



Appendix B

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# ENVIRONMENTAL EVALUATION

# Appendix B

## ENVIRONMENTAL

## EVALUATION

*Master Plan*

*Kona International Airport at Keahole*

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A review of the potential environmental impacts associated with proposed airport projects is an essential consideration in the airport master planning process. The primary purpose of this evaluation is to review the planned improvement program for Kona International Airport at Keahole (KOA) to determine whether the planned actions could, individually or collectively, have the potential to significantly affect the quality of the environment.

Construction of the improvements depicted on the Airport Layout Plan, developed as part of this master plan, will require compliance with the *National Environmental Policy Act (NEPA) of 1969*, as amended, to receive federal financial assistance. For projects not categorically excluded under Federal Aviation Administration (FAA) Order 1050.1E, *Environmental Impacts: Policies and Procedures*, compliance with NEPA is generally satisfied through the preparation of an Environmental Assessment (EA). In instances where significant environmental impacts are expected, an Environmental Impact Statement (EIS) may be required. Projects that normally require an Environmental Assessment include helicopter facilities, land acquisition, major runway strengthening or extension, the conversion of prime or unique farmland to non-agricultural use, any airport project that is not normally categorically excluded that involves the dredging or filling of any waterway or wetland. Additionally, any normally categorically excluded action involving extraordinary circum-

stances as determined by the FAA requires an Environmental Assessment. A list of these actions is presented in **Table B1**.

<b>TABLE B1</b>	
<b>Normally Categorically Excluded Actions That May Involve Extraordinary Circumstances</b>	
Airfield barriers	On-airport obstruction treatment
Airfield improvements	Ownership change by purchase or transfer
Aircraft parking areas	Parking areas
Roads	Passenger handling building
Runways	Radar installation
Storage areas	Releasing airport land
Airfield lighting	Relocation
Cargo building	Repair and maintenance
Conveying federally owned land	Replacement structures
Deicing/anti-icing facility	Restrictions, aircraft access
Fill activity	Runway threshold
General landscaping	Security
Heliport at an existing airport	Transfer land by long term lease
Low emission technology equipment	U.S. Waters in which categorically excluded actions are proposed
Non-radar facilities	Utility line construction, temporary
Noise barriers	Wildlife Hazard Management Plan implementation
Noise compatibility programs	
Non-U.S. waters	
Source: FAA Order 5050.4B, <i>National Environmental Policy Act Implementing Instructions for Airports</i>	

In addition to federal requirements regarding environmental documentation, the State of Hawaii has adopted laws concerning the evaluation of a project’s impact on the environment. Hawaii Revised Statutes require that an Environmental Assessment must be prepared for any proposed action that triggers the EIS process. There are nine types of actions which can trigger the environmental review process. Airport development projects will be subject to the review process. The State of Hawaii process is similar to the federal process and requires that all affected agencies, individuals, and organizations are consulted. Like the federal process, there is also a provision for an Environmental Impact Statement to be prepared when the lead agency determines that the project will have a significant impact. It is recommended that if state and federal environmental documentation is necessary, the public consultation component of each document should be conducted at the same time.

While this appendix to the master plan is not designed to satisfy the state or NEPA requirements for a categorical exclusion, EA, or EIS, it is intended to supply a preliminary review of environmental issues that would need to be analyzed in more detail within the NEPA process. This evaluation considers all environmental

categories required for the NEPA process as outlined in FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*.

The following sections describe potential impacts to the environmental resources (as outlined within Appendix A of FAA Order 1050.1E) as development at the airport is undertaken. Exhibit 5A in Chapter Five depicts the proposed future development of the airport. Further, Exhibit 5L depicts the ultimate land use plan for the airport property.

## **AIR QUALITY**

The U.S. Environmental Protection Agency (EPA) has adopted air quality standards that specify the maximum permissible near-term and long-term concentrations of various air contaminants. Primary air quality standards are established at levels to protect the public health from harm with an adequate margin of safety. Secondary standards are set at levels necessary to protect the public health and welfare from any known or anticipated adverse effects of a pollutant. All areas of the country are required to demonstrate attainment with the National Ambient Air Quality Standards (NAAQS). The federal air quality standards focus on limiting the quantity of six criteria pollutants:

- Ozone (O<sub>3</sub>)
- Carbon Monoxide (CO)
- Sulfur Dioxide (SO<sub>x</sub>)
- Nitrogen Dioxide (NO<sub>x</sub>)
- Particulate Matter (PM<sub>10</sub> and PM<sub>2.5</sub>)
- Lead (Pb)

The Hawaii Department of Health has adopted more stringent ambient air quality standards than the federal standards. The standards for each pollutant are presented in **Table B2**. The Hawaii standards include an additional category, Hydrogen Sulfide (H<sub>2</sub>S). Hydrogen Sulphide is a by-product of geothermal energy production processes used on the Hawaiian Islands.

