



## **Kauai Seabird Habitat Conservation Program (KSHCP)**

### **Participant Inclusion Plan (PIP)**

#### **Name of Applicant/Participant: Hawaii Department of Transportation (HDOT)**

This Participant Inclusion Plan (PIP) template provides a convenient method for non-federal entities to provide the required information to apply for incidental take authorization under the terms of the KSHCP (the Program). Each applicant is required to complete and submit a PIP as part of their application materials in order to apply for an Incidental Take License (ITL) from the State of Hawaii Department of Land and Natural Resources (DLNR) and an Incidental Take Permit (ITP) from the U.S. Fish and Wildlife Service (USFWS) under the KSHCP.

All applicants should consult the KSHCP document for the terms and conditions and the approval process through which the PIP will be evaluated by the DLNR and the USFWS. Staff from the USFWS and the DLNR can provide assistance with completion of this PIP. State of Hawaii DLNR may require fees for this service under the state's habitat conservation "technical assistance program."

All capitalized terms used in this PIP are as defined in the KSHCP, unless indicated otherwise.

General Provisions Applicable to this Application.

Neither this PIP, nor the information contained therein, including without limitation all tables, information, data, estimates of take, costs, nor any action taken by the State pursuant to the PIP shall in any way be construed as an admission by the State of any liability, wrongdoing, or violation of law, regulation, contract or policy, or violation of federal, state or local statute or regulation.

## **KSHCP Participant Inclusion Plan (PIP)**

**Thank you for your interest in the Kauai Seabird HCP.**

Instructions: Please complete all items in **Part I and II** of this form by providing information requested for each item below. Additional pages may be attached to this template as needed to adequately provide the necessary information. Non-federal entities should consult the KSHCP document for items requested in this PIP template and the terms and conditions of the KSHCP (a separate USFWS process is available for federal entities or entities with a federal nexus).

Staff from the DLNR and/or the USFWS may contact the applicant regarding any incomplete information or items needing further clarification. This PIP must be deemed complete before they are able to be processed; incomplete PIP forms will not be processed.

### **Part 1: Landowner & Property Information; Description of the Facilities; Avoidance & Minimization Measures; Monitoring of Take**

**Kauai Harbors Item 1. Provide the name of the landowner, business, agency, or institution and complete contact information. If the applicant/participant is different from the landowner, please attach power of attorney (or other documentation) allowing the party to act on the landowner's behalf.**

Participant/Applicant Name: Hawaii Department of Transportation—Harbors Division (HDOT-H)

Physical Address/Location of Facility:

Nawiliwili Harbor  
3242 Waapa Road  
Lihue, Hawaii 96766

Port Allen Harbor  
4300 Waialo Road  
Eleele, Hawaii 96705

Mailing Address:

Harbors Administration Kauai District  
3242 Waapa Road  
Lihue, Hawaii 96766

Primary Contact:

Ownership Name: Director Jade T. Butay

Address:

Hawaii Department of Transportation  
Aliiimoku Hale, 5<sup>th</sup> Floor, 869 Punchbowl Street  
Honolulu, Hawaii 96813

Email: [jade.butay@hawaii.gov](mailto:jade.butay@hawaii.gov)

Telephone: (808) 587-2150

Alternate Contact:

Name: Deputy Director \_\_\_\_\_

Address:

Hawaii Department of Transportation  
AliiAIMoku Hale, 5<sup>th</sup> Floor, 869 Punchbowl Street  
Honolulu, Hawaii 96813  
Telephone: (808) 587-2150  
Email: [jade.butay@hawaii.gov](mailto:jade.butay@hawaii.gov)

Alternate Contact:

Name: Paul J. Conry, Senior Associate Ecologist

Address:

H. T. Harvey & Associates  
745 Fort Street, Suite 2003  
Honolulu, Hawaii 96813-3820  
Telephone: (808) 441-2081  
Email: [pconry@harveyecology.com](mailto:pconry@harveyecology.com)

**Lihue Airport Item 1. Provide the name of the landowner, business, agency, or institution and complete contact information. If the applicant/participant is different from the landowner, please attach power of attorney (or other documentation) allowing the party to act on the landowner's behalf.**

Participant/Applicant Name: Hawaii Department of Transportation—Airports Division (HDOT-A)

Physical Address/Location of Facility:

Lihue Airport  
3901 Mokulele Loop #6  
Lihue, Hawaii

Mailing Address:

Lihue Airport  
3901 Mokulele Loop #6  
Lihue, HI 96766

Primary Contact:

Ownership Name: Director Jade T. Butay

Address:

Hawaii Department of Transportation  
AliiAIMoku Hale, 5<sup>th</sup> Floor, 869 Punchbowl Street  
Honolulu, Hawaii 96813  
Email: [jade.butay@hawaii.gov](mailto:jade.butay@hawaii.gov)  
Telephone: (808) 587-2150

Alternate Contact:

Name: Deputy Director \_\_\_\_\_

Address:

Hawaii Department of Transportation

Aliiimoku Hale, 5<sup>th</sup> Floor, 869 Punchbowl Street  
Honolulu, Hawaii 96813  
Telephone: (808) 587-2150  
Email: [jade.butay@hawaii.gov](mailto:jade.butay@hawaii.gov)

Alternate Contact:

Name: Paul J. Conry, Senior Associate Ecologist  
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H. T. Harvey & Associates  
745 Fort Street, Suite 2003  
Honolulu, Hawaii 96813-3820  
Telephone: (808) 441-2081  
Email: [pconry@harveyecology.com](mailto:pconry@harveyecology.com)

**Kauai Harbors Item 2. Provide the legal description of the property at which the existing facilities and Covered Activities are located, including Tax Map Key (TMK) number. Provide a survey of the property and site plan drawings showing the locations of the Covered Activities (lights), property boundaries, buildings & structures, and site features. If properties containing the Covered Activities comprise separate parcels please include all Tax Map Key numbers and maps.**

Nawiliwili Harbor: Portions of Tax Map Key plats (4) 3-2-03, and (4) 3-2-04. A list of the Nawiliwili Harbor TMK parcels being covered under this HCP are detailed in Kauai Harbors Table 1. The boundary of Nawiliwili Harbor is shown in Kauai Harbors Figure 1.

Port Allen Harbor: Portion of Tax Map Key plat (4) 2-1-03. The boundary of Port Allen Harbor is shown in Kauai Harbors Figure 2. The Port Allen Harbor TMK parcels being covered under this HCP are listed below and shown in Kauai Harbors Figure 2.

Label ID	TMK No.	Amount
0	421003021	
1	421003033	
2	421003006	Partial
3	421003015	
4	421003022	
5	421003019	Partial
6	421003020	

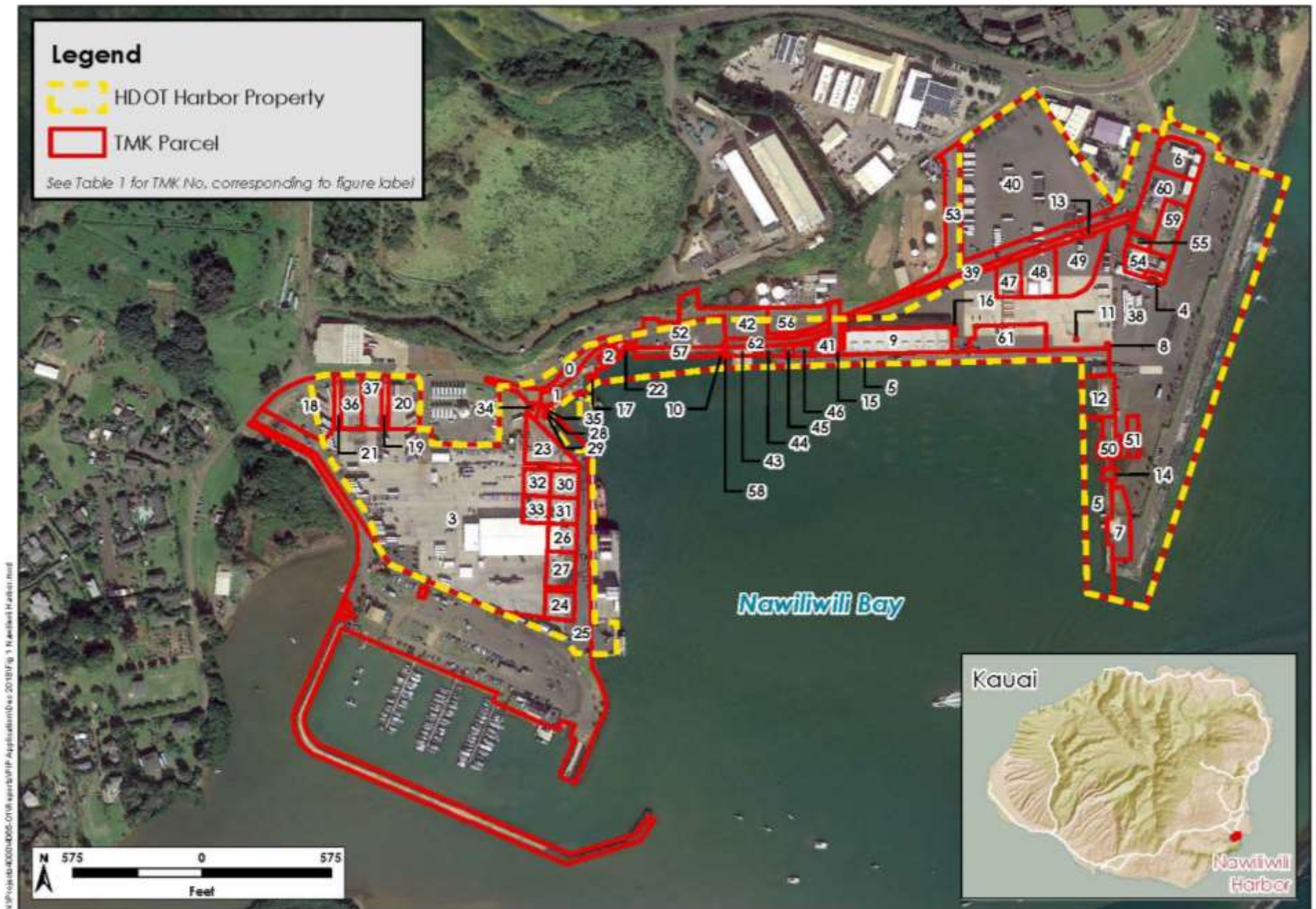
An aerial view of Nawiliwili Harbor, the location of buildings and structures with exterior lights that are covered by the HCP, and other site features of the property, are provided in Kauai Harbors Figure 3.

An aerial view of Port Allen Harbor, the location of buildings and structures with exterior lights that are covered by the HCP, and other site features of the property, are provided in Kauai Harbors Figure 4.

**Kauai Harbors Table 1. A List of the Nawiliwili Harbor Tax Map Key Parcels Being Covered under the KSHCP and Referenced in Kauai Harbors Figure 1**

Label ID	TMK No.	Amount	Label ID	TMK No.	Amount
0	432003001		34	432003055	
1	432003002		35	432003057	
2	432003003		36	432003072	
3	432003007	Partial	37	432003073	
4	432004052		38	432004002	Partial
5	432004054		39	432004008	Partial
6	432004057		40	432004015	
7	432004059		41	432004018	Partial
8	432004061		42	432004019	Partial
9	432004063		43	432004024	
10	432004064		44	432004025	
11	432004065		45	432004026	
12	432004067		46	432004027	
13	432004070		47	432004028	
14	432004072		48	432004029	
15	432004074		49	432004030	
16	432004075		50	432004031	
17	432003023		51	432004032	
18	432003031	Partial	52	432004034	Partial
19	432003032		53	432004035	Partial
20	432003033		54	432004036	
21	432003038		55	432004037	
22	432003040		56	432004039	Partial
23	432003041		57	432004042	
24	432003042		58	432004043	
25	432003043	Partial	59	432004044	
26	432003045		60	432004048	
27	432003046		61	432004051	
28	432003047		62	432003999	
29	432003048				
30	432003051				
31	432003052				
32	432003053				
33	432003054				





**Kauai Harbors Figure 1. Nawiliwili Harbor Tax Map Key Parcel Boundaries**



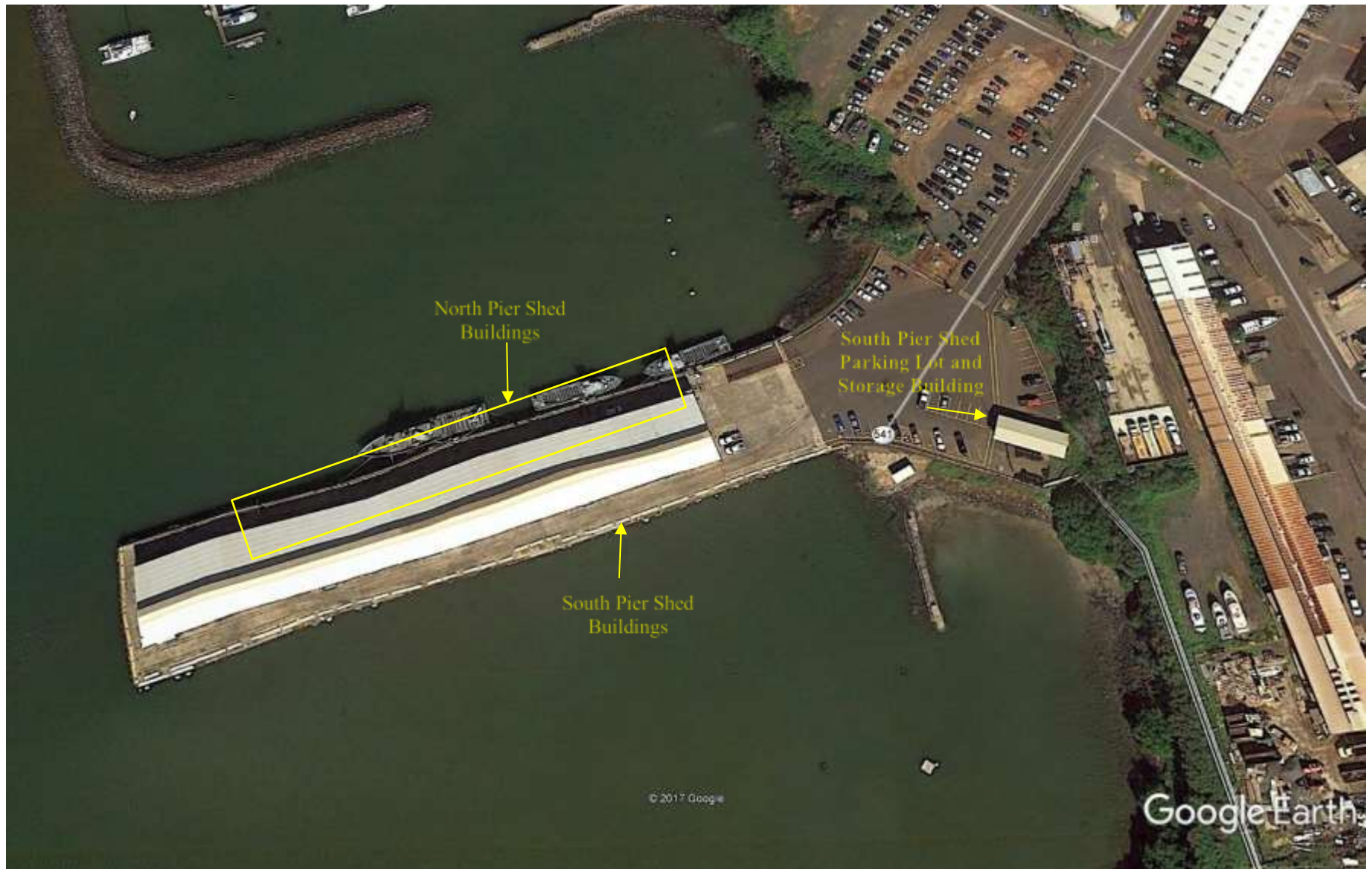


Kauai Harbors Figure 2. Port Allen Harbor Tax Map Key Boundaries



**Kauai Harbors Figure 3. Aerial View of Nawiliwili Harbor Showing the Location Buildings and Harbor Facilities with Exterior Lighting**





**Kauai Harbors Figure 4. Aerial View of Port Allen Harbor Showing the Location of Buildings and Harbor Facilities with Exterior Lighting**

**Lihue Airport Item 2. Provide the legal description of the property at which the existing facilities and Covered Activities are located, including Tax Map Key (TMK) number. Provide a survey of the property and site plan drawings showing the locations of the Covered Activities (lights), property boundaries, buildings & structures, and site features. If properties containing the Covered Activities comprise separate parcels please include all Tax Map Key numbers and maps.**

See Lihue Airport Figures 1 and 2, depicting the Lihue Airport (915 Acres, 1.5 miles east of Lihue, 153 feet above mean sea level):

  X   Portion of Tax Map Key plat (4) 3-5-01. The Lihue Airport TMK parcels being covered under this HCP are listed below and shown in Lihue Airport Figure 1. The boundary of Port Allen Harbor is shown in Kauai Harbors Figure 2.

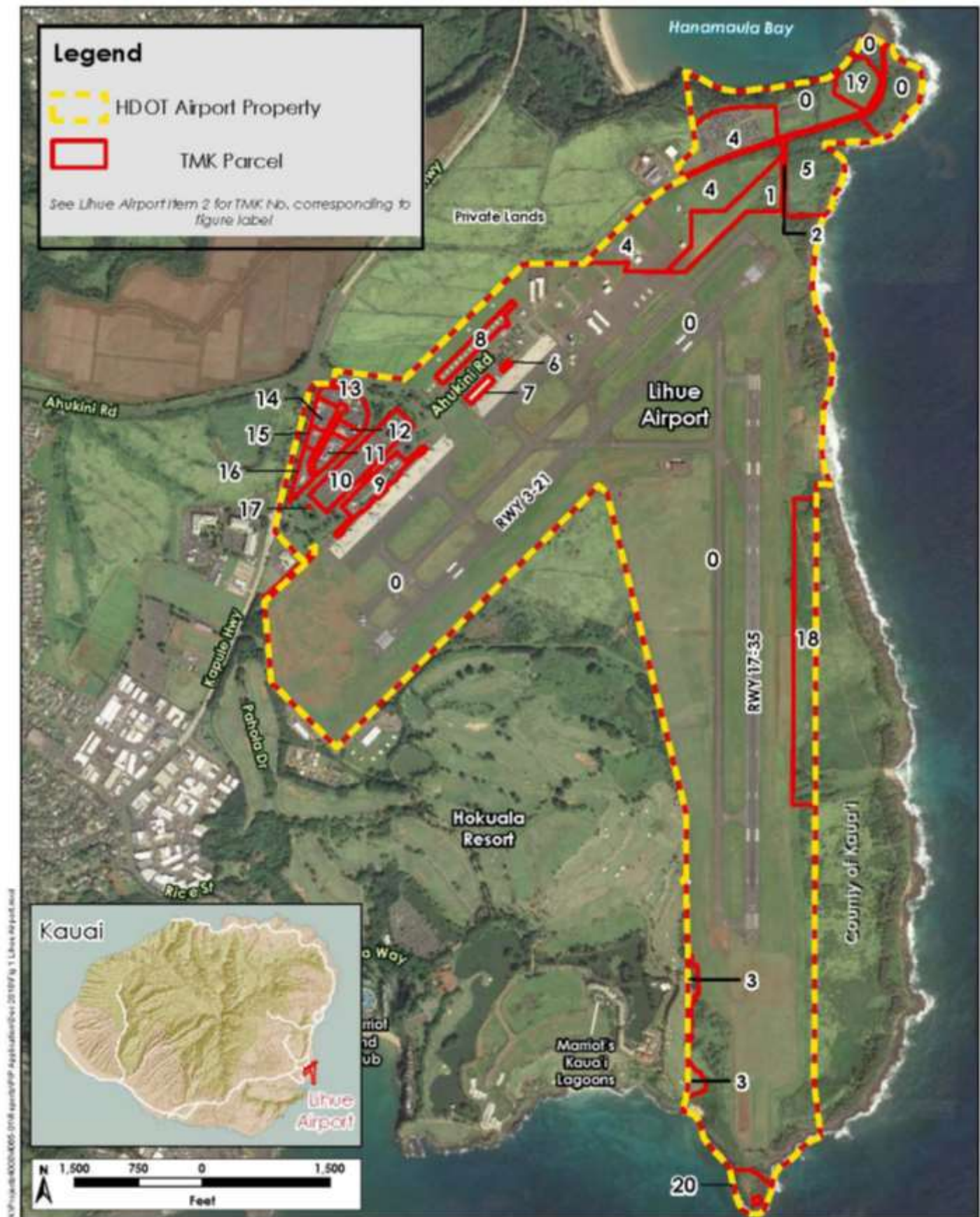
Label ID	TMK No.	Amount
0	435001008	
1	435001009	
2	435001092	
3	435001109	
4	435001158	
5	435001160	
6	435001147	
7	435001146	
8	435001148	
9	435001135	
10	435001091	
11	435001134	
12	435001133	
13	435001132	
14	435001131	
15	435001130	
16	435001129	
17	435001137	
18	435001005	
19	435001159	
20	435001128	Partial

  X   Lihue Airport survey map (Lihue Airport Figure 1)

  X   Map of property (airport layout plan) (Lihue Airport Figure 2)

An aerial view of Lihue Airport, the location of buildings and structures with exterior lights that are covered by the HCP other site features of the property, are provided in Lihue Airport Figure 2.





**Lihue Airport Figure 1. Lihue Airport Tax Map Key Parcels**





**Lihue Airport Figure 2. Lihue Airport Boundary and Location of Facilities with Outdoor Lighting.**

**Kauai Harbors Item 3. Describe the existing Covered Activities for which incidental take authorization is sought. Include list of buildings, type and description of lights present, purpose and location of lights and current seabird lighting accommodation in place (e.g. shielding, downward pointing, switched off during fledging season, etc.). For “Types of lights” please use the following categories:**

- **Parking Lights**
- **Signage Illumination**
- **Wall-pack Building Lights**
- **Landscaping/Grounds/Accent/Bollards**
- **Indoor lights visible from outdoors**
- **Roof Floodlights**
- **High-mast Lights**
- **Other Lights**

**Facility lighting plan may be submitted as lighting inventory. Photos may be attached. The suggested light table and Green Sea Turtle assessment table below may each be modified as needed to provide the necessary information.**

Kauai is served by two deep-draft commercial harbors, Nawiliwili Harbor and Port Allen Harbor. A general description of each is provided below. For its lawful land, water, and ocean use activities, HDOT is applying for an ITP under the KSHCP for the Newell’s shearwater (*Puffinus newelli*), Hawaiian petrel (*Pterodroma sandwichensis*), and band-rumped storm petrel (*Oceanodroma castro*).

