Please contact our office on the policies and procedures for conducting a federal consistency review.

4. Visual and Light Emission Impacts:
OP acknowledges that Section 4.14, pages 4-59 to 4-62 examines light emissions and visual effects impacts pursuant to FAA Order 1050.1F. The Draft EA concludes that during construction any use of nighttime construction lighting would be temporary and restricted to the areas of the ground disturbance portion of the Study Area which is completely within the airfield area.

During the operational phase, the Proposed Action Alternative is not anticipated to create an annoyance for users of these amenities because of the minimal additional lighting required. It concludes that no adverse impacts in terms of light emissions are anticipated.

5. <u>The Hawaii State Planning Act, Hawaii Revised Statutes (HRS) Chapter 226:</u> Section 5.1.1, pages 5-1 to 5-3 examines the project and its consistency with the Hawaii State Planning Act, HRS Chapter 226. OP acknowledges that the following statutes found in HRS Chapter 226 are applicable to this project:

   - HRS § 226-8 Objective and Policies for the Economy – Visitor Industry;
   - HRS § 226-11 Objectives and Policies for the Physical Environment – Land Based, Shoreline and Marine Resources;
   - HRS § 226-14 Objective and Policy for Facility Systems – In General;
   - HRS § 226-17 Objectives and Policies for Facility Systems – Transportation;
   - HRS § 226-103 Economic Priority Guidelines; and
   - HRS § 226-104 Population Growth and Land Resources Priority Guidelines.

   This evaluation does not include an examination of any applicable State Functional Plans listed in Part II – Planning Coordination and Implementation, nor any of the remaining statutes in Parts I and III of the Hawaii State Planning Act.

   The Final Environmental Assessment (Final EA) should include an analysis with discussion on the project's ability to meet all parts of HRS Chapter 226, examine the project's consistency with these statutes, or clarify where it is in conflict. If the applicant deems the remaining statutes in HRS Chapter 226 are not applicable to this project, the Final EA should affirmatively state such determination followed by discussion paragraphs.

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

EA- 17,0182

PHONE (808) 594-1888

FAX (808) 594-1938

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
560 N. NIMITZ HWY., SUITE 200
HONOLULU, HAWAI'I 96817

HRD17-0932G

September 22, 2017

Airports Division, Hawai'i Department of Transportation
Attention: Airports Planning
400 Rodgers Boulevard, 7th Floor
Honolulu, Hawai'i 96819

Re: Comments on a Draft Environmental Assessment
Runway Safety Area Improvements for Runway 3-21
Kalapakī Ahupua'a, Puna Moku, Kaua'i Mokupuni
Tax Map Key: (4) 3-5-001-008

Aloha e Airports Planning:

The Office of Hawaiian Affairs (OHA) is in receipt of your August 21, 2017 letter seeking comments on a draft environmental assessment (DEA) project for runway safety area (RSA) improvements to runway 3-21 at the Līhu'e Airport, Kaua'i. According to your letter, the project will improve the airport's RSA and comply with the Federal Aviation Administration (FAA) design standards. The DEA has been prepared in accordance with the Hawai'i Environmental Policy Act and the National Environmental Policy Act. The area of potential effects (APE) is depicted in exhibit 2 of the DEA.

To meet FAA design standards, the RSA should be 500 feet wide, have a minimum of 1,000 feet beyond the runway end for departures and 600 feet prior to the runway threshold for arrivals. At this time, Runway 3 meets the FAA RSA design standards at the Runway 3 end. However, because of the proximity to the coastal area and ocean, runway 21 falls short of 855 feet on the northeast end failing to meet the RSA for departures. The arrival threshold is 250 feet short of meeting the FAA standards. The improvements proposed include:

- Shifting the Runway 3 end 855 feet to the southwest, Construction of a 200-foot blast pad;
- Construction of a taxiway extension to the new Runway 3 end;
- Construction of a retaining wall beyond the Runway 3 end;

- Creation of a departure end of runway point, increasing the existing Runway 21displaced threshold from 205 feet to 455 feet in order to provide a 600-foot arrival runway safety area to Runway 21; and
- Construction of a retaining wall along the roadway beyond Runway 21 end.

The project implements the FAA's mission to ensure the safe and efficient use of navigable airspace in the United States.

According to the DEA, there are several historical sites in the project area. These include Ahukini Heiau (State Site 50-30-11-00101) and Ninini Heiau, (State Site 50-30-11-00100). Ninini Heiau was once located near the Nāwiliwili lighthouse of Runway 17-35, Ahukini Heiau was located in the same runway area on the northeastern shoreline. The DEA states, during an archaeological survey, a single previously unrecorded historic property (SIHP #50-30-08-3958) from the plantation era, was identified northeast of the existing Runway 3-21. Other historic sites within the area of Ahukini Heiau include, Kalapakī old wall remnant (State Site 50-30-11-00423 and 50-30-11-00422) and Kalapakī shell midden scatter (50-30-11-00100). Given the previous extensive historic sites mentioned above, there may still be significant sub-surface cultural resources still present, and the sacredness of the site of the heiau is still very significant and important to the Native Hawaiian people even without the formal structure remaining. OHA urges the utmost care be taken in all of these sensitive areas and recommend that archaeological monitoring be conducted during any excavation associated with project construction.

Mahalo for the opportunity to provide comments and we look forward to reviewing the environmental assessment. Should you have any questions, please contact Kathryn Keala at (808) 594-0272 or kathyk@oha.org.

'O wau iho nō me ka 'oia 'i'o,

Kamana'opono Crabbe

Kamana'opono M. Crabbe, Ph.D.
Ka Pouhana, Chief Executive Officer

KC:kk

C: Kaliko Santos - Kaua'i Community Outreach Coordinator (via email)

**Please address replies and similar, future correspondence to our agency:*
Dr. Kamana'opono Crabbe
Attn: OHA Compliance Enforcement
560 N. Nimitz Hwy., Ste. 200
Honolulu, HI 96817

Appendix F.5

Scoping and Draft EA Comments and Responses

Comments Received on the Draft EA

The Draft EA was available for review by the general public, government agencies, and interested parties for a period of 30 days. The Notice of Availability (NOA) of the Draft EA for review was published on August 23, 2017. Four (4) written comment letters were received on the Draft EA during the public review period. In addition, ten (10) comment letters were received during the scoping period.

Comment and responses to comments received are presented below.

Comment Letter P-1
Page 1 of 3

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

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

In reply, please refer to:
File:
EPO 17-213

September 14, 2017

Mr. Steve Culberson, Vice President
Ricondo & Associates, Inc.
3239 Ualena Street, Third Floor
Honolulu, Hawaii 96819
Email: s_culberson@ricondo.com

Dear Mr. Culberson:

SUBJECT: Draft Environmental Assessment (DEA) for Lihue Airport Runway 3-21 Runway Safety Area Improvements, Kauai
TMK: (4)3-5-001:008

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your DEA to our office via the OEQC link:
http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2017-08-23-KA-DEA-Lihue-Airport-Runway-Safety-Area-Improvements.pdf

We understand from the OEQC publication form project summary that *"The proponent is proposing improvements to the Lihue Airport Runway 3-21 Runway Safety Area (RSA) to comply with Federal Aviation Administration (FAA) design standards. The primary components of the improvements include: shifting the Runway 3 end 855 feet to the southwest, resulting in an 855-foot displaced threshold; construction of a 200-foot blast pad; construction of a taxiway extension to the new Runway 3 end; construction of a retaining wall beyond the Runway 3 end; creation of a Departure End of Runway (DER) point, thereby increasing the existing Runway 21 displaced threshold from 205 feet to 455 feet in order to provide a 600-foot arrival RSA to Runway 21; and construction of a retaining wall along the roadway beyond the Runway 21 end."* P.1-1

Hawaii's environmental review laws require Environmental Assessments (EAs) and Environmental Impact Statements (EISs) to consider health in the discussion and the mitigation measures to reduce negative impacts. In its definition of 'impacts,' §11-200-2, Hawaii Administrative Rules (HAR) includes health effects, whether primary (direct), secondary (indirect), or cumulative. Further, §11-200-12(b)(5), HAR, lists public health as one of the criteria for determining whether an action may have a significant impact on the environment.

We advocate that you consider health from a broad perspective; one that accounts for the social, economic, and environmental determinants of health and wellbeing. Community well-being can be impacted by access to physical activity, health care, feelings of social connectedness and safety. Design solutions that take these factors into consideration positively contribute to the social determinants of health in a community, improving the well-being of those who live there by influencing health promoting behaviors. Social determinants contribute to preventable chronic diseases such as asthma, diabetes, obesity, and cardiovascular disease. P.1-2

In the development and implementation of all projects, EPO strongly recommends regular review of State and Federal environmental health land use guidance. State standard comments to support sustainable healthy design are provided at: http://health.hawaii.gov/epo/landuse. Projects are required to adhere to all applicable standard P.1-3

Comment Letter P-1
Page 2 of 3

Mr. Steve Culberson, Vice President
Page 2
September 14, 2017

comments. EPO has an updated environmental Geographic Information System (GIS) website page http://health.hawaii.gov/epo/egis It compiles various maps and viewers from our environmental health programs. P.1-3

We suggest you review the requirements of the Clean Water Branch (Hawaii Administrative Rules {HAR}, Chapter 11-54-1.1, -3, 4-8) and/or the National Pollutant Discharge Elimination System (NPDES) permit (HAR, Chapter 11-55) at: http://health.hawaii.gov/cwb. If you have any questions, please contact the Clean Water Branch (CWB), Engineering Section at (808) 586-4309 or cleanwaterbranch@doh.hawaii.gov. If your project involves waters of the U.S., it is highly recommended that you contact the Army Corps of Engineers, Regulatory Branch at: (808) 835-4303. P.1-4

If temporary fugitive dust emissions could be emitted when the project site is prepared for construction and/or when construction activities occur, we recommend you review the need and/or requirements for a Clean Air Branch (CAB) permit (HAR, Chapter 11-60.1 "Air Pollution Control"). Effective air pollution control measures need to be provided to prevent or minimize any fugitive dust emissions caused by construction work from affecting the surrounding areas. This includes the off-site roadways used to enter/exit the project. The control measures could include, but are not limited to, the use of water wagons, sprinkler systems, and dust fences. For questions contact the Clean Air Branch via e-mail at: Cab.General@doh.hawaii.gov or call (808) 586-4200. P.1-5

Any waste generated by the project (that is not a hazardous waste as defined in state hazardous waste laws and regulations), needs to be disposed of at a solid waste management facility that complies with the applicable provisions (HAR, Chapter 11-58.1 "Solid Waste Management Control"). The open burning of any of these wastes, on or off site, is strictly prohibited. You may wish you review the Minimizing Construction & Demolition Waste Management Guide at: http://health.hawaii.gov/shwb/files/2016/05/constdem16.pdf Additional information is accessible at: http://health.hawaii.gov/shwb. For specific questions call (808) 586-4226. P.1-6

If noise created during the construction phase of the project may exceed the maximum allowable levels (HAR, Chapter 11-46, "Community Noise Control") then a noise permit may be required and needs to be obtained before the commencement of work. Relevant information is online at: http://health.hawaii.gov/irhb/noise EPO recommends you contact the Indoor and Radiological Health Branch (IRHB) at (808) 586-4700 with any specific questions. P.1-7

A phase I Environmental Site Assessment (ESA) and site investigation should be conducted for residential development or redevelopment projects in current or formerly used industrial areas and on formerly and currently zoned agricultural land used for growing sugar, pineapple or other agricultural products. If the investigation shows that a release of petroleum, hazardous substance, pollutants or contaminants may have occurred at the site, the site should be properly characterized through an approved Hawaii State Department of Health (DOH)/Hazard Evaluation and Emergency Response Office (HEER) soil and/or groundwater sampling plan. Please refer to Sections 3 and 4 of the HEER Office Technical Guidance Manual http://www.hawaiidoh.org. If the site is found to be contaminated, then all removal and remedial actions to clean up hazardous substance or oil releases by past and present owners/tenants must comply with State Law (HRS, Chapter 128D, "Environmental Response Law", Chapter 451, "State Contingency Plan"). To identify HEER records related to the property, visit http://eha-web.doh.hawaii.gov/eha-cma/Leaders/HEER/public-records. For information on site assessment and cleanup programs review: http://eha-web.doh.hawaii.gov/eha-cma/Leaders/HEER/site-assessment-and-cleanup-programs. Any specific questions should be directed to the HEER office at (808) 586-4249. P.1-8

EPO also encourages you to examine and utilize the Hawaii Environmental Health Portal at: https://eha-cloud.doh.hawaii.gov. This site provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings. P.1-9

Comment Letter P-1
Page 3 of 3

Mr. Steve Culberson, Vice President
Page 3
September 14, 2017

You may also wish to review the draft Office of Environmental Quality Control (OEQC) viewer at: http://eha-web.doh.hawaii.gov/oeqc-viewer. This viewer geographically shows where some previous Hawaii Environmental Policy Act (HEPA) {Hawaii Revised Statutes, Chapter 343} documents have been prepared.

To better protect public health and the environment, the U.S. Environmental Protection Agency (EPA) has developed a new environmental justice (EJ) mapping and screening tool called EJSCREEN. It is based on nationally consistent data and combines environmental and demographic indicators in maps and reports. EPO encourages you to explore, launch and utilize this powerful tool in planning your project. The EPA EJSCREEN tool is available at: http://www.epa.gov/ejscreen.

We hope this information is helpful. If you have any questions please contact us at DOH.epo@doh.hawaii.gov or call us at (808) 586-4337. Thank you for the opportunity to comment.

P.1-9

Mahalo nui loa,

Laura Leialoha Phillips McIntyre, AICP
Program Manager, Environmental Planning Office

LM:nn

c: Herman Tuiolosega, DOT, Airports Division (via email: airplanning@hawaii.gov)
DOH: DHO Kauai, HEER, CWB, CAB, SHWB, IRHB {via email only}

Attachment 1: Environmental Health Management Web App Snipit of Project Area: http://health.hawaii.gov/epo/egis
Attachment 2: U.S. Environmental Protection Agency (EPA) Cleanup Site viewer
Attachment 3: Office of Environmental Quality Control (OEQC) viewer (of some past EA's, EIS's in area)
Attachment 4: U.S. EPA EJSCREEN Report for Project Area

Please be advised:
The Environmental Planning Office (EPO), along with the Clean Air, Clean Water, and Wastewater Branches will be moving in December 2017. The new address, for EPO, ***as of January 1, 2018****, will be:* ***Environmental Planning Office***
DOH, Hale Ola, 2827 Waimano Home Road #109,
Pearl City, Hawaii 96782
Please feel free to come and visit our new offices anytime. Please note that there is a security guard at the bottom of the hill (before entering DOH property). Our office phone numbers, email and website will all remain the same.

Responses to Comment Letter P-1

Response P.1-1

Thank you for your participation in the Environmental Assessment for the Lihue Airport Runway 3-21 Runway Safety Area (RSA) Improvements. This letter is in response to your comments date September 14, 2017 on the Draft EA received by the Hawaii Department of Transportation - Airports Division.

Response P.1-2

The Proposed Action is being contemplated with the social, economic, and environmental wellbeing of the Kauai community in mind. The EA analyzes the potential environmental, socio-economic, and infrastructure impacts of the Proposed Action, and advances measures aimed at mitigating any identified impacts.

Response P.1-3

The Proposed Action will be implemented in compliance with all applicable federal, state, and local regulations. The EA identifies and discuss potential air quality, hazardous materials, solid waste, and water resource impacts from the Proposed Action. The project design team will review the standard comments to support sustainable and healthy design located on the provided website, and will adhere to all applicable standard comments as may be required. In addition, the project team will also review the updated environmental health program maps and viewers provided on your updated Geographic Information System website as applicable to the Proposed Action.