Air contaminants can aggravate existing respiratory and cardiopulmonary diseases. The standards establish the level of air quality which is necessary to protect the public health and welfare including, among other things, effects on crops, vegetation, wildlife, visibility, and climate, as well as effects on materials, economic values, and on personal comfort and well-being.

Potentially significant air quality impacts associated with an FAA project or action would occur if the project or action exceeds one or more of the NAAQS for any of the time periods analyzed.

<b>TABLE B2 Ambient Air Quality Standards</b>		
<b>Pollutant</b>	<b>Hawaii</b>	<b>Federal</b>
Carbon Monoxide (CO)		
1-hour	9 ppm	35 ppm
8-hour	4.4 ppm	9 ppm
Nitrogen Dioxide (NO <sub>x</sub> )		
Annual	0.04 ppm	0.053 ppm
Ozone (O <sub>3</sub> )		
8-hour	0.08 ppm	0.08 ppm*
Lead (Pb) in micrograms per cubic meter	1.5 µg/m <sup>3</sup>	1.5 µg/m <sup>3</sup>
Particulate Matter (PM <sub>10</sub> )		
24-hour	150 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>
Annual	50 µg/m <sup>3</sup>	-
Particulate Matter (PM <sub>2.5</sub> )		
24-hour	-	35 µg/m <sup>3</sup>
Annual	-	15 µg/m <sup>3</sup>
Sulfur Dioxide (SO <sub>x</sub> )		
3-hour	0.5 ppm	-
24-hour	0.14 ppm	0.14 ppm
Annual	0.03 ppm	0.03 ppm
Hydrogen Sulfide (H <sub>2</sub> S)		
1-hour	0.025 µg/m <sup>3</sup>	-
Source: U.S. Environmental Protection Agency; Hawaii Department of Health µg/m <sup>3</sup> - micrograms per cubic meter of air ppm - parts per million * - effective 5/27/08		

According to the EPA Green Book, published on March 12, 2008, Hawaii County is in attainment for all criteria pollutants. In regards to state requirements, the Hawaii Department of Health has issued a notice that Hawaii County has recorded increased levels of PM<sub>2.5</sub> and SO<sub>2</sub> on multiple days since April 1, 2008. Within the Kona area, PM<sub>2.5</sub> levels have exceeded the 24-hour threshold on four occasions as of May 2, 2008.

Additional air quality analysis is needed to determine potential impacts to air quality that may result from implementation of the various planned development projects at the airport, including demolition in preparation for airport improvements, construction of new runway and apron pavement, and the helipad facility north of the existing terminal. A number of projects planned at the airport could have temporary air quality impacts during construction. Emissions from the operation of construction vehicles and fugitive dust from pavement removal are common air pollutants during construction. However, with the use of best management practices (BMPs) during construction, these air quality impacts can be significantly lessened.

## COMPATIBLE LAND USE AND NOISE

An airport's compatibility with surrounding land uses is usually associated with the extent of the airport's noise impacts. Airport projects such as those needed to accommodate fleet mix changes, an increase in operations at the airport, or air traffic changes are examples of activities which can alter noise impacts and affect surrounding land uses. Typically, if the noise analysis concludes that there is no significant impact, a similar conclusion usually can be made with respect to compatible land use. FAA Orders 1050.1E and 5050.4B define a significant noise impact as one which would occur if proposed airport development would cause noise-sensitive areas to experience an increase in noise of 1.5 DNL or more, at or above the 65 DNL noise exposure level when compared to the no action alternative for the same time-frame. The FAA's Integrated Noise Model describes aircraft noise in the *Yearly Day-Night Average Sound Level* (DNL). DNL accounts for the increased sensitivity to noise at night (10:00 p.m. to 7:00 a.m.) and is the metric preferred by the FAA, the Environmental Protection Agency (EPA), and Department of Housing and Urban Development (HUD), among others, as an appropriate measure of cumulative noise exposure.