### **Nawiliwili Harbor**

Nawiliwili Harbor is owned and operated by the State of Hawaii and is the island’s primary commercial and transportation center, located 1 mile from the county seat in Lihue. It is located on the southeast coast of Kauai and is just 4 miles from Lihue Airport, with easy access to the island’s highway system through Waapa Road. Facilities include piers for the handling of both overseas and interisland containerized and general cargo, as well as cruise ship passengers and crews.

Nawiliwili Harbor is a human-made port, dredged from naturally formed Nawiliwili Bay. The ocean frontage consists of concrete piers or large rock and boulder fill. The existing harbor facilities include three piers providing over 1,800 feet of berthing space:

- Piers 1 and 2 together are 1,214 feet long with a depth of 34 feet at pier side.
- Pier 3, completed in 1994, is 635 feet long and contains over 16 acres of paved yard.

In addition, construction of a segmented pier approximately 100 feet long was completed in 2008.

The harbor basin is 1,540 feet wide by 1,950 feet long and is protected by a rock-faced jetty and a 2,150-foot-long breakwater. Kauai Harbors Table 2 and Kauai Harbors Figure 3 provides details of the existing facilities and external lighting, which is mandated for security and safety reasons for lawful operational activities at Nawiliwili Harbor. Lighting is important especially during twilight hours and from sunset to sunrise to protect this critical infrastructure, in compliance with federal requirements.

Adjacent to the commercial harbor is the Nawiliwili Small Boat Harbor, managed by DLNR's Division of Boating and Ocean Recreation. Nawiliwili Harbor does not have any beach area along its ocean frontage; the nearest beach area is at Nawiliwili Park and Kalapaki Beach, fronting the Kauai Marriot Beach Resort more than 900 feet from the property. The beach is 980 feet from the closest light feature at the harbor.

Nawiliwili Harbor and its operational and administrative activities are regulated by the U.S. Coast Guard (USGC) and Customs and Border Protection (CBP), U.S. Department of Homeland Security (DHS), Occupational Safety and Health Administration (OSHA), and the U.S. Department of Labor. Additionally, the portions of the harbor behind security fencing are designated and regulated by the CBP as "secured or sterile" (restricted) areas. These designated and restricted areas are accessible only by individuals who successfully complete a stringent Security Threat Assessment and Criminal History Security Check and who are issued a Transportation Worker Identification Card, which must be visibly displayed on their persons at all times. Entry by unauthorized individuals into these restricted areas is a federal violation. Containerized imported cargo must be inspected by CBP, and imported and exported products are inspected by the Hawaii Department of Agriculture. HDOT-H provides 24-hour security for the facilities through a contract with a private security services firm. On behalf of HDOT-H, each contracted private security officer must be qualified and certified to conduct their security duties at the facility as well as to successfully complete a Security Threat Assessment and Criminal History Security Check. Restricted areas are surrounded by a security fence, which serves to restrict access by unauthorized individuals, but also controls access by feral dogs or cats that may opportunistically prey on downed seabirds. All security requirements imposed on Nawiliwili Harbor are mandated under a Facility Security Plan (FSP), which is co-approved by a representative of the USCG and a designed official of Nawiliwili Harbor. The contents of the FSP are classified as Security Sensitive Information (SSI) and can be reviewed only "on an as needed basis" and released with proper written authorization.

Nawiliwili Harbor is the island's primary port of call, through which most maritime cargo is imported and through which island products are exported. All of Kauai's containerized cargo is received here and the harbor is the preferred destination for cruise ships, limited to vessels with lengths not exceeding 1000 feet. In addition to cruise ship passengers the harbor handles commodities including darkened molasses; construction materials such as lumber, rebar, and cement; petroleum products such as gasoline; jet fuel and liquefied natural gas and propane; and scrap metal.

Nawiliwili Harbor has regularly scheduled cargo services by Matson, Inc. and Young Brothers, Limited shipping lines. Matson Inc. has weekly tug and barge service to Nawiliwili on Friday and Sunday, operating out of Pier 2. Matson vessels typically operate during day light hours and are in port from 7:00 am – 2:00 pm on Friday and 7:00 am – 3:00 pm on Sundays. Night operational lighting is typically not used unless departure is delayed for some reason.

Young Brothers has weekly tug and barge cargo service to Nawiliwili Harbor on Tuesday and Friday, operating out of Pier 3. Young Brothers tug and barge vessels typically arrive in the morning and depart later that same day after dark. The vessels are usually in port until 8:00 – 10:00 pm requiring full operational night lighting when vessels are actively loading and unloading with heavy equipment operators present.



The cruise ship *Pride of America* is the other vessel that makes regularly scheduled overnight visits to Nawiliwili Harbor, operating out of Pier 2. It arrives at 7:00 am on Thursday and departs at 2:00 pm on Friday. It requires night operational lights while in port, but Pier 2 has a reduced amount of lighting with three high-mast poles illuminating the pier. Only those portions of Pier 2 where lighting is needed for passenger access and safety are illuminated with night operational lights.

Nawiliwili is considered a daylight port for large vessels such as cruise ships, fuel tankers, and propane vessels which typically enter and leave port in a single day during daylight hours. Container cargo operations, such as Matson and Young Brothers, arrive by tug and barges and are not limited by daylight port only operations. The fuel tanker stays overnight, but does not require port side operational lights during these periods. Large cruise ships that do visit typically do so in a single day and do not stay overnight, but may not depart port until after dark, requiring elevated lighting levels to support those operations.

### **Port Allen Harbor**

Port Allen Harbor is Kauai's second commercial harbor, located on the south coast of the island, 20 miles from Lihue Airport and 106 nautical miles from Honolulu Harbor. Port Allen Harbor is nestled in the naturally formed Hanapepe Bay. The Hanapepe River flows into the bay, but because much of the water has been diverted for irrigation purposes, sediments deposited by the river are minimal. The bay is surrounded by the old plantation communities of Hanapepe and Eleele to the north. Waialo Road provides access to the harbor from Kaumualii Highway. The dimension of the harbor basin is 1,200 feet by 1,500 feet and is protected by a 1,200-foot breakwater. The entrance channel is 500 feet wide with a depth of 35 feet. Adjacent to the commercial harbor is the Port Allen Small Boat Harbor managed by the DLNR Division of Boating and Ocean Recreation.

Port Allen Harbor is a smaller facility that serves the military, petroleum suppliers, and more recently, small charter and excursion boat operators. The harbor facilities include two 600-foot-long piers located on opposite sides of the primary pier structure. The north pier has a depth of 25 feet, while the south pier has a depth of 35 feet. The U.S. Navy Pacific Missile Range Facility (PMRF) leases the north pier berths, while the south pier berths are used by charters and excursion operators. Port Allen has facilities for liquid bulk (e.g., petroleum) cargo. There are roughly 1.5 acres of shed and open storage space at the facility. The north side of the pier used by PMRF has security fencing across the pier entrance and at the end of the PMRF-leased space. Port Allen is not regulated by a USCG FSP.

Port Allen Harbor is considered a daylight port and does not have high-mast lights to illuminate large vessel night operations. The regularly scheduled service by a large vessel is the fuel barge that visits every other Monday. The vessel arrives at first light and departs by 3:00 pm. The smaller sized charter and excursion operators use the pier in the early evening and at night, to service their boats. The south side of the facility is not fenced and is open to public access. The pier is a popular fishing spot and heavily used by the public for night fishing. The harbor is staffed by a harbor agent during the day, Monday - Friday and is unmanned on weekends and at night. Night lighting for facility security is on a timer and comes on at dusk and stays on overnight. The night lighting is limited to every other light along the Pier Shed. Tenants also provide their own external lighting to illuminate their work areas.

Kauai Harbors Figures 3 and 4 above show the location of buildings and features at Nawiliwili Harbor and Port Allen Harbor. Kauai Harbors Tables 2 and 3 below describe the type of lights at the building locations shown in these figures, their purpose, and measures implemented to avoid or minimize take impacts to Covered Species. Appendix A provides information on the specifications of the various types of lights used at each facility.

**Kauai Harbors Table 2. Outdoor Lighting at Nawiliwili Harbor**

<b>List of Buildings/ Facilities</b>	<b>Type/Description of Lights Present</b>	<b>Location</b>	<b>Purpose of the Lights</b>	<b>Describe any measures implemented to avoid or minimize take impacts to Covered Species</b>
Harbor Yard	LED High-mast Lighting, Pole mounted at 82 ft high, 4000K, Dimmable (Holophane HMLEDD2 12 4K)	Paved container yard supporting Piers 1, 2, and 3	To provide operational safety and port security for yard operations, dock operations, yard storage, and yard parking areas	With the 2016 energy-savings program, high-pressure sodium light fixtures were replaced with downward pointed, full cut-off LED light fixtures. High-mast light fixtures are compliant with night sky protection strategy under HRS Section 201-8.5. Further, lights are dimmed when no pier operations are in progress.
Harbor Yard Roadways	LED High-mast Lighting, Pole mounted at 28-44 ft high, 4000K, (Holophane HMLEDD2 06 4K)	Internal roadway between Piers 2 and 3	To provide operational safety and port security for internal yard roadway	With the 2016 energy-savings program, high-pressure sodium light fixtures were replaced with downward pointed, full cut-off LED light fixtures. Street light fixtures are compliant with night sky protection strategy under HRS Section 201-8.5.
	LED Roadway Lighting, D series area luminaire, Pole mounted at 30 ft high, 4000K, (Lithonia DSX0 LED 20C 1000 40K)	Paved roadway off Waapa Road to Young Brothers entry gate to Pier 3.	To provide operational safety and port security for access roadway off Waapa Road	Downward pointed, full cut-off fixtures are compliant with night sky protection strategy under HRS Section 201-8.5.
Harbor Administration Building	LED Wall-pack Building Lights, 4000K. (RAB WPLEDD13N/PC2	Harbor Administration Offices Compound	To provide operational safety and security for harbor administrative office compound	Downward pointed, full cut-off fixture, all wall-pack building lights are mounted under eaves and are compliant with night sky protection strategy under HRS Section 201-8.5.
	LED Recessed Ceiling Mount Downlight Building Lights, 4000K, (Precision RF6LED5G4-277)	Harbor Administration Offices Compound	To provide operational safety and security for harbor administrative office compound	Downward pointed, full cut-off fixture, all wall-pack building lights are mounted under eaves and are compliant with night sky protection strategy under HRS Section 201-8.5.
	LED Ceiling Mount Canopy Downlight Building Lights, 4000K, (Cree CPY250-A-DM-F-C-UL-SV-PML)	Harbor Administration Offices Compound	To provide operational safety and security for harbor administrative office compound	Downward pointed, full cut-off fixture, all wall-pack building lights are mounted under eaves and are compliant with night sky protection strategy under HRS Section 201-8.5.



<b>List of Buildings/ Facilities</b>	<b>Type/Description of Lights Present</b>	<b>Location</b>	<b>Purpose of the Lights</b>	<b>Describe any measures implemented to avoid or minimize take impacts to Covered Species</b>
Harbor Maintenance Baseyard Buildings	LED Wall-pack Building Lights, 4000K. (RAB WPLED13N/PC2)	Harbor Administration Compound	To provide operational safety and security for harbor administrative office compound	Downward pointed, full cut-off fixture, all wall-pack building lights are mounted under eaves and are compliant with night sky protection strategy under HRS Section 201- 8.5.
	LED Flood Light Fixture – Flood or shoebox mount, LED, 4000K, (Holophane PMLED-03-4K)	Harbor Administration Compound	To provide operational safety and security for harbor administrative office compound	Downward pointed, full cut-off function achieved by aiming angle, all wall-pack building lights are mounted under eaves and are compliant with night sky protection strategy under HRS Section 201-8.5.
	LED Ceiling/wall mount Florescent Strip Fixture; 4000K, (Precision SIL-1X8-XL-F-UL-40K-CW8-JP)	Harbor Administration Compound	To provide operational safety and security for harbor administrative office compound	Downward pointed, full cut-off fixture, all ceiling/wall-pack building lights are mounted under eaves and are compliant with night sky protection strategy under HRS Section 201-8.5.
Warehouse Pier 2 Building (occupied by Matson)	LED Wall-pack Building Lights, 4000K, dusk to dawn timer. (RAB WPLED3T78NW/PC2)	Pier 2	To provide operational safety and security for Matson processing and storage facilities.	Downward pointed, full cut-off fixture, all wall-pack building lights are mounted under eaves and are compliant with night sky protection strategy under HRS Section 201- 8.5.
	LED Flood Light Fixture, Flood or shoebox mount, 4000K, (Holophane PMLED-04-4K)	Pier 2	To provide operational safety and security for Matson processing and storage facilities	Downward pointed, full cut-off function achieved by aiming angle, all wall-pack building lights are mounted under eaves and are compliant with night sky protection strategy under HRS Section 201-8.5.
Warehouse Pier 3 Building (occupied by Young Brothers)	LED High Bay Fixture, ceiling mounted high bay, 4 LED modules, 4000K, (Cree PKG-304-5M-DM- 04)	Pier 3	To provide operational safety and security for Young Brothers processing and storage facilities	Downward pointed, full cut-off fixture, all ceiling/wall-pack building lights are mounted under eaves and are compliant with night sky protection strategy under HRS Section 201-8.5.

**Kauai Harbors Table 3. Outdoor Lighting at Port Allen Harbor**

<b>List of Buildings</b>	<b>Type/Description of Lights Present</b>	<b>Location</b>	<b>Purpose of the Lights</b>	<b>Describe any measures implemented to avoid or minimize take impacts to Covered Species</b>
Port Allen South Pier Shed Buildings	LED Wall-pack Building Lights, 4000K, dusk to dawn timer (RAB WPLED13N/PC2, RAB WPLED18N/PC2, RAB WPLED26N/PC2)	South Pier Shed Berths Walls	To provide operational safety and security for harbor offices, tenants, and the public	Downward pointed, full cut-off fixture, all wall-pack building lights are mounted under eaves, night time setting of every other light turned off and are compliant with night sky protection strategy under HRS Section 201-8.5.
Port Allen South Pier Shed Buildings	LED Flood Light Fixture, Flood mount, 4000K (Holopane PMLED-03-4K, Holopane PMLED-04-4K)	South Pier Shed Walkway, Berth Walls	To provide operational safety and security for harbor offices, tenants, and the public	Downward pointed, full cut-off function achieved by aiming angle, all wall-pack building lights are mounted under eaves, turned off when no operations in progress and are compliant with night sky protection strategy under HRS Section 201-8.5.
Port Allen South Pier Shed Parking Lot	LED Flood Light Fixture, Flood mount on side of building, 4000K (Holopane PMLED-03-4K, Holopane PMLED-04-4K)	South Pier Shed East End Parking Lot	To provide operational safety and security for harbor offices, tenants, and the public	Downward pointed, full cut-off function achieved by aiming angle and are compliant with night sky protection strategy under HRS Section 201-8.5.
Port Allen South Pier Parking Lot Storage Shed	LED Flood Light Fixture, Flood mount, 4000K (Holopane PMLED-03-4K, Holopane PMLED-04-4K)	South Pier Storage Building at back of Parking Lot	To provide operational safety and security for harbor offices, tenants, and the public	Downward pointed, full cut-off function achieved by aiming angle, wall-pack building light mounted under eaves.
Port Allen North Pier Shed Buildings	LED Wall-pack Building Lights, 4000K	North Pier Shed	To provide operational safety and security for U.S. Navy PMRF pier facilities	The lights that illuminate the northern berths are controlled by the U.S. Navy PMRF. Any measures taken to minimize take impacts are the responsibility of the U.S. Navy PMRF.
	LED Flood Light Fixture, Flood mount, 4000K	North Pier Shed	To provide operational safety and security for U.S. Navy PMRF pier facilities	The lights that illuminate the northern berths are controlled by the U.S. Navy PMRF. Any measures taken to minimize take impacts are the responsibility of the U.S. Navy PMRF.

#### Kauai Harbors Table 4. Green Sea Turtle (Honu) Assessment for the Site and Facility

**Please provide the information requested below for each facility, parcel, and site to help determine if potential exists for take (pages may be attached). If potential exists for take of the green sea turtle, measures to avoid impacts to the honu from the effects of light attraction may be required. Please consult with staff from the DLNR and the USFWS to arrange a site visit, if needed, discuss measures to avoid impacts to the honu, and provide further guidance.**

<b>Are any of the facilities located adjacent to a beach?</b>	<b>Yes / No</b>	<b>If yes, provide length of beach frontage &amp; brief description of facilities &amp; lights adjacent to the beach</b>
Nawiliwili Harbor	No	
Port Allen Harbor	No	
<b>Are any of the Covered Activities (lights) visible from a beach?</b>	<b>Yes / No</b>	<b>If yes, describe the specific lights (type, quantity, height, purpose) &amp; specific location; provide map &amp; photos showing distance from beach</b>
Nawiliwili Harbor	No	
Port Allen Harbor	No	
<b>Have green sea turtles been known to nest on any beaches adjacent to the facilities?</b>	<b>Yes / No</b>	<b>If yes, provide information about nesting occurrences, if known, including location and date and any other information</b>
Nawiliwili Harbor	No	
Port Allen Harbor	No	

**Lihue Airport Item 3. Describe the existing Covered Activities for which incidental take authorization is sought. Include list of buildings, type and description of lights present, purpose and location of lights and current seabird lighting accommodation in place (e.g. shielding, downward pointing, switched off during fledging season, etc.). For “Types of lights” please use the following categories:**

- **Parking Lights**
- **Signage Illumination**
- **Wall-pack Building Lights**
- **Landscaping/Grounds/Accent/Bollards**
- **Indoor lights visible from outdoors**
- **Roof Floodlights**
- **Other Lights**

**Facility lighting plan may be submitted as lighting inventory. Photos may be attached. The suggested light table and green sea turtle assessment table below may each be modified as needed to provide the necessary information.**

### **Lihue Airport**

Lihue Airport is part of a statewide system that includes most of the major air carrier and general aviation airports in the Hawaiian Islands. It is part of the Kauai Island District.

Lihue Airport is classified by the FAA as a Class 1 Airport, certified to serve scheduled and unscheduled operations of large air carrier aircraft. In order to serve air carrier operations, Lihue Airport is required to have 14 CFR Part 139 Airport Certification and hold a Part 139 Air Operating Certificate issued by the FAA, to ensure safety in air transportation. To obtain a certificate, an airport must agree to certain operational and safety standards, including having Part 139 compliant runway/taxiway and apron lighting and signage, lighting, and obstruction lighting. Lihue Airport is also governed by the provisions of Chapters 261, 262, and 263 of the Hawaii Revised Statutes. HDOT-A has compiled and published “Administrative Rules for Public Airports” (Title 19), promulgating rules and regulations for operation of the Airports Division (HDOT-A) and the individual airports throughout the state.

Lihue Airport occupies 915 acres and is situated about 1.5 miles east of Lihue, on the southeast coast of the island of Kauai. The airport promotes the freedom of movement of passengers and commerce and provides passenger and aircraft facilities for domestic overseas carriers, interisland carriers, commuter/air taxis, air cargo, and general aviation activities. Airfield facilities include two runways (6,500 by 150 feet), taxiways, aprons, eight gates, navigational aids (ILS, VORTAC, DME, and PAPI/VASI), an airport traffic control tower, and helipads.

Vehicular access to the airport is provided by Ahukini Road, which extends from Kapule Highway. The passenger terminal is served by a one-way loop roadway branching off Ahukini Road and encircling a public parking lot. The remaining facilities are served directly by Ahukini Road.

Airport support elements include the Federal Aviation Administration (FAA) air traffic control tower, aircraft rescue and firefighting facilities, National Weather Service office and balloon launch facility,



HDOT-A Airport Maintenance facilities, fuel storage and loading facilities, concessions (food and beverage, retail, Wifi, rental cars) and airport service roads.

Airspace usage in the Lihue terminal area is influenced by urban development, resort and recreational areas (golf course), military activities, and terrain features. Some of these activities and operations may attract avian activity, but must comply with safety, security, and health regulations, some limit the use of airspace, and some do both.

There are currently no restrictions that influence aircraft performance on approaches or departures. The control tower advises arriving and departing aircraft to minimize overflights of the town of Lihue to the southwest. With respect to approach procedures, air traffic from the north must maintain an altitude of 1,500 feet until final approach.

Lihue Airport Figure 1 above shows the TMK parcels that compose the airport property. Lihue Airport Figure 2 above uses Google Earth imagery to show the landscape-scale features of Lihue Airport and identifies those buildings and features that have outdoor lights. Lihue Airport Table 1 describes the outdoor airport lighting. Appendix A provides information on the specifications of the various types of lights used at the facility.

**Lihue Airport Table 1. Outdoor Lighting at Lihue Airport**

List of Buildings/ Facilities	Type/Description of Lights Present	Location	Purpose of the Lights	Describe any measures implemented to avoid or minimize take impacts to Covered Species
Main Ramp/Apron (Aircraft Operating Area)	<p>HPS High-mast Lighting, Pole-Mounted Flood Fixture, High Pressure Sodium, (6) 1000W lamps, on timer from dusk to 12:30 a.m.</p> <p>HPS Apron Flood Lighting, Pole-Mounted Flood Fixture, High Pressure Sodium, (4) 1000W lamps</p> <p>LED Wall-pack Building Lights, 4000K, (Cree SEC EDG 3MB WM 04 D 40k)</p> <p>LED Wall-pack Building Lights, 4000K, (RAB WPLED18N)</p>	The aircraft apron, ramp and taxiways servicing the main passenger terminal.	To provide operational safety and security for aircraft movement, servicing, maintenance, baggage handling, and passenger service	<p>Downward pointed, full cut-off function achieved by aiming angle, turned off at 12:30 am after the last flight departs for the night.</p> <p>Downward pointed, full cut-off function achieved by aiming angle, turned off at 12:30 am after departure of the last flight.</p> <p>Downward pointed, full cut-off fixture.</p> <p>Downward pointed, full cut-off fixture.</p>
Terminal Building (Public Access)	<p>LED Wall-pack Building Lights, 4000K, (Cree SEC EDG 3MB WM 04 D 40k)</p> <p>LED Wall-pack Building Lights, 4000K, (RAB WPLED13N)</p> <p>LED Ceiling Mount High Bay Parking Structure Luminaire, 4000K, (Cree PKG 304 PS DM 04-40K)</p> <p>LED Ceiling Mount, Recessed Can, 4000K, (Precolite RLF6LEDG4 6LFLED7G4-40k)</p> <p>LED Ceiling Mount, High Bay Canopy Light, 4300K, (Cree CAN EDG 5S DM 04 43K)</p>	Main terminal public access areas, vehicle and pedestrian access	To provide operational safety and security for public, airport workers, and tenants.	<p>Downward pointed, full cut-off fixture</p> <p>Downward pointed, full cut-off fixture</p> <p>Downward pointed, full cut-off fixture</p> <p>Downward pointed, full cut-off fixture</p> <p>Downward pointed, full cut-off fixture</p>
Terminal Building (Public Access Indoor Lighting)	LED Interior Indoor Lights Visible from Outside. LED Fluorescent Light. On motion sensor to dim to 10% level when not occupied.	Main terminal public access passenger holding areas, pedestrian access	To provide operational safety and security for public, airport workers, and tenants.	Internal building lighting, passenger holding areas on motion sensor to dim to 10% level when not occupied.