Response P.1-4

LIH currently operates under NPDES permit file number HI R80A416.0F.[1] Construction of the Proposed Action Alternative would comply with all stipulations of this permit. The CWB will be contacted for guidance in addressing NPDES requirements as it is anticipated that an NPDES permit will be required for this project. The Proposed Action would not impact any Waters of the U.S. A Wetlands and Waters of the U.S. Analysis Study was conducted and concluded that the project area does not contain any wetlands, nor does it contain any Waters of the U.S.

Response P.1-5

The project team will review the requirements of the Clean Air Branch (CAB) to obtain an air pollution control permit, if needed. The CAB will be contacted for guidance in addressing applicable permit requirements. In addition, as discussed in the EA, although the Proposed Action would result in emissions during both the construction and operational phases, these emissions are considered too small to have an adverse impact on the air quality of the area.

[1] Hawaii Department of Health, *Renewal Notice of General Permit Coverage (NGPC), National Pollutant Discharge Elimination System (NPDES), HI DOT Lihue Airport, File No. HI R80A416*, December 9, 2013.

Response P.1-6

It is understood that any non-hazardous waste generated by the Proposed Action must be disposed of at an approved solid waste management facility. The Minimizing Construction & Demolition Waste Management Guide will be reviewed for information on waste disposal as suggested in your letter.

Response P.1-7

The project team will review the requirements of the Indoor and Radiological Health Branch (IRHB) to obtain a Community Noise Control permit if needed. However, it is not anticipated that construction noise would exceed 70 dBA beyond the airport property boundary. Construction activities would take place entirely within airport property, which is characterized by noise generated from aircraft activity. The noise generated by construction activities is not anticipated to be significantly greater than the noise currently experienced in the surrounding areas. The IRHB will be contacted for guidance in addressing applicable permit requirements if necessary.

Response P.1-8

We acknowledge your comment regarding a Phase I Environmental Site Assessment (ESA) and note that the Proposed Action does not involve residential redevelopment, a redevelopment project in current or formerly used industrial or agricultural areas. The Proposed Action involves improvements to the existing runway at the Lihue Airport to improve passenger safety. As such, it is not anticipated that a Phase I ESA is warranted for the Proposed Action.

Response P.1-9

Information and tools provided on the Hawaii Environmental Health Portal website will be reviewed and utilized, as applicable. The project team acknowledges that the draft Office of Environmental Quality Control (OEQC) viewer is available and that it geographically shows where previous Hawaii Environmental Policy Act, Hawaii Revised Statutes, Chapter 343 documents have been prepared. The project team acknowledges that the U.S. Environmental Protection Agency (EPA) has developed a new Environmental Justice mapping and screening tool called EJSCREEN to better protect public health and the environment in the planning process. However, the Proposed Action would occur entirely on existing airport property and would not affect any of the surrounding communities.

Comment Letter P-2
Page 1 of 2

DAVID Y. IGE
GOVERNOR OF HAWAII

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

RECEIVED
LAND DIVISION
2017 SEP -1 AM 11:

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 28, 2017

MEMORANDUM

TO: **DLNR Agencies:**
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
X Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
X Office of Conservation & Coastal Lands
X Land Division – Kauai District
X Historic Preservation

'17 AUG 30 AM 8:23 ENGINEERING

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Assessment (DEA) for Availability – Runway Safety Area (RSA) Improvements for Runway 3-21, Lihue Airport
LOCATION: Lihue, Island of Kauai; TMK: (4) 3-5-001:008
APPLICANT: State Department of Transportation

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by **September 21, 2017**.

The DEA can be found on-line at: http://health.hawaii.gov/oeqc/ (Click on the Current Environmental Notice in the middle of the page.)

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 Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(✔) Comments are attached.

Signed: _____

Print Name: Carty S. Chang, Chief Engineer
Date: 9/1/17

cc: Central Files

Comment Letter P-2
Page 2 of 2

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Russell Y. Tsuji
Ref: Draft Environmental Assessment (DEA) for Availability – Runway Safety Area (RSA) Improvements for Runway 3-21, Lihue Airport, Lihue, Island of Kauai; TMK: (4) 3-5-001:008

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.hawaiinfip.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: P.2-1

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

Signed: _____
CARTY S. CHANG, CHIEF ENGINEER

Date: 9/1/17

Responses to Comment Letter P-2

Response P.2-1

The analysis for potential for flood hazards has been incorporated into the assessment of the proposed project. The majority of the Study Area is located within FEMA Zone X, with a small portion of the southern boundary located within Zone AE, as well as portions along the coast that fall within Zone VE. The ground disturbance portion of the project Study Area would be entirely within FEMA FIRM Zone X, outside the 100-year flood zone. Construction and operation of the Proposed Action would have no adverse effects or alter existing floodplains.

Comment Letter P-3
Page 1 of 3

DIR 1262

OFFICE OF PLANNING
STATE OF HAWAII

DAVID Y. IGE
GOVERNOR

LEO R. ASUNCION
DIRECTOR
OFFICE OF PLANNING

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/

Ref. No. P-15762

September 29, 2017

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

From: for Leo R. Asuncion, Director
Office of Planning

Attention: Herman Tuiolosega, Head Planner
Airports Division

Subject: Draft Environmental Assessment – Runway Safety Area for Runway 3-21, Lihue Airport, Island of Kauai; TMK: (4) 3-5-001:008

Thank you for the opportunity to provide comments on the Draft Environmental Assessment (Draft EA) for the Runway Safety Area (RSA) for Runway 3-21, Lihue Airport, Island of Kauai. The Draft EA review material was transmitted to our office by letter dated August 21, 2017.

It is our understanding that the Airports Division (HDOT-Airports) proposes improvements at Lihue Airport that will: shift the end of Runway 3 855 feet to the southwest; shift the end of Runway 21's displaced landing threshold from 205 feet to 455 feet; implement declared distances; and construct retaining walls at both RSA ends. P.3-1

These improvements are expected to meet the Federal Aviation Administration (FAA) standards for safety and efficiency at U.S. airports. The Draft EA is intended to serve as both a National Environmental Policy Act and Hawaii Environmental Policy Act disclosure document.

The Office of Planning (OP) has reviewed the transmitted Draft EA and has the following comments to offer:

1. Our pre-consultation letter (Reference No. P-15286), dated August 30, 2016, recommended that the Draft EA:
   - examine the project's ability to meet the objectives and policies of the Hawaii CZM program, as listed in HRS § 205A-2; P.3-2
   - list the applicable permits needed for this project;
   - contain an evaluation of water resources pursuant to FAA Order 1050.1F, which defines the water resources impact categories, specifies the consideration of surface waters, groundwater, wetlands, floodplains, and wild and scenic rivers; and

Comment Letter P-3
Page 2 of 3

Mr. Ford N. Fuchigami
September 29, 2017
Page 2

- evaluate the impact of polluted stormwater runoff during the construction and operational phases. The project will follow best management practices during both these phases to limit the impact of polluted runoff on nearby surface water and marine resources.

OP recognizes that the comments and concerns cited above from our pre-consultation letter have been addressed. P.3-2

2. SMA Permit:
Please note that when the HRS § 205A first became law in 1975 (Act 176, Session Law of Hawaii), the legislature established the SMA regulatory function at the county level. The county authorities administer SMA permits and shoreline setback provisions. In section 2.6, page 2-25, the issuing agency listing is incorrect. The issuing agency for this SMA permit should be the County of Kauai, as listed in Section 5.3, page 5-16.

Whether or not the proposed project is a "development" as defined under HRS § 505A-22, and needs a Minor Permit, or SMA Major Permit, should be assessed and determined by the Department of Planning, County of Kauai. P.3-3

3. Federal Consistency:
Appendix D of the Draft EA contains a Waters of the U.S. analysis and assessment. Appendix D maintains that that the Lihue Airport RSA project area does not contain any Waters of the U.S. This determination is subject to the review and Final Determination by the U.S Army Corps of Engineers (USACE). If it is deemed by the USACE that a Department of the Army Permit is required, the project may require a federal consistency review.

Please contact our office on the policies and procedures for conducting a federal consistency review. P.3-4

4. Visual and Light Emission Impacts:
OP acknowledges that Section 4.14, pages 4-59 to 4-62 examines light emissions and visual effects impacts pursuant to FAA Order 1050.1F. The Draft EA concludes that during construction any use of nighttime construction lighting would be temporary and restricted to the areas of the ground disturbance portion of the Study Area which is completely within the airfield area.

During the operational phase, the Proposed Action Alternative is not anticipated to create an annoyance for users of these amenities because of the minimal additional lighting required. It concludes that no adverse impacts in terms of light emissions are anticipated. P.3-5

Comment Letter P-3
Page 3 of 3

Mr. Ford N. Fuchigami
September 29, 2017
Page 3

5. The Hawaii State Planning Act, Hawaii Revised Statutes (HRS) Chapter 226: Section 5.1.1, pages 5-1 to 5-3 examines the project and its consistency with the Hawaii State Planning Act, HRS Chapter 226. OP acknowledges that the following statutes found in HRS Chapter 226 are applicable to this project:

- HRS § 226-8 Objective and Policies for the Economy – Visitor Industry;
- HRS § 226-11 Objectives and Policies for the Physical Environment – Land Based, Shoreline and Marine Resources;
- HRS § 226-14 Objective and Policy for Facility Systems – In General;
- HRS § 226-17 Objectives and Policies for Facility Systems – Transportation;
- HRS § 226-103 Economic Priority Guidelines; and
- HRS § 226-104 Population Growth and Land Resources Priority Guidelines.

P.3-6

This evaluation does not include an examination of any applicable State Functional Plans listed in Part II – Planning Coordination and Implementation, nor any of the remaining statutes in Parts I and III of the Hawaii State Planning Act.

The Final Environmental Assessment (Final EA) should include an analysis with discussion on the project's ability to meet all parts of HRS Chapter 226, examine the project's consistency with these statutes, or clarify where it is in conflict. If the applicant deems the remaining statutes in HRS Chapter 226 are not applicable to this project, the Final EA should affirmatively state such determination followed by discussion paragraphs.

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

P.3-7

Responses to Comment Letter P-3

Response P.3-1

Thank you for your participation in the Environmental Assessment for the Lihue Airport Runway 3-21 Runway Safety Area (RSA) Improvements project. This letter is in response to your comments dated August 30, 2016, provided during the project scoping and your comments dated September 29, 2017, on the Draft EA received by the Hawaii Department of Transportation - Airports Division.

Response P.3-2

The project team acknowledges your comments during the Early Consultation phase of the project. Pursuant to Hawaii Administrative Rules (HAR) §11-200-10(4), the EA for the Proposed Action provided an analysis of the project's potential impact on a number of environmental, social, economic, and infrastructure factors.

Response P.3-3

The project team acknowledges your scoping letter comment and note that applicable Special Management Area (SMA) permitting requirements will be coordinated with the County of Kauai Department of Planning. Per your comment on the Draft EA, corrections will be made in the Final EA to note that the County of Kauai is the issuing agency for the SMA permit.

Response P.3-4

The project team confirms that the U.S. Army Corps of Engineers (USACE) is responsible for determining whether a project affects a Water of the U.S. A Wetlands and Waters of the U.S. Analysis Study was conducted and concluded that the project area does not contain any wetlands, nor does it contain any Waters of the U.S. This study will be included in the EA.

Response P.3-5

The project team acknowledges your confirmation of the analysis of visual and light emission impacts contained in the Draft EA.

Response P.3-6

The EA examined the project and its consistency with the Hawaii State Planning Act (Hawaii Revised Statutes (HRS), Chapter 226). It is noted, however, that per your letter dated September 29, 2017 providing comments on the Draft EA, the analysis of the Hawaii State Planning Act does not include an examination of any applicable State Functional Plans, nor any of the remaining statutes in Parts I and III of the Hawaii State Planning Act. As such, the Final EA includes an analysis of the Proposed Action's applicability with the State Functional Plans, as well as with Parts I and III of the Hawaii State Planning Act.

Response P.3-7

The comment is noted; no response is required.

Comment Letter P-4
Page 1 of 2

PHONE (808) 594-1888

FAX (808) 594-1938

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
560 N. NIMITZ HWY., SUITE 200
HONOLULU, HAWAI'I 96817

HRD17-0932G

September 22, 2017

Airports Division, Hawai'i Department of Transportation
Attention: Airports Planning
400 Rodgers Boulevard, 7th Floor
Honolulu, Hawai'i 96819

Re: Comments on a Draft Environmental Assessment
Runway Safety Area Improvements for Runway 3-21
Kalapakī Ahupua'a, Puna Moku, Kaua'i Mokupuni
Tax Map Key: (4) 3-5-001-008

Aloha e Airports Planning:

The Office of Hawaiian Affairs (OHA) is in receipt of your August 21, 2017 letter seeking comments on a draft environmental assessment (DEA) project for runway safety area (RSA) improvements to runway 3-21 at the Līhu'e Airport, Kaua'i. According to your letter, the project will improve the airport's RSA and comply with the Federal Aviation Administration (FAA) design standards. The DEA has been prepared in accordance with the Hawai'i Environmental Policy Act and the National Environmental Policy Act. The area of potential effects (APE) is depicted in exhibit 2 of the DEA.

To meet FAA design standards, the RSA should be 500 feet wide, have a minimum of 1,000 feet beyond the runway end for departures and 600 feet prior to the runway threshold for arrivals. At this time, Runway 3 meets the FAA RSA design standards at the Runway 3 end. However, because of the proximity to the coastal area and ocean, runway 21 falls short of 855 feet on the northeast end failing to meet the RSA for departures. The arrival threshold is 250 feet short of meeting the FAA standards. The improvements proposed include:

- Shifting the Runway 3 end 855 feet to the southwest, Construction of a 200-foot blast pad;
- Construction of a taxiway extension to the new Runway 3 end;
- Construction of a retaining wall beyond the Runway 3 end;

P.4-1

Comment Letter P-4
Page 2 of 2

Airports Planning, DOT
September 21, 2017
Page 2

- Creation of a departure end of runway point, increasing the existing Runway 21displaced threshold from 205 feet to 455 feet in order to provide a 600-foot arrival runway safety area to Runway 21; and
- Construction of a retaining wall along the roadway beyond Runway 21 end.

The project implements the FAA's mission to ensure the safe and efficient use of navigable airspace in the United States. P.4-1

According to the DEA, there are several historical sites in the project area. These include Ahukini Heiau (State Site 50-30-11-00101) and Ninini Heiau, (State Site 50-30-11-00100). Ninini Heiau was once located near the Nāwiliwili lighthouse of Runway 17-35, Ahukini Heiau was located in the same runway area on the northeastern shoreline. The DEA states, during an archaeological survey, a single previously unrecorded historic property (SIHP #50-30-08-3958) from the plantation era, was identified northeast of the existing Runway 3-21. Other historic sites within the area of Ahukini Heiau include, Kalapakī old wall remnant (State Site 50-30-11-00423 and 50-30-11-00422) and Kalapakī shell midden scatter (50-30-11-00100). Given the previous extensive historic sites mentioned above, there may still be significant sub-surface cultural resources still present, and the sacredness of the site of the heiau is still very significant and important to the Native Hawaiian people even without the formal structure remaining. OHA urges the utmost care be taken in all of these sensitive areas and recommend that archaeological monitoring be conducted during any excavation associated with project construction. P.4-2

Mahalo for the opportunity to provide comments and we look forward to reviewing the environmental assessment. Should you have any questions, please contact Kathryn Keala at (808) 594-0272 or kathyk@oha.org.

'O wau iho nō me ka 'oia 'i'o,

Kamana'opono M. Crabbe, Ph.D.
Ka Pouhana, Chief Executive Officer

KC:kk

C: Kaliko Santos - Kaua'i Community Outreach Coordinator (via email)

**Please address replies and similar, future correspondence to our agency:*
Dr. Kamana'opono Crabbe
Attn: OHA Compliance Enforcement
560 N. Nimitz Hwy., Ste. 200
Honolulu, HI 96817

Responses to Comment Letter P-4

Response P.4-1

Thank you for your participation in the Environmental Assessment for the Lihue Airport Runway 3-21 Runway Safety Area (RSA) Improvements project. We acknowledge your comments dated February 13, 2017, during the project scoping, and your comments on the Draft EA dated September 22, 2017 received by the Hawaii Department of Transportation - Airports Division.