**Exhibit B1** depicts the long range contours for KOA. The noise exposure contours, developed under the airport's 2008 Part 150 Noise Compatibility Study, are based on the planned ultimate runway configuration and long range aviation forecasts developed as part of this airport master plan. As indicated on the exhibit, the long range 65 DNL noise contour would extend off airport property to the north and south. As depicted on the exhibit, no noise-sensitive development, such as homes, religious institutions, or schools, is currently located within this 65 DNL significant noise impact area. Planned development within the vicinity of the airport includes residential development south of the airport. An aviation easement has been issued for the proposed development areas within the 60 DNL noise contour. Any further development within the noise exposure contour areas is subject to the State of Hawaii fair disclosure requirements which state that any residential property that lies within the boundaries of the noise exposure are shown on the Part 150 noise exposure maps for any public airport and must require a fair disclosure notice. Further information regarding the preparation of the noise exposure contours and their impacts can be found in the KOA Part 150 Noise Compatibility Study.

## CONSTRUCTION IMPACTS

Construction impacts typically relate to the effects on specific impact categories, such as air quality or noise, during construction. The use of best management practices (BMPs) during construction is typically a requirement of construction-related permits such as a National Pollutant Discharge Elimination System (NPDES) permit. Use of these measures typically alleviates potential resource impacts.

Short-term construction-related noise impacts could occur with implementation of the proposed project as there are scattered residences in the vicinity of the airport. However, these impacts typically do not arise unless construction is being undertaken during early morning, evening, or nighttime hours. Furthermore, the proposed projects will be undertaken on a demand basis and will not be constructed simultaneously.

Construction-related air quality impacts can be expected during airport improvement projects. Air emissions related to construction activities will be short-term in nature and will be included in the air emission inventory, if one is requested.

## **FARMLAND**

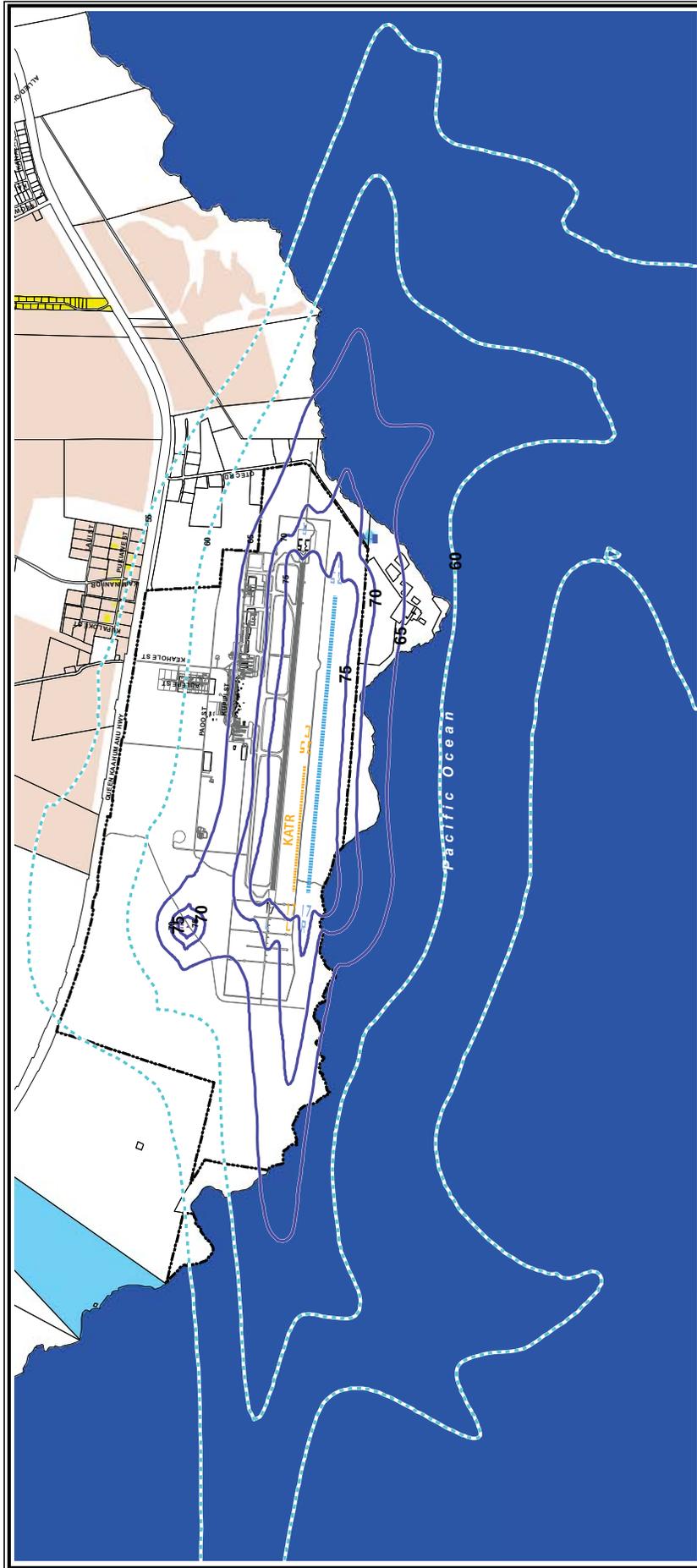
Under the *Farmland Protection Policy Act* (FPPA), federal agencies are directed to identify and take into account the adverse effects of federal programs on the preservation of farmland, to consider appropriate alternative actions which could lessen adverse effects, and to assure that such federal programs are, to the extent practicable, compatible with state or local government programs and policies to protect farmland. The FPPA guidelines apply to farmland classified as prime or unique, or of state or local importance as determined by the appropriate government agency, with concurrence by the Secretary of Agriculture.