List of Buildings/ Facilities	Type/Description of Lights Present	Location	Purpose of the Lights	Describe any measures implemented to avoid or minimize take impacts to Covered Species
Public Parking Lot	LED Pole Mounted Parking Lot Light, 4000K, Solar Powered dusk to dawn timer. Holophane - ATB2 40BLEDE70 120 R2 GY NR DCDRIVER & EG-340 LED Bollard Walkway light, 3 ft high, 5500K, Solar Powered dusk to dawn timer. First Light PLB 102 BZ SYM 55K 04 SEC)	Public Car Park	To provide public safety and security for visitors to airport and enable surveillance of parking areas to maintain airport security.	Downward pointed, full cut-off fixture  Downward pointed, full cut-off fixture
Rental Car Lots (public access road)	LED Roadway Light, LED Pole Mounted, 4000K, Solar Powered dusk to dawn timer. (Holophane - ATB2 40BLEDE70 120 R2 GY NR DCDRIVER & EG-340)	Rental car facilities access road	To provide safe driving, walking and working conditions for public, workers, and businesses.	Downward pointed, full cut-off fixture.
Ahukini Road	LED Roadway Light, LED Pole Mounted, 4000K, Solar Powered dusk to dawn timer. (Holophane - ATB2 40BLEDE70 120 R2, R4, R5 GY NR DCDRIVER & EG-340) LED Sign Illumination, flood solar light, 2-light system, 2700K, dimmable. (Solar Illuminations FL57 2 lamp system 45W Panel)	Airport access road to main terminal, cargo and commuter terminal, and heliport  Sign lighting along roadway	To provide safe driving, walking and working conditions for the public, airport workers, and tenants	Downward pointed, full cut-off fixture.  Mounted above sign. Downward pointed
Cargo Ramp/Apron (Aircraft Operating Area)	HPS High-mast Lighting, Pole-Mounted Flood Fixture, High Pressure Sodium, (6) 1000W lamps  HPS Apron Flood Lighting, Pole-Mounted Flood Fixture, High Pressure Sodium, (4) 1000W lamps  MH Metal Halide Lighting, Pole-Mounted Flood Fixture, Metal Halide, (4) 750W lamps, Magnetic ballast	Aircraft apron, parking stalls, and taxiways for the main terminal	To provide operational safety and security for aircraft movement, servicing, and maintenance, baggage handling for passenger service.	Downward pointed, full cut-off function achieved by aiming angle.  Downward pointed, full cut-off function achieved by aiming angle.  Downward pointed, full cut-off function achieved by aiming angle.



List of Buildings/ Facilities	Type/Description of Lights Present	Location	Purpose of the Lights	Describe any measures implemented to avoid or minimize take impacts to Covered Species
Commuter Terminal and Cargo Building (Public Access)	<p>LED Wall-pack Building Lights, 4000K, (Cree SEC EDG 3MB WM 04 D 40k)</p> <p>LED Wall-pack Building Lights, 4000K, (RAB WPLED18N)</p> <p>LED Ceiling Mount, Recessed Can, 4000K, (Precolite RLF6LEDG4 6LFLED7G4-40k)</p> <p>LED Pole mounted shoebox area light, 4000K (Cree ARE EDG 3M DA 04 E 40K)</p>	Cargo and Commuter terminal public access areas, vehicle and pedestrian access	To provide operational safety and security for public, airport workers, and tenants and handling of cargo.	<p>Downward pointed, full cut-off fixture</p> <p>Downward pointed, full cut-off fixture</p> <p>Downward pointed, full cut-off fixture</p> <p>Downward pointed, full cut-off fixture</p>
Heliport Apron (Aircraft Operating Area, T-hangers)	<p>LED Wall-pack Building Lights, 4000K, (RAB WPLED13N)</p> <p>LED Area Flood Light, wall mounted, 4000K, (Cree ARE EDG 4M DA 10 E UL BZ 525 40K PML + WM2)</p> <p>LED Area Flood Light, pole mounted, 4000K, (Cree ARE EDG 4M DA 10 E UL BZ 525 40K PML + WM2)</p> <p>LED Area light, wall mounted, 4000K (Cree ARE EDG 4M AA 04 E UL BZ 700 40K R + WM-2)</p> <p>LED Area Light, pole mounted shoebox fixture, 4000K, (Cree ARE EDG 3M DA 04 E UL BZ 525 R)</p> <p>LED Roadway Light, LED Pole Mounted, 4000K, Solar Powered dusk to dawn timer. (Holophane - ATB2 40BLEDE70 120 R2 GY NR DC DRIVER &amp; EG-340)</p>	Helicopter apron, T-Hangers, and service area within secure part of airport.	To provide safety and security for aircraft movement, servicing, and maintenance.	<p>Downward pointed, full cut-off fixture, turned off when no operations are in progress.</p> <p>Downward pointed, full cut-off fixture, turned off when no operations are in progress.</p> <p>Downward pointed, full cut-off fixture, turned off when no operations are in progress.</p> <p>Downward pointed, full cut-off fixture, turned off when no operations are in progress.</p> <p>Downward pointed, full cut-off fixture.</p>

List of Buildings/ Facilities	Type/Description of Lights Present	Location	Purpose of the Lights	Describe any measures implemented to avoid or minimize take impacts to Covered Species
Maintenance Area Building	<p>LED Roadway Light, LED Pole Mounted, 4000K, Solar Powered dusk to dawn timer. (Holophane - ATB2 40BLEDE70 120 R2 GY NR DCDRIVER &amp; EG-340)</p> <p>LED Wall-pack Building Lights, 4000K, (Cree SEC EDG 3MB WM 04 D 40k)</p> <p>LED Wall-pack Building Lights, 4000K, (Cree SEC EDG 4M WM 02 E - 40k)</p> <p>LED Wall-pack Building Lights, 4000K, (RAB WPLED18N)</p> <p>LED Wall-pack Building Lights, 4000K, (RAB WPLED13N)</p>	Airport Maintenance Area across from Heliport and Cargo and Commuter Terminal	To provide operational safety and security for airport maintenance personnel and work.	<p>Downward pointed, full cut-off fixture.</p> <p>Downward pointed, full cut-off fixture.</p> <p>Downward pointed, full cut-off fixture.</p> <p>Downward pointed, full cut-off fixture</p> <p>Downward pointed, full cut-off fixture</p>
Fire Department	<p>LED Flood light, Wall mounted, 4000K (Cree FLD EDG 70 AA 04 D UL BZ 525)</p> <p>LED Wall-pack Building Lights, 4000K, (Cree SEC EDG 3MB WM 04 D 40k)</p> <p>LED Area Light, Pole mounted, 4000K, (Cree ARE EDG 3M DA 06 D UL BZZ 700 40K P)</p> <p>LED Ceiling Mount, Recessed Can, 4000K, Dimmable (Precolite RLF6LEDG4 6LFLED7G4-40k)</p>	Airport airfield adjacent to runways	To provide operational safety and security for airport fire station, worker safety and facility security	<p>Downward pointed, full cut-off function achieved by aiming angle</p> <p>Downward pointed, full cut-off fixture</p> <p>Downward pointed, full cut-off fixture</p> <p>Downward pointed, full cut-off fixture</p>

**Lihue Airport Table 2. Green Sea Turtle (Honu) Assessment for the Site and Facility**

**Please provide the information requested below for each facility, parcel, and site to help determine if potential exists for take (pages may be attached). If potential exists for take of the green sea turtle, measures to avoid impacts to the honu from the effects of light attraction may be required. Please consult with staff from the DLNR and the USFWS to arrange a site visit, if needed, discuss measures to avoid impacts to the honu, and provide further guidance.**

Are any of the facilities located adjacent to a beach?	Yes / No	If yes, provide length of beach frontage & brief description of facilities & lights adjacent to the beach
Lihue Airport	No	
Are any of the Covered Activities (lights) visible from a beach?	Yes / No	If yes, describe the specific lights (type, quantity, height, purpose) & specific location; provide map & photos showing distance from beach
Lihue Airport	No	
Have green sea turtles been known to nest on any beaches adjacent to the facilities?	Yes / No	If yes, provide information about nesting occurrences, if known, including location and date and any other information
Lihue Airport	No	



**Kauai Harbors Item 4. If applicable, describe any lighting standards (e.g., foot-candles/area) required for facility operations or other requirements that necessitate the use of lighting (e.g., required for security, safety, operations). Describe the relevant standard, or regulation, and the areas and Covered Activities at the site (e.g., type of lighting) to which it applies.**

#### **U.S. Coast Guard. Harbors Operations**

The USCG operates under the Pacific Area Instructions 16611. Lighting for harbor facilities is regulated and governed by paragraph #5 of this document, which reads as follows:

##### **5. Lighting**

- A. Facilities should be illuminated at least to the level of twilight and should be provided sunset to sunrise. The minimum standard for illumination should be one-foot candle at 1 meter above ground. Dock work areas, container unloading and loading areas, waterfront, perimeter, restricted areas and all access points should have 5 foot-candle illumination.
- B. Lighting should conform to federal regulations (e.g. OSHA) and comply with voluntary agreements such as U.S. Customs Sea Carrier or Super Carrier Initiatives (if applicable).
- C. Updated lighting technology should be used, such as high-pressure sodium, mercury vapor, or metal halide lighting.
- D. Lighting should be directed downward, away from guards or offices, or navigable waterways and should produce high contrast with few shadows.

U.S. Coast Guard Code of Federal Regulations Title 33, Chapter I, Subchapter H, Part 105 Maritime Security: Facilities, Subpart B Facility Security Requirements, Section 105.275 Security measures for monitoring, which reads as follows.

- A. *General.* The facility owner or operator must ensure the implementation of security measures in this section and have the capability to continuously monitor, through a combination of lighting, security guards, waterborne patrols, automatic intrusion-detection devices, or surveillance equipment, as specified in the approved Facility Security Plan (FSP), the:
  - 1. Facility and its approaches, on land and water;
  - 2. Restricted areas within the facility; and
  - 3. Vessels at the facility and areas surrounding the vessels.
- B. *MARSEC Level 1.* At MARSEC Level 1, the facility owner or operator must ensure the security measures in this section are implemented at all times, including the period from sunset to sunrise and periods of limited visibility. For each facility, ensure monitoring capability that:

1. When automatic intrusion-detection devices are used, activates an audible or visual alarm, or both, at a location that is continuously attended or monitored;
  2. Is able to function continually, including consideration of the possible effects of weather or of a power disruption;
  3. Monitors the facility area, including shore and waterside access to it;
  4. Monitors access points, barriers and restricted areas;
  5. Monitors access and movements adjacent to vessels using the facility, including augmentation of lighting provided by the vessel itself; and
  6. Limits lighting effects, such as glare, and their impact on safety, navigation, and other security activities.
- C. *MARSEC Level 2.* In addition to the security measures for MARSEC Level 1 in this section, at MARSEC Level 2, the facility owner or operator must also ensure the implementation of additional security measures, as specified for MARSEC Level 2 in the approved FSP. These additional measures may include:
1. Increasing the coverage and intensity of surveillance equipment, including the provision of additional surveillance coverage;
  2. Increasing the frequency of foot, vehicle or waterborne patrols;
  3. Assigning additional security personnel to monitor and patrol; or
  4. Increasing the coverage and intensity of lighting, including the provision of additional lighting and coverage.
- D. *MARSEC Level 3.* In addition to the security measures for MARSEC Level 1 and MARSEC Level 2, at MARSEC Level 3, the facility owner or operator must also ensure implementation of additional security measures, as specified for MARSEC Level 3 in the approved FSP. These additional security measures may include:
1. Switching on all lighting within, or illuminating the vicinity of, the facility;
  2. Switching on all surveillance equipment capable of recording activities within or adjacent to the facility;
  3. Maximizing the length of time such surveillance equipment can continue to record; or
  4. Complying with the instructions issued by those responding to the security incident.

U.S. Coast Guard Code of Federal Regulations Title 33, Chapter I, Subchapter L, Part 126, Section 126.15 Conditions for designation as designated waterfront facility (33 CFR 126.15), the relevant parts of which read as follows:

(l) Lighting. That subject to applicable dim-out and blackout regulations, such waterfront facility is adequately illuminated during the handling, storing, stowing, loading, discharging or transporting of dangerous cargo thereon; and that kerosene and gasoline lamps and lanterns are not used on such waterfront facility.

\*\*\*\*\*

(n) Adequacy of guarding, fire extinguishing equipment, and lighting. That the word “adequate”, as used in paragraphs (a), (j), and (l) of this section with respect to guarding, fire extinguishing equipment, and lighting, respectively, means that determination which a reasonable person would make under the circumstances of the particular case. Unless there is gross noncompliance, the judgment and determination of the operator of the facility will be acceptable as fulfilling the requirements unless and until the Captain of the Port inspects the facility and notifies the operator thereof in writing in what respect the guarding, fire extinguishing equipment, or lighting, is deemed inadequate and affords such operator an opportunity to correct the deficiency.

U.S. Coast Guard Code of Federal Regulations Title 33, Part 127 – Waterfront Facilities Handling Liquefied Natural Gas and Liquefied Hazardous Gas, Subpart B – Waterfront Facilities Handling Natural Gas, provides:

§127.109 Lighting systems.

- A. The marine transfer area for LNG must have a lighting system and separate emergency lighting.
- B. All outdoor lighting must be located or shielded so that it is not confused with any aids to navigation and does not interfere with navigation on the adjacent waterways.
- C. The lighting system must provide an average illumination on a horizontal plane one meter (3.3 feet) above the deck that is—
  - 1. 54 lux (five foot-candles) at any loading flange; and
  - 2. 11 lux (one foot-candle) at each work area.
- D. The emergency lighting must provide lighting for the operation of the—
  - 1. Emergency shutdown system;
  - 2. Communications equipment; and
  - 3. Firefighting equipment.



U.S. Coast Guard Code of Federal Regulations Title 33, Part 154, Facilities Transferring Oil or Hazardous Material in Bulk, Subpart C – Equipment Requirements, provides:

§154.570 - Lighting.

- A. Except as provided in paragraph (c) of this section, for operations between sunset and sunrise, a facility must have fixed lighting that adequately illuminates:
  - 1. Each transfer connection point on the facility;
  - 2. Each transfer connection point in use on any barge moored at the facility to or from which oil or hazardous material is being transferred;
  - 3. Each transfer operations work area on the facility; and
  - 4. Each transfer operation work area on any barge moored at the facility to or from which oil or hazardous material is being transferred.
- B. Where the illumination is apparently inadequate, the COTP may require verification by instrument of the levels of illumination. On a horizontal plane 3 feet above the barge deck or walking surface, illumination must measure at least:
  - 1. 5.0 foot-candles at transfer connection points; and
  - 2. 1.0 foot-candle in transfer operations work areas.
- C. For small or remote facilities, the COTP may authorize operations with an adequate level of illumination provided by the vessel or by portable means.
- D. Lighting must be located or shielded so as not to mislead or otherwise interfere with navigation on the adjacent waterways.

[CGD 75-124, 45 FR 7172, Jan. 31, 1980, as amended by CGD 86-034, 55 FR 36253, Sept. 4, 1990]

**U.S. Department of Labor, Occupational Safety and Health Administration (OSHA)**

OSHA Code of Federal Regulation Title 29, Part 1917, Marine Terminals, Subpart F - Terminal Facilities, provides:

§1917.123 Illumination.

- A. Working and walking areas shall be illuminated. Unless conditions described in the regulations of the United States Coast Guard (33 CFR 126.15(1) and (n), and 33 CFR 154.570) exist in the case of specific operations, illumination in active work areas (for example, cargo transfer points) shall be of an average minimum light intensity of 5 foot-candles. The illumination in other work areas (for example, farm areas) shall be of an average minimum light intensity of 1 foot-candle except for security purposes when a minimum light intensity of 1/2 foot-candle shall be maintained. Where occasional work

tasks require more light than that which is consistently and permanently provided, supplemental lighting shall be used.

- B. The lighting intensity shall be measured at the task/working surface in the plane in which the task/working surface is present.
- C. Lights shall, so far as possible, be placed so that they will not shine in the eyes of employees.

Footnote: The United State Coast Guard, at 33 CFR 126.15(1) and (n), and 33 CFR 154.570 sets out requirements for illumination at "designated waterfront facilities" and "large oil transfer facilities." [48 FR 30909, July 5, 1983, as amended at 62 FR 40201, July 25, 1997]

### **Illuminating Engineering Society Standards**

ANSI/IES RP-8-14. Roadway Lighting. IES RP-8-14 provides recommended practices for design of fixed lighting for roadways, streets, adjacent bikeways, and pedestrian ways. Its primary purpose is to provide recommended practices for designing new continuous lighting systems for roadways and streets to allow accurate and comfortable visibility at night of possible hazards in sufficient time to allow appropriate action. For a pedestrian, this can mean better visibility of the surrounds and the sidewalk, while for the driver of a motor vehicle, it will mean time to stop or to maneuver around an obstacle. The IES recommended illuminance values for continuously lighted intersections varies from 0.8-3.4 foot-candles corresponding to low to high pedestrian conflict areas at local to major streets and intersections.

### **American Association of State Highway and Transportation Organization (AASHTO) highway lighting requirements**

The roadway lighting at harbor facilities was designed to meet safety standards established by AASHTO in their roadway lighting design guide. The AASHTO standards are the primary source for highway lighting policy, design and warranting used by state departments of transportation.

### **State of Hawaii Night Sky Protection Strategy, HRS Section 201-8.5**

The provision requires all exterior light fixtures to be installed to be fully shielded, defined as "when the lighting fixture is shielded in such a manner that all light rays emitted by the fixture, either directly from the lamp, or indirectly from the fixture, are projected below a horizontal plane running through the lowest point of the fixture." It also requires "every new outdoor lamp light fixture emitting more than three thousand lumens shall be required to be fully shielded and to have a correlated color temperature of four thousand Kelvin or less".

Navigational lights that are required for waterway, open ocean, and aircraft safety; and outdoor lighting fixtures that are necessary for compliance with applicable federal, state, or county design standards or guidelines that are related to health and safety for the general public are exempt. Fully shielded replacement lighting fixtures for state managed roadways and highways shall be installed on a case-by-case basis, subject to the availability of capital improvement project funding and compliance with applicable federal, state, or county design standards or guidelines.

**Lihue Airport Item 4. If applicable, describe any lighting standards (e.g., foot candles/area) required for facility operations or other requirements that necessitate the use of lighting (e.g., required for security, safety, operations). Describe the relevant standard, or regulation, and the areas and Covered Activities at the site (e.g., type of lighting) to which it applies.**

Detailed regulations and standards addressing lighting requirements at airports are prescribed in the following documents.

#### **FAA Advisory Circulars (AC)**

AC 150/5345-46E—Specifications for Runway and Taxiway Light Fixtures  
[https://www.faa.gov/documentLibrary/media/Advisory\\_Circular/150-5345-46E.pdf](https://www.faa.gov/documentLibrary/media/Advisory_Circular/150-5345-46E.pdf)

Errata sheet for AC 150/5345-46E  
[https://www.faa.gov/documentLibrary/media/Advisory\\_Circular/errata-sheet-150-5345-46E.pdf](https://www.faa.gov/documentLibrary/media/Advisory_Circular/errata-sheet-150-5345-46E.pdf)

This FAA advisory circular contains the Federal Aviation Administration (FAA) specifications for light fixtures to be used on airport runways and taxiways. These specifications cover the requirements for various types of runway and taxiway light fixtures and specifies the light type, use, light direction and color. When installed, these lights must be directional or omnidirectional and a specific color for visibility by pilots. All lighting designs contained in this standard are the only means acceptable for the airport to meet the lighting requirements of Title 14 CFR Part 139, Certification of Airports, Section 139.311, Marking, Signs and Lighting.

AC 150/5300-13—Airport Design (dated 2/26/2014)  
[https://www.faa.gov/documentLibrary/media/Advisory\\_Circular/150-5300-13A-chg1-interactive-201705.pdf](https://www.faa.gov/documentLibrary/media/Advisory_Circular/150-5300-13A-chg1-interactive-201705.pdf)

Much of the concentrated outdoor lighting at airports is directed at aircraft parked at aprons located in the nonmovement area of an airport near or adjacent to the terminal area. The function of an apron is to accommodate aircraft during loading and unloading of passengers and or cargo. Activities such as fueling, maintenance and short/long-term parking take place on an apron. Apron layout depends on aircraft gate positions; aircraft and ground vehicle circulation needs; and aircraft clearance requirements. FAA advisory circular AC 150-5300-13A, Section 510 and A5-8 on marking and lighting of aprons, stipulates that “area lighting of apron areas is desirable, especially at terminal gates. The area light beams must be directed downward and away from runway approaches and control towers. Shielding of the lights may be needed to minimize unwanted glare. Area light spread should cover aircraft service areas. Refer to Illuminating Engineering Society of North America (IES), Recommended Practice for Airport Service Area Lighting, for additional guidance on apron area lighting.”