Response P.4-2

In response to your comment concerning several historical sites within the Area of Potential Effect (APE), no known historical, architectural, archeological, or cultural resources are located within the APE for the Proposed Action. Best management practices (BMPs) would be followed during construction in order to minimize any potential impact in the event unanticipated resources are discovered during construction. While the BMPs do not stipulate for on-site archaeological monitoring during construction, the BMPs set a plan in place should any resources be discovered. These BMPs include the following:

- In the event an unanticipated discovery of previously unidentified archeological resources is made during construction of the Proposed Action Alternative, the FAA and the HDOT-A will require the construction activities in the vicinity of the discovery to stop, and take all reasonable measures to avoid or minimize harm to the property until the FAA and the HDOT-A conclude consultation with the State Historic Preservation Division (SHPD).

Comment Letter S-1
Page 1 of 3

The Senate
Office of the President

STATE CAPITOL
HONOLULU, HAWAII 96813

September 2, 2016

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

Re: Environmental Assessment (EA) for Runway Safety Are (RSA)
Improvements for Runway 3-21 Lihue Airport, Island of Kauai, Hawaii

Please accept these comments regarding the above-referenced EA, in support of the long term alternative solution of "No-Action" with regard to the Lihue Airport RSA, as this long term alternative solution is the only option that properly addresses economical, ecological, and logistical issues for the island of Kauai and the State of Hawaii.

This matter was initially addressed as the Federal Aviation Administration (FAA) required a short term solution to the Lihue Airport RSA in 2015. Via letter dated December 2, 2016, to Eduardo A. Angeles, Associate Administrator for Airports, FAA, request was made for a "determination of impracticality" for the proposed short term recommendation for the Lihue Airport RSA, allowing the Lihue Airport to continue operations status quo – pending implementation of a long term solution. All stake holders agreed that the status quo short term solution was the only viable option that would not severely restrict airline payloads that would be detrimental to our island and state economy.

On December 31, 2015, the FAA issued its "determination of impracticality", keeping the status quo while attempting to address a long term solution. In the "determination of impracticality", the FAA stated "the existing RSA does not meet current standards and is not practicable to improve." This "determination of impracticality" exists with regard to the proposed long term solution and all alternatives other than the "No Action" alternative and the status quo should be the long term solution for the Lihue Airport RSA. S.1-1

The proposed long term solution for the RSA adds an 855 foot displaced threshold and a 200-foot blast zone on to beginning of Runway 3 (R3). As outlined in FAA Memorandum dated September 27, 2012, RE: *Interim Guidance on Land Uses Within a Runway Protection Zone*, the resulting additional 1055 feet of construction to R3/21 will change the approach and departure protection zone necessitating additional action and consultation by the FAA Regional and Airport District Office (ADO) with the National Airport Planning and Environmental Division, as the land adjacent to LIH is occupied by multiple commercial/industrial buildings, the Kauai Lagoons Golf Course, and a County of Kauai sewage treatment plant.

OFFICE OF SENATE PRESIDENT RONALD D. KOUCHI
415 South Beretania Street, Room 409 | Honolulu, Hawai'i 96813
Tel: (808) 586-6030 | Fax: (808) 586-6031 | Email: senkouchi@capitol.hawaii.gov

Comment Letter S-1
Page 2 of 3

Herman Tuiolosega
September 2, 2016
Page 3 of 3

With regard to Runway 21 (R21) and the addition of the 455-foot displaced threshold; this addition would reduce the runway length of R3/21 from 6,500 feet to 6,045 feet. A reduction in runway length will require a similar reduction in plane weight and aircraft type, decreased load capacity, decreased revenue for the airline industry, and decreased revenue for Kauai's primary economic driver. Furthermore, construction of the displaced threshold, stop way and retaining wall to support the addition, will require expansion of the current airport footprint. Acquisition of the parcel of land in question and creation of the retaining wall would directly affect the publics' ability to access the beaches and shoreline in this area as required by Hawaii Revised Statues (HRS) §115, sections 1-5.

The alternative proposed solutions and their respective implementation(s) raise identical problems and concerns as outlined above for the proposed RSA. Additions to the beginning of R3 will still change its approach and departure protection zone and will necessitate additional action and consultation by the FAA-ADO with the National Airport Planning and Environmental Division. Likewise, condemnation of land for the additions to R21 will be unduly costly and public access to the beach and shoreline. The addition of the Engineered Material Arresting System (EMAS) included in the alternative proposed solutions. While the FAA has identified the EMAS system to be effective in safely and efficiently bringing an aircraft to a complete stop in a relatively short linear distance with minimal or no damage to the aircraft, and minimal to no injuries to passengers and crew, the FAA has also acknowledged that an EMAS installation is cost prohibitive and therefore impractical for may airports and their respective jurisdictions, such as Lihue Airport. S.1-1

The island of Kauai has some 70,000 residents. Annually, about 1.1 million visitors and tourists fly into and out of, Lihue Airport. Tourism is Kauai's primary economic engine and any adverse components to air travel to and from Kauai will cause extremely negative domino effects to the economy. Tourists and Hawaii State and Kauai residents depend solely upon flying through Lihue Airport for travel to and from Kauai. Many residents commute on a daily basis as a part of their jobs. I am informed by stake holders that if any proposal other than the "No Action" alternative is implemented, gravely negative impacts will occur in the form of decreased airline passengers, airline reservation cancellations due to reduced airplane payloads, and safety risks impacting future flight schedules serving the island due to unfavorable wind and crosswind components.

Consideration must be given to non-aviation factors that are equally daunting to adopting any proposed long term solution other than the "No Action" alternative, including permitting and land use issues and roadblocks, environmental and condemnation litigation, and the cost prohibitive nature of this project.

Comment Letter S-1
Page 3 of 3

Herman Tuiolosega
September 2, 2016
Page 3 of 3

Thank you for your time and consideration in this matter. Should you have any questions with regard to the foregoing, please do not hesitate to contact this office.

Sincerely,

RONALD D. KOUCHI
Senate President
Senator – 8th Senatorial District, Kauai & Niihau

cc: Ms. Ura Quoniou-Yvan, Ricondo & Associates, Inc.
Mr. Ford Fuchigami, Director – Hawaii Department of Transportation

Responses to Comment Letter S-1

Response S.1-1

Thank you for your participation in the Environmental Assessment for the Lihue Airport Runway 3-21 Runway Safety Area (RSA) Improvements project. This letter is in response to your comments dated September 2, 2016, provided during project scoping and received by the Hawaii Department of Transportation - Airports Division.

As discussed in Section 1.2.3 of the Draft Environmental Assessment (EA), the 2016 RSA Study was conducted by the Hawaii Department of Transportation Airports Division (HDOT-A). At the onset of the 2016 RSA Study, the FAA acknowledged that full compliance with RSA standards may not be practicable. The FAA added that although full compliance is not expected, incremental improvements of the safety areas can be implemented in the short-term. The 2016 RSA Study produced a set of refined alternatives, discussed in Section 2.3 of the Draft EA. As a result of the 2016 RSA Study and the alternatives analysis in Chapter 2 and Appendix B of the EA, Alternative 1, Refinement 3 was selected as the Proposed Action. This alternative was reviewed and approved by the FAA and airline operators at LIH. This alternative would also maintain access to the adjacent beaches and shoreline areas.

Comment Letter S-2
Page 1 of 2

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

RECEIVED SEP 19 2016

In Reply Refer To:
01EPIF00-2016-TA-0460

SEP 07 2016

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

Subject: Pre-consultation for Draft Environmental Assessment for Runway Safety Area Improvements, Lihue Airport, Kauai

Dear Mr. Tuiolosega:

The U.S. Fish and Wildlife Service (Service) received your letter, dated August 4, 2016, requesting our comments on the proposed Runway Safety Area (RSA) improvements to Runway 3-21 at Lihue Airport on the island of Kauai, as a pre-consultation for the associated draft Environmental Assessment (EA). The State of Hawaii, Department of Transportation, Airports Division (HDOT-A) proposes to construct an RSA that is in compliance with Federal Aviation Administration (FAA) design standards. The EA will study RSA practical improvements, alternatives, and impacts. The following comments are in accordance with the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C 1531 *et seq.*).

We reviewed the information you provided and pertinent information in our files, including data compiled by the Hawaii Biodiversity and Mapping Program, as it pertains to federally listed species and designated critical habitat. The following species are known to occur or transit through the proposed project area: the endangered Hawaiian goose (*Branta sandvicensis*); the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*); the endangered Hawaiian stilt (*Himantopus mexicanus knudseni*), Hawaiian moorhen (*Gallinula chloropus sandvicensis*), Hawaiian coot (*Fulica alai*), Hawaiian duck (*Anas wyvilliana*) (hereafter collectively referred to as Hawaiian waterbirds), and the endangered Hawaiian petrel (*Pterodroma sandwichensis*), the threatened Newell's shearwater (*Puffinus auricularis newelli*), and a species proposed for listing the band-rumped storm-petrel (*Oceanodroma castro*) (hereafter collectively referred to as seabirds). There is no designated critical habitat within the vicinity of the proposed project area. S.2-1

To aid in the drafting of your EA we provide the following recommendations to avoid and minimize project impacts to listed species and species proposed for listing. Our recommendations are provided separate from technical assistance regarding impacts to threatened and endangered species from hazing and other airport operations. We understand

Comment Letter S-2
Page 2 of 2

FAA is consulting with the Service on updates to the Wildlife Hazard Assessments and Wildlife Hazard Management Plans for Hawaii Airports. S.2-1

Hawaiian Goose and Hawaiian Waterbirds
A biological monitor(s) should be present on the project site during all construction or earth moving activities to ensure that Hawaiian geese and Hawaiian waterbirds are not adversely impacted. If a listed Hawaiian waterbird is observed within the project site, or flies into the site while activities are occurring, the biological monitor should halt all activities within 100 feet of the individual(s). Work should not resume until the Hawaiian waterbird(s) leave the area on their own accord. S.2-2

Hawaiian Hoary Bat
Hawaiian Hoary bats forage for insects from as low as three feet to higher than 500 feet above the ground. When barbed wire is used for fencing, Hawaiian hoary bats can become entangled. Barbed wire should not be used for fencing as part of the proposed project. S.2-3

Seabirds
Seabirds, including the Newell's shearwater, Hawaiian petrel, and band-rumped storm petrel fly at night and are attracted to artificially-lighted areas resulting in disorientation and subsequent fallout due to exhaustion. Seabirds are also susceptible to collision with objects that protrude above the vegetation layer, such as utility lines, guy-wires, and communication towers. Additionally, once grounded, they are vulnerable to predators and are often struck by vehicles along roadways. To reduce potential impacts to seabirds, construction activities should only occur during daylight hours. Any increase in the use of nighttime lighting, particularly during peak fallout period (September 15 through December 15), could result in additional seabird injury or mortality. If lights cannot be eliminated due to safety or security concerns, then they should be positioned low to the ground, be motion-triggered, and be shielded and/or full cut-off. Effective light shields should be completely opaque, sufficiently large, and positioned so that the bulb is only visible from below. S.2-4

Your draft EA should examine all potential impacts to listed species that may occur as a result of construction of RSA improvements and outline conservation measures to minimize these impacts. We appreciate your efforts to conserve endangered species. Please contact Adam Griesemer, Endangered Species Biologist (phone: 808-285-8261, email: adam_griesemer@fws.gov) should you have any questions pertaining to this response. S.2-5

Sincerely,

Aaron Nadig
Island Team Manager
Oahu, Kauai, Northwestern Hawaiian Islands, and American Samoa

cc: Ms. Ura Quoniou-Yvan, Ricondo & Associates, Inc.

Responses to Comment Letter S-2

Response S.2-1

Thank you for your participation in the Environmental Assessment for the Lihue Airport Runway 3-21 Runway Safety Area (RSA) Improvements project. This letter is in response to your comments dated September 19, 2016, provided during project scoping and received by the Hawaii Department of Transportation - Airports Division.

Response S.2-2

LIH property is subject to daily routine patrols by certified airport wildlife biologists. Biologists are trained in approved methods of wildlife dispersal, established by the Airport's Wildlife Hazard Management Plan (WHMP), and would be onsite to ensure proper WHMP procedure is followed. The WHMP contains specific measures developed in consultation with the USFWS, with regard to endangered and threatened species, and was developed to minimize impacts to wildlife while ensuring the safety of Airport operations.

Response S.2-3

The project team acknowledges your comment regarding Hawaiian hoary bats. On site fauna surveys were conducted in 2016. A special effort was made to detect any occurrence of the federally endangered Hawaiian hoary bat by conducting an evening survey in the area. No Hawaiian hoary bats were detected during site surveys, but they are known to occur on Kauai. Existing security fencing at LIH utilizes barbed wire for security purposes. However, no known recorded takes of Hawaiian hoary bats have occurred at LIH. The EA documents the 2016 Biological Resources Study for the Proposed Project, and examines the known habitats and occupancy of flora and fauna within the Study Area. The ground disturbance area of the Study Area is devoid of trees, minimizing the roosting habitat for bats on Airport property, and no hoary bats were discovered during the survey.

Response S.2-4

Per the concern for the potential impact of lights on seabirds, construction lighting recommendations have been incorporated into mitigation measures for the Proposed Action. Construction activities are recommended to occur solely during daylight hours. If construction must occur during nighttime hours, the advised mitigation methods would be employed to minimize light exposure to sensitive wildlife. Construction lighting plans would be reviewed to ensure lighting is shielded and focused to eliminate unnecessary light spillover and glare. Lighting would be positioned low to the ground and would be shielded and/or cut-off. Finally, nighttime construction and lighting would be minimized during the fledging period of September 15 through December 15 for the Newell species.

Response S.2-5

The comment is noted. The EA discusses the potential impacts to biological resources due to construction, as well as the mitigation measures to be employed to minimize impact to wildlife present in and surrounding the Study Area.

Comment Letter S-3
Page 1 of 4

OFFICE OF PLANNING
STATE OF HAWAII

DAVID Y. IGE
GOVERNOR

LEO R. ASUNCION
DIRECTOR
OFFICE OF PLANNING

235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
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Telephone: (808) 587-2846
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Ref. No. P-15286

RECEIVED SEP 19 2016

August 30, 2016

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

From: Leo R. Asuncion, Director

Attention: Herman Tuiolosega, Head Planner
Airports Division

Subject: Pre-Draft Environmental Assessment – Runway Safety Area for Runway 3-21, Lihue Airport, Island of Kauai

Thank you for the opportunity to provide comments on the Pre-Draft Environmental Assessment for the Runway Safety Area (RSA) for Runway 3-21, Lihue Airport. The Pre-Draft review material was transmitted to our office via letter dated August 1, 2016.

It is our understanding that the State of Hawaii, Department of Transportation, Airports Division is preparing a Draft Environmental Assessment (Draft EA) proposing improvements to Runway 3-21 at Lihue Airport to comply with Federal Aviation Administration (FAA) design standards. The purpose of this project is to construct a RSA that meets safety standards set forth by FAA Advisory Circular 150/5300-13A. S.3-1

The Office of Planning (OP) has reviewed the transmitted material and has the following comments to offer:

1. Pursuant to Hawaii Administrative Rules (HAR) § 11-200-10(4) – general description of the action's technical, economic, social, and environmental characteristics; this project must demonstrate that it is consistent with a number of state environmental, social, economic goals, and policies for land use. Hawaii Revised Statutes (HRS) Chapter 226, the Hawaii State Planning Act (Hawaii State Plan), provides goals, objectives, policies, and priority guidelines for growth, development, and the allocation of resources throughout the state in areas of state interest. These include, but are not limited to, the economy, agriculture, the visitor industry, federal expenditure, the physical environment, facility systems, socio-cultural advancement, climate change adaptation, and sustainability. S.3-2

   The Draft EA should include analysis that addresses whether the proposed project conforms to or is in conflict with the goals, objectives, policies, and priority guidelines listed in the Hawaii State Plan. This analysis should address the project's consistency with HRS Chapter 226 in its entirety. If any of the themes listed within

Comment Letter S-3
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Mr. Ford Fuchigami
August 30, 2016
Page 2

the Hawaii State Plan are not applicable, the Draft EA should state that they are "not applicable." The most efficient method is summarizing these in tabular form, followed by discussion of the passages. S.3-2

2. The coastal zone management area is defined as "all lands of the State and the area extending seaward from the shoreline to the limit of the State's police power and management authority, including the U.S. territorial sea" (see HRS § 205A-1, definition of "coastal zone management area").