Impacts under the FPPA will not occur as a result of the planned developments at the airport. The State of Hawaii Land Study Bureau, Detailed Land Classification Report for the Island of Hawaii indicates that the undeveloped portions of the airport are designated at Class E, which is very poor and least suited for agriculture. According to the United States Department of Agriculture, National Resources Conservation Service, the soils within the vicinity of the airport are classified as `a`a lava flows (rLW) and pahoehoe lava flows (rLV), neither of which is considered supporting, prime, or unique farmlands.

## **FISH, WILDLIFE, AND PLANTS**

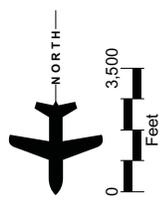
A number of acts and executive orders have been put into place to protect threatened or endangered species and their habitat. Following is a brief description of these various levels of protection:

- Section 7 of the *Endangered Species Act* (ESA), as amended, applies to federal agency actions and sets forth requirements for consultation to determine if the proposed action “may affect” a federally endangered or threatened species. If an agency determines that an action “may affect” a federally protected species, then Section 7(a)(2) requires each agency to consult with the U.S. Fish and Wildlife Service (FWS) or the National Marine Fisheries Service (NMFS), as



Source: County of Hawaii, Planning Department  
 Geographic Information System.  
 Coffman Associates Analysis.

- LEGEND**
- Airport Property
  - - - Kona Auxiliary Training Runway (KATR)
  - - - Ultimate Runways
  - - - Long Range Noise Exposure Contour, (55 to 60 DNL)
  - - - Long Range Noise Exposure Contour, (65 to 75 DNL)
  - Residential
  - Noise-Sensitive Institutions
  - School
  - Water
  - Growth Risk Areas
  - Non Noise-Sensitive Land Use



appropriate, to ensure that any action the agency authorizes, funds, or carries out is not likely to jeopardize the continued existence of any federally listed endangered or threatened species, or result in the destruction or adverse modification of critical habitat. If a species has been listed as a candidate species, Section 7 (a)(4) states that each agency must confer with the FWS and/or NMFS.

- The *Sikes Act* and various amendments authorize states to prepare statewide wildlife conservation plans, and the Department of Defense (DOD) to prepare similar plans, for resources under their jurisdiction. Airport improvement projects should be checked for consistency with the State or DOD Wildlife Conservation Plans where such plans exist.
- The *Fish and Wildlife Coordination Act* requires that agencies consult with the state wildlife agencies and the Department of the Interior concerning the conservation of wildlife resources where the water of any stream or other water body is proposed to be controlled or modified by a federal agency or any public or private agency operating under a federal permit.
- The *Migratory Bird Treaty Act* (MBTA) prohibits private parties and federal agencies in certain judicial circuits from intentionally taking a migratory bird, their eggs, or nests. The MBTA prohibits activities which would harm migratory birds, their eggs, or nests unless the Secretary of the Interior authorizes such activities under a special permit.
- Executive Order 13112, *Invasive Species*, directs federal agencies to use relevant programs and authorities to the extent practicable and subject to available resources to prevent the introduction of invasive species and provide for restoration of native species and habitat conditions in ecosystems that have been invaded. The FAA is to identify proposed actions that may involve risks of introducing invasive species on native habitat and populations. “Introduction” is the intentional or unintentional escape, release, dissemination, or placement of a species into an ecosystem as a result of human activity. “Invasive species” are alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health.

According to FAA Order 1050.1E, a significant impact to listed threatened or endangered species would occur when the FWS or NMFS determines that the proposed action would likely jeopardize the continued existence of the species in question or would result in the destruction or adverse modification of critical habitat for the species. However, an action need not involve a threat to extinction to federally listed species to result in a significant impact. Lesser impacts, including impacts on non-listed