#### **Illuminating Engineering Society Standards**

IES RP-37-15 Outdoor Lighting for Airport Environments. IES RP-37-15 provides recommended practices for all outdoor lighting - air side and land side – for commercial airports. It is essential to provide at least minimum levels of light for safety and efficiency in conducting all work tasks in various areas of the airport. IES RP-37-15 provides guidance for an adequate and safe lighted environment while emphasizing restrictions, regulations and best practices for aircraft servicing and

apron areas; aircraft support services, i.e., fueling, cargo, baggage load/unload; passenger loading and unloading; roadways; vehicle parking facilities; and pedestrian walkways. Aprons and ramp lighting needs to provide illumination of aircraft from nose to tail for servicing and between 2-5-foot candles for tasks such as maintenance, fueling, and cargo loading and unloading. IES recommends illumination standards of between 1-5-foot candles for the landside areas of the airport including parking facilities, parking lots, pedestrian walkways, vehicle transaction areas, and between 0.8-3.4. IES standards for roadway intersections, and 3.0-foot candles for secure access search area parking and roadways. Roadway lighting should eliminate the uplight component. IES standard for security includes vertical lighting in all cases where there is a need to identify people's face and body language and minimize shadows or a silhouette effect as the person moves through a space.

### **American Association of State Highway and Transportation Organization (AASHTO) highway lighting requirements**

The roadway lighting at the Lihue Airport was designed to meet safety standards established by AASHTO in their roadway lighting design guide. The AASHTO standards are the primary source for highway lighting policy, design and warranting used by state departments of transportation.

### **TSA Airport Security Requirements**

Airport security is regulated by TSA under Title 49 Code of Federal Regulations (CFR), part 1542. TSA requires that lighting be of sufficient intensity installed in areas requiring such protection to sufficiently light those areas where vehicles and aircraft maneuver so that such maneuvering may be done safely. In addition, lighting must be sufficient to detect the presences of persons or vehicles and afford positive identification during hours of darkness. Lighting must not affect the night vision requirements of the flight crew members, nor cause direct glare conditions. Lighting must be provided along the airport perimeter and at manned access gates.

### **State of Hawaii Night Sky Protection Strategy, HRS Section 201-8.5**

The provision requires all exterior light fixtures to be installed to be fully shielded, defined as "when the lighting fixture is shielded in such a manner that all light rays emitted by the fixture, either directly from the lamp, or indirectly from the fixture, are projected below a horizontal plane running through the lowest point of the fixture." It also requires "every new outdoor lamp light fixture emitting more than three thousand lumens shall be required to be fully shielded and to have a correlated color temperature of four thousand Kelvin or less". Navigational lights that are required for waterway, open-ocean, and aircraft safety; and outdoor lighting fixtures that are necessary for compliance with applicable federal, state, or county design standards or guidelines that are related to health and safety for the general public are exempt. Fully shielded replacement lighting fixtures for state managed roadways and highways shall be installed on a case-by-case basis, subject to the availability of capital improvement project funding and compliance with applicable federal, state, or county design standards or guidelines.

**Kauai Harbors Item 5. Describe any plans/proposals for future facilities or expansion of existing facilities. Include any proposed structures and lighting by type, purpose, and location. Plans (architecture and site plans), photos, and drawings can be attached.**



The Harbors Modernization Plan identifies proposed future facilities for HDOT-H. The plan does not contain proposals for future facilities or expansion of existing facilities on the island of Kauai. During December 2013, HDOT-H executed a 20-year term contract with Johnson Controls, Inc. (JCI), to address current and future energy conservation needs, as well as to be dark sky friendly in compliance with HRS § 201-8.5 and to serve as a model for other agencies to follow. In September 2015, the Harbors Division negotiated a \$26,200,000 energy savings improvement contract with JCI for approximately 1,030,443 square feet of buildings and 18,025,128 square feet of exterior lighted areas, with a projected 40% average annual energy savings. Approximately 2,346 high-mast light fixtures and 3,381 interior, roadway, and parking lot light fixtures were replaced with variable controls to be in compliance with Occupational Safety and Health Administration (OSHA) rules and the USCG 5-foot candle power requirement in working areas. The new fixtures feature the ability to dim and turn off lighting when not needed, in compliance with Hawaii Revised Statutes section 201-8.5—night sky protection strategy (dark sky friendly). Nawiliwili Harbor has completed its lighting upgrade with full cut-off lights at a cost of \$1,209,561.

JCI, HDOT-H's lighting contractor, has completed the lighting upgrades at Port Allen Harbor. These upgrades also include full cut-off lights at a cost of \$102,715.

The HDOT-H designed its lighting to be compliant with the dark sky strategy under HRS § 201-8.5. Accordingly, the HDOT-H has worked toward light fixture designs with light cut-offs to prevent flooding or light pollution above light fixtures. The Kauai Harbors lights were designed to address one concern that may attract migratory birds. The HDOT-H is willing to explore the feasibility of installing light filters to reduce the white/blue hues of the LED light fixtures within safety and security considerations and is currently testing such light filters at Hilo Harbor.

**Lihue Airport Item 5. Describe any plans/proposals for future facilities or expansion of existing facilities. Include any proposed structures and lighting by type, purpose, and location. Plans (architecture and site plans), photos, and drawings can be attached.**

An HDOT-A contract to repave the runway at Lihue Airport has been awarded. Initially, the repaving was scheduled to take place during evening hours to accommodate the landing and taking off of aircraft. Due to concerns regarding construction lights and airfield lighting during the 2018 seabird fallout season, completion of this project is currently on hold.

HDOT-A has completed Phase 1 lighting upgrade at Lihue Airport that included new full cut-off solar street lights along Ahukini road, full cut-off solar lights in parking lots and maintenance baseyard, new LED site lighting at fire department and maintenance hangars, and new LED light fixtures in the passenger loading and unloading, baggage handling, and interior holding areas in the terminal. Phase 1 improvements at Lihue cost \$5,809,601 and were completed in 2016.

HDOT-A has initiated a contract for Phase 2 airport lighting upgrade that will include new full cut-off LED exterior light fixtures with pole, wall and bollard mounting locations. Phase 2 will upgrade exterior lighting in the T-hangers, commuter terminal, maintenance area, cargo terminal, FedEx building, walkway in public parking lot, and wall mounted lighting in the main apron (ramp) area. Phase 2 improvements at Lihue will cost \$1,179,314 and are scheduled to be completed in 2018.

HDOT-A has initiated planning with its lighting contractor for Phase 3 of lighting improvements to upgrade 45 high mast lights at its main and cargo apron (ramp) at Lihue and other airports. A pilot

project is being conducted at Hilo Airport to identify the appropriate lighting upgrade that will meet FAA and TSA safety and security requirements, and incorporate any new research on lighting conditions that can reduce artificial light attraction for seabirds. The implementation of Phase 3 will depend on identification of an appropriate light fixture that improves conditions and on securing funding for construction through the legislative budget process. The estimated budget for Phase 3 improvements is \$1,917,386, and the tentative timeline for implementation is 2020-2025.

**Kauai Harbors Item 6. Pursuant to the Endangered Species Act (ESA), Section 10 (a)(2)(A)(iii), describe alternatives to avoid the taking considered and evaluated. Provide reasons why those alternatives are not being utilized. Alternatives can include operational or facility design changes (attach pages as needed). The tables below may be altered as needed.**

Nawiliwili Harbor and its operational and administrative activities are regulated by DHS, USCG, CBP, and OSHA. See Kauai Harbors Item 4, above.

USCG and OSHA regulate lighting located in operational areas of the port for security and safety compliance. USCG regulates maritime security nationally and sets security requirements for maritime facilities. Facility owners or operators in general must implement facility security measures and continuously monitor facilities through a combination of lighting, security guards, patrols, detection devices, or surveillance equipment, including the period from sunset to sunrise and periods of limited visibility. USCG requires and approves a FSP for each regulated commercial harbor to identify, prevent, and detect terrorist-related activities in accordance with Title 33, Code of Federal Regulations, Part 105, Subpart D Facility Security Plan (33 CFR 105.405). Known or perceived threats are reflected by assignment of Maritime Security threat codes, which require that applicable security measures be implemented in accordance with the FSP. As threat levels increase, the facility may need to increase coverage and intensity of lighting to higher security levels.

USCG also approves all DHS grants under the Port Security Grant Programs, including the Homeland Security Communications Project (security cameras) and the Port Grant Maritime Network Project. These projects centralize security cameras for surveillance at all regulated commercial harbors in Hawaii, in compliance with the Area Maritime Transportation Security Plans, to strengthen core security capabilities and critical port infrastructure and help achieve the National Preparedness Goal.

Because of USCG security monitoring requirements and OSHA worker safety regulations, alternatives or minimization measures that require operational or facility design changes are limited to those that can comply with existing national security and safety requirements.

1. Avoidance Alternative-The “No Incidental Take” Alternative: Turn off/deactivate all outdoor lights from dusk to dawn during the fledgling fallout season, September 15 to December 15.

This is not a viable alternative for Nawiliwili Harbor and Port Allen Harbor because of USCG and OSHA security and safety requirements.

- a. Nawiliwili Harbor (Kauai Harbors Table 5).

Nawiliwili Harbor is Kauai’s primary cargo and cruise ship port, supporting the island’s economy with essential shipments of food, clothing, building materials, cars

and fuel. Interisland cruise ships (Norwegian Cruise Lines, Princess, and others) and seasonal foreign cruise ships use Nawiliwili Harbor, accommodating visitors who support the island's economy.

1. Maritime shipping and cruise ship schedules have vessels in port during all or portions of the night on a regular schedule, necessitating terminal operations at night. The cargo loading areas are lighted when cargo vessels are at berth and during off-loading and on-loading of cargo. The terminal also remains operational when cruise ships remain at berth overnight, allowing passengers to leave the ships to enjoy local activities, dining, and shopping, and eventually to return to the ships.
2. OSHA requires that terminal lights provide illumination at a measurement of five foot-candles for active work areas, and one foot-candle in other work areas, and ½ foot-candle for security purposes (OSHA 29 CFR 1917.123). Terminal lights must thus be activated at specified intensities to enhance worker and public safety during night cargo and passenger operations.
3. USCG oversees the security precautions, hazardous cargo handling, and port operations of Nawiliwili Harbor. USCG regulations and guidance published as Navigation and Vessel Inspection Circulars (NVICs), dictate that terminal lights provide security illumination throughout the night as a security measure for protection of passengers, facilities, personnel, vessels, cargo, and critical infrastructure, as well as for the prevention of terrorist attack (USCG 33 CFR 105.260, 105.275). USCG regulations require that harbor facilities have adequate illumination during the handling, storing, stowing, loading, discharging, or transporting of dangerous cargo between sunset and sunrise, and that fixed lighting provide illumination of between 1 to 5 foot-candles in operation areas (USCG 33 CFR 154.570, 127.109, 126.15)

b. Port Allen Harbor (Kauai Harbors Table 6).

Port Allen Harbor services liquid bulk cargo oil shipments, excursion and charter boats, and commercial fishing operations at its southern berths. Liquid bulk cargo and excursion and charter boat activities are generally daylight operations. Charter and excursion tenants service their boats in late afternoon and into early evening. Commercial fishing boats will occasionally berth on the southern pier and perform maintenance operations at night. The southern pier is open to public access and heavily used by the public for night fishing. The southern berths are illuminated by wall-mounted shed lights, which are shielded and fully cut off. The pier's northern berths are leased to the U.S. Navy PMRF. These berths are also illuminated by wall-mounted shed lights. The parking lot is illuminated by two shed-mounted flood lights.

1. Commercial fishing boats and excursion and charter boats may use the south pier for 24-hour maintenance needs and emergency shelter. The public uses the pier for access to commercial charters and excursion operators, which can come and go after dark. The pier is also used by the public for recreational fishing at night. As a public commercial harbor that provides maritime cargo

operations and passenger services, night lighting is needed for passenger, worker, and public safety (OSHA 29 CFR 1917.123, USCG 33 CFR 126.15, 154.570).

2. The U.S. Navy leases the northern berths and requires overnight lighting for security purposes.
2. Avoidance Alternative-Restricted Usage of Lighting Alternative: Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daytime hours)

This is not a viable alternative for Nawiliwili Harbor and Port Allen Harbor because of USCG and OSHA security and safety requirements.

a. Nawiliwili Harbor (Kauai Harbors Table 5).

Maritime shipping and cruise ship schedules have vessels arriving, departing, and in port during all or portions of night. USCG and OSHA regulations require nighttime lighting for security, cargo handling operations, cruise line passenger service, and worker safety whenever vessels and workers are at the port between sunset and sunrise (OSHA 29 CFR 1917.123; USCG 33 CFR 105.275, 126.15, 127.109, 154.570). As a designated commercial port, Nawiliwili needs to provide these nighttime services to accommodate maritime commerce and maritime emergencies. Provision of these services cannot be shifted entirely to daytime hours.

b. Port Allen Harbor (Kauai Harbors Table 6).

Commercial fishing boats and excursion and charter boats may use the south pier for maintenance and emergency shelter during all portions of the night. Public access to commercial charters and excursion operators and to recreational fishing, occurs at night. USCG and OSHA regulations require nighttime lighting for cargo handling, passenger service, and worker safety whenever vessels and workers are at the port between sunset and sunrise (OSHA 29 CFR 1917.123; USCG 33 CFR 126.15, 154.570). As a public commercial harbor, Port Allen needs to provide these nighttime services to accommodate maritime commerce and maritime emergencies. Provision of these services cannot be shifted entirely to daytime hours. The U.S. Navy lights its berths for security purposes throughout the night.

The HDOT-H designed its lighting to be compliant with the dark sky strategy under HRS § 201-8.5. Accordingly, the HDOT-H has worked toward light fixture designs with light cut-offs to prevent flooding or light pollution above light fixtures. The Kauai Harbors lights were designed to address one concern that may attract migratory birds. The HDOT-H is willing to explore the feasibility of installing light filters to reduce the white/blue hues of the LED light fixtures within safety and security considerations, and is currently testing such light filters at Hilo Harbor.



**Kauai Harbors Table 5. Light Attraction Alternatives to the Taking—Nawiliwili Harbor**

Artificial Light Attraction Alternatives to the Taking Considered	Reasons Alternatives Are Not Being Utilized (Provide Justification)
Avoidance Alternative-The “No Incidental Take” Alternative: <b>Deactivate <u>all</u> outdoor artificial lights from dusk to dawn during the fledgling fallout season (September 15 to December 15)</b>	Nawiliwili Harbor is Kauai’s primary cargo and cruise ship port. Maritime shipping and cruise ship schedules have vessels in port during all or portions of night. USCG regulation 33 CFR sections 105.275, 126.15, 127.109, and 154.570 require that marine terminal facilities provide adequate illumination throughout the night for security and safe handling of hazardous cargo. OSHA regulation 29 CFR section 1917.123 requires that marine terminal facilities provide illumination at a measurement of one to five foot-candles in work areas and ½ foot-candle for worker safety. Whenever cargo handling and cruise line passenger services are provided after dark, facility lights must be activated at specified intensities to enhance worker and public safety. Because of security and safety requirements, this is not a viable alternative for Nawiliwili Harbor.
Avoidance Alternative-Restricted Usage of Lighting Alternative: <b>Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daytime hours)</b>	Nawiliwili Harbor: Maritime shipping and cruise ship schedules have vessels in port during all or portions of night. USCG and OSHA require night lighting for security and worker and public safety (OSHA 29 CFR 1917.123; USCG 33 CFR 105.275, 126.15, 127.109, 154.570). Nawiliwili Harbor needs to provide these nighttime services to accommodate maritime commerce and maritime emergencies. Provision of these services cannot be shifted entirely to daytime hours. Because of security and safety requirements, this is not a viable alternative for Nawiliwili Harbor.
Avoidance Alternative-Restricted Usage of Lighting Alternative: <b>Shield all lights from visibility from the beach, or screen all honu nests, from May 15 to December 15 to avoid impacting the green sea turtle (honu)</b>	Nawiliwili Harbor: Not applicable. No beach area is adjacent to Nawiliwili Harbor.
<b>Other alternatives to the taking considered, if any. If facility is proposed, include alternative designs considered</b>	Not applicable.

**Kauai Harbors Table 6. Light Attraction Alternatives to the Taking— Port Allen Harbor**

Artificial Light Attraction Alternatives to the Taking Considered	Reasons Alternatives Are Not Being Utilized (Provide Justification)
Avoidance Alternative-The “No Incidental Take” Alternative: <b>Deactivate <u>all</u> outdoor artificial lights from dusk to dawn during the fledgling fallout season (September 15 to December 15)</b>	Port Allen Harbor services liquid bulk cargo, excursion/charter boats, and commercial fishing operations. Most are generally daylight operations, but commercial fishing boats and excursion/charter boats may use the south pier for maintenance and emergency shelter. The public uses the pier for access to commercial charters and excursion operators, which can come and go after dark. The pier is also used by the public for recreational fishing at night. As a public commercial harbor that provides maritime cargo operations, passenger services, and public access, night lighting is needed for passenger, worker, and public safety (OSHA 29 CFR 1917.123, USCG 33 CFR 126.15, 154.570). The U.S. Navy leases the northern berths, which are lighted overnight. The U.S. Navy requires lights for security purposes. Because of security and safety requirements, this is not a viable alternative for Port Allen Harbor.
Avoidance Alternative-Restricted Usage of Lighting Alternative: <b>Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daytime hours)</b>	Port Allen Harbor: Commercial fishing boats and excursion/charter boats may use the south pier for maintenance and emergency shelter during all portions of the night. Public access to commercial charters and excursion operators, and recreational fishing, occurs at night. USCG and OSHA regulations require nighttime lighting for cargo handling, passenger service, and worker safety whenever vessels and workers are at the port between sunset and sunrise (OSHA 29 CFR 1917.123, USCG 33 CFR 126.15, 154.570). As a public commercial harbor, Port Allen needs to provide these nighttime services to accommodate maritime commerce and maritime emergencies. Provision of these services cannot be shifted entirely to daytime hours. The U.S. Navy lights its berths for security purposes all night. Because of security and safety requirements, this is not a viable alternative for Port Allen Harbor.
Avoidance Alternative-Restricted Usage of Lighting Alternative: <b>Shield all lights from visibility from the beach, or screen all honu nests, from May 15 to December 15 to avoid impacting the green sea turtle (honu)</b>	Port Allen: Not applicable. No beach areas are adjacent to Port Allen Harbor.
<b>Other alternatives to the taking considered, if any. If facility is proposed, include alternative designs considered</b>	Not applicable.

**Lihue Airport Item 6. Pursuant to the Endangered Species Act (ESA), Section 10 (a)(2)(A)(iii), describe alternatives to avoid the taking considered and evaluated. Provide reasons why those alternatives are not being utilized. Alternatives can include operational or facility design changes (attach pages as needed). The tables below may be altered as needed.**

Avoidance measures seek to avoid adverse effects of lighting on covered seabird species, thereby reducing the chance of incidental take. Kauai Seabird HCP Applicants will be required to implement avoidance alternatives to the “maximum extent practicable” per applicable state and federal laws to receive an incidental take permit/license.

*Avoidance measures* are those which cease or suspend lighting activities posing threats to the Covered Species. If avoidance measures are not deemed practicable due to facility safety or security reasons, then the applicant must utilize minimization measures to reduce their threats to seabirds.

Kauai Seabird HCP applicants are required to provide justification, such as policies, regulations, or other rationale, for avoidance measures that will not be implemented.

### **Avoidance Alternatives Considered**

Lihue Airport is classified by the FAA as a Class I Airport, certified to serve scheduled and unscheduled operations of large air carrier aircraft. In order to serve air carrier operations, Lihue Airport is required to hold a Part 139 Air Operating Certificate issued by the FAA, to ensure safety in air transportation. To obtain a certificate, an airport must meet certain operational and safety standards, including having Part 139 compliant runway/taxiway and apron lighting and signage, lighting, and obstruction lighting. It also operates under an Airport Security Program (ASP) approved by the Transportation Security Administration (TSA) requiring security and safety measures be implemented at Lihue Airport. NOTE: The ASP is classified and its contents are Sensitive Security Information. The airport provides passenger and aircraft facilities for domestic overseas carriers, interisland carriers, commuter air taxi, air cargo, concession, tenant, and general aviation activities, with well over 100,000 aircraft operations per year. Aircraft operations and servicing occur during nighttime hours and require adequate lighting.

Avoidance alternatives considered for HDOT-A facilities on Kauai are described below and in Lihue Airport Table 3. Each alternative description below is followed by a feasibility determination.

1. Avoidance Alternative-The “No Incidental Take” Alternative: Deactivate all outdoor artificial lights from dusk to dawn during the seabird fallout period (September 15–December 15) each year.

This is not a viable alternative for Lihue Airport because of FAA and TSA security and safety requirements and regulations.

- a. Lihue Airport is a FAA Class I Airport certified to serve scheduled and unscheduled operations of large air carrier aircraft day and night. Airport lights are required by the FAA for aeronautical safety. The FAA requires specified lighting for runway, taxiway, apron (ramp) operations, and passenger terminal operations. Runway and taxiway lights, by regulation, face skyward to ensure safe aeronautical operations. These lights cannot be deactivated without endangering the lives of passengers and flight crews.

Additionally, the FAA will levy penalties and sanctions if runway, taxiway, and apron lights are not activated during flight operations. TSA also requires lighting for security and safety reasons. The IES has established public safety standards for outdoor lighting for the various airport environments that specify lighting during periods when the public or workers are present and minimum light levels for security. Because the airport is open 24 hours per day, nighttime lighting is required for aspects of airport operations during all or portions of the night.

- b. Ahukini Road is an internal airport roadway under HDOT-A's jurisdiction open to the public 24 hours a day. The American Association of State Highway and Transportation Organization (AASHTO) and IES have established lighting standards for public highways and airport roadways to ensure adequate visibility for safe motorist and pedestrian use. Ahukini Road lights meet the AASHTO and IES guidelines. Because public safety is of primary concern, Ahukini Road must remain illuminated during the night. HDOT would be liable for accidents and fatalities if Ahukini Road were inadequately illuminated.

- 2. Avoidance Alternative-Restricted Usage of Lighting Alternative: Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daytime hours)

This is not a viable alternative for Lihue Airport due to FAA and TSA security and safety requirements and regulations.

- a. Lihue Airport is an FAA Class I Airport certified to serve scheduled and unscheduled operations of large air carrier aircraft day and night. Airport lights are required by the FAA for aeronautical safety. TSA requires lighting for security and safety.
- b. Ahukini Road lights must operate at night to ensure motorist and pedestrian safety as required by the AASHTO and IES guidelines for driver safety. This road needs to be accessible to motorists 24 hours a day.