   HRS Chapter 205A requires all state and county agencies to enforce the coastal zone management (CZM) objectives and policies. The Draft EA should include an assessment as to how the proposed project conforms to the CZM objectives and its supporting policies set forth in HRS § 205A-2, which is an important component for satisfying the requirements of HRS Chapter 343. S.3-3

3. It is noted that proposed actions along the makai end of Runway 3-21 may fall within the Special Management Area (SMA) boundary delineated by the County of Kauai, Department of Planning. Therefore, this project may be subject to the requirements for SMA permitting. Please consult with the Department of Planning on the need for an SMA permit. S.3-4

4. The Draft EA should provide a list of any federal, state, or county permits required for this project. A listing of required permits will allow OP to verify the project's potential impact on plans, policies, and programs that fall under our jurisdiction (e.g., Federal Consistency). S.3-5

5. Pursuant to HAR § 11-200-10(6) – the identification and summary of impacts and alternatives considered; in order to ensure that the natural resources of Kauai remain protected, the negative effects of stormwater runoff originating from human land-based activities should be evaluated. The Draft EA should summarize the potential impact to nearshore marine resources and actions proposed to ensure the coastal ecosystem is protected and potential hazards mitigated. Issues that should be examined in the Draft EA include, but are not limited to, land use classification and density, hydrologic resources (wetlands, perennial streams, and channels) in the area, tsunami inundation risks, and current erosion controls in place for flood prone areas. These items, as well as the marine water quality classification, should be considered when developing mitigation measures to protect the coastal ecosystem. S.3-6

6. The review material, and maps available to OP, indicate that the Lihue Airport and its runways are aligned with close proximity to the coastline. The Draft EA should S.3-7

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Page 3 of 4

Mr. Ford Fuchigami
August 30, 2016
Page 3

examine the proposed project's cumulative impact on coastal resources from polluted runoff and sediment loss. It should examine the natural processes of the land such as water resources, topographic contours, open spaces, vegetated and hardened land surfaces, soil absorption rates, the connecting non-permeable airport service roadways, and any existing drainage infrastructure that may connect the airport area to the coastline and vulnerable nearshore marine resources. Additionally, due to the runway's close proximity to the coastline, the Draft EA should consider issues such as sea-level rise and coastal erosion impacts on the runway complex. S.3-7

Since this project may involve rebuilding a portion of the airport tarmac and runway, if not in conflict with FAA safety design standards, please consider the use of permeable surfaces and vegetated filter to treat the water in place, rather than allow the rainfall to flow into storm drains or pond within the airport facilities. Permeable surfaces may allow rainfall to be filtered on site, rather than to sheet flow offsite and ultimately inundate the nearby marine resources. S.3-8

OP has a number of resources available to assist in the development of projects which ensure sediment and stormwater control on land, thus protecting the nearshore environment. OP recommends consulting these guidance documents and stormwater evaluative tools when developing strategies to address polluted runoff. They offer useful techniques to keep soil and sediment in place and prevent contaminating nearshore waters, while considering the practices best suited for each project. The evaluative tools that are available to be used during the design process include: S.3-9

- Hawaii Watershed Guidance provides direction on site-appropriate methods to safeguard Hawaii's watersheds and implement watershed plans http://files.hawaii.gov/dbedt/op/czm/initiative/nonpoint/HI Watershed Guidance Final.pdf

- Stormwater Impact Assessments can be used to identify and evaluate information on hydrology, stressors, sensitivity of aquatic and riparian resources, and management measures to control runoff, as well as consider secondary and cumulative impacts to the area http://files.hawaii.gov/dbedt/op/czm/initiative/stormwater_imapct/final_storm water_impact_assessments_guidance.pdf

- Low Impact Development (LID), A Practitioners Guide covers a range of structural best management practices for stormwater control management that minimizes flooding and mitigates stormwater runoff environmental impacts

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August 30, 2016
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http://files.hawaii.gov/dbedt/op/czm/initiative/lid/lid_guide_2006.pdf

If you have any questions regarding this comment letter, please contact Joshua Hekekia of our office at (808) 587-2845. S.3-9

c: Ms. Ura Quoniou-Yvan, Ricondo & Associates, Inc. ✓

Responses to Comment Letter S-3

Response S.3-1

Thank you for your participation in the Environmental Assessment for the Lihue Airport Runway 3-21 Runway Safety Area (RSA) Improvements project. This letter is in response to comments dated August 30, 2016, provided by your office during the project scoping and your comments dated September 29, 2017, on the Draft EA received by the Hawaii Department of Transportation - Airports Division.

Response S.3-2

Pursuant to Hawaii Administrative Rules (HAR) §11-200-10(4), the EA prepared for the Proposed Action provided an analysis of the project's potential impact on a number of environmental, social, economic, and infrastructure factors.

In addition, the EA examined the project and its consistency with the Hawaii State Planning Act (Hawaii Revised Statutes (HRS), Chapter 226). It is noted, however, that per your letter dated September 29, 2017 providing comments on the Draft EA, the analysis of the Hawaii State Planning Act does not include an examination of any applicable State Functional Plans, nor any of the remaining statutes in Parts I and III of the Hawaii State Planning Act. As such, the Final EA includes an analysis of the Proposed Action's applicability with the State Functional Plans, as well as with Parts I and III of the Hawaii State Planning Act.

Response S.3-3

Per your scoping comments regarding the coastal zone management area, an analysis addressing potential significant coastal resources with regard to consistency with the State's Coastal Zone Management objectives and policies provided in HRS, Chapter 205-A will be included in the Final EA.

Response S.3-4

We acknowledge your scoping letter comment and note that applicable Special Management Area (SMA) permitting requirements will be coordinated with the County of Kauai Department of Planning, who is the authority responsible for issuing SMA permits on Kauai.

Response S.3-5

Your comment regarding permits required will be addressed in the Final EA, which will list all Federal, State, and County permits and approvals required for implementation of the proposed project.

Response S.3-6

As identified in your scoping letter, pursuant to HAR §11-200-10(6), the EA identifies potential impacts that may result from implementation of the Proposed Action, and advances mitigation measures aimed at reducing or eliminating such impacts. Specifically, the EA examines such issues as Air and Noise Quality; Biological Resources; Climate; Coastal Resources; Farmlands; Hazardous Materials, Solid Waste, and Pollution Prevention; Historical, Architectural, Archaeological and Cultural Resources; Land Use; Water Resources; Natural Resources and Energy Supply; Visual Effects; and Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks.

Response S.3-7

The EA examines potential impacts on coastal resources including polluted runoff and sediment loss. However, applicable Best Management Practices (BMPs) and erosion-control measures would be implemented to mitigate runoff during construction related activities. Furthermore, the watershed, stormwater impact, and Low Impact Development (LID) guidelines provided by the Office of Planning will be utilized as resources during the design phase of the project. The EA will provide an in-depth discussion on the Proposed Action's potential effects on coastal ecosystems and mitigation measures. In addition, the coastal area adjacent to the Study Area consists of coral bluffs without significant elevation changes. As such, sea level rise is not anticipated to negatively impact the area of the Proposed Action.

Response S.3-8

In terms of the use of permeable surfaces and vegetated filters, the Proposed Action involves improvements to the existing runway safety area at Lihue Airport which are expected to allow the runway to meet the Federal Aviation Administration's (FAA) standards for safety and efficiency at U.S. airports. As the Proposed Action aims to bring the Lihue Airport in compliance with FAA standards, the construction materials and design will meet standards set by the FAA. Runway and taxiway pavement design and permeability would be addressed during the design phase of the project consistent with FAA Advisory Circular 150/5320-6E, *Airport Pavement Design and Evaluation*.[2]

Response S.3-9

The project team acknowledges the Office of Planning's resources available and the Office of Planning's watershed, stormwater impact, and LID guidelines will be utilized as resources during the design phase of the project to ensure that the project employs stormwater and sediment controls to protect the nearshore environment.

[2] U.S. Department of Transportation, Federal Aviation Administration, *Advisory Circular 150/5320-6E, Airport Pavement Design and Evaluation*, September 30, 2009.

Comment Letter S-4
Page 1 of 3

Federal Aviation Administration
Box 50244
Honolulu, HI 96850

Honolulu Airports District Office

September 01, 2016

TO:
Dept. of Tranportation, Airports Division
Attn: Lynette Kawaoka
400 Rodgers Blvd
Suite 700
Honolulu, HI 96819
lynette.kawaoka@hawaii.gov

CC:
Dennis Neves
Lihue Airport
HONOLULU, HI 96819
dennis.l.neves@hawaii.gov

CC:
Ricondo & Associates, Inc.
Attn: Uratua Quoniou
3239 Ualena Street
Third Floor
Honolulu, HI 96819
u_quoniou@ricondo.com

RE: *(See attached Table 1 for referenced case(s))*
FINAL DETERMINATION

Table 1 - Letter Referenced Case(s)

ASN	Prior ASN	Location	Latitude (NAD83)	Longitude (NAD83)	AGL (Feet)	AMSL (Feet)
2016-AWP-1890-NRA		LIHUE, HI	21-58-14.25N	159-21-04.65W	1	141
2016-AWP-1891-NRA		LIHUE, HI	21-58-16.47N	159-21-02.17W	1	160
2016-AWP-1892-NRA		LIHUE, HI	21-59-08.59N	159-20-06.27W	1	81
2016-AWP-1893-NRA		LIHUE, HI	21-59-09.01N	159-20-05.28W	1	76
2016-AWP-1894-NRA		LIHUE, HI	21-59-09.56N	159-20-05.22W	12	70

Description: The proposed Runway 3-21 Safety Area (RSA) improvements include: 1)Construct 855' of pavement resulting in a displaced Runway 3 end threshold, 2) Construct 200' blastpad beyond the Runway 3 end, 3) Construct taxiway extension to end of Runway 3 pavement, 4) relocate Runway 21 threshold, 5) Construct retaining wall along existing public road off the north end of Runway 21, and 6) Fill, compact, and grade RSA north end of Rwy 21 end. For purposes of the 7460, coordinates for 5 points of the proposed project are provided. The coordinates listed above are for point #1 (see attachment). S.4-1

We do not object with conditions to the construction described in this proposal provided:

You comply with the requirements set forth in FAA Advisory Circular 150/5370-2, "Operational Safety on Airports During Construction."

All work proposed for the RSA improvement will require proper coordination with LIH Airport Manager, FAA ATCT Manager, FAA HCF, FAA SSC prior to construction. The LIH Airport Manager shall ensure proper NOTAM issuance prior to construction. All equipment should be airspaced to ensure that they do not pose an obstruction hazard. S.4-2

Your proposal impacts the following National Airspace System (NAS) equipment:
This project involves several alterations to Runway 3/21 at Lihue Airport. During any periods of runway closure, it is standard FAA policy to secure (shut down) all associated visual landing aids (visaids). The purpose S.4-3

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of this policy is to minimize pilot risk of landing to a closed or altered runway by inadvertent use of inaccurate landing aids. This is advisable for non-FED facilities as well. The associated FED facilities include the Runway 21 PAPI and Runway 21 REIL. To schedule any necessary temporary outages for the FED facilities, please coordinate at least 30 days in advance with Rick Ambriz, Manager, Kauai System Support Center (SSC), at 808-245-6421, rick.ambriz@faa.gov. The associated non-FED facilities include the Runway 3 PAPI and Runway 3 REIL. To schedule any necessary temporary outages for the non-FED facilities, please coordinate at least 30 days in advance with Dennis L. Neves, Manager, Lihue Airport, at 808-274-3800.
Runway 21 landing threshold is to be relocated. Runway 21 PAPI and Runway 21 REIL will need to be either relocated and decommissioned, re-sited and flight checked in accordance with the siting criteria specified in FAA Order JO 6850.2B. In addition, NOTAMs to report current airfield and facility status must be issued and kept up to date. Any activities that block operational visaids on an open runway are not permitted. Consider use of a "Lighted/Flashing X" appropriately placed to provide visual notification of runway closure. Prior to commencement of any excavation, the proponent shall coordinate all project work in the vicinity of underground power utility and communication cables in advance, preferably a minimum of one week, with the SSC Manager and Local Airport Authority. S.4-3

The Airport sponsor shall notify the FAA's Air Traffic Organization (ATO) Planning and Requirements (P&R) Service Area office a minimum of 45 days prior to the "physical construction start date" for this project. Submit FAA Form entitled Airport Sponsor Strategic Event Submission Form including all date, time and/or duration changes via email to 9-AJV-SEC-WSA@faa.gov. S.4-4

A separate notice to the FAA is required for any construction equipment, such as temporary cranes, whose working limits would exceed the height and lateral dimensions of your proposal. S.4-5

This determination does not constitute FAA approval or disapproval of the physical development involved in the proposal. It is a determination with respect to the safe and efficient use of navigable airspace by aircraft and with respect to the safety of persons and property on the ground. S.4-6

In making this determination, the FAA has considered matters such as the effects the proposal would have on existing or planned traffic patterns of neighboring airports, the effects it would have on the existing airspace structure and projected programs of the FAA, the effects it would have on the safety of persons and property on the ground, and the effects that existing or proposed manmade objects (on file with the FAA), and known natural objects within the affected area would have on the airport proposal. S.4-7

When your Airport Layout Plan is updated, please include this new development. In the meantime, we will show this feature on your current ALP approved on July 13, 2011. S.4-8

This determination expires on March 1, 2018 unless:
(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for the completion of construction, or the date the FCC denies the application. S.4-9

NOTE: Request for extension of the effective period of this determination must be obtained at least 15 days prior to expiration date specified in this letter.

Comment Letter S-4
Page 3 of 3

If you have any questions concerning this determination contact Kandyce Watanabe (808) 312-6031 kandyce.watanabe@faa.gov. S.4-9

Kandyce Watanabe
ADO

Responses to Comment Letter S-4

Response S.4-1

Thank you for your participation in the Environmental Assessment for the Lihue Airport Runway 3-21 Runway Safety Area (RSA) Improvements project. This letter is in response to your comments dated September 1, 2016, provided during project scoping and received by the Hawaii Department of Transportation - Airports Division.

Response S.4-2

The State of Hawaii Department of Transportation – Airport Division (HDOT-A) will coordinate with the FAA Airport Traffic Control Tower (ATCT) Manager, Honolulu Control Facility (HCF), and System Support Center (SSC) prior to all construction activity to ensure proper safety measures and protocol are followed. A Notice to Airmen (NOTAM) will be issued to alert aircraft pilots of the pending construction, including visual landing aid (visaid) equipment relocation, decommission, or removal, as well as taxiway and runway closures that will occur at LIH during the proposed construction period. Finally, airspace analysis will be conducted to ensure proposed construction equipment poses no threats to the airspace and aircraft within the Project Area.

Response S.4-3

HDOT-A will maintain communication with the FAA prior to, and during, the proposed construction period. Nighttime closures of Runway 3-21 will be included in all NOTAM and the associated visaids will not operate during construction periods. HDOT-A will coordinate with Rick Ambriz, Manager, Kauai System Support Center (SSC) and Lihue Airport Manager throughout the temporary outages of Runway 3-21 visaids. Coordination with the SSC will ensure telecommunication cables and utility lines within the proposed project vicinity are protected and construction does not impact the existing infrastructure.

Response S.4-4

HDOT-A will notify the FAA's Air Traffic Organization Planning and Requirements Service Area office a minimum of 45 days prior to construction. RSA alterations may require the closure of Runway 3-21 during nighttime hours for the duration of construction.