**Lihue Airport Table 3. Light Attraction Alternatives to the Taking**

Artificial Light Attraction Alternatives to the Taking Considered	Reasons Alternatives Are Not Being Utilized (Provide Justification)
Avoidance Alternative-The “No Incidental Take” Alternative: <b>Deactivate <u>all</u> outdoor artificial lights from dusk to dawn during the fledgling fallout season (September 15 to December 15)</b>	<p>a. It is not feasible for HDOT-A to deactivate all outdoor lights from dusk to dawn at any time of the year. Lihue Airport operates year-round and is subject to FAA and TSA lighting safety and security regulations. Airport lights are required by the FAA for aeronautical safety. The FAA requires specified lighting for runway, taxiway, and apron operations. These lights cannot be deactivated without endangering the lives of passengers and flight crews. Additionally, the FAA will levy penalties and sanctions if runway, taxiway, and apron lights are not activated during flight operations. TSA also requires adequate lighting for security and safety. IES provides recommended practices for all outdoor lighting - air side and land side – for commercial airports to provide an adequate and safe lighted environment.</p> <p>b. Ahukini Road, which fronts Lihue Airport, is under the HDOT-A’s jurisdiction. Ahukini Road lights are required for motorist and pedestrian safety. AASHTO and IES have established lighting standards for adequate and safe public use of Ahukini Road. Ahukini Road is open to public use 24 hours per day, and deactivating lights would present a safety hazard. Because motorist safety is of primary concern, Ahukini Road must remain illuminated at night for pedestrian and motorist safety.</p>
Avoidance Alternative-Restricted Usage of Lighting Alternative: <b>Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daytime hours)</b>	<p>a. It is not feasible for HDOT-A to change operations to eliminate the need for outdoor artificial lighting at Lihue Airport. Given the nature of the airport’s 24 hours per day, 7 days a week operations, it is necessary for outdoor lights to be illuminated during nighttime hours, to ensure safety for air travel, air carriers, passengers, and workers. Additionally, FAA requires specific lighting for runways, taxiways, and aprons. TSA also requires adequate lighting for security purposes. The airport and public access roadway are open 24 hours per day and require adequate and safe lighting during nighttime hours.</p>
<b>Shield all lights from visibility from the beach, or screen all honu nests, from May 15 to December 15 to avoid impacting the green sea turtle (honu).</b>	Not applicable
<b>Other alternatives to the taking considered, if any. If facility is proposed, include alternative designs considered.</b>	Not applicable



**Kauai Harbors Item 7. Describe all site-specific seabird minimization measures considered for the Covered Activities. This item should follow KSHCP minimization objectives and measures as specified in Appendix E (*Guidelines for Adjusting Lighting at Facilities*) of the KSHCP document. Please consult with staff from the DOFAW and the USFWS as needed. The suggested tables below can be altered as needed.**

Minimization measures modify the Covered Activities to reduce the effects of the activity on the Covered Species. KSHCP Participants will be required to implement minimization measures that apply to the facility to the “maximum extent practicable” per applicable state and federal laws, which regulate incidental take license/permit issuance by the DLNR and the USFWS.

Minimization also entails searching for and recovering grounded seabirds to minimize the chance of mortality. In addition, the presence of on-site predators (i.e., feral cats, dogs) should be controlled and removed because these animals can prey on grounded seabirds.

**Provide justification, such as policies, regulations, or other rationale for measures that will not be implemented.**

The following section and tables discuss minimization alternatives that HDOT-A considered for Nawiliwili and Port Allen Harbors to reduce impacts to the “maximum extent practicable”:

1. Minimization Alternative: Transition to shielded and/or full cut-off fixtures.

a. Nawiliwili Harbor.

USCG and OSHA regulate the lighting located in operational areas for security and safety compliance. USCG regulates maritime security nationally and sets security requirements for maritime facilities. Facility owners or operators in general must implement facility security measures and continuously monitor facilities through a combination of lighting, security guards, patrols, detection devices, or surveillance equipment, including the period from sunset to sunrise and periods of limited visibility. USCG also approves all DHS grants under the Port Security Grant Programs, including the Homeland Security Communications Project (security cameras) and the Port Grant Maritime Network Project. These projects centralize security cameras for all regulated commercial harbors in Hawaii, in compliance with the Area Maritime Transportation Security Plans, to strengthen core security capabilities and critical port infrastructure and help achieve the National Preparedness Goal. USCG also requires a FSP for each regulated commercial harbor to identify, prevent, and detect terrorist-related activities in accordance with Title 33, Code of Federal Regulations, Parts 105, Section 105.405.

Nawiliwili Harbor already has completed a lighting upgrade to full cut-off LED lights. The harbor has replaced high-mast flood lighting in the cargo operations areas with high-mast, full cut-off LED fixtures.

b. Port Allen Harbor.

The pier's southern berths are illuminated by wall-mounted shed lights, which have been upgraded to full cut-off fixtures. The pier shed has flood lights that illuminate the parking area and are installed with an aiming angle to achieve full cut-off functionality. HDOT-H will investigate if additional shielding may reduce horizontal light escapement within safety and security lighting requirements.

The pier's northern berths are under lease and control of the U.S. Navy PMRF. PMRF is responsible for implementing minimization measures under its ESA obligations.

2. Minimization Alternative: Reduce the number of lights activated from dusk to dawn during the fledgling fallout season (September 15 to December 15).

a. Nawiliwili Harbor.

Nawiliwili Harbor's terminal yard lights have been wired so that a portion of the bulbs in the high-mast light fixtures can be turned off (dimmed) during non-operational hours, leaving a smaller portion of the bulbs activated when no operations are in progress. The deactivation varies per light fixture and location, but all of the high mast light fixtures upgraded during Phase 1 improvements have dimming capability. The usual night lighting at Nawiliwili Harbor involves dimming high-mast LED yard lights when no operations are in progress, and turning on to full illuminance only when active cargo or passenger operations are occurring, and only at the specific pier and portion of the pier where those operations are in progress (normally dusk to 10:00 pm on Tuesdays and Fridays at Pier 3, and overnight on Thursdays for the cruise line terminal at Pier 2). When passenger or cargo operations are not in progress, the high mast lights are dimmed and building lights are turned off, with the exception of wall pack lights for security purposes. HDOT will provide outreach and training to staff and harbor tenants to manage light attraction risks and to turn off external lighting when work is completed.

b. Port Allen.

HDOT-H has implemented an upgrade of lights at Port Allen Harbor to full cut-off fixtures. There are no high mast lights at this facility, and the lights that illuminate the southern berths are wall-mounted shed lights. The wall pack night lighting for Port Allen is set on a timer to turn on from dusk to dawn, but to turn on only every other wall pack fixture to provide security and safety lighting. HDOT will provide outreach and training to staff and harbor tenants to manage light attraction risks and to turn off external lighting when work is completed. The lights that illuminate the northern berths are controlled by the U.S. Navy PMRF. Any reduction in the number of lights activated on the north pier must be coordinated with and approved by the PMRF.

Additional minimization alternatives are discussed in Kauai Harbors Tables 7 and 8.

**Kauai Harbors Table 7. Seabird Light Attraction Minimization Measures Considered—Nawiliwili Harbor**

<b>Minimization Measures Considered</b>	<b>Feasible? (Y/N)</b>	<b>If Not Feasible, Provide Reason</b>
<b>Change time of light use (lights off earlier)</b>	<b>Partially</b>	Full illumination of lights is used only when longshoremen personnel require them. Lights are dimmed or switched off once cargo loading and unloading is finished. The usual night lighting at Nawiliwili Harbor for the high-mast LED yard lights is a dimmed setting. The high-mast lights are turned on to full illuminance only when active cargo or passenger operations are occurring and only at the specific pier where those operations are in progress (normally dusk to 10:00 pm on Tuesdays and Fridays at Pier 3, and overnight on Thursdays for the cruise line terminal at Pier 2).
<b>Deactivate unnecessary lights</b>	<b>Partially</b>	Most harbors lights are dimmed during non-operational hours. High-mast LED yard lights are turned on full illuminance only on the specific days and at the specific piers where active cargo or passenger operations are occurring, and only while those operations are in progress. HDOT will provide outreach and training to staff and harbor tenants to manage light attraction risks and to turn off external lighting when work is completed.
<b>Replace all outdoor lights with full cut-off fixtures</b>	<b>Yes</b>	Nawiliwili Harbor has completed a light transition plan. HDOT-H has replaced high-mast flood lights with new, full cut-off, downward-pointing LED fixtures. Full cut-off functionality for flood lights is achieved by aiming angle.
<b>Shield all outdoor lights with full cut-off shields</b>	<b>Yes</b>	Nawiliwili Harbor has completed a transition plan to replace outdoor lights with downward-pointing, full cut-off fixtures. The cut-off specifications are inherent in the fixture, and no additional shielding is needed. Full cut-off functionality for some flood lights is achieved by aiming angle. HDOT-H will investigate if additional shielding may reduce horizontal light escapement within safety and security lighting requirements.
<b>Angle all lights downward</b>	<b>Yes</b>	Nawiliwili Harbor has completed a transition plan to replace outdoor lights with downward-pointing, full cut-off fixtures. Full cut-off functionality for flood lights is achieved by aiming angle.
<b>Lower intensity (lumens) of outdoor lights</b>	<b>Partially</b>	The usual night lighting at Nawiliwili Harbor for the high-mast LED yard lights is a dimmed setting. The high-mast lights are turned on to full illuminance only when active cargo or passenger operations are occurring, and only at the specific pier where those operations are in progress (normally dusk to 10:00 pm on Tuesdays and Fridays at Pier 3, and overnight on Thursdays for the cruise line terminal at Pier 2). The lumen levels of the lights cannot be permanently lowered because it does not provide the foot-candle illumination required by USCG and OSHA for adequate worker and public safety while cargo and passenger services are being provided (OSHA 29 CFR 1917.123; USCG 33 CFR 154.570, 127.109, 126.15).
<b>Change bulb color to non-white spectrum</b>	<b>No</b>	The new LED lights installed by HDOT-H are phosphor coated to 4000k and cannot be individually changed. To change the bulb color from white 4000k spectrum would require replacing the entire light fixture at a high cost. Additional research is needed on what light spectrum is not an attraction to seabirds for future lighting improvements. The HDOT-H designed its lighting to be compliant with the dark sky strategy under HRS § 201-8.5. Accordingly, the HDOT-H has worked toward light fixture designs with light cut-offs to prevent flooding or light pollution above light fixtures. The Kauai Harbors lights were designed to address one concern that may attract migratory birds. The HDOT-H will explore the use of electronic filters for lights to produce a non-white spectrum within safety and security considerations for future light improvements. HDOT-A is currently testing such light filters at Hilo Airport. Additionally, USCG and OSHA regulations (OSHA 29 CFR 1917.123; USCG 33 CFR 154.570, 127.109, 126.15) require minimum lighting standards for security and safety. Non-white spectrum bulbs would have to meet the foot-candle illumination required for safety and security. The

<b>Minimization Measures Considered</b>	<b>Feasible? (Y/N)</b>	<b>If Not Feasible, Provide Reason</b>
		implementation of future improvements will depend on securing funding for construction through the legislative budget process.
<b>Lower height of light poles</b>	<b>No</b>	Cargo operations in limited terminal acreage result in containers being stacked four to five units high. Container stacks could reach as high as 40 feet (containers are generally 8 feet high). Cargo terminal lights must therefore be mounted on poles at significant heights above the containers. This height ensures the containers will not block the lights and that the aisles between rows of stacked containers are satisfactorily illuminated. Nawiliwili Harbor terminal lights are thus mounted on high poles to provide the requisite lighting for ground-level operations (OSHA 29 CFR 1917.123; USCG 33 CFR 154.570, 127.109, 126.15).
<b>Prohibit/control unleashed predatory animals; prohibit outdoor feeding of animals; require sealed rubbish containers</b>	<b>Yes</b>	HDOT-H staff will, or contract with USDA Wildlife Services (WS) or other contractor to, conduct animal control as part of its management responsibility. Animal control includes trapping and removing cats and conducting surveillance to detect and remove dogs that may enter the facilities. All rubbish is contained in sealed depositories that are removed routinely by the County.
<b>Provide Worker Seabird Awareness Training to staff</b>	<b>Yes</b>	USDA WS or other contractor will provide seabird awareness training to HDOT-H staff and harbor security personnel in August prior to the seabird fallout season and on a routine and regular basis throughout the season; workers and security personnel are given summary orientation that enables them to identify seabird species under differing scenarios, including in flight and grounded (alive, injured, dead) and provides written instructions on how to handle and report observations or encounters with grounded seabirds. <a href="#">All new hires during fallout season will be shown the training slideshow on first day of work by the trainer, or human resources office.</a>
<b>Provide outreach materials to staff &amp; visitors</b>	<b>Yes</b>	As part of the awareness training provided for staff, USDA WS or other contractor will provide KSHCP outreach materials (pamphlets and fliers that contain bulleted information and graphics) to staff, harbor security, and tenants. Information will remain in each harbor vehicle that is used on and around the harbor facilities. Cruise ship visitors are provided with these or similar materials to facilitate seabird light-attraction sensitivity training and enable visitors to report their observations to appropriate personnel, either while aboard ship or in the harbor area and surrounding community.
<b>Host Save Our Shearwaters (SOS) Aid Station</b>	<b>Partially</b>	HDOT-H will provide internal SOS aid provisions, but because of security restrictions, is not able to host a public SOS aid station. Any inquiries from the public will be directed to County SOS aid stations.

**Kauai Harbors Table 8. Seabird Light Attraction Minimization Measures Considered—Port Allen Harbor**

<b>Minimization Measures Considered</b>	<b>Feasible? (Y/N)</b>	<b>If Not Feasible, Provide Reason</b>
<b>Change time of light use (lights off earlier)</b>	<b>Partially</b>	There are no tall high-mast lights at the facility and all lights are full cut-off wall and shed mounted fixtures. Port Allen Harbor lights are on a timer and come on from dusk to dawn. The usual night lighting is set to illuminate every other wall light along the pier shed. Nighttime lighting is necessary for safety and security and to meet OSHA and USCG regulations (OSHA 29 CFR 1917.123, USCG 33 CFR 126.15). The U.S. Navy PMRF has security requirements for the north pier.
<b>Deactivate unnecessary lights</b>	<b>Partially</b>	Terminal lights will be reduced to lower lighting levels during non-operational hours. Port Allen lights are on a timer and come on from dusk to dawn. The usual night lighting is set to illuminate every other wall light along the pier shed. Nighttime lighting is necessary for safety and security and to meet OSHA and USCG regulations (OSHA 29 CFR 1917.123, USCG 33 CFR 126.15). HDOT will provide outreach and training to staff and harbor tenants to manage light attraction risks and to turn off external lighting when work is completed.
<b>Replace all outdoor lights with full cut-off fixtures</b>	<b>Yes</b>	Port Allen Harbor has completed a transition plan to replace outdoor lights with full cut-off fixtures in the HDOT-H-operated south pier. Full cut-off functionality for flood lights is achieved by aiming angle. The U.S. Navy is responsible for implementation on the north pier.
<b>Shield all outdoor lights with full cut-off shields</b>	<b>Yes</b>	Port Allen Harbor has completed a transition plan to replace outdoor lights with full cut-off fixtures in the HDOT-H-operated south pier. The cut-off specifications are inherent in the fixture, and no additional shielding is needed. Full cut-off functionality for some flood lights is achieved by aiming angle. HDOT-H will investigate if additional shielding may reduce horizontal light escapement within safety and security lighting requirements. The U.S. Navy is responsible for implementation on the north pier.
<b>Angle all lights downward</b>	<b>Yes</b>	Port Allen Harbor has completed a transition plan to replace outdoor lights with downward-pointing, full cut-off fixtures. Full cut-off functionality for flood lights is achieved by aiming angle.
<b>Lower intensity (lumens) of outdoor lights</b>	<b>Partially</b>	Terminal lights will be reduced to lower lighting levels during non-operational hours. Port Allen lights are on a timer and come on from dusk to dawn. The usual night lighting is set to illuminate every other wall light along the pier shed. Nighttime lighting is necessary for safety and security and to meet OSHA and USCG regulations (OSHA 29 CFR 1917.123, USCG 33 CFR 126.15).
<b>Change bulb color to non-white spectrum</b>	<b>No</b>	The new LED lights installed by HDOT-H are phosphor coated to 4000k and cannot be individually changed. To change the bulb color from white 4000k spectrum would require replacing the entire light fixture at a high cost. Additional research is needed on what light spectrum is not an attraction to seabirds for future lighting improvements. The HDOT-H designed its lighting to be compliant with the dark sky strategy under HRS § 201-8.5. Accordingly, the HDOT-H has worked toward light fixture designs with light cut-offs to prevent flooding or light pollution above light fixtures. The Kauai Harbors lights were designed to address one concern that may attract migratory birds. The HDOT-H will explore the use of electronic filters for lights to produce a non-white spectrum within safety and security considerations for future light improvements. HDOT-A is currently testing such light filters at Hilo Airport. Additionally, USCG and OSHA regulations (OSHA 29 CFR 1917.123; USCG 33 CFR 154.570, 127.109, 126.15) require minimum lighting standards for security and



<b>Minimization Measures Considered</b>	<b>Feasible? (Y/N)</b>	<b>If Not Feasible, Provide Reason</b>
		safety. Non-white spectrum bulbs would have to meet the foot-candle illumination required for safety and security. The implementation of future improvements will depend on securing funding for construction through the legislative budget process.
<b>Lower height of light poles</b>	<b>No</b>	Not applicable; there are no pole lights at the facility.
<b>Prohibit/control unleashed predatory animals; prohibit outdoor feeding of animals; require sealed rubbish containers</b>	<b>Yes</b>	HDOT-H will contract with USDA Wildlife Services (WS) or another contractor to, conduct animal control at the harbor. Animal control includes trapping and removing stray cats and dogs roaming at the facilities. All rubbish is contained in sealed depositories that are removed routinely by the County
<b>Provide Worker Seabird Awareness Training to staff</b>	<b>Yes</b>	HDOT will contract with USDA Wildlife Services (WS) or other contractor to provide annual seabird awareness training to all staff and tenants during August. Staff and tenants are given summary orientation that enables them to identify seabird species and written instructions on how to handle and report observations or encounters with grounded seabirds. <a href="#">All new hires during fallout season will be shown the training slideshow on first day of work by the trainer, or human resources office.</a>
<b>Provide outreach materials to staff &amp; guests</b>	<b>Yes</b>	As part of the awareness training provided for staff, USDA Wildlife Services (WS) or other contractor will provide KSHCP outreach materials (pamphlets and fliers that contain bulleted information and graphics) to staff and tenants to put in staff vehicles used at the harbor. Tenants will be asked to display and share outreach materials with their customers.
<b>Host Save Our Shearwaters (SOS) Aid Station</b>	<b>No</b>	HDOT will provide seabird aid training and protocol to staff and tenants, but because this facility is open to the public and not manned 24 hours, an SOS aid station will not be set up.

**Lihue Airport Item 7. Describe all site-specific seabird minimization measures considered for the Covered Activities. This item should follow KSHCP minimization objectives and measures as specified in the KSHCP document. Please consult with staff from the DOFAW and the USFWS as needed. The suggested tables below can be altered as needed.**

Minimization measures modify the Covered Activities to reduce the effects of the activity on the Covered Species. KSHCP Participants will be required to implement minimization measures that apply to the facility to the “maximum extent practicable” per applicable state and federal laws which regulate incidental take license/permit issuance by the DLNR and the USFWS.

Minimization also entails searching and recovering grounded seabirds to minimize the chance of mortality. In addition, the presence of on-site predators (i.e., feral cats, dogs) should be controlled and removed because these animals can prey on grounded seabirds.

**Provide justification, such as policies, regulations, or other rationale for measures that will not be implemented.**

#### **Minimization Alternatives Considered**

The ability to modify operations at Lihue Airport is limited. Lihue Airport is classified by the FAA as a Class I Airport, certified to serve scheduled and unscheduled operations of large air carrier aircraft. As such, Lihue Airport is required to meet numerous lighting requirements specified by the FAA (see response to Lihue Airport Item 4 above) and cannot implement any measures that would prevent compliance with these standards. It also operates under an ASP approved by the TSA requiring security and safety measures be implemented at Lihue Airport. NOTE: The ASP is classified and its contents are Sensitive Security Information. Lihue Airport cannot implement measures that would preclude compliance with TSA security measures. Further safety standards established by IES, prescribe certain levels of lighting necessary to maintain public safety in airport terminals, passenger loading and unloading areas, pedestrian walkways, roadways, and parking facilities. Lihue Airport provides passenger and aircraft facilities for domestic overseas carriers, interisland carriers, commuter air taxis, air cargo, concession, tenant, and general aviation activities, with well over 100,000 aircraft operations per year. Airport operations and maintenance and servicing of aircraft occur during night hours and require adequate lighting for security and safety measures and are implemented on a 24-hour, 7 days per week basis.

HDOT-A has implemented a number of allowable minimization measures at Lihue Airport. Lihue Airport Table 4 describes these measures and explains the basis for the conclusion that other measures are not feasible.