Response S.4-5

No cranes are anticipated to be used during the proposed RSA improvements. If any construction equipment is anticipated to exceed working height limits, HDOT-A will submit an additional notice for approval.

Response S.4-6

We understand that the determination does not constitute FAA approval or disapproval of the proposed development. HDOT-A will take no action on RSA improvements prior to approval of this Environmental Assessment and the expressed written consent of the FAA.

Response S.4-7

The comment is noted; no response is required.

Response S.4-8

HDOT-A will ensure the proposed RSA improvements are depicted in future Airport Layout Plans for LIH.

Response S.4-9

RSA improvements are not anticipated to require licensing from the Federal Communications Commission.

Comment Letter S-5
Page 1 of 3

Bernard P. Carvalho, Jr.
Mayor

Wallace G. Rezentes, Jr.
Managing Director

OFFICE OF THE MAYOR
County of Kaua'i, State of Hawai'i
4444 Rice Street, Suite 235, Līhu'e, Hawai'i 96766
TEL (808) 241-4900 FAX (808) 241-6877

August 31, 2016

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

Subject: The Lihue Airport RSA Project

Dear Mr. Tuiolosega,

The County of Kauai is sending this communication to respond as a consulted party for the Environmental Assessment for Runway Safety Area (RSA) Improvements for Runway 3-21 Lihue Airport, Island of Kauai, Hawaii.

The following are comments which we would like to convey toward this project:

1. The County of Kauai Department of Parks and Recreation

Ahukini Coastal Park and Nawiliwili to Ahukini Landing Bike/Pedestrian Path

S.5-1

The County of Kauai would like bring awareness to the planned Ahukini Coastal Park and the Nawiliwili to Ahukini Landing Bike/Pedestrian Path. The Ahukini Coastal Park (Parcel TMK (4) 3-5-001:102) is planned to include passive park amenities such as picnic areas, scenic outlooks, and access road. The Nawiliwili to Ahukini Landing Bike/Pedestrian Path alignment is makai and separated from the public dirt road and currently under environmental review.

RSA Alternates 1, 2, 3 and 4 propose construction of a retaining wall at the north-east end of Runway 21 along the mauka edge of the public access road, which is to remain open according to DOT's information. Under Alt 5, Runway 21 improvements are mauka from the public dirt road and do not include construction of a retaining wall. Under all alternatives, the proposed

An Equal Opportunity Employer

Comment Letter S-5
Page 2 of 3

Mr. Herman Tuiolosega
State of Hawai'i – DOT, Airports Division
August 31, 2016
Page 2

improvements at the south-west end of Runway 3 do not extend into the Ahukini Coastal Park nor the proposed path alignment along the edge of the airport perimeter road. Therefore, there doesn't appear to be any physical encroachment on the park or proposed path improvements under any of the alternatives. S.5-1

Under all alternatives, the proposed extension of both ends of runway 3-21 will result in portions of the park and path alignment to fall within the Approach and Departure Runway Protection Zones (RPZ), including:

- a segment of the shoreline path, including two of the proposed bridge crossings over existing drainageways;
- a segment of the path along the airport perimeter road; and
- a segment of the path along Limo Road.

There is no alternative path alignment outside of the RPZ along the shoreline. On the south-west end of the runway, there is no practical alternative path alignment outside of the RPZ: a new path would have to be created across the golf course to avoid the RPZ.

2. The County of Kauai Department of Public Works Waste Water Division

Under all alternatives, the proposed extension of the south end of runway 3-21 will result in existing County Līhu'e Wastewater Treatment Plant (WWTP) facilities to fall within the Approach and Departure Runway Protection Zones (RPZ), including: S.5-2

- two existing concrete biotowers;
- two existing concrete anaerobic digesters;
- the plant electrical utility building; and
- other biosolids processing facilities.

There is no alternative that does not result in the Līhu'e WWTP being within the RPZ.

Per FAA Memorandum, Interim Guidance on Land Uses Within a RPZ (attached), wastewater treatment facilities and recreational land uses and transportation facilities, such as the County's proposed park and bicycle/pedestrian path, are uses which require FAA Regional and Airport District Office (ADO) staff to consult with the National Airport Planning and Environmental Division (NAPED) to determine measures that might be taken to mitigate risk to people and property on the ground.

Comment Letter S-5
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Mr. Herman Tuiolosega
State of Hawai'i – DOT, Airports Division
August 31, 2016
Page 3

The County requests the ADO staff to include the existing Līhu'e WWTP and the proposed park and bicycle/pedestrian path in their RPZ consultation with NAPED. The runway extension project could result in significant requirements for relocation of WWTP treatment facilities, along with requirements for project improvements to depress and/or protect the bicycle/pedestrian path through the RPZ, which would add to the bicycle/pedestrian path construction costs. S.5-2

Sincerely,

Lyle Tabata
Acting County Engineer

Leonard A. Rapozo, Jr.
Director, Department of Parks and Recreation

Responses to Comment Letter S-5

Response S.5-1

Thank you for your participation in the Environmental Assessment for the Lihue Airport Runway 3-21 Runway Safety Area (RSA) Improvements project. We are aware of the proposed Nawiliwili-Ahukini Shared-Use recreational path near the project site. The alignment of the proposed path alternatives will be outside areas impacted by construction and operation of the Proposed Action.

Response S.5-2

In regard to your concerns of the park, recreational paths, and County Lihue Wastewater Treatment Plant (WWTP) penetrations into the Runway Protection Zones (RPZ), HDOT-A is aware of the FAA memorandum, Interim Guidance on Land Uses Within a RPZ. HDOT-A coordinated with FAA on this issue during the Runway 3-21 Practicability Study and concluded a Safety Risk Management Assessment. The Proposed Action (Alternative 1 Refinement 3) would use a Departure End of Runway (DER) point in order to mitigate some of the Runway 3 end Runway Protection Zone (RPZ) penetrations.

Comment Letter S-6
Page 1 of 1

CONTRACTORS ASSOCIATION OF KAUA'I
4231 Ahukini Road • Lihu'e, Kaua'i, Hawai'i 96766
Phone: (808) 246-2662 • Fax: (808) 246-8642

August 26, 2016

Ms. Ura Quoniou-Yvan
Ricondo & Associates, Inc.
3239 Ualena Street, 3rd Floor
Honolulu, HI 96819

Dear Ura:

Thank you very much for taking time from a busy schedule to come to Kaua'i on Thursday to do a presentation for the Contractors Association of Kaua'i's (CAK) Board of Directors and some of our members.

The Board appreciated learning about this project and its necessity and probably urgency. Ura, at this time the CAK Board decided not to provide comments. However, the Board asked that I communicate with you about wanting the Association to be kept informed as the Environmental Assessment progresses. If comments or testimony is warranted further into the process, the Board will be willing to do that. We hope your company or Priscilla will keep CAK on your mailing list for this project. S.6-1

Thank you very much again for accepting our invitation to do a presentation on Thursday.

With Warm Regards,
CONTRACTORS ASSOCIATION OF KAUA'I

Karen Taketa
Executive Director

copy to: Joy Koerte, Fujita & Miura Public Relations

Responses to Comment Letter S-6

Response S.6-1

Thank you for your participation in the Environmental Assessment for the Lihue Airport Runway 3-21 Runway Safety Area (RSA) Improvements project. This letter acknowledges your comments dated August 26, 2016 provided during project scoping, and received by the Hawaii Department of Transportation - Airports Division.

Comment Letter S-7
Page 1 of 1

DIR 1149

Bernard P. Carvalho, Jr.
Mayor

Wallace G. Rezentes, Jr.
Managing Director

Michael A. Dahilig
Director of Planning

Ka'āina S. Hull
Deputy Director of Planning

PLANNING DEPARTMENT
County of Kaua'i, State of Hawai'i
4444 Rice Street, Suite A-473, Līhu'e, Hawai'i 96766
TEL (808) 241-4050 FAX (808) 241-6699

AUG 17 2016

2016 AUG 22 P 1:08
DIRECTOR'S OFFICE
DEPT. OF
TRANSPORTATION

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

RE: Environmental Assessment for Runway Safety Area Improvements
Lihue Airport, Kauai

Dear Mr. Fuchigami,

Based on the information submitted, the Planning Department has completed its review and assessment of the proposed development and offer the following comments:

1. The proposed improvements would be subject to the Special Management Area Rules and Regulations and could be considered "Development". A Special Management Area Permit Assessment form would be required to determine if the improvements would be considered a Special Management Area Minor Permit or a Special Management Area Use Permit. S.7-1

2. If the proposed improvements are within five hundred and fifty (550') of the shoreline, a Shoreline Setback Determination Application will also need to be submitted for review and approval. S.7-2

Should there be any questions regarding this matter, please contact Planner Jody Galinato at 241-4050.

Sincerely,

Michael A Dahilig
Planning Director

An Equal Opportunity Employer

V:\2017 Master FIles\Regulatory\SMA Permits\SMA Correspondence\Lihue Airport Expansion Comments.docx

Responses to Comment Letter S-7

Response S.7-1

As outlined in your comment letter, the Proposed Action is subject to the Special Management Area (SMA) Rules and Regulations and will go through the SMA permitting process.

Response S.7-2

We acknowledge that if the proposed improvements occur within the 550-foot shoreline setback, a Shoreline Setback Determination Application will be submitted for review by the County of Kauai Planning Department.

Comment Letter S-8
Page 1 of 1

EP 16-0121

DAVID Y. IGE
GOVERNOR

ARTHUR J. LOGAN
MAJOR GENERAL
ADJUTANT GENERAL

KENNETH S. HARA
BRIGADIER GENERAL
DEPUTY ADJUTANT GENERAL

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 DIAMOND HEAD ROAD
HONOLULU, HAWAII 96816-4495

August 23, 2016

Department of Transportation
Airports Division
State of Hawaii
400 Rodgers Boulevard, Suite 700
Honolulu, Hawaii 96819

Attention: Mr. Herman Tuiolosega

Subject: Environmental Assessment for Runway Safety Area (RSA) Improvements for Runway 3-21 Lihue Airport, Island of Kauai, Hawaii

Dear Mr. Tuiolosega:

Thank you for the opportunity to comment on the above project. The State of Hawaii Department of Defense has no comments to offer relative to the project. S.8-1

If you have any questions or concerns, please have your staff contact Mr. Lloyd Maki, Assistant Chief Engineering Officer at (808) 733-4250.

Sincerely,

Neal S. Mitsuyoshi, P.E.
Colonel, Hawaii National Guard
Chief Engineering Officer

c: Ms. Havinne Okamura, Hawaii Emergency Management Agency
Ms. Ura Quoniou-Yvan, Ricondo & Associates, Inc.

Responses to Comment Letter S-8

Response S.8-1

Thank you for your participation in the Environmental Assessment for the Lihue Airport Runway 3-21 Runway Safety Area (RSA) Improvements project. This letter acknowledges your comments dated August 23, 2016, provided during project scoping and received by the Hawaii Department of Transportation - Airports Division.

Comment Letter S-9
Page 1 of 2

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

'16 AUG 10 AM 11:37 ENGINEERING
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LAND DIVISION
2016 AUG 17 AM 11:17
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

August 8, 2016

MEMORANDUM

TO: **DLNR Agencies:**
X Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
X Office of Conservation & Coastal Lands
X Land Division – Kauai District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Environmental Assessment for Runway Safety Area (RSA) Improvements for Runway 3-21 Lihue Airport
LOCATION: Lihue Airport, Island of Kauai; TMK: (4) 3-5-001:008
APPLICANT: Department of Transportation, Airports Division

Transmitted for your review and comment is information on the above referenced project. We would appreciate your comments on this project. Please submit any comments by **August 29, 2016.**

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 Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed: _____

Print Name: Carty S. Chang, Chief Engineer
Date: 8/16/16

cc: Central Files

Comment Letter S-9
Page 2 of 2

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

To: Land Division
Ref: Environmental Assessment for the Runway Safety Area Improvements for Runway 3-21, Lihue Aiport, Kauai

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 or 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.hawaiinfip.org/FHAT).

National Flood Insurance Program establishes the rules and regulations of the NFIP - Title 44 of the Code of Federal Regulations (44CFR). The NFIP Zone X is a designation where there is no perceived flood impact. Therefore, the NFIP does not regulate any development within a Zone X designation.

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: S.9-1

- Oahu: City and County of Honolulu, Department of Planning and Permitting (808) 768-8098.
- Hawaii Island: County of Hawaii, Department of Public Works (808) 961-8327
- Maui/Molokai/Lanai County of Maui, Department of Planning (808) 270-7253.
- 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. S.9-2

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: 8/26/16

Responses to Comment Letter S-9

Response S.9-1

The analysis for potential for flood hazards has been incorporated into the assessment of the proposed project. The majority of the Study Area is located within FEMA Zone X, with a small portion of the southern boundary located within Zone AE, as well as portions along the coast that fall within Zone VE. The ground disturbance portion of the project Study Area would be entirely within FEMA FIRM Zone X, outside the 100-year flood zone. Construction and operation of the Proposed Action would have no adverse effects or alter existing floodplains.

Response S.9-2

Implementation of the Proposed Action is not anticipated to increase water demands beyond existing conditions. Minor water demands may be necessary during construction; however, this demand would be temporary in nature. Any water demands for construction will be calculated and reported to the Engineering Division during construction phasing activities.

PHONE (808) 594-1888

FAX (808) 594-1938

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
560 N. NIMITZ HWY., SUITE 200
HONOLULU, HAWAI'I 96817

HRD17-0932E

February 13, 2017

Gordon K. Wong
Acting Manager, Airports District Office
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 50244
Honolulu, HI 96850-0001

Re: Preparation for an Environmental Assessment
Līhu'e Airport, Runway Safety Area Improvments for Runway 3-21
Kalapakī Ahupua'a, Puna Moku, Kaua'i Mokupuni
Tax Map Key: (4) 3-5-001:008

Aloha e Gordon K. Wong:

The Office of Hawaiian Affairs (OHA) is in receipt of your January 6, 2017 letter, for the preparation of an environmental assessment (EA), seeking comments for the proposed Runway Safety Area (project) improvements to runway 3-21 at Līhu'e Airport. According to your letter, the project proposes to improve the airport's runway safety areas and comply with the Federal Aviation Administration (FAA) design standards under the National Environmental Policy Act and the State of Hawai'i requirements under the Hawai'i Environmental Protection Act.

The purpose of this project will improve the safety of runway 3-21. Currently the project area should be 500 feet wide, have a minimum of 1,000 feet beyond the runway end for departures and 600 feet prior to the runway threshold for arrivals. At this time, Runway 3 meets Runway Safety Area FAA design standards however, because of the proximity to the coastal area and ocean, runway 21 falls short of 855 feet on the northeast end therefore failing to meet the RSA for departures. The arrival threshold is 250 feet short of meeting the FAA standard. S.10-1

The final environmental impact statement noted in the cultural impact assessment (CIA) dated November 2007; several historical sites were identified in the project area. Our records confirmed some of these sites include Kalapakī old wall remnant (State Site 50-30-11-00423 and S.10-2

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MAR - 7 2017
HONOLULU
AIRPORTS DISTRICT OFFICE

Gordon K. Wong – Acting Manager
February 13, 2017
Page 2

50-30-11-00422), Kalapakī shell midden scatter (50-30-11-00421), Ahukini Heiau (State Site 50-30-11-00101), and Ninini Heiau (State Site 50-30-11-00100). State Site 50-30-11-00100 is located near the site of the Nāwiliwili lighthouse on the bluff and according the final environmental impact statement report, 4.3 CIA, Ninini Heiau is located on the airport property, outside of the action area. Given the previous extensive historic sites mentioned above, all sites have been destroyed and only remnants or fragments remain, therefore, OHA urges the utmost care be taken in all of these sensitive areas.

OHA will rely on the project's plan to continue consultation with, and seek the input of, cultural practitioners, community members, and family descendants in this district and the ahupua'a of Kalapakī, who best know the area. S.10-2

OHA does request assurances that should iwi kūpuna or Native Hawaiian cultural deposits be identified during any ground altering activities, all work will immediately cease and the appropriate agencies, including OHA, will be contacted pursuant to applicable law.

Mahalo for the opportunity to provide comments. Should you have any questions, please contact Kathryn Keala at (808) 594-0272 or kathyk@oha.org.

'O wau iho nō me ka 'oia 'i'o,

Kamana'opono M. Crabbe, Ph.D.
Ka Pouhana, Chief Executive Officer

KC:kk

C: Kaliko Santos – Kaua'i Community Outreach Coordinator (via email)

**Please address replies and similar, future correspondence to our agency:*
Dr. Kamana'opono Crabbe
Attn: OHA Compliance Enforcement
560 N. Nimitz Hwy., Ste. 200
Honolulu, HI 96817

Responses to Comment Letter S-10

Response S.10-1

Thank you for your participation in the Environmental Assessment for the Lihue Airport Runway 3-21 Runway Safety Area (RSA) Improvements project. We acknowledge your comments dated February 13, 2017, during the project scoping, and on the Draft EA received September 22, 2017 by the Hawaii Department of Transportation - Airports Division.

Response S.10-2

In response to your comment concerning several historical sites within the Area of Potential Effect (APE), no known historical, architectural, archeological, or cultural resources are located within the APE for the Proposed Action. Best management practices (BMPs) would be followed during construction in order to minimize any potential impact in the event unanticipated resources are discovered during construction. While the BMPs do not stipulate for on-site archaeological monitoring during construction, the BMPs set a plan in place should any resources be discovered. These BMPs include:

- In the event an unanticipated discovery of previously unidentified archeological resources is made during construction of the Proposed Action Alternative, the FAA and the HDOT-A will require the construction activities in the vicinity of the discovery to stop, and take all reasonable measures to avoid or minimize harm to the property until the FAA and the HDOT-A conclude consultation with the State Historic Preservation Division (SHPD).

Appendix F.6

Scoping and Draft EA Comment Response Letters

DAVID Y. IGE
GOVERNOR

JADE T. BUTAY
DIRECTOR

Deputy Directors
ROY CATALANI
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:
AIR-EP
18.0025

March 14, 2018

TO: LAURA LEIALOHA PHILLIPS MCINTYRE, AICP
PROGRAM MANAGER, ENVIRONMENTAL PLANNING OFFICE
DEPARTMENT OF HEALTH

FROM: JADE T. BUTAY
DIRECTOR OF TRANSPORTATION

SUBJECT: RESPONSE TO COMMENTS RECEIVED ON THE ENVIRONMENTAL ASSESSMENT (EA) FOR RUNWAY SAFETY AREA (RSA) IMPROVEMENTS FOR RUNWAY 3-21 AT LIHUE AIRPORT, ISLAND OF KAUAI, HAWAII, STATE PROJECT NO. AK1012-09

Thank you for your participation in the Environmental Assessment for the Lihue Airport Runway 3-21 Runway Safety Area (RSA) Improvements. This letter is in response to your comments dated September 14, 2017, on the Draft EA received by the Hawaii Department of Transportation - Airports Division.

The Proposed Action is being contemplated with the social, economic, and environmental wellbeing of the Kauai community in mind. The EA analyzes the potential environmental, socio-economic, and infrastructure impacts of the Proposed Action, and advances measures aimed at mitigating any identified impacts.

The Proposed Action will be implemented in compliance with all applicable federal, state, and local regulations. The EA identifies and discuss potential air quality, hazardous materials, solid waste, and water resource impacts from the Proposed Action. The project design team will review the standard comments to support sustainable and healthy design located on the provided website, and will adhere to all applicable standard comments as may be required. In addition, the project team will also review the updated environmental health program maps and viewers provided on your updated Geographic Information System website as applicable to the Proposed Action.

Per your suggestion to review the requirements of the Clean Water Branch (CWB) and/or National Pollutant Discharge Elimination System (NPDES), LIH currently operates under

NPDES permit file number HI R80A416.0F.[1] Construction of the Proposed Action Alternative would comply with all stipulations of this permit. The CWB will be contacted for guidance in addressing NPDES requirements as it is anticipated that an NPDES permit will be required for this project. The Proposed Action would not impact any Waters of the U.S. A Wetlands and Waters of the U.S. Analysis Study was conducted and concluded that the project area does not contain any wetlands, nor does it contain any Waters of the U.S.

As suggested on page two (2) of your letter, the project team will review the requirements of the Clean Air Branch (CAB) to obtain an air pollution control permit, if needed. The CAB will be contacted for guidance in addressing applicable permit requirements. In addition, as discussed in the EA, although the Proposed Action would result in emissions during both the construction and operational phases, these emissions are considered too small to have an adverse impact on the air quality of the area.

In response to your concern regarding waste generated by the project, it is understood that any non-hazardous waste generated by the Proposed Action must be disposed of at an approved solid waste management facility. The Minimizing Construction & Demolition Waste Management Guide will be reviewed for information on waste disposal as suggested in your letter.

As suggested, potential construction noise of the project has been assessed as part of the EA process. The project team will review the requirements of the Indoor and Radiological Health Branch (IRHB) to obtain a Community Noise Control permit if needed. However, it is not anticipated that construction noise would exceed 70 dBA beyond the airport property boundary. Construction activities would take place entirely within airport property, which is characterized by noise generated from aircraft activity. The noise generated by construction activities is not anticipated to be significantly greater than the noise currently experienced in the surrounding areas. The IRHB will be contacted for guidance in addressing applicable permit requirements if necessary.

We acknowledge your comment regarding a Phase I Environmental Site Assessment (ESA) and note that the Proposed Action does not involve residential redevelopment, a redevelopment project in current or formerly used industrial or agricultural areas. The Proposed Action involves improvements to the existing runway at the Lihue Airport to improve passenger safety. As such, it is not anticipated that a Phase I ESA is warranted for the Proposed Action.

As suggested, information and tools provided on the Hawaii Environmental Health Portal website will be reviewed and utilized, as applicable. The project team acknowledges that the draft Office of Environmental Quality Control (OEQC) viewer is available and that it geographically shows where previous Hawaii Environmental Policy Act, Hawaii Revised Statutes, Chapter 343 documents have been prepared. The project team acknowledges that the

[1] Hawaii Department of Health, Renewal Notice of General Permit Coverage (NGPC), National Pollutant Discharge Elimination System (NPDES), HI DOT Lihue Airport, File No. HI R80A416, December 9, 2013.

U.S. Environmental Protection Agency (EPA) has developed a new Environmental Justice mapping and screening tool called EJSCREEN to better protect public health and the environment in the planning process. However, the Proposed Action would occur entirely on existing airport property and would not affect any of the surrounding communities.

Please contact Mr. Herman Tuiolosega, Head Planner at (808) 838-8810 to clarify any questions you may have.

DAVID Y. IGE
GOVERNOR

JADE T. BUTAY
DIRECTOR

Deputy Directors
ROY CATALANI
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:
AIR-EP
18.0026

March 14, 2018

TO: CARTY S. CHANG, CHIEF ENGINEER, LAND DIVISION
DEPARTMENT OF LAND AND NATURAL RESOURCES

FROM: JADE T. BUTAY
DIRECTOR OF TRANSPORTATION

SUBJECT: RESPONSE TO COMMENTS RECEIVED ON THE ENVIRONMENTAL ASSESSMENT (EA) FOR RUNWAY SAFETY AREA (RSA) IMPROVEMENTS FOR RUNWAY 3-21 AT LIHUE AIRPORT, ISLAND OF KAUAI, HAWAII, STATE PROJECT NO. AK1012-09

Thank you for your participation in the Environmental Assessment for the Lihue Airport Runway 3-21 Runway Safety Area (RSA) Improvements project. This letter is in response to your comments dated August 8, 2016, provided during the project scoping period and your comments on the Draft EA dated August 28, 2017, received by the Hawaii Department of Transportation - Airports Division.

As suggested in your scoping and Draft EA comments, the analysis for potential for flood hazards has been incorporated into the assessment of the proposed project. The majority of the Study Area is located within FEMA Zone X, with a small portion of the southern boundary located within Zone AE, as well as portions along the coast that fall within Zone VE. The ground disturbance portion of the project Study Area would be entirely within FEMA FIRM Zone X, outside the 100-year flood zone. Construction and operation of the Proposed Action would have no adverse effects or alter existing floodplains.

Implementation of the Proposed Action is not anticipated to increase water demands beyond existing conditions. Minor water demands may be necessary during construction; however, this demand would be temporary in nature. Any water demands for construction will be calculated and reported to the Engineering Division during construction phasing activities.

Please contact Mr. Herman Tuiolosega, Head Planner at (808) 838-8810 to clarify any questions you may have.

DAVID Y. IGE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

JADE T. BUTAY
DIRECTOR

Deputy Directors
ROY CATALANI
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

IN REPLY REFER TO:
AIR-EP
18.0027

March 14, 2018

TO: LEO R. ASUNCION, JR., DIRECTOR, OFFICE OF PLANNING
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM

FROM: JADE T. BUTAY
DIRECTOR OF TRANSPORTATION

SUBJECT: RESPONSE TO COMMENTS RECEIVED ON THE ENVIRONMENTAL ASSESSMENT (EA) FOR RUNWAY SAFETY AREA (RSA) IMPROVEMENTS FOR RUNWAY 3-21 AT LIHUE AIRPORT, ISLAND OF KAUAI, HAWAII, STATE PROJECT NO. AK1012-09

Thank you for your participation in the Environmental Assessment for the Lihue Airport Runway 3-21 Runway Safety Area (RSA) Improvements project. This letter is in response to your comments dated August 30, 2016, provided during the project scoping and your comments dated September 29, 2017, on the Draft EA received by the Hawaii Department of Transportation - Airports Division.

We acknowledge your comments during the Early Consultation phase of the project. Pursuant to Hawaii Administrative Rules (HAR) §11-200-10(4), the EA for the Proposed Action provided an analysis of the project's potential impact on a number of environmental, social, economic, and infrastructure factors.

In addition, the EA examined the project and its consistency with the Hawaii State Planning Act (Hawaii Revised Statutes (HRS), Chapter 226). It is noted, however, that per your letter dated September 29, 2017 providing comments on the Draft EA, the analysis of the Hawaii State Planning Act does not include an examination of any applicable State Functional Plans, nor any of the remaining statutes in Parts I and III of the Hawaii State Planning Act. As such, the Final EA includes an analysis of the Proposed Action's applicability with the State Functional Plans, as well as with Parts I and III of the Hawaii State Planning Act.

Per your scoping comments regarding the coastal zone management area, an analysis addressing potential significant coastal resources with regard to consistency with the State's Coastal Zone Management objectives and policies provided in HRS, Chapter 205-A will be included in the Final EA.

We acknowledge your scoping letter comment and note that applicable Special Management Area (SMA) permitting requirements will be coordinated with the County of Kauai Department of Planning. Per your comment on the Draft EA, corrections will be made in the Final EA to note that the County of Kauai is the issuing agency for the SMA permit.

Your comment regarding permits required will be addressed in the Final EA, which will list all Federal, State, and County permits and approvals required for implementation of the proposed project.

As identified in your scoping letter, pursuant to HAR §11-200-10(6), the EA identifies potential impacts that may result from implementation of the Proposed Action, and advances mitigation measures aimed at reducing or eliminating such impacts. Specifically, the EA examines such issues as Air and Noise Quality; Biological Resources; Climate; Coastal Resources; Farmlands; Hazardous Materials, Solid Waste, and Pollution Prevention; Historical, Architectural, Archaeological and Cultural Resources; Land Use; Water Resources; Natural Resources and Energy Supply; Visual Effects; and Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks.

With regard to your scoping comment regarding coastal resources, as previously stated, the EA examines potential impacts on coastal resources including polluted runoff and sediment loss. However, applicable Best Management Practices (BMPs) and erosion-control measures would be implemented to mitigate runoff during construction related activities. Furthermore, the watershed, stormwater impact, and Low Impact Development (LID) guidelines provided by the Office of Planning will be utilized as resources during the design phase of the project. The EA will provide an in-depth discussion on the Proposed Action's potential effects on coastal ecosystems and mitigation measures. In addition, the coastal area adjacent to the Study Area consists of coral bluffs without significant elevation changes. As such, sea level rise is not anticipated to negatively impact the area of the Proposed Action.

In terms of the use of permeable surfaces and vegetated filters, the Proposed Action involves improvements to the existing runway safety area at Lihue Airport which are expected to allow the runway to meet the Federal Aviation Administration's (FAA) standards for safety and efficiency at U.S. airports. As the Proposed Action aims to bring the Lihue Airport in compliance with FAA standards, the construction materials and design will meet standards set by the FAA. Runway and taxiway pavement design and permeability would be addressed during the design phase of the project consistent with FAA Advisory Circular 150/5320-6E, *Airport Pavement Design and Evaluation*.[1]

---

[1] U.S. Department of Transportation, Federal Aviation Administration, *Advisory Circular 150/5320-6E, Airport Pavement Design and Evaluation*, September 30, 2009.

The project team acknowledges the Office of Planning's resources available and the Office of Planning's watershed, stormwater impact, and LID guidelines will be utilized as resources during the design phase of the project to ensure that the project employs stormwater and sediment controls to protect the nearshore environment.

In response to your comment regarding federal consistency review for Waters of the U.S., the project team confirms that the U.S. Army Corps of Engineers (USACE) is responsible for determining whether a project affects a Water of the U.S. A Wetlands and Waters of the U.S. Analysis Study was conducted and concluded that the project area does not contain any wetlands, nor does it contain any Waters of the U.S. This study will be included in the EA.

The project team acknowledges your confirmation of the analysis of visual and light emission impacts contained in the EA.

DAVID Y. IGE
GOVERNOR

JADE T. BUTAY
DIRECTOR

Deputy Directors
ROY CATALANI
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:
AIR-EP
18.0028

March 14, 2018

Kamana'opono M. Crabbe, Ph.D.
Ka Pouhana, Chief Executive Officer
State of Hawaii, Office of Hawaiian Affairs
Attn: OHA Compliance Enforcement
560 N. Nimitz Highway, Suite 200
Honolulu, Hawaii 96817

Dear Dr. Crabbe:

Subject: Response to Comments Received on the Draft Environmental Assessment (EA) for Runway Safety Area (RSA) Improvements for Runway 3-21 at Lihue Airport, Island of Kauai, Hawaii, State Project No. AK1012-09

Thank you for your participation in the Environmental Assessment for the Lihue Airport Runway 3-21 Runway Safety Area (RSA) Improvements project. We acknowledge your comments dated February 13, 2017, during the project scoping, and your comments on the Draft EA dated September 22, 2017 received by the Hawaii Department of Transportation - Airports Division.

In response to your comment concerning several historical sites within the Area of Potential Effect (APE), no known historical, architectural, archeological, or cultural resources are located within the APE for the Proposed Action. Best management practices (BMPs) would be followed during construction in order to minimize any potential impact in the event unanticipated resources are discovered during construction. While the BMPs do not stipulate for on-site archaeological monitoring during construction, the BMPs set a plan in place should any resources be discovered. These BMPs include the following:

- In the event an unanticipated discovery of previously unidentified archeological resources is made during construction of the Proposed Action Alternative, the FAA and the HDOT-A will require the construction activities in the vicinity of the discovery to stop, and take all reasonable measures to avoid or minimize harm to the property until the FAA and the HDOT-A conclude consultation with the State Historic Preservation Division (SHPD).

Please contact Mr. Herman Tuiolosega, Head Planner at (808) 838-8810 to clarify any questions you may have.