**Lihue Airport Table 4. Seabird Light Attraction Minimization Measures Considered**

<b>Minimization Measures Considered</b>	<b>Feasible? (Y/N)</b>	<b>If Not Feasible to Implement Measures, Provide Reason</b>
<b>Change time of light use (lights off earlier)</b>	<b>Partially</b>	<p>Lihue Airport is open 24 hours per day and 365 days per year. As a Class I airport, it services both scheduled and unscheduled large air carrier aircraft throughout the day, including during nighttime operations and emergency response. Airport lights are required for aeronautical safety by the FAA and for airport security by the TSA. FAA establishes standards for apron (ramp) area lights (FAA AC 150/5300 13A, IES RP-37-15 Outdoor Lighting for Airport Environments), requiring that lights be on and illuminate aircraft and workers on the apron when present. Shutting off high-mast apron lights when no aircraft or workers are present is feasible to reduce seabird attraction. The Airport Operations Center turns off the high-mast apron lights when they are not required for aircraft servicing and apron operations, during the seabird fallout season (September 15 through December 15). The apron lights are turned off after the last flight has departed for the night. Airport lighting such as for passenger loading and unloading, passenger walkways, parking facilities, and roadways are open 24 hours per day and 365 days per year. Public safety standards necessitate that these areas remain lit whenever they are occupied.</p> <p>Internal terminal lighting in passenger holding areas visible from outside are on motion detectors that dim lights when rooms are not occupied.</p>
<b>Deactivate unnecessary lights</b>	<b>Partially</b>	<p>Airport lights are required for aeronautical safety by the FAA and for airport security by the TSA. FAA establishes standards for apron (ramp) area lights (FAA AC 150/5300 13A, IES RP-37-15 Outdoor Lighting for Airport Environments), requiring that lights be on and illuminate aircraft and workers on the apron when present. Shutting off high-mast apron lights when no aircraft or workers are present is feasible to reduce seabird attraction. The Airport Operations Center turns off the high-mast apron lights when they are not required for aircraft servicing and apron operations, during the seabird fallout season (September 15 through December 15) after the last nightly flight has departed. HDOT will provide outreach and training to airport staff and tenants to manage light attraction risks and to turn off external lighting when work is completed.</p>
<b>Replace all outdoor lights with full cut-off fixtures</b>	<b>Partially</b>	<p>HDOT-A completed the Phase 1 lighting upgrades at Lihue Airport in 2016, with full cut-off LED fixtures (Lihue Airport Table 1) in parking area, roadway, maintenance area, terminal passenger loading and unloading areas, and baggage handling areas. Phase 2 lighting in which HDOT-A plans to install additional full cut-off (fully shielded), LED lights, including pole mounted, wall mounted, bollard type, and solar powered LED light fixtures in the T-hangers, commuter terminal, cargo terminal, FedEx buildings, and maintenance areas of the airport, and wall packs on main apron. Phase 2 is scheduled to be implemented in 2018. Full cut-off functionality for some flood lights is achieved by aiming angle. Phase 3 lighting improvements are being planned to upgrade 45 high-mast lights at the main and cargo apron (ramp) that will install full cut-off LED fixtures. A pilot project is being conducted at Hilo Airport to identify the appropriate lighting upgrade that will meet FAA and TSA safety and security requirements and incorporate any new research on lighting conditions that can reduce artificial light attraction for seabirds. The implementation of Phase 3 will depend on identification of an appropriate light fixture that improves conditions and securing funding for construction through the legislative budget process. The tentative timeline for this is 2020-2025. This measure is not applicable to taxiway and runway lights, which must comply with FAA safety regulations for specific visibility, and where the lights must be directed upward so that they can be seen by pilots operating aircraft in the movement areas (FAA AC 150/5345-46E).</p>

<b>Minimization Measures Considered</b>	<b>Feasible? (Y/N)</b>	<b>If Not Feasible to Implement Measures, Provide Reason</b>
<b>Shield all outdoor lights with full cut-off shields</b>	<b>Partially</b>	HDOT-A completed the Phase 1 lighting upgrades at Lihue Airport in 2016, with full cut-off fixtures (Lihue Airport Table 1) in parking area, roadway, maintenance area, terminal passenger loading and unloading areas, and baggage handling areas. Phase 2 lighting in which HDOT-A plans to install additional full cut-off (fully shielded), LED lights, including pole mounted, wall mounted, bollard type, and solar powered LED light fixtures in the T-hangers, commuter terminal, cargo terminal, FedEx buildings, maintenance areas of the airport. Phase 2 is scheduled to be implemented in 2018. Full cut-off functionality for some flood lights is achieved by aiming angle. HDOT-A will investigate if additional shielding may reduce horizontal light escapement within safety and security lighting requirements. Phase 3 lighting improvements are being planned to upgrade 45 high-mast lights at the main and cargo apron (ramp) that will install full cut-off LED fixtures. A pilot project is being conducted at Hilo Airport to identify the appropriate lighting upgrade that will meet FAA and TSA safety and security requirements and incorporate any new research on lighting conditions that can reduce artificial light attraction for seabirds. The implementation of Phase 3 will depend on identification of an appropriate light fixture that improves conditions and securing funding for construction through the legislative budget process. The tentative timeline for this is 2020-2025. This measure is not applicable to taxiway and runway lights, which must comply with FAA safety regulations for specific visibility, and where the lights must be directed upward so that they can be seen by pilots operating aircraft in the movement areas (FAA AC 150/5345-46E).
<b>Angle all lights downward</b>	<b>Yes</b>	HDOT-A completed the Phase 1 lighting upgrades at Lihue Airport in 2016, with full cut-off fixtures (Lihue Airport Table 1) in parking area, roadway, maintenance area, terminal passenger loading and unloading areas, and baggage handling areas. Phase 2 lighting in which HDOT-A plans to install additional full cut-off (fully shielded), LED lights, including pole mounted, wall mounted, bollard type, and solar powered LED light fixtures in the T-hangers, commuter terminal, cargo terminal, FedEx buildings, and maintenance areas of the airport. Phase 2 is scheduled to be implemented in 2018. Phase 3 lighting improvements are being planned to upgrade 45 high-mast lights at the main and cargo apron (ramp) that will install full cut-off LED fixtures. A pilot project is being conducted at Hilo Airport to identify the appropriate lighting upgrade that will meet FAA and TSA safety and security requirements and incorporate any new research on lighting conditions that can reduce artificial light attraction for seabirds. The implementation of Phase 3 will depend on identification of an appropriate light fixture that improves conditions and securing funding for construction through the legislative budget process. The tentative timeline for this is 2020-2025. This measure is not applicable to taxiway and runway lights, which must comply with FAA safety regulations for specific visibility, and where the lights must be directed upward so that they can be seen by pilots operating aircraft in the movement areas (FAA AC 150/5345-46E).
<b>Lower intensity (lumens) of outdoor lights</b>	<b>No</b>	This measure does not provide the foot-candle illumination required by FAA for adequate safety and security lighting for servicing aircraft on active aprons (ramps) and support facilities (FAA AC 150/5300-13A, IES RP-37-15 Outdoor Lighting for Airport Environments). Additionally, lowering intensity of lighting is not applicable for taxiway and runway lights, which must comply with FAA safety regulations for specific visibility and colors of lights at different areas of runways and taxiways (FAA AC 150/5345-46E).
<b>Change bulb color to non-white spectrum</b>	<b>No</b>	The Phase 1 and Phase 2 new LED lights installed by HDOT-A are phosphor coated to 4000k and cannot be individually changed. To change the bulb color from white 4000k spectrum would require replacing the entire light fixture at a high cost; changing bulb color is not applicable for taxiway and runway lights, which must comply with FAA safety regulations for specific visibility and colors of lights at different areas of runways and

Minimization Measures Considered	Feasible? (Y/N)	If Not Feasible to Implement Measures, Provide Reason
		taxiways (FAA AC 150/5345-46E). Additional research is needed on what light spectrum is not an attraction to seabirds to be evaluated in future light replacement at the main and cargo aprons/ramps; where feasible and permitted under applicable rules, HDOT-A will explore the use of electronic filters for lights to produce a non-white spectrum. A pilot project is being conducted at Hilo Airport to identify the appropriate lighting upgrade that will meet FAA and TSA safety and security requirements and to incorporate any new research on lighting conditions that can reduce artificial light attraction for seabirds. The implementation of Phase 3 will depend on identification of an appropriate light fixture that improves conditions and on securing funding for construction through the legislative budget process.
<b>Prohibit/control unleashed predatory animals; prohibit outdoor feeding of animals; require sealed rubbish containers</b>	<b>Yes</b>	HDOT-A prohibits unleashed predatory animals such as cats and dogs and the outdoor feeding of animals on the Lihue Airport premises. The U.S. Department of Agriculture (USDA) Wildlife Services (WS) conducts animal control as part of its management responsibility. Animal control includes trapping and removing cats and conducting surveillance to detect and remove dogs that may enter the airfield and introduced barn owls that may present a hazard to aircraft operations and downed seabirds. All rubbish is contained in sealed depositories that are removed routinely by the County.
<b>Provide Worker Seabird Awareness Training to staff</b>	<b>Yes</b>	USDA WS or other contractor will provide seabird awareness training to HDOT airport staff, airport security, tenants, and contractor personnel in <a href="#">April-August</a> prior to the seabird fallout season. HDOT airport operations workers and contract security personnel are given a summary orientation that enables them to identify seabird species under different scenarios, including in flight and grounded (alive, injured, dead), and provides written instructions on how to handle and report observations or encounters with grounded seabirds. <a href="#">All new hires during fallout season will be shown the training slideshow on first day of work by the trainer, or human resources office.</a>
<b>Provide outreach materials to staff &amp; guests</b>	<b>Yes</b>	As part of the awareness training provided for staff, USDA WS or other contractor will provide KSHCP outreach materials (pamphlets and fliers that contain bulleted information and graphics) to HDOT airport staff, airport security, and tenants. HDOT fliers and information will be provided for each airport operations and security vehicle operating on airport facilities.
<b>Host Save Our Shearwaters (SOS) Aid Station</b>	<b>Partially</b>	USDA WS will provide an internal SOS aid station in the secure area of the airport, but because of security restrictions, will not be able to host a public SOS aid station. Any seabirds encountered on airport grounds will be documented, temporarily cared for, and turned over to County SOS aid stations as soon as possible. Any inquiries from the public will be directed to County SOS aid stations.



**Kauai Harbors Item 8. Minimization Plans. Provide a plan to minimize the effects to the Covered Seabirds due to the Covered Activities. KSHCP Participants will be required to minimize the effects of the Covered Activities to the “maximum extent practicable” per applicable state and federal laws which regulate take license/permit issuance. The KSHCP document provides minimization objectives and measures to follow.**

The Minimization Plans should include the proposed minimization measures, timeline, and estimated cost for each facility. In this item, the Participant can include measures already completed or in place (new lights, shields, operational changes). Timeline should include estimated completion schedule, and annual schedule for minimization that will occur only during fledging season.

For minimization measures not yet determined but anticipated to occur at the facility, this section should include an estimated cost that will be earmarked for future minimization measures.

If applicable, the Participant must provide the reasoning why certain measures will not be implemented. The suggested tables below may each be altered to best describe the Minimization Plan. Attach additional pages, photos, and drawings as needed.

Minimization plans for Nawiliwili Harbor and Port Allen Harbor are described in Kauai Harbors Tables 9-12.

**Kauai Harbors Table 9. Light Attraction Minimization Plan—Nawiliwili Harbor**

<b>List of Buildings/Facilities</b>	<b>Minimization Measures</b>	<b>Cost to Implement</b>	<b>Responsible Staff</b>	<b>Timeline</b>
Container yard pole lights – High-mast Lights	1. Install full cut-off fixtures 2. Reduce number of lights activated when operations not in progress	\$843,292 \$0	Harbors Kauai District Manager; Engineering	Completed 2017 2018 and ongoing
Container Yard Roadway lights	1. Install full cut-off fixtures 2. Reduce number of lights activated when operations not in progress	\$4,517 \$0	Harbors Kauai District Manager; Engineering	Completed 2017 2018 and ongoing
Harbor Administration Building lights	1. Install full cut-off fixtures 2. Reduce number of lights activated when operations not in progress	\$79,179 \$0	Harbors Kauai District Manager; Engineering	Completed 2017 2018 and ongoing
Harbor Maintenance Compound Building lights	1. Install full cut-off fixtures 2. Test and install additional shielding on floodlights 3. Reduce number of lights activated when operations not in progress	\$44,610 \$4,000 \$0	Harbors Kauai District Manager; Engineering	Completed 2017 2018 2018 and ongoing
Warehouse Pier 2 Building lights (occupied by Matson)	1. Install full cut-off function 2. Test and install additional shielding on floodlights 3. Reduce number of lights activated when operations not in progress	\$138,049 \$4,000 \$0	Harbors Kauai District Manager; Engineering	Completed 2017 2018 2018 and ongoing
Warehouse Pier 3 Building lights (occupied by Young Brothers)	1. Install full cut-off function 2. Reduce number of lights activated when operations not in progress	\$99,913 \$0	Harbors Kauai District Manager; Engineering	Completed 2017 2018 and ongoing

**Kauai Harbors Table 10. Light Attraction Avoidance and Minimization Plan—Port Allen Harbor**

List of Buildings/Facilities	Minimization Measures	Cost to Implement	Responsible Staff	Timeline
<b>South Pier</b>				
Port Allen South Pier Shed Buildings Wall-pack building lights	1. Install downward-pointing, full cut-off fixtures	\$23,502	Harbors Kauai District Manager; Harbors Engineering	Completed 2017
	2. Reduce number of lights activated.	\$0		2018 and ongoing
	3. Turn off external lights when work is completed.	\$0		2018 and ongoing
	3.4. Lower wall mounted lights to reduce glare	\$10,000		2021
Port Allen South Pier Parking Lot Wall-pack flood lights	1. Install downward-pointing fixture with full cut-off function achieved by aiming angle	\$20,603	Harbors Kauai District Manager; Harbors Engineering	Completed 2017
	2. Test and install additional shielding on floodlights	\$4,000		2018

**Kauai Harbors Table 11. Seabird Mortality Minimization Plan—Nawiliwili Harbor**

<b>Minimization Measures</b>	<b>Describe Minimization Method (e.g., Trapping, Outreach, Enact Policy)</b>	<b>Cost to Implement</b>	<b>Responsible Staff</b>
Remove and control loose predatory animals at the facility. (Loose animals can kill grounded seabirds, and this measure aims to prevent seabird mortality by animals.)	HDOT-H will contract with USDA WS or another contractor to conduct predator control at harbors. USDA WS will live-trap and remove feral cats and dogs from the facility during seabird fallout period (September 15–December 15).	\$10,000	Harbors Kauai District Manager
Prohibit outdoor feeding of predatory animals. (Feeding animals attracts them to the site, and this measure aims to reduce the presence of animals that can cause seabird mortality.)	HDOT-H Kauai District Manager will enact a policy that prohibits outdoor feeding of feral cats and dogs at the facility during seabird fallout period (September 15–December 15).	\$0	Harbors Kauai District Manager
Conduct nightly searches to recover downed birds at the property and turn them into SOS following protocols (see monitoring plan below).	<ol style="list-style-type: none"> <li>1. HDOT-H will contract with USDA WS or another wildlife monitor to coordinate and implement an annual seabird monitoring program at Kauai harbors.</li> <li>2. HDOT-H will include seabird awareness and response activities into the contract with Nawiliwili Harbor Security Staff as part of its hourly security patrols around the facility.</li> </ol>	\$30,000  \$0	Harbors Kauai District Manager
Train staff to follow minimization measures.	HDOT will contract with USDA WS or another wildlife monitor to coordinate and implement an annual seabird monitoring program at Kauai harbors, including an annual training program for staff and tenants.	\$0 (cost included in task above)	Harbors Kauai District Manager

**Kauai Harbors Table 12. Seabird Mortality Minimization Plan—Port Allen Harbor**

<b>Minimization Measures</b>	<b>Describe Minimization Method (e.g., Trapping, Outreach, Enact Policy)</b>	<b>Cost to Implement</b>	<b>Responsible Staff</b>
Remove and control loose predatory animals at the facility. (Loose animals can kill grounded seabirds, and this measure aims to prevent seabird mortality by animals.)	HDOT-H will contract with USDA WS or another contractor to live-trap and remove feral cats and dogs from the facility during seabird fallout period (September 15–December 15).	\$10,000	Harbors Kauai District Manager
Prohibit outdoor feeding of predatory animals. (Feeding animals attracts them to the site, and this measure aims to reduce the presence of animals that can cause seabird mortality.)	HDOT-H Kauai District Manager will enact a policy that prohibits outdoor feeding of feral cats and dogs at the facility during seabird fallout period (September 15–December 15).	\$0	Harbors Kauai District Manager
Conduct nightly/morning searches to recover downed birds at the property and turn them into SOS following protocols (see monitoring plan below).	1. HDOT will contract with USDA WS or another wildlife monitor to coordinate and implement an annual seabird monitoring program at Kauai harbors.	\$30,000	Harbors Kauai District Manager
	2. Port Allen Harbor staff will incorporate a seabird awareness and response plan into its daily routine at the facility.	\$0	Port Allen Harbor Agent
Train staff to follow minimization measures.	HDOT will contract with USDA WS or another wildlife monitor to coordinate and implement an annual seabird monitoring program at Kauai harbors, including an annual training program for staff and tenants.	\$0 (cost included in task above)	Harbors Kauai District Manager



**Lihue Airport Item 8. Minimization Plans. Provide a plan to minimize the effects to the Covered Seabirds due to the Covered Activities. KSHCP Participants will be required to minimize the effects of the Covered Activities to the “maximum extent practicable” per applicable state and federal laws which regulate take license/permit issuance. The KSHCP document provides minimization objectives and measures to follow.**

The Minimization Plans should include the proposed minimization measures, an estimated completion schedule, and estimated cost for each facility. In this item, the Participant can include measures already completed or in place (new lights, shields, operational changes).

For minimization measures not yet determined but anticipated to occur at the facility, this section should include an estimated cost that will be earmarked to future minimization measures and a process to determine how and when those measures will be evaluated, selected, and decided (such as a cost-benefit analysis).

If applicable, the Participant must provide the reasoning why certain measures will not be implemented. The suggested tables below may each be altered to best describe the Minimization Plan. Attach additional pages, photos, and drawings as needed.

Minimization plans for Lihue Airport are described in Lihue Airport Tables 5 and 6.

**Lihue Airport Table 5. Seabird Light Attraction Minimization Plan—Lihue Airport**

<b>List of Buildings/features</b>	<b>Avoidance and Minimization Measures</b>	<b>Cost to Implement</b>	<b>Responsible Staff</b>	<b>Timeline</b>
Parking lot lights	<b>Minimization Measures</b> <ol style="list-style-type: none"> <li>1. All overhead lights in the parking lot were replaced with full cut-off solar light fixtures during Phase 1 of HDOT-A's lighting contract.</li> <li>2. Phase 2 lighting upgrade. HDOT-A plans to upgrade 18 paired (36 lamps) pedestrian pathway lights in the public parking lot to bollard style, cut-off optics, solar powered LED low-level commercial pathway lighting. The upgrade is scheduled to be implemented in 2018.</li> </ol>	\$8,029 \$171,565	Airports Kauai District Manager Airports Kauai District Manager	Completed 2016 2018
Ahukini Road	<b>Minimization Measures</b> <ol style="list-style-type: none"> <li>1. Lights along Ahukini Road and access road to the rental car facilities were replaced with full cut-off solar light fixtures during Phase 1 of HDOT-A lighting contract.</li> </ol>	\$4,003,204	Airports Kauai District Manager	Completed 2016
Signage lights	<b>Minimization Measures</b> <ol style="list-style-type: none"> <li>1. HDOT-A will turn off the lighted airport entrance sign at 10:00 p.m. Lighted waterfalls will be timed to turn off at 10:00 p.m.</li> <li>2. Lights are directed downward at signs and waterfalls, and there is no upward lighting.</li> </ol>	\$0 \$0	Airports Kauai District Manager Airports Kauai Maintenance	2018 Completed 2016
Main Terminal Apron, Cargo Apron, Commuter terminal lighting, helicopter maintenance lighting.	<b>Minimization Measures</b> <ol style="list-style-type: none"> <li>1. HDOT-A completed the Phase 1 lighting upgrades at Lihue Airport in 2016 with full cut-off fixtures (Lihue Airport Table 1). Phase 1 included new LED terminal passenger loading and unloading areas, baggage handling areas,</li> <li>2. Phase 2 lighting. HDOT-A plans to install additional full cut-off (fully shielded) LED lights, including pole-mounted and wall-mounted LED light fixtures in the T-hangers, commuter terminal, cargo terminal, FedEx buildings, maintenance areas of the airport. Phase 2 is scheduled to be implemented in 2018.</li> <li>3. Test and install additional shielding on floodlights in maintenance area and at fire station.</li> <li>4. Phase 3. HDOT-A plans to upgrade roughly 45 overhead high-mast lights at the main apron (ramp) and cargo main apron (ramp) with full cut-off (fully shielded) LED lights. A pilot project is being conducted at Hilo Airport to select best light characteristics. Funding would have to be secured to implement the project. Estimated completion date is 2020-2025 and would be dependent on Legislative funding.</li> <li>5. The Airport Operations Center will turn off the high-mast apron lights when they are not required for airport operation during the seabird</li> </ol>	\$1,798,367 \$1,007,749 \$8,000 \$1,917,386 \$0	Airports Kauai District Manager Airports Kauai District Manager Airports Kauai District Manager Airports Kauai District Manager Airports Kauai District Manager	Completed 2016 2018 2018 2020-2025 2018

List of Buildings/features	Avoidance and Minimization Measures	Cost to Implement	Responsible Staff	Timeline
	<p>fallout season (September 15 through December 15). The Airport Operations Center has area control of the high-mast apron lights, rather than individual pole-level control, and is able to turn off each apron area lights when no operations are in progress.</p> <p>6. Airport Operations Center will provide outreach and training to staff and airport tenants to manage light attraction risks and to turn off external lighting when work is completed.</p>	\$0	Airports Kauai District Manager	2018 and ongoing
Landscaping and grounds lighting	<p><b>Minimization Measures</b></p> <p>1. All grounds and accent lights will be directed downward by grounds maintenance staff.</p>	\$0	Maintenance	Completed 2017
Other minimization	A letter requiring compliance with seabird-friendly lighting standards will be sent to airport rental tenants as part of seabird awareness training.	\$0	Airports Kauai District Manager	2018

**Lihue Airport Table 6. Seabird Mortality Minimization Plan**

<b>Minimization Measures</b>	<b>Describe Minimization Method (e.g., Trapping, Outreach, Enact Policy)</b>	<b>Cost to Implement</b>	<b>Responsible Staff</b>
Remove and control loose predatory animals at the facility. (Loose animals can kill grounded seabirds, and this measure aims to prevent seabird mortality by animals.)	USDA WS routinely traps feral cats year-round at Lihue Airport as part of the wildlife hazard management operations. During the seabird fallout season, the control of feral cats throughout the airport improves the survival and recovery of Covered Seabirds that have been grounded at the airport. Trapping for mongoose also is conducted at the airport for a few weeks after a reported sighting.	\$10,000	District Manager
Prohibit feeding of predatory animals. (Feeding animals attracts them to the site, and this measure aims to reduce the presence of animals that can cause seabird mortality.)	The HDOT-A Kauai Airport District Manager will enact a policy that prohibits outdoor feeding of feral cats and dogs at the Lihue Airport during seabird fallout season (September 15–December 15).	\$0	District Manager
Conduct nightly/morning searches to recover downed birds at the property and turn them into SOS following protocols (see monitoring plan below).	HDOT will contract with USDA WS to implement an annual comprehensive seabird monitoring program at Lihue Airport, including the areas outside of the airport secure areas, such as the parking lot. See monitoring plan.	\$50,000	District Manager
Train staff to follow minimization measures.	HDOT will contract with USDA WS to implement an annual training program for all staff to include seabird identification, seabird handling, and response procedures, as well as data recording and documentation techniques.	\$0 (cost included in task above)	District Manager

**Kauai Harbors Item 9. Monitoring Plan. Provide a plan to monitor take of the Covered Species at the facilities proposed to be covered by the incidental take permit/license. The monitoring plan describes how the property will be searched for downed Covered Seabirds. The KSHCP document provides standards and guidelines for take monitoring to ensure that take of the species is accurately measured and recorded.**

The regulatory agencies will make the final determination as to the adequacy of the take monitoring plan.