Sincerely,

JADE T. BUTAY
Director of Transportation

DAVID Y. IGE
GOVERNOR

JADE T. BUTAY
DIRECTOR

Deputy Directors
ROY CATALANI
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:
AIR-EP
18.0029

March 14, 2018

The Honorable Ronald D. Kouchi
Senate President, Senate District 8
State of Hawaii, State Capitol
415 S. Beretania Street, Room 409
Honolulu, Hawaii 96813

Dear Senator Kouchi:

Subject: Response to Comments Received During Scoping for the Environmental Assessment (EA) for Runway Safety Area (RSA) Improvements for Runway 3-21 at Lihue Airport, Island of Kauai, Hawaii, State Project No. AK1012-09

Thank you for your participation in the Environmental Assessment for the Lihue Airport Runway 3-21 Runway Safety Area (RSA) Improvements project. This letter is in response to your comments dated September 2, 2016, provided during project scoping and received by the Hawaii Department of Transportation - Airports Division.

As discussed in Section 1.2.3 of the Draft Environmental Assessment (EA), the 2016 RSA Study was conducted by the Hawaii Department of Transportation Airports Division (HDOT-A). At the onset of the 2016 RSA Study, the FAA acknowledged that full compliance with RSA standards may not be practicable. The FAA added that although full compliance is not expected, incremental improvements of the safety areas can be implemented in the short-term. The 2016 RSA Study produced a set of refined alternatives, discussed in Section 2.3 of the Draft EA. As a result of the 2016 RSA Study and the alternatives analysis in Chapter 2 and Appendix B of the EA, Alternative 1, Refinement 3 was selected as the Proposed Action. This alternative was reviewed and approved by the FAA and airline operators at LIH. This alternative would also maintain access to the adjacent beaches and shoreline areas.

Please contact Mr. Herman Tuiolosega, Head Planner at (808) 838-8810 to clarify any questions you may have.

Sincerely,

JADE T. BUTAY
Director of Transportation

DAVID Y. IGE
GOVERNOR

JADE T. BUTAY
DIRECTOR

Deputy Directors
ROY CATALANI
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:
AIR-EP
18.0030

March 14, 2018

Mr. Aaron Nadig, Island Team Manager
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

Dear Mr. Nadig:

Subject: Response to comments received on the Environmental Assessment (EA) for Runway Safety Area (RSA) Improvements for Runway 3-21 at Lihue Airport, Island of Kauai, Hawaii, State Project No. AK1012-09

Thank you for your participation in the Environmental Assessment for the Lihue Airport Runway 3-21 Runway Safety Area (RSA) Improvements project. This letter is in response to your comments dated September 7, 2016, provided during project scoping and received by the Hawaii Department of Transportation - Airports Division.

Review of the species identified in the letter and recommendations have been included in the EA. LIH property is subject to daily routine patrols by certified airport wildlife biologists. Biologists are trained in approved methods of wildlife dispersal, established by the Airport's Wildlife Hazard Management Plan (WHMP), and would be onsite to ensure proper WHMP procedure is followed. The WHMP contains specific measures developed in consultation with the USFWS, with regard to endangered and threatened species, and was developed to minimize impacts to wildlife while ensuring the safety of Airport operations.

The project team acknowledges your comment regarding Hawaiian hoary bats. On site fauna surveys were conducted in 2016. A special effort was made to detect any occurrence of the federally endangered Hawaiian hoary bat by conducting an evening survey in the area. No Hawaiian hoary bats were detected during site surveys, but they are known to occur on Kauai. Existing security fencing at LIH utilizes barbed wire for security purposes. However, no known recorded takes of Hawaiian hoary bats have occurred at LIH. The EA documents the 2016 Biological Resources Study for the Proposed Project, and examines the known habitats and occupancy of flora and fauna within the Study Area. The ground disturbance area of the Study Area is devoid of trees, minimizing the roosting habitat for bats on Airport property, and no hoary bats were discovered during the survey.

Per your concern for the potential impact of lights on seabirds, your construction lighting recommendations have been incorporated into mitigation measures for the Proposed Action. Construction activities are recommended to occur solely during daylight hours. If construction must occur during nighttime hours, the advised mitigation methods would be employed to minimize light exposure to sensitive wildlife. Construction lighting plans would be reviewed to ensure lighting is shielded and focused to eliminate unnecessary light spillover and glare. Lighting would be positioned low to the ground and would be shielded and/or cut-off. Finally, nighttime construction and lighting would be minimized during the fledging period of September 15 through December 15 for the Newell species.

As mentioned in your scoping letter, the EA discusses the potential impacts to biological resources due to construction, as well as the mitigation measures to be employed to minimize impact to wildlife present in and surrounding the Study Area.

Please contact Mr. Herman Tuiolosega, Head Planner at (808) 838-8810 to clarify any questions you may have.

Sincerely,

JADE T. BUTAY
Director of Transportation

DAVID Y. IGE
GOVERNOR

JADE T. BUTAY
DIRECTOR

Deputy Directors
ROY CATALANI
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:
AIR-EP
18.0031

March 14, 2018

Ms. Kandyce Watanabe
Honolulu Airports District Office
United States Department of Transportation
Federal Aviation Administration
P. O. Box 50244
Honolulu, Hawaii 96850

Dear Ms. Watanabe:

Subject: Response to Comments Received During Scoping for the Environmental Assessment (EA) for Runway Safety Area (RSA) Improvements for Runway 3-21 at Lihue Airport, Island of Kauai, Hawaii, State Project No. AK1012-09

Thank you for your participation in the Environmental Assessment for the Lihue Airport Runway 3-21 Runway Safety Area (RSA) Improvements project. This letter is in response to your comments dated September 1, 2016, provided during project scoping and received by the Hawaii Department of Transportation - Airports Division.

Per your comment regarding coordination with the LIH Airport Manager, the State of Hawaii Department of Transportation – Airport Division (HDOT-A) will coordinate with the FAA Airport Traffic Control Tower (ATCT) Manager, Honolulu Control Facility (HCF), and System Support Center (SSC) prior to all construction activity to ensure proper safety measures and protocol are followed. A Notice to Airmen (NOTAM) will be issued to alert aircraft pilots of the pending construction, including visual landing aid (visaid) equipment relocation, decommission, or removal, as well as taxiway and runway closures that will occur at LIH during the proposed construction period. Finally, airspace analysis will be conducted to ensure proposed construction equipment poses no threats to the airspace and aircraft within the Project Area.

To address the impacts to the National Airspace System (NAS) equipment, HDOT-A will maintain communication with the FAA prior to, and during, the proposed construction period. Nighttime closures of Runway 3-21 will be included in all NOTAM and the associated visaids will not operate during construction periods. HDOT-A will coordinate with Rick Ambriz, Manager, Kauai System Support Center (SSC) and Lihue Airport Manager throughout the temporary outages of Runway 3-21 visaids. Coordination with the SSC will ensure telecommunication cables and utility lines within the proposed project vicinity are protected and

construction does not impact the existing infrastructure. HDOT-A will notify the FAA's Air Traffic Organization Planning and Requirements Service Area office a minimum of 45 days prior to construction. RSA alterations may require the closure of Runway 3-21 during nighttime hours for the duration of construction.

No cranes are anticipated to be used during the proposed RSA improvements. If any construction equipment is anticipated to exceed working height limits, HDOT-A will submit an additional notice for approval.

We understand that the determination does not constitute FAA approval or disapproval of the proposed development. HDOT-A will take no action on RSA improvements prior to approval of this Environmental Assessment and the expressed written consent of the FAA. HDOT-A will ensure the proposed RSA improvements are depicted in future Airport Layout Plans for LIH. RSA improvements are not anticipated to require licensing from the Federal Communications Commission.

Please contact Mr. Herman Tuiolosega, Head Planner at (808) 838-8810 to clarify any questions you may have.

Sincerely,

JADE T. BUTAY
Director of Transportation

DAVID Y. IGE
GOVERNOR

JADE T. BUTAY
DIRECTOR

Deputy Directors
ROY CATALANI
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:
AIR-EP
18.0032

March 14, 2018

Mr. Lyle Tabata
Acting County Engineer
Department of Public Works
County of Kauai, Office of the Mayor
4444 Rice Street, Suite 235
Lihue, Hawaii 96766

Dear Mr. Tabata:

Subject: Response to Comments Received During Scoping for the Environmental Assessment (EA) for Runway Safety Area (RSA) Improvements for Runway 3-21 at Lihue Airport, Island of Kauai, Hawaii, State Project No. AK1012-09

Thank you for your participation in the Environmental Assessment for the Lihue Airport Runway 3-21 Runway Safety Area (RSA) Improvements project. This letter is in response to your comments dated August 31, 2016, provided during project scoping and received by the Hawaii Department of Transportation - Airports Division.

We are aware of the proposed Nawiliwili-Ahukini Shared-Use recreational path near the project site. The alignment of the proposed path alternatives will be outside areas impacted by construction and operation of the Proposed Action.

In regard to your concerns of the park, recreational paths, and County Lihue Wastewater Treatment Plant (WWTP) penetrations into the Runway Protection Zones (RPZ), HDOT-A is aware of the FAA memorandum, Interim Guidance on Land Uses Within a RPZ. HDOT-A coordinated with FAA on this issue during the Runway 3-21 Practicability Study and concluded a Safety Risk Management Assessment. The Proposed Action (Alternative 1 Refinement 3) would use a Departure End of Runway (DER) point in order to mitigate some of the Runway 3 end Runway Protection Zone (RPZ) penetrations. Please contact Mr. Herman Tuiolosega, Head Planner at (808) 838-8810 to clarify any questions you may have.

Sincerely,

JADE T. BUTAY
Director of Transportation

DAVID Y. IGE
GOVERNOR

JADE T. BUTAY
DIRECTOR

Deputy Directors
ROY CATALANI
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:
AIR-EP
18.0033

March 14, 2018

Mr. Leonard A. Rapozo, Jr.
Director, Department of Parks and Recreation
County of Kauai, Office of the Mayor
4444 Rice Street, Suite 235
Lihue, Hawaii 96766

Dear Mr. Rapozo:

Subject: Response to Comments Received During Scoping for the Environmental Assessment (EA) for Runway Safety Area (RSA) Improvements for Runway 3-21 at Lihue Airport, Island of Kauai, Hawaii, State Project No. AK1012-09

Thank you for your participation in the Environmental Assessment for the Lihue Airport Runway 3-21 Runway Safety Area (RSA) Improvements project. This letter is in response to your comments dated August 31, 2016, provided during project scoping and received by the Hawaii Department of Transportation - Airports Division.

We are aware of the proposed Nawiliwili-Ahukini Shared-Use recreational path near the project site. The alignment of the proposed path alternatives will be outside areas impacted by construction and operation of the Proposed Action.

In regard to your concerns of the park, recreational paths, and County Lihue Wastewater Treatment Plant (WWTP) penetrations into the Runway Protection Zones (RPZ), HDOT-A is aware of the FAA memorandum, Interim Guidance on Land Uses Within a RPZ. HDOT-A coordinated with FAA on this issue during the Runway 3-21 practicability study and concluded a Safety Risk Management Assessment. The Proposed Action (Alternative 1 Refinement 3) would use a Departure End of Runway (DER) point in order to mitigate some of the Runway 3 end Runway Protection Zone (RPZ) penetrations. Please contact Mr. Herman Tuiolosega, Head Planner at (808) 838-8810 to clarify any questions you may have.

Sincerely,

JADE T. BUTAY
Director of Transportation

DAVID Y. IGE
GOVERNOR

JADE T. BUTAY
DIRECTOR

Deputy Directors
ROY CATALANI
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:
AIR-EP
18.0034

March 14, 2018

Ms. Karen Taketa
Executive Director
Contractors Association of Kauai
4231 Ahukini Road
Lihue, Hawaii 96766

Dear Ms. Taketa:

Subject: Response to Comments Received During Scoping for the Draft Environmental Assessment (EA) for Runway Safety Area (RSA) Improvements for Runway 3-21 at Lihue Airport, Island of Kauai, Hawaii, State Project No. AK1012-09

Thank you for your participation in the Environmental Assessment for the Lihue Airport Runway 3-21 Runway Safety Area (RSA) Improvements project. This letter acknowledges your comments dated August 26, 2016 provided during project scoping and received by the Hawaii Department of Transportation - Airports Division.

Please contact Mr. Herman Tuiolosega, Head Planner at (808) 838-8810 to clarify any questions you may have.

Sincerely,

JADE T. BUTAY
Director of Transportation

DAVID Y. IGE
GOVERNOR

JADE T. BUTAY
DIRECTOR

Deputy Directors
ROY CATALANI
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:
AIR-EP
18.0035

March 14, 2018

Mr. Michael A. Dahilig
Planning Director
County of Kauai, Planning Department
4444 Rice Street, Suite A-473
Lihue, Hawaii 96766

Dear Mr. Dahilig:

Subject: Response to Comments Received During Scoping for the Environmental Assessment (EA) for Runway Safety Area (RSA) Improvements for Runway 3-21 at Lihue Airport, Island of Kauai, Hawaii, State Project No. AK1012-09

Thank you for your participation in the Environmental Assessment for the Lihue Airport Runway 3-21 Runway Safety Area (RSA) Improvements project. This letter is in response to your comments dated August 17, 2016, provided during project scoping and received by the Hawaii Department of Transportation - Airports Division.

As outlined in your comment letter, the Proposed Action is subject to the Special Management Area (SMA) Rules and Regulations and will go through the SMA permitting process.

We acknowledge that if the proposed improvements occur within the 550-foot shoreline setback, a Shoreline Setback Determination Application will be submitted for review by the County of Kauai Planning Department.

Please contact Mr. Herman Tuiolosega, Head Planner at (808) 838-8810 to clarify any questions you may have.

Sincerely,

JADE T. BUTAY
Director of Transportation

DAVID Y. IGE
GOVERNOR

JADE T. BUTAY
DIRECTOR

Deputy Directors
ROY CATALANI
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:
AIR-EP
18.0036

March 14, 2018

TO: COLONEL NEAL S. MITSUYOSHI, P.E.
HAWAII NATIONAL GUARD, CHIEF ENGINEERING OFFICER
OFFICE OF ADJUTANT GENERAL
DEPARTMENT OF DEFENSE

FROM: JADE T. BUTAY
DIRECTOR OF TRANSPORTATION

SUBJECT: RESPONSE TO COMMENTS RECEIVED DURING SCOPING FOR THE ENVIRONMENTAL ASSESSMENT (EA) FOR RUNWAY SAFETY AREA (RSA) IMPROVEMENTS FOR RUNWAY 3-21 AT LIHUE AIRPORT, ISLAND OF KAUAI, HAWAII, STATE PROJECT NO. AK1012-09

Thank you for your participation in the Environmental Assessment for the Lihue Airport Runway 3-21 Runway Safety Area (RSA) Improvements project. This letter acknowledges your comments dated August 23, 2016, provided during project scoping and received by the Hawaii Department of Transportation - Airports Division.

Please contact Mr. Herman Tuiolosega, Head Planner at (808) 838-8810 to clarify any questions you may have.

Appendix G

National Historic Preservation Act
Section 106 Consultation

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

CERTIFIED RECEIPT

November 22, 2016

Mr. Alan Downer
Administrator
Hawaii Historic Preservation Division
Kakuhihewa Building
601 Kamokila Boulevard, Rm. 555
Kapolei, Hawaii 96707

**SUBJECT: National Historic Preservation Act, Section 106 Consultation
Environmental Assessment for Runway Safety Area (RSA) Improvements for Runway 3-21
Lihu‘e Airport, Island of Kaua‘i, Hawai‘i**

Dear Mr. Downer:

The Federal Aviation Administration (FAA) and State of Hawai‘i, Department of Transportation, Airports Division (HDOT-A) have initiated the preparation of an Environmental Assessment (EA) for the proposed Runway Safety Area (RSA) improvements to Runway 3-21 at Lihu‘e Airport (LIH). The EA is being prepared to comply with both FAA requirements under the National Environmental Policy Act (NEPA) of 1969 and State of Hawai‘i requirements under the Hawai‘i Environmental Protection Act (HEPA).

The proposed development of the RSA improvements would require the HDOT-A to revise the Airport Layout Plan (ALP). The ALP is the official illustration used by the HDOT-A and FAA to identify current and proposed airport facilities. FAA approval of a modified ALP and determination of eligibility for funding constitute a federal action, which requires compliance with NEPA and review under Section 106 of the National Historic Preservation Act of 1966, as amended.