HDOT will contract with USDA WS or another wildlife monitor to coordinate and implement an annual seabird monitoring program at Nawiliwili and Port Allen harbors. The components of the monitoring program are described in Kauai Harbors Tables 13 and 14, and the details of the monitoring protocol, data collection sheets, instructions, and maps of area monitored are provided in Appendix B.



### Kauai Harbors Table 13. Covered Seabird Take Monitoring Protocols—Nawiliwili Harbor

Please provide the following information for the protocol items below		
Item	Protocol (fill in protocol and provide reasons)	KSHCP Guideline
Percentage of the total property that will be searched and the total area to be searched	<ol style="list-style-type: none"> <li>1. USDA WS or other contract wildlife monitor: Driving and foot searches of harbor property during the fallout season. Combination of driving and walking survey to cover 100% of harbor property.</li> <li>2. HDOT-H contract security staff: Driving survey of 100% of secure areas of harbor property.</li> <li>3. HDOT-H operations staff and tenants: Opportunistic encounters of seabirds in active work areas during the fallout season when cargo or cruise ship operations are in progress.</li> <li>4. <u>Employees must search underneath all vehicles before they are moved at night and first thing in the morning.</u></li> <li>5. <u>Intensive monitoring will be implemented in areas containing vegetation/landscaping and various types of vehicles and moveable equipment, and facility vegetation maintenance will include vegetation trimming to help locate fallout birds.</u></li> </ol>	Search as much area as possible
Frequency of searches (number of searches per day or per week)	<ol style="list-style-type: none"> <li>1. USDA WS or other contract wildlife monitor: Once nightly driving and foot searches of harbor property during the fallout season.</li> <li>2. HDOT-H security staff: Hourly driving survey of secure areas of harbor property year-round (24 times per day).</li> <li>3. HDOT-H operations staff and tenants: Opportunistic encounters of seabirds in active work areas during the fallout season when cargo or cruise ship operations are in progress. A monitoring program combining a single nightly search by a dedicated searcher, with hourly routine patrols by HDOT-H security staff provided a 90% detection rate at Nawiliwili Harbor (see Appendix C for details of Searcher Efficiency Trials at Nawiliwili Harbor). These results indicated that once-nightly searches by dedicated searchers, in conjunction with regular patrols by facility security staff, is highly effective and would meet the standard of the KSHCP.</li> </ol>	Twice daily
Time of day of searches	<ol style="list-style-type: none"> <li>1. USDA WS or other contract wildlife monitor: Once nightly search of property during the fallout season, <u>2-32-4</u> hours after sunset.</li> <li>2. HDOT-H security staff: Hourly driving survey, <u>including the 2-hour period before sunrise.</u></li> <li>3. HDOT-H operations staff and tenants: Opportunistic encounters of seabirds in active work areas during the fallout season, 7:00 a.m. to 10:00 p.m., when cargo or cruise ship operations are in progress.</li> </ol>	2-3 hours after sunset and within 3 hours after sunrise
Number of searchers per search area	<ol style="list-style-type: none"> <li>1. USDA WS or other contract wildlife monitor: One staff person per survey. Driving and foot survey through harbor property.</li> <li>2. HDOT-H security staff: One staff person per survey.</li> <li>3. HDOT-H operations staff and tenants: Variable number of cargo or cruise ship staff members when operations are in progress.</li> </ol>	Depends on site conditions and safety considerations and vegetation, nearby hazards/threats

Proposed training	<ol style="list-style-type: none"> <li>1. USDA WS or other contract wildlife monitor: Annual training refresher with County SOS program prior to fallout season.</li> <li>2. HDOT-H security staff: Annual training prior to fallout season.</li> <li>3. HDOT-H operations staff and tenants: Annual training prior to fallout season.</li> <li>4. <u>All new hires during fallout season will be shown the training slideshow on first day of work by the trainer, or human resources office.</u></li> </ol>	Annual training covering seabird identification, seabird handling, and response procedures; verified and documented
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**Kauai Harbors Table 14. Covered Seabird Take Monitoring Protocols—Port Allen Harbor**

Please provide the following information for the protocol items below		
Item	Protocol (fill in protocol and provide reasons)	KSHCP Guideline
Percentage of the total property that will be searched and the total area to be searched	<ol style="list-style-type: none"> <li>1. USDA WS or other contract wildlife monitor: Foot searches of harbor property during the fallout season. Foot survey to cover 100% of harbor property.</li> <li>2. HDOT-H operations staff and tenants: Harbor agent conducts a walk-through of the south pier facilities each work day (weekends and State holidays are not included); if harbor agent is on leave, Kauai harbor master deploys another employee to conduct the walk-through. Tenants report opportunistic encounters of seabirds when commercial vessel operations are in progress.</li> <li>3. <u>Employees must search underneath all vehicles before they are moved at night and first thing in the morning.</u></li> <li>4. <u>Intensive monitoring will be implemented in areas containing vegetation/landscaping and various types of vehicles and moveable equipment, and facility vegetation maintenance will include vegetation trimming to help locate fallout birds.</u></li> </ol>	Search as much area as possible
Frequency of searches (number of searches per day or per week)	<ol style="list-style-type: none"> <li>1. USDA WS or other contract wildlife monitor: Twice-daily foot searches of harbor property during the fallout season.</li> <li>2. HDOT-H operations staff and tenants: Harbor agent conducts a walk-through of the south pier facilities each work day (weekends and State holidays are not included); if harbor agent is on leave, Kauai harbor master deploys another employee to conduct the walk-through. Tenants report opportunistic encounters of seabirds in active work areas when commercial vessel operations are in progress.</li> </ol>	Twice daily
Time of day of searches	<ol style="list-style-type: none"> <li>1. USDA WS or other contract wildlife monitor: Twice-daily searches of property during the fallout season, <u>2-32-4</u> hours after sunset and <u>within 3 hours after during the 2-hour period before</u> sunrise.</li> <li>2. HDOT-H operations staff and tenants: Harbor agent conducts a walk-through of the south pier facilities each work day (weekends and State holidays are not included) at 7:00–7:30 a.m.; if harbor agent is on leave, Kauai harbor master deploys another employee to conduct the walk-through. Tenants report opportunistic encounters of seabirds in active work areas when commercial vessel operations are in progress.</li> </ol>	2-3 hours after sunset and within 3 hours after sunrise
Number of searchers per search area	<ol style="list-style-type: none"> <li>1. USDA WS or other contract wildlife monitor: One staff person per survey. Foot searches through harbor property.</li> <li>2. HDOT-H operations staff and tenants: Harbor agent conducts a walk-through of the south pier facilities each work day (weekends and State holidays are not included); if harbor agent is on leave, Kauai harbor master deploys another employee to conduct the walk-through. Tenants have a variable number of staff members present when commercial operations are in progress.</li> </ol>	Depends on site conditions and safety considerations and vegetation, nearby hazards/threats

Proposed training	<ol style="list-style-type: none"> <li>1. USDA WS or other contract wildlife monitor: Annual training prior to fallout season.</li> <li>2. HDOT-H operations staff and tenants: Annual training prior to fallout season.</li> <li>3. <u>All new hires during fallout season will be shown the training slideshow on first day of work by the trainer, or human resources office.</u></li> </ol>	Annual training covering seabird identification, seabird handling, and response procedures; verified and documented
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**Lihue Airport Item 9. Monitoring Plan. Provide a plan to monitor take of the Covered Species at the facilities proposed to be covered by the incidental take permit/license. The monitoring plan describes how the property will be searched for downed Covered Seabirds. A monitoring plan is also required for the green sea turtle if potential exist for take of that species. The KSHCP document provides standards and guidelines for take monitoring to ensure that take of the species is accurately measured and recorded.**

The regulatory agencies will make the final determination as to the adequacy of the take monitoring plan.

HDOT-A will contract with USDA WS or another wildlife monitor to coordinate and implement an annual seabird monitoring program at Lihue Airport. The components of the monitoring program are described in Lihue Airport Table 7, and the details of the monitoring protocol, data collection sheets, instructions, and maps of area monitored are provided in Appendix B.



## Lihue Airport Table 7. Covered Seabird Take Monitoring Protocols—Lihue Airport

Please provide the following information for the protocol items below		
Item	Protocol (fill in protocol and provide reasons)	KSHCP Guideline
Percentage of the total property that will be searched and the total area to be searched	<ol style="list-style-type: none"> <li>1. USDA WS or other contract wildlife monitor: Driving and foot searches of lighted portions of airport, including main apron (ramp), main terminal (exterior) main cargo apron (ramp), heliport, maintenance compound, parking lots, Ahukini Road public access areas (see survey route map in Appendix B).</li> <li>2. HDOT-A security staff: Driving survey of 100% of public access areas. Security staff will be trained to recognize seabirds and how to address if down seabird encountered. Opportunistic encounters of seabirds during the fallout season.</li> <li>3. HDOT-A operations staff and tenants: Will be provided with information regarding seabirds and given instruction as to how to address downed birds. Opportunistic encounters of seabirds in active work areas during the fallout season.</li> <li>4. <u>Employees must search underneath all vehicles before they are moved at night and first thing in the morning.</u></li> <li>5. <u>Intensive monitoring will be implemented in areas containing vegetation/landscaping and various types of vehicles and moveable equipment, and facility vegetation maintenance will include vegetation trimming to help locate fallout birds.</u></li> </ol>	Search as much area as possible
Frequency of searches (number of searches per day or per week)	<ol style="list-style-type: none"> <li>1. USDA WS or other contract wildlife monitor: Once-daily driving and foot searches of airport property by dedicated staff, plus regular patrols by WS staff throughout the day during the fallout season.</li> <li>2. HDOT-A security staff: Hourly driving survey of public access areas (24x per day). Opportunistic encounters of seabirds during the fallout season.</li> <li>3. HDOT-A operations staff and tenants: Opportunistic encounters of seabirds in active work areas during the fallout season.</li> </ol> <p>A monitoring program combining a single nightly search by a dedicated searcher, with hourly routine patrols by HDOT-H security staff provided a 90% detection rate at Nawiliwili Harbor (see Appendix C for details of Searcher Efficiency Trials at Nawiliwili Harbor). These results indicated that once-nightly searches by dedicated searchers, in conjunction with regular patrols by facility security staff, is highly effective and a similar program implemented at Lihue Airport by WS and HDOT-A staff and security would meet the standard of the KSHCP.</p>	Twice daily
Time of day of searches	<ol style="list-style-type: none"> <li>1. USDA WS or other contract wildlife monitor: Once-daily dedicated search of property during the fallout season, <u>2-3-4</u> hours after sunset.</li> <li>2. USDA WS staff: Routine regular patrols by WS staff in morning, <u>during the 2-hour period before sunrise</u>, and throughout the day.</li> <li>3. HDOT-A security staff: Hourly driving survey-, <u>including the 2-hour period before sunrise.</u></li> <li>4. HDOT-A operations staff and tenants: Opportunistic encounters of seabirds in active work areas during the fallout season.</li> </ol>	2-3 hours after sunset and within 3 hours after sunrise
Number of searchers per search area	<ol style="list-style-type: none"> <li>1. USDA WS or other contract wildlife monitor: One staff person per survey through airport property.</li> <li>2. HDOT-A security staff: One staff person per survey with two to three staff conducting survey rounds per hour.</li> <li>3. HDOT-A operations staff and tenants: Variable number of staff members when operations are in progress.</li> </ol>	Depends on site conditions and safety considerations

Proposed training	<ol style="list-style-type: none"> <li>1. USDA WS or other contract wildlife monitor: Annual training refresher with County SOS program or WS or other contract wildlife monitor trainer in <del>April</del><a href="#">August</a>, prior to fallout season.</li> <li>2. HDOT-A security staff: Annual training with WS or other contract wildlife monitor trainer in <del>April</del><a href="#">August</a>, prior to fallout season.</li> <li>3. HDOT-A operations staff and tenants: Annual training with WS or other contract wildlife monitor trainer in <del>April</del><a href="#">August</a>, prior to fallout season.</li> <li>4. <u>All new hires during fallout season will be shown the training slideshow on first day of work by the trainer, or human resources office.</u></li> </ol>	Annual training covering seabird identification, seabird handling, and response procedures; verified and documented
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**Kauai Harbors Item 10. Components of the Green Sea Turtle Minimization and Monitoring Plan (if required). Monitoring and minimization for the green sea turtle is in two parts: A) Monitoring to detect nests and B) Monitoring and minimizing impacts to nests detected.**

This section does not apply to Nawiliwili Harbor and Port Allen Harbor.

**Part A: Monitoring to detect Green Sea Turtle Nests**

Please provide the following information; the table below may be used and altered as needed.

1. Detailed location and description of beaches, including linear distance, at which searching for nests of the green sea turtle will take place. Searches should take place at any beach from which light at the facility can be viewed;
2. Monitoring protocols indicating:
  - a. Annual training of searchers;
  - b. Frequency of searches (every other day or as much as possible);
  - c. Conduct active searching (searching the beach width);
  - d. Sufficient number of trained searchers to cover the area; and
  - e. Record results of search monitoring.
3. All Participants conducting self-monitoring are required to record the results of search efforts. Records should provide:
  - a. Evidence (what was seen). Include description and provide photographs
  - b. Location on the beach (GPS) and physically mark the location if possible
  - c. Date and time of day
  - d. Description of surrounding land use (e.g., vacant, or developed), and
  - e. Proximity to the facility.

**Part B: Monitoring of Identified Green Sea Turtle Nests**

Each identified nest of the green sea turtle should be monitored and protected from light attraction. Please provide the following monitoring protocols; the tables below may be used and altered as needed.

1. Light avoidance measure for identified nests (either shield/deactivate lights at the facility or install and maintain a light shield around each identified nest);
2. Frequency of searches.
3. Number of searches monitoring the nests. The number of needed to monitor active nests will depend on number of nests identified and amount of beach needed to be covered;
4. Record the results of nest monitoring. Monitoring should provide:
  - a. Evidence of hatchling emergence (description and photos):
  - b. Date and time of emergence,
  - c. Direction of tracks
  - d. Condition of the nest area (e.g., disturbed or not).

**Kauai Harbors Table 15. Green Sea Turtle Take Monitoring Protocols – Part A: Monitoring to Detect Nests**

Please provide search protocols for detecting nests of the green sea turtle (Attach pages as needed)		
Item	Protocol (fill in protocol & provide reasons)	KSHCP Guideline
Location & description of the beach, or beaches, surveyed and the linear distance of the beach.	Not applicable	Beach area surveyed should coincide with visibility from the facility with the lights.
Frequency of searches (# per day or per week)	Not applicable	Every other day during nesting season (typ. May 15 to end of August)
Number of searchers per search area	Not applicable	Depends on site conditions and safety considerations
Proposed training	Not applicable	Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee.

**Kauai Harbors Table 16. Green Sea Turtle Take Monitoring Protocols – Part B: Monitoring of Identified Nests & Minimization**

Please provide search protocols to monitor identified nests (from Part A) of the green sea turtle (Attach pages as needed)		
Item	Protocol (fill in protocol & provide reasons)	KSHCP Guideline
Frequency of checks (# per day or per week)	Not applicable	Active nests should be monitored every 1-2 days; then daily during expected hatching date
Light avoidance	Not applicable	If lights cannot be deactivated or shielded from the nest, each nest should be screened from visible light.
Number of searchers per search area	Not applicable	Depends on site conditions and safety considerations

**Lihue Airport Item 10. Components of the Green Sea Turtle (Honu) Minimization and Monitoring Plan (if required). Monitoring and minimization for the green sea turtle is in two parts: A) Monitoring to detect nests and B) Monitoring and minimizing impacts to nests detected.**

This section does not apply to Lihue Airport.

**Part A: Monitoring to detect Green Sea Turtle Nests**

Please provide the following information; the table below may be used and altered as needed.

1. Detailed location and description of beaches, including linear distance, at which searching for nests of the green sea turtle will take place. Searches should take place at any beach from which light at the facility can be viewed;
2. Monitoring protocols indicating:
  - a. Annual training of searchers;
  - b. Frequency of searches (every other day or as much as possible);
  - c. Conduct active searching (searching the beach width);
  - d. Sufficient number of trained searchers to cover the area; and
  - e. Record results of search monitoring.
3. All Participants conducting self-monitoring are required to record the results of search efforts. Records should provide:
  - a. Evidence (what was seen). Include description and provide photographs
  - b. Location on the beach (GPS) and physically mark the location if possible
  - c. Date and time of day
  - d. Description of surrounding land use (e.g., vacant, or developed), and
  - e. Proximity to the facility.

**Part B: Monitoring of Identified Green Sea Turtle Nests**

Each identified nest of the green sea turtle should be monitored and protected from light attraction. Please provide the following monitoring protocols; the tables below may be used and altered as needed.

1. Light avoidance measure for identified nests (either shield/deactivate lights at the facility or install and maintain a light shield around each identified nest);
2. Frequency of searches.
3. Number of searches monitoring the nests. The number of needed to monitor active nests will depend on number of nests identified and amount of beach needed to be covered;
4. Record the results of nest monitoring. Monitoring should provide:
  - a. Evidence of hatchling emergence (description and photos):
  - b. Date and time of emergence,
  - c. Direction of tracks
  - d. Condition of the nest area (e.g., disturbed or not).

### Lihue Airport Table 8. Green Sea Turtle Take Monitoring Protocols – Part A: Monitoring to Detect Nests

Please provide search protocols for detecting nests of the green sea turtle (Attach pages as needed)		
Item	Protocol (fill in protocol and provide reasons)	KSHCP Guideline
Location and description of the beach, or beaches, surveyed and the linear distance of the beach.	Not applicable	Beach area surveyed should coincide with visibility from the facility with the lights.
Frequency of searches (# per day or per week)	Not applicable	Every other day during nesting season (typ. May 15 to end of August)
Number of searchers per search area	Not applicable	Depends on site conditions and safety considerations
Proposed training	Not applicable	Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee.

### Lihue Airport Table 9. Green Sea Turtle Take Monitoring Protocols – Part B: Monitoring of Identified Nests and Minimization

Please provide search protocols to monitor identified nests (from Part A) of the green sea turtle (Attach pages as needed)		
Item	Protocol (fill in protocol and provide reasons)	KSHCP Guideline
Frequency of searches (# per day or per week)	Not applicable	Active nests should be monitored every 1-2 days; then daily during expected hatching date
Light avoidance	Not applicable	If lights cannot be deactivated or shielded from the nest, each nest should be screened from visible light.
Number of searchers per search area	Not applicable	Depends on site conditions and safety considerations



**Kauai Harbors Item 11. Describe the schedule that will be followed to provide training for staff. Training must be provided to those that will conduct and oversee the searches at the facility.**

The training should include:

1. Summary of regulations protecting the Covered Species;
2. Search procedures, route, frequency and timing specific to the facility's monitoring plan, for seabirds and green sea turtle nests (if applicable);
3. Response procedures including safe and proper techniques for handling seabirds;
4. Recognizing evidence of green sea turtle nests, proper nest light screening, and hatchling activity (if green sea turtle minimization and monitoring plan is applicable);
5. Procedures to document the results of searches;
6. Downed wildlife agency contacts; and
7. Nearest SOS aid station.

USDA WS or other wildlife monitor, under contract with HDOT-H, will provide annual Worker Seabird Awareness and Response Training (WSART) to the Kauai District harbor operations staff, and contract security staff who may encounter fallen seabirds in the performance of their duties. The training will take place during the month of August, before the start of each seabird fallout season (September 15 to December 15). The training will cover the regulatory setting; consequences for noncompliance; standard monitoring, response, and reporting procedures; techniques for proper handling of fallen seabirds; personal protection; agency contacts; and facility locations. The training will incorporate an annual refresher update from the County SOS program.

All recipients of training will sign an attendance sheet, and HDOT will submit the forms with its annual compliance reporting.

The seabird fallout training, including proper handling and care instructions and reporting procedures, will be provided to the following HDOT-H staff:

**Nawiliwili Harbor**

- Harbors District Manager
- Harbors Assistant Manager
- Harbor Operations
- Harbor Security Officer
- Engineer
- Maintenance Supervisor
- Harbor Agent
- Maintenance Staff
- Contract Security Staff
- USDA Wildlife Services Staff or Contract Monitoring Staff

**Port Allen Harbor**

- Harbor Agent

- USDA Wildlife Services Staff or Contract Monitoring Staff

### **Rescuing Downed Seabirds—Standard Operating Procedures (SOP)**

The following steps provide the procedure for recovering downed seabirds:

1. Take the seabird recovery kit and pet carrier to the downed seabird.
2. Put on gloves.
3. Using towel to gently cover the bird, pick up the seabird.
4. Place the seabird in the pet carrier, and close the pet carrier.
5. Put the gloves and towel back in the seabird rescue kit.
6. Take the bird and pet carrier to an SOS Aid Station.
7. Transfer the bird to the Aid Station's pet carrier.
8. Call SOS at 632-0610 or 635-5117.
9. Return the seabird rescue kit and pet carrier.
10. Complete the Bird Take Field Report.
11. Give the completed "Bird Take Field Report" to the General Manager, or other responsible staff person at the facility.

### **Contents of Seabird Recovery Kit**

1. Latex or nitrile gloves;
2. Three towels;
3. Hand sanitizer;
4. Flashlight or headlamp;
5. Clipboard, pen, and blank "Bird Take Field Reports", or similar form; and
6. Pet carrier—medium sized. If a box is used it must be well ventilated and marked conspicuously "LIVE ANIMAL".

**Lihue Airport Item 11. Describe the schedule that will be followed to provide training for staff. Training must be provided to those that will conduct and oversee the searches at the facility.**

The training should include:

1. Summary of regulations protecting the Covered Species;
2. Search procedures, route, frequency, and timing specific to the facility's monitoring plan, for seabirds and green sea turtle nests;
3. Response procedures including safe and proper techniques for handling seabirds;
4. Recognizing evidence of green sea turtle nests (if lights shine on a beach), proper nest light screening, and hatchling activity (e.g., emergence);
5. Procedures to document the results of searches;
6. Downed wildlife agency contacts; and
7. Nearest SOS aid station.