The FAA is the lead federal agency charged with conducting Section 106 consultation with the State Historic Preservation Division (SHPD). The FAA is initiating Section 106 consultation with your office, effective by the date of this letter. The purpose of this effort is to provide your office the scope and location of the project, the Area of Potential Effects (APE), and historical resources background of the project area.

Project Information

RSAs are clear areas around a runway, free of objects and structures. HDOT-A designs and maintains the RSAs at LIH to enhance safety if an aircraft undershoots, overruns, or veers off the runway, and to provide greater accessibility for firefighting and rescue equipment during such incidents. The purpose of the Proposed Action is to comply with the Public Law 109-115, which

states that the owner or operator of an airport certificated under 14 Code of Federal Regulations Part 139 shall improve the airport's runway safety areas to comply with FAA design standards. Therefore, the EA, which is required to be compliant with FAA guidance, NEPA and HEPA, will study RSA practicable improvements, alternatives, and associated impacts.

The proposed RSA improvements would occur completely within the existing LIH property boundary. An overview of the LIH layout and facilities is provided on **Exhibit 1**. There are two runways at LIH, Runway 3-21 and Runway 17-35. LIH houses a passenger terminal, an air cargo terminal, helicopter operations, and general aviation facilities, all located on the northwest side of Runway 3-21.

Runway 3-21 is 6,500 feet long and 150 feet wide and is oriented northeast-southwest. There is a 205-foot displaced threshold on the Runway 21 end. The Runway 3 end elevation is approximately 153 feet above mean sea level (msl) while the Runway 21 end elevation is approximately 80 feet above msl. The Runway 3-21 surface is covered with grooved asphalt. Blast pads are located beyond both runway ends.

An RSA, for the aircraft that operate at LIH, should be 500 feet wide, have a minimum of 1,000 feet beyond the runway end for departures and 600 feet prior to the runway threshold for arrivals. Currently, Runway 3-21 meets FAA RSA design standards at the Runway 3 end. Due to the proximity to the coastal area and Pacific Ocean, the RSA at the Runway 21 northeast end is 855 feet short of meeting the RSA standard beyond the runway end for Runway 21 departures. The RSA prior to the Runway 21 arrival threshold is 250 feet short of meeting the FAA standard.

The primary components of the proposed RSA improvements project, as shown in **Exhibit 2**, include:

- Runway 3 (Southwest End):
  - Shift of the Runway 3 end 855 feet to the southwest; the landing threshold would remain in the same location, resulting in an 855-foot Runway 3 displaced threshold
  - Construction of a 200-foot blast pad
  - Construction of a taxiway extension to the new Runway 3 end
  - In order to mitigate the Runway Protection Zone (RPZ) penetrations on the Runway 3 end, a Departure End of Runway (DER) point would be created. The DER would coincide with the Runway 3 displaced threshold, which is also the existing Runway 3 end
- Runway 21 (Northeast End):
  - Relocated Runway 21 displaced threshold
  - Construction of a retaining wall along the public road beyond the Runway 21 end. The land between the runway and the retaining wall would be filled and graded to meet RSA standards. The public road would remain open.

- Implement declared distances
  - Declared distances are "the distances the airport operator declares available and suitable for satisfying an aircraft's takeoff run, take-off distance, accelerate-stop distance, and landing distance requirements."[1]

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

Exhibit 3 illustrates the Area of Potential Effect APE) for the proposed RSA project. The APE for this undertaking is entirely within the existing LIH property and includes a generally rectangular shape that includes the entire length of Runway 3-21. The APE encompasses approximately 118 acres. At the southwestern end, the APE follows the proposed RSA boundary as well as an area expanded to the north to accommodate the proposed taxiway construction described above. At the northeastern end, the APE follows the coastal area before the grade decreases significantly to the Pacific Ocean and expands slightly to the south to accommodate the grading, fill, and retaining wall required for the proposed project.

The proposed undertaking will not affect the number or type of aircraft using LIH, thus FAA delineated a Direct Effects APE only. No significant change in the indirect effects from aircraft noise would result from the proposed undertaking. The FAA is seeking comments from the Hawai'i State Historic Preservation Division on the acceptability of the APE under Title 36 Code of Federal Regulations (CFR) Section 800.4 *Identification of Historic Properties*.

Historical Background

In 2007 an Environmental Impact Statement (EIS) was prepared for Lihu'e Airport Improvements. As part of this EIS, an archaeological survey and a Cultural Impact Assessment (CIA) were conducted for the airport property. The CIA included a literature review and site survey. The EIS found that no previously recorded State Inventory of Historical Places (SIHP) were located within the area described above for the APE of the proposed undertaking.

During the archaeological field survey, a single, previously unrecorded cultural resource/historic property was identified northeast of the existing Runway 3-21 RSA. It was assigned SIHP # 50-30-08-3958. The property consists of two features; a remnant linear alignment of at least five concrete enclosures, and a lone cement foundation. Both features appear to be plantation-era, based on construction materials and techniques, and likely functioned as a piggery or other animal enclosure. This resource identified during the field survey was recommended eligible to the National and Hawai'i Registers under criterion D, for its information content. The SHPD concurred with this finding. SIHP # 50-30-08-3958 is outside of the APE for the proposed undertaking and would not be within any area of potential ground disturbance from the proposed undertaking.

National Register Eligibility Determinations

The APE exhibits much evidence for previous intensive mechanical ground disturbance from grading, grubbing, blading, and filling events for airfield development and existing RSA

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[1] U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13A, *Airport Design*, February 26, 2014.

development. The terrain is relatively flat in most of the APE, with the terrain sloping down to the Pacific Ocean northeast of the APE. Because the proposed undertaking would occur entirely on existing airport property and these areas were surveyed as part of the 2007 EIS, and because this area has been previously disturbed, HDOT-A does not propose to conduct any additional archaeological surveys.

Assessment of Adverse Effects on Historic Properties

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 that the proposed undertaking will not affect any properties listed or eligible for listing on the National Register of Historic Places under 36 CFR Part 800.4(d)(1).

We request your written concurrence with the APE and our determination 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".

If you have questions or would like to discuss this project further, please contact Gordon Wong at 808-312-6029 or at gordon.wong@faa.gov. Thank you for your review and assistance on this matter.

Sincerely,

Ron W. Simpson
Manager, Honolulu Airports District Office

cc: (w/encls.)
Herman Tuiolosega, DOT-A
Stephen Culberson, Ricondo & Associates, Inc.

Enclosures:
EXHIBIT 1 – Airport Overview
EXHIBIT 2 – Proposed Action Overview
EXHIBIT 3 – Area of Potential Effect

[DRAFT]

NOTES: msl = Above Mean Sea Level.

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.

PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 1,800 ft.

EXHIBIT 1

Airport Overview

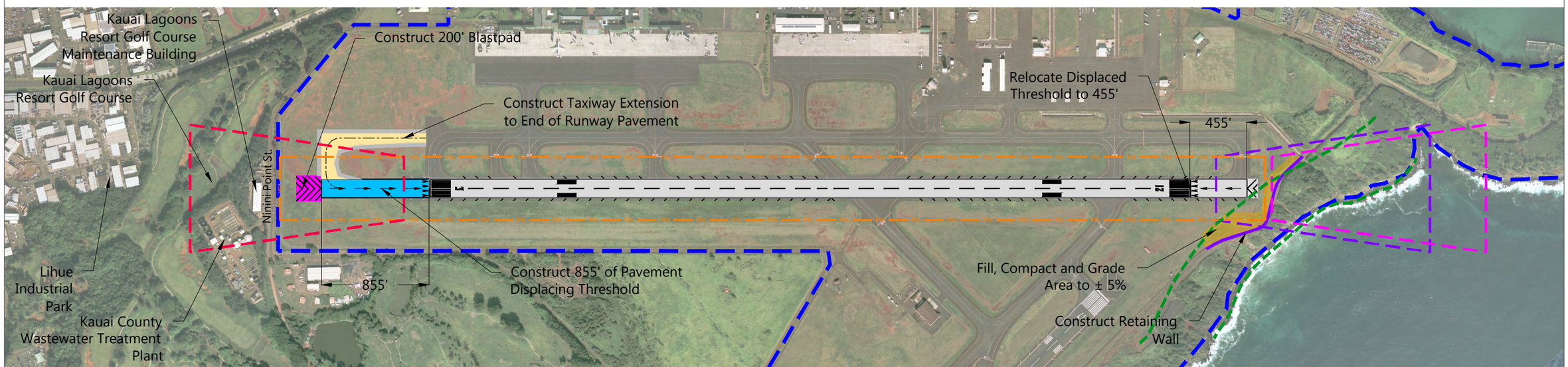
Drawing: Z:\Hawaii\LIH\04-RSA EA\12-CAD\LIH_RSA_EA_Airport Overview_20160414.dwg Layout: SHPD Exh 1 Plotted: Sep 19, 2016, 06:35PM

[DRAFT]

Notes:
- *Runway 3-21 Safety Area Study* Alternative 1, Refinement 3.
- The new Runway 3 Approach RPZ and Runway 21 Departure RPZ extend beyond the airport property line resulting in portions of the Kauai County Wastewater Treatment Plant and Kauai Lagoons Golf Course and Maintenance Building, to fall within their boundaries.
- Per FAA Memorandum, *Interim Guidance on Land Uses Within a Runway Protection Zone* , buildings and structures including commerical/industrial buildings, golf courses, and wastewater treatment facilities are considered land uses which require the FAA Regional and ADO staff to consult with the National Airport Planning and Environmental Division (APP-400).

Proposed Airfield Improvements:

- Construct 855' of pavement displacing the Runway 3 end threshold
- Construct a 200' blastpad beyond the Runway 3 end
- Construct taxiway extension to end of Runway 3 pavement
- Relocated the Runway 21 displaced threshold to 455'
- Construct retaining wall along the existing public road off the north end of Runway 21
- Fill, compact, and grade land off the north end of Runway 21.



LEGEND

- Airport Property Line
- Runway Safety Area
- Departure Runway Protection Zone
- Approach Runway Protection Zone
- Approach and Departure Runway Protection Zone
- Special Management Area
- Existing Pavement
- Proposed Runway Pavement
- Proposed Blastpad
- Proposed Taxiway
- Ground Fill
- Proposed Retaining Wall

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., April 2016.

NORTH 0 800 ft.

Acronyms

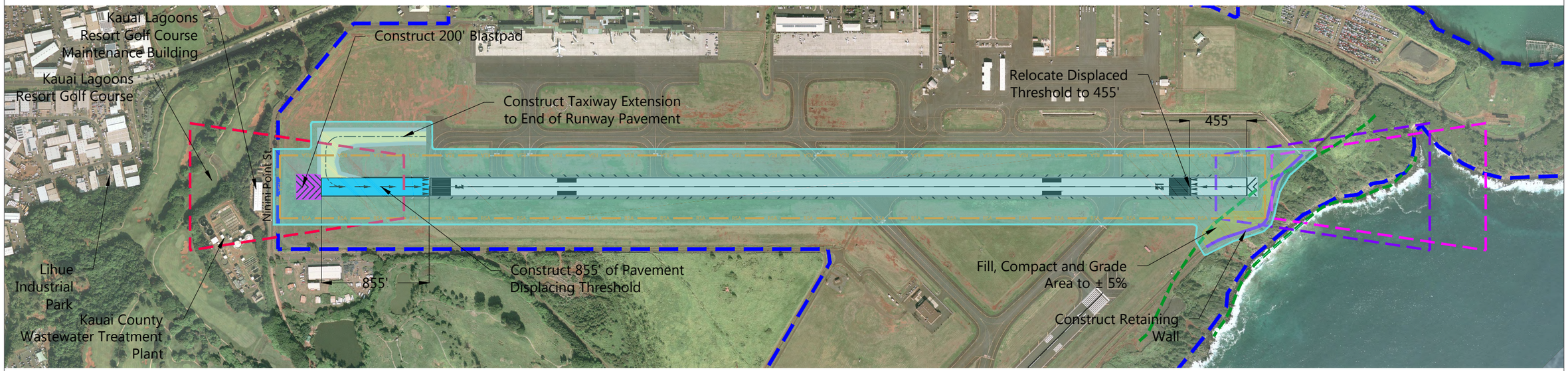
ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT 2

Proposed Action Overview

Drawing: Z:\Hawaii\LIH\04-RSA EA\12-CAD\LIH_RSA_EA_Alternative_1_20160613.dwg Layout: SHPD_EX-2_Alt1_R3 Plotted: Sep 19, 2016, 06:24PM

[DRAFT]



LEGEND

- Airport Property Line
- Runway Safety Area
- Departure Runway Protection Zone
- Approach Runway Protection Zone
- Approach and Departure Runway Protection Zone
- Special Management Area
- Existing Pavement
- Proposed Runway Pavement
- Proposed Blastpad
- Proposed Taxiway
- Ground Fill
- Proposed Retaining Wall
- Area of Potential Effect

SOURCES: State of Hawaii Department of Transportation, Airports Division, *Lihue Airport, Airport Layout Plan* , July 2011; State of Hawaii Department of Transportation, Airports Division, Aerial Imagery, August 2015; Department of Transportation, Federal Aviation Administration, Airports Division; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., June 2016.

NORTH 0 800 ft.

Acronyms

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available
EMAS - Engineered Material Arresting System
TODA - Takeoff Distance Available
TORA - Takeoff Run Available

EXHIBIT 3

Area of Potential Effect

Drawing: Z:\Hawaii\LIH\04-RSA EA\12-CAD\LIH_RSA_EA_Affected Environment_20160616.dwg Layout: SHPD Ex - 3 Plotted: Sep 19, 2016, 06:27PM

7009 2250 0001 7965 5657

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11/23/16

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Street, Apt. No., or PO Box No. HAWAII HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BLDG
City, State, ZIP+4 601 KAMOKILA BLVD RM 555
KAPOLEI HI 96707

PS Form 3800, August 2006 See Reverse for Instructions

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- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

MR ALAN DOWNER
HAWAII HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BLDG
601 KAMOKILA BLVD RM 555
KAPOLEI HI 96707

COMPLETE THIS SECTION ON DELIVERY

A. Signature
x Phyllis Cayan ☐ Agent ☐ Addressee

B. Received by (Printed Name) Phyllis Cayan
C. Date of Delivery 11-25

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
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4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Transfer from service label)* 7009 2250 0001 7965 5657

PS Form 3811, July 2013 Domestic Return Receipt

Appendix H

Land Use Assurance Letter

DAVID Y. IGE
GOVERNOR

FORD N. FUCHIGAMI
DIRECTOR

Deputy Directors
JADE T. BUTAY
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
AIRPORTS DIVISION
400 RODGERS BOULEVARD, SUITE 700
HONOLULU, HAWAII 96819-1880

IN REPLY REFER TO:
AIR-EP
17.0014

February 15, 2017

Ms. Lorraine Herson-Jones
Manager, Airports District Office
Federal Aviation Administration
Western-Pacific Region
P. O. Box 50244
Honolulu, Hawaii 96850-0001

Dear Ms. Herson-Jones:

Subject: Land Use Assurance Letter
Lihue Airport Runway Safety Area Improvements Environmental Assessment
State Project No. AK1012-09

The State of Hawaii, Department of Transportation, Airports Division (DOT-A), as sponsor for Lihue Airport, Lihue, Hawaii, makes the following statement of land use assurances as required by Section 511 (a)(5) of the Airport and Airway Improvement Act of 1982, as amended:

> DOT-A provides assurance, that appropriate action, including the adoption of zoning laws, has been or will be taken, to the extent reasonable to restrict the use of adjacent land to or in the immediate vicinity of Lihue Airport to activities and purposes compatible with normal airport operations both existing and in the future. DOT-A also provides assurance that it will work closely with other jurisdictions within the County of Kauai to ensure appropriate land use regulations are enforced.

Should you have any questions, please have your staff contact Mr. Herman Tuiolosega, Head Planner at 838-8810.

Sincerely,

ROSS M. HIGASHI
Deputy Director - Airports