USDA WS or other wildlife monitor, under contract with HDOT-A, will provide annual Worker Seabird Awareness and Response Training (WSART) to the Kauai District airport operations staff, and contract security staff who may encounter fallen seabirds in the performance of their duties. The training will take place during the month of ~~April~~August, before the start of each seabird fallout

season (September 15 to December 15). The training will cover the regulatory setting; consequences for noncompliance; standard monitoring, response, and reporting procedures; techniques for proper handling of fallen seabirds; personal protection; agency contacts; and facility locations. The training will incorporate an annual refresher update from the County SOS program.

All recipients of training will sign an attendance sheet, and HDOT will submit the forms with its annual compliance reporting.

The seabird fallout training, including proper handling and care instructions, and reporting procedures will be provided to the following HDOT-A staff:

- Airports District Manager
- Assistant Air Superintendent V
- Assistant Air Superintendent VI
- Security
- Airport Operations Controller
- Airports Operations Controller II
- Contract Security Staff
- USDA Wildlife Services Staff or Contract Monitoring Staff

### **Rescuing Downed Seabirds—Standard Operating Procedures (SOP)**

The following steps provide the procedure for recovering downed seabirds:

1. Take the seabird recovery kit and pet carrier to the downed seabird.
2. Put on gloves.
3. Using towel to gently cover the bird, pick up the seabird.
4. Place the seabird in the pet carrier, and close the pet carrier.
5. Put the gloves and towel back in the seabird rescue kit.
6. Take the bird and pet carrier to an SOS Aid Station.
7. Transfer the bird to the Aid Station's pet carrier.
8. Call SOS at 632-0610 or 635-5117.
9. Return the seabird rescue kit and pet carrier.
10. Complete the Bird Take Field Report.
11. Give the completed "Bird Take Field Report" to the USDA WS staff or District Manager.

### **Contents of Seabird Recovery Kit**

1. Latex or nitrile gloves
2. Three towels
3. Hand sanitizer
4. Flashlight or headlamp
5. Clipboard, pen, and blank "Bird Take Field Reports," or similar
6. Pet carrier—medium sized. If a box is used, it must be well ventilated and marked conspicuously "LIVE ANIMAL"

**Kauai Harbors Item 12. Describe any outreach conducted (e.g., handing out pamphlets on seabird awareness to facility employees or guests):**

HDOT-H will display SOS posters and provide outreach materials to staff and tenants annually during the fallout season (September 15–December 15).

**Lihue Airport Item 12. Describe any outreach conducted (e.g., handing out pamphlets on seabird awareness to facility employees or guests):**

HDOT-A will display SOS posters and provide outreach materials to staff and tenants annually during the fallout season (September 15–December 15).

## PART 2. Take Estimate, Requested Amount of Take Authorization, and Funding

### Kauai Harbors Item 1. Show the calculation of estimated take for each of the Covered Species.

Following the take estimation methods in the KSHCP for estimating a Participant's take, the tables and charts below show the take estimate calculation for the facility for each of the Covered Seabirds.

The KSHCP take estimate method utilizes the average of the most recent 5 years of SOS recovery data for the facility. Applied to the data is an adjustment for downed birds not found, assumed at 50 percent.

If the landowner-applicant submits a take estimate with an alternate discovery rate, they must provide the reasons why an alternate rate was used to estimate take, including relevant information supporting their reasoning.

### Kauai Harbors Table 17. Annual Take Estimate Calculation for Nawiliwili Harbor

Participant/Facility Name: Nawiliwili Harbor	Newell's Shearwater	Hawaiian Petrel <sup>2</sup>	Band-rumped Storm Petrel
Avg. from SOS data—or—monitoring data if available (5 most recent yrs.: 2013-2017 for Newell's Shearwater and 2003-2017 for Hawaiian Petrel and Band-rumped Storm Petrel) <sup>1</sup>	1.8	0.2	0.0
Adjustment for unobserved (50% typical, 10% as per SEEF Trials – Appendix C)	0.1	0.1	0.1
Total direct take from light attraction	2.0	0.22	0.0
Annual Take Estimate	2.0	0.22	0.0

<sup>1</sup> Average take for Covered Species was based on a combination of information provided in a memo from KSHCP dated April 21, 2016 for the period 2003-2010, SOS data for 2011-2016, SOS data for 2017, and HDOT self-monitoring results for 2017. See Appendix D for a summary of monitoring results for HDOT properties in 2017, and Appendix E for a summary of fall out records used to determine average annual take at each facility.

<sup>2</sup> The average take number for Hawaiian Petrel was reported as a combined take for Nawiliwili Harbor and Port Allen Harbor, and totaled one bird in 2003 and 2008. Pending receipt of SOS data with which to clarify the location, it is assumed that both fallout records occurred at Nawiliwili Harbor. One additional Hawaiian Petrel was recorded at Nawiliwili in 2017 yielding a 15-year total of 3 birds, or an annual average of 0.2 bird per year.

### Kauai Harbors Table 18. Annual Take Estimate Calculation for Port Allen Harbor

Participant/Facility Name: Port Allen Harbor	Newell's Shearwater	Hawaiian Petrel	Band-rumped Storm Petrel
Avg. from SOS data—or—monitoring data if available (5 most recent yrs.: 2013-2017 for Newell's Shearwater and 2003-2017 for Hawaiian Petrel and Band-rumped Storm Petrel) <sup>1</sup>	2.0	0.0	0.0
Adjustment for unobserved (50% typical)	0.5	0.5	0.5
Total direct take from light attraction	4.0	0.0	0.0
Annual Take Estimate	4.0	0.0	0.0

<sup>1</sup> Average take for Covered Species was based on a combination of information provided in a memo from KSHCP dated April 21, 2016 for the period 2003-2010, SOS data for 2011-2016, SOS data for 2017, and HDOT self-monitoring results for 2017. See Appendix D for a summary of monitoring results for HDOT properties in 2017, and Appendix E for a summary of fallout records used to determine average annual take at each facility.

**Lihue Airport Item 1. Show the calculation of estimated take for each of the Covered Species.**

Following the take estimation methods in the KSHCP for estimating a Participant's take, the tables and charts below show the take estimate calculation for the facility for each of the Covered Seabirds.

The KSHCP take estimate method utilizes the average of the most recent 5 years of SOS recovery data for the facility. Applied to the data is an adjustment for downed birds not found, assumed at 50 percent.

If the landowner-applicant submits a take estimate with an alternate discovery rate, they must provide the reasons why an alternate rate was used to estimate take, including relevant information supporting their reasoning.

**Lihue Airport Table 10. Annual Take Estimate Calculation for Lihue Airport**

<b>Participant/Facility Name: Lihue Airport</b>	<b>Newell's Shearwater</b>	<b>Hawaiian Petrel</b>	<b>Band-rumped Storm Petrel<sup>2</sup></b>
Avg. from SOS data—or—monitoring data if available ( <i>5 most recent yrs.: 2013-2017 for Newell's Shearwater and 2003-2017 for Hawaiian Petrel and Band-rumped Storm Petrel</i> ) <sup>1</sup>	1.6	0.2	0.07
Adjustment for unobserved (50% typical, an adjustment of 25% unobserved is proposed for Lihue Airport based on the 90% searcher efficiency rates obtained in SEEF Trials at Nawiliwili Harbor (Appendix C) under similar conditions, staffing coverage, procedures, and monitoring frequency).	0.25	0.25	0.25
Total direct take from light attraction	2.13	0.27	0.09
Annual Take Estimate	2.13	0.27	0.09

<sup>1</sup> Average take for Covered Species was based on a combination of information provided in a memo from KSHCP dated April 21, 2016 for the period 2003-2010, SOS data for 2011-2016, SOS data for 2017, and HDOT self-monitoring results for 2017. See Appendix D for a summary of monitoring results for HDOT properties in 2017, and Appendix E for a summary of fall out records used to determine average annual take at each facility.

<sup>2</sup> Information provided in a memo from KSHCP dated April 21, 2016 detailed one fallout record of a Band-rumped Storm Petrel at Lihue Airport in 2007. The values used in the table are reproduced from the April 21, 2016 memo. Note that USDA Wildlife Services recovery records for Lihue Airport do not show recoveries for this species.

**Kauai Harbors Item 2. Select the requested take authorization and permit/license term coverage for each of the Covered Species.****Kauai Harbors Table 19. Requested take authorization and permit/license term coverage for 'a 'o - Newell's Shearwater (*Puffinus Newelli*) for Nawiliwili Harbor**

<b>Age Class</b>	<b>Annual Take Estimate: Fledglings</b>	<b>Annual Take Estimate: Adults or sub-adults</b>	<b>Take Limit for License/Permit Term (30 yrs)</b>
Mortality (Lethal) (Lethal take = 10% undiscovered birds + 12% SOS birds that are not released = 22% of total take)	0.42	0.0	12.6
Injury (Non-lethal) (Annual take estimate – lethal take estimate)	1.58	0.0	47.4



**Kauai Harbors Table 20. Requested take authorization and permit/license term coverage for ‘a‘o - Newell’s Shearwater (*Puffinus Newelli*) at Port Allen Harbor**

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or sub-adults	Take Limit for License/Permit Term (30 yrs)
Mortality (Lethal) (Lethal take = 50% undiscovered birds + 12% SOS birds that are not released = 62% of total take)	2.24	0.0	67.2
Injury (Non-lethal) (Annual take estimate – lethal take estimate)	1.76	0.0	52.8

**Kauai Harbors Table 21. Requested take authorization and permit/license term coverage for ‘ua‘u – Hawaiian Petrel (*Pterodroma sandwichensis*) at Nawiliwili Harbor**

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or sub-adults	Take Limit for License/Permit Term (30 yrs)
Mortality (Lethal) (Lethal take = 10% undiscovered birds + 12% SOS birds that are not released = 22% of total take)	0.04	0.0	1.2
Injury (Non-lethal) (Annual take estimate – lethal take estimate)	0.18	0.0	5.4

**Lihue Airport Item 2. Select the requested take authorization and permit/license term coverage for each of the Covered Species.**

**Lihue Airport Table 11. Requested take authorization and permit/license term coverage for ‘a‘o - Newell’s Shearwater (*Puffinus Newelli*) for Lihue Airport**

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or sub-adults	Take Limit for License/Permit Term (30 yrs)
<b>Mortality (Lethal)</b> (Lethal take = 25% undiscovered birds + 12% SOS birds that are not released = 37% of total take)	0.72	0.0	21.6
<b>Injury (Non-lethal)</b> (Annual take estimate – lethal take estimate)	1.41	0.0	42.3

**Lihue Airport Table 12. Requested take authorization and permit/license term coverage for ‘ua‘u – Hawaiian Petrel (*Pterodroma sandwichensis*) for Lihue Airport**

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or sub-adults	Take Limit for License/Permit Term (30 yrs)
<b>Mortality (Lethal)</b> (Lethal take = 25% undiscovered birds + 12% SOS birds that are not released = 37% of total take)	0.09	0.0	2.7
<b>Injury (Non-lethal)</b> (Annual take estimate – lethal take estimate)	0.18	0.0	5.4

**Lihue Airport Table 13. Requested take authorization and permit/license term coverage for ‘akē‘akē –Band-Rumped Storm Petrel (*Oceanodroma castro*) for Lihue Airport**

<b>Age Class</b>	<b>Annual Take Estimate: Fledglings</b>	<b>Annual Take Estimate: Adults or sub-adults</b>	<b>Take Limit for License/Permit Term (30 yrs)</b>
<b>Mortality (Lethal)</b> ( <i>Lethal take = 25% undiscovered birds + 12% SOS birds that are not released = 37% of total take</i> )	0.03	0.0	0.9
<b>Injury (Non-lethal)</b> ( <i>Annual take estimate – lethal take estimate</i> )	0.06	0.0	1.8

Note: USDA WS take records for LIH do not show recoveries for this species.

**Kauai Harbors Item 3. Funding Assurance. Provide proof of adequate funding (see KSHCP document). All participants must demonstrate requisite funding prior to permit/license approval to ensure that the proposed measures and actions, including monitoring, will be undertaken in accordance with the terms and schedule of the KSHCP<sup>1</sup>.**

HDOT is statutorily required to generate its own funds for its transportation programs and projects. Independent special funds were thus established for each division. Special funds strive to generate sufficient revenues for program operations, maintenance, and capital improvement costs, and are dependent on revenue generated by facilities operations and tenants.

HDOT-H will provide funding for implementation of the KSHCP from its Harbors Special Fund (B). The amount needed to fund HDOT-H’s obligation will be included in the Harbors Division biennium and supplemental budget requests and is limited to the amounts approved in the legislative approval process for those specific fiscal periods. No funds beyond specific fiscal years can be appropriated without legislative approval. HDOT-H will make annual budget requests consistent with the budget approved as part of the KSHCP.

NOTE: HDOT-H is proposing that funds normally used to satisfy the “recovery” provisions of Hawaii Revised Statutes 195D be directed to scientific research on lighting.

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<sup>1</sup> The applicant shall post a bond, provide an irrevocable letter of credit, insurance, or surety bond, or provide other similar financial tools, including depositing a sum of money in the endangered species trust fund created by section 195D-31, or provide other means approved by the board, adequate to ensure monitoring of the species by the State and to ensure that the applicant takes all actions necessary to minimize and mitigate the impacts of the take.

**Lihue Airport Item 3. Funding Assurance. Provide proof of adequate funding (see KSHCP document). All participants must demonstrate requisite funding prior to permit/license approval to ensure that the proposed measures and actions, including monitoring, will be undertaken in accordance with the terms and schedule of the KSHCP<sup>2</sup>.**

HDOT-A is statutorily required to generate its own funds for its transportation programs and projects. Independent special funds were thus established for each of the division's major programs. Each fund strives to generate sufficient revenues for program operation, maintenance costs, and the State General Fund fee for central services. This fee is set at five percent of each special fund's gross revenues after debt service.

These special funds must also provide a higher level of cash financing in the Capital Improvement Program to ease the burden on debt service. Since the Capital Improvement Program is large, HDOT-A continues to rely on reimbursable General Obligation Bonds and federal aid (largely through the U.S. Department of Transportation's FAA) to help finance its programs and projects.

### **Airport Special Revenue Fund**

The Airport Special Revenue Fund was created under Section 261-5, Hawaii Revised Statutes. Its primary revenue sources are the aviation fuel tax, landing fees, airport use charges, concession fees, and investment income. Other revenue sources include rentals and miscellaneous earnings.

HDOT-A will provide funding for implementation of the KSHCP from its Airport Special Revenue Fund (B). The amount needed to fund HDOT-A's obligation will be included in the HDOT-A biennium and supplemental budget requests and is limited to the amounts approved in the legislative approval process for those specific fiscal periods. No funds beyond specific fiscal years can be appropriated without legislative approval. HDOT will make annual budget requests consistent with the budget approved as part of the KSHCP.

Note: HDOT-A is proposing that funds normally used to satisfy the "recovery" provisions of Hawaii Revised Statutes 195D be directed to scientific research on lighting.

The State of Hawaii cannot commit funds that have not been approved by the Legislature, so a provision in the PIP and HCP must be noted that any type of payment is based on approval and availability.

Signature of Participant: \_\_\_\_\_

Printed Name: \_\_\_\_\_

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

The undersigned affirms that all the information included is true and accurate to the best of the Participant's knowledge and that this PIP is voluntarily submitted.

☐ check to waive confidentiality

<sup>2</sup> The applicant shall post a bond, provide an irrevocable letter of credit, insurance, or surety bond, or provide other similar financial tools, including depositing a sum of money in the endangered species trust fund created by section 195D-31, or provide other means approved by the board, adequate to ensure monitoring of the species by the State and to ensure that the applicant takes all actions necessary to minimize and mitigate the impacts of the take.

## Contact Us

Call the KSHCP Office at (808) 245-9160 or visit our office at 4272-B Rice Street, Lihue HI, 96766. Visit the project website: [www.Kauai-seabirdhcp.info](http://www.Kauai-seabirdhcp.info). We look forward to working with you toward helping Hawaii's unique species!

## Kauai Harbors PIP Completion Checklist Form

Item	Completion Check Is each item thoroughly described and information submitted?	Complete? (Y/N)	Information Needed to Make Item Complete or Outstanding Issues Remaining
<b>Part I: Landowner &amp; Property Information; Description of the Facilities; Avoidance &amp; Minimization Measures; Monitoring of Take</b>			
1 Landowner applicant information	<ul style="list-style-type: none"> <li>Landowner name/organization</li> <li>Contact information</li> </ul>		
2 Property & Facility description	<ul style="list-style-type: none"> <li>TMK or Legal description</li> <li>Maps, site plans.</li> <li>Narrative Description</li> </ul>		
3 Covered Activities	<ul style="list-style-type: none"> <li>Light table/inventory</li> <li>Honu assessment</li> <li>Description of Utility structures &amp; support structures</li> <li>Maps, site plans, photos.</li> <li>Heights and configurations</li> </ul>		
4 Standards for Covered Activities	<ul style="list-style-type: none"> <li>Regulations provided</li> <li>Operational needs</li> </ul>		
5 Future facility plans	<ul style="list-style-type: none"> <li>Proposed plans provided</li> <li>Site plans, arch drawings,</li> <li>Other information</li> </ul>		
6 Alternatives to the Taking	<ul style="list-style-type: none"> <li>Alternatives addressed</li> <li>Reasons provided</li> </ul>		
7 Minimization measures considered	<ul style="list-style-type: none"> <li>Minimization measures table (or other info.) completed</li> <li>Reasons provided</li> <li>Each Covered Activity</li> <li>Covered Seabirds and Honu</li> </ul>		
8 Minimization plan	<ul style="list-style-type: none"> <li>Minimization measures provided</li> <li>Timeline and funding</li> <li>Plan and process for future minimization measures (e.g., cost-benefit, earmarked funding)</li> <li>Each Covered Activity (lights &amp; utility)</li> <li>Covered Seabirds and Honu</li> </ul>		
9 Monitoring Plan	<ul style="list-style-type: none"> <li>Selected self-monitoring or DLNR</li> <li>Completed plan with protocols</li> <li>Adequate protocols</li> <li>Each Covered Activity</li> <li>Covered Seabird &amp; Honu</li> <li>Training for searchers</li> </ul>		
<b>Part II: Take Estimate, Requested Amount of Take Authorization, and Funding</b>			
1 Take Estimate Calculation	<ul style="list-style-type: none"> <li>5-year SOS average</li> <li>Discovery rate</li> <li>Covered Seabirds</li> <li>Honu</li> </ul>		
2 Requested take authorization & permit term	<ul style="list-style-type: none"> <li>Each Covered Species</li> <li>Reason provided for discrepancy between estimate and requested amount</li> </ul>		

3	Proof of Adequate Funding	<ul style="list-style-type: none"> <li>Financial mechanism</li> <li>Demonstrated ability to fund</li> </ul>		
	Signature	Signed by landowner, facility owner, or authorized responsible party		

### Lihue Airport PIP Completion Checklist Form

Item		Completion Check Is each item thoroughly described and information submitted?	Complete? (Y/N)	Information Needed to Make Item Complete or Outstanding Issues Remaining
<b>Part I: Landowner &amp; Property Information; Description of the Facilities; Avoidance &amp; Minimization Measures; Monitoring of Take</b>				
1	Landowner applicant information	<ul style="list-style-type: none"> <li>Landowner name/organization</li> <li>Contact information</li> </ul>		
2	Property & Facility description	<ul style="list-style-type: none"> <li>TMK or Legal description</li> <li>Maps, site plans.</li> <li>Narrative Description</li> </ul>		
3	Covered Activities	<ul style="list-style-type: none"> <li>Light table/inventory</li> <li>Honu assessment</li> <li>Description of Utility structures &amp; support structures</li> <li>Maps, site plans, photos.</li> <li>Heights and configurations</li> </ul>		
4	Standards for Covered Activities	<ul style="list-style-type: none"> <li>Regulations provided</li> <li>Operational needs</li> </ul>		
5	Future facility plans	<ul style="list-style-type: none"> <li>Proposed plans provided</li> <li>Site plans, arch drawings,</li> <li>Other information</li> </ul>		
6	Alternatives to the Taking	<ul style="list-style-type: none"> <li>Alternatives addressed</li> <li>Reasons provided</li> </ul>		
7	Minimization measures considered	<ul style="list-style-type: none"> <li>Minimization measures table (or other info.) completed</li> <li>Reasons provided</li> <li>Each Covered Activity</li> <li>Covered Seabirds and Honu</li> </ul>		
8	Minimization plan	<ul style="list-style-type: none"> <li>Minimization measures provided</li> <li>Timeline and funding</li> <li>Plan and process for future minimization measures (e.g., cost-benefit, earmarked funding)</li> <li>Each Covered Activity (lights &amp; utility)</li> <li>Covered Seabirds and Honu</li> </ul>		
9	Monitoring Plan	<ul style="list-style-type: none"> <li>Selected self-monitoring or DLNR</li> <li>Completed plan with protocols</li> <li>Adequate protocols</li> <li>Each Covered Activity</li> <li>Covered Seabird &amp; Honu</li> <li>Training for searchers</li> </ul>		
<b>Part II: Take Estimate, Requested Amount of Take Authorization, and Funding</b>				
1	Take Estimate Calculation	<ul style="list-style-type: none"> <li>5-year SOS average</li> <li>Discovery rate</li> <li>Covered Seabirds</li> <li>Honu</li> </ul>		



2	Requested take authorization & permit term	<ul style="list-style-type: none"> <li>▪ Each Covered Species</li> <li>▪ Reason provided for discrepancy between estimate and requested amount</li> </ul>		
3	Proof of Adequate Funding	<ul style="list-style-type: none"> <li>▪ Financial mechanism</li> <li>▪ Demonstrated ability to fund</li> </ul>		
	Signature	Signed by landowner, facility owner, or authorized responsible party		

## **Appendix A. Technical Specifications of Outdoor Lights at Nawiliwili Harbor, Port Allen Harbor, and Lihue Airport, Kauai.**

**Appendix B. Details of Monitoring Protocol, Data Collection Sheets, Instructions, and Maps of Survey Routes for the KSHCP Seabird Monitoring Program at Nawiliwili Harbor, Port Allen Harbor, and Lihue Airport.**



## **Appendix C. Results of Searcher Efficiency Trials at Nawiliwili Harbor and Port Allen Harbor, Kauai, 2017**

## **Appendix D. Summary of 2017 Seabird Monitoring Results at Hawaii Department of Transportation Facilities on Kauai**



## **Appendix E. FallOut Records for Covered Seabirds at Hawaii Department of Transportation Facilities on Kauai, 2013-2017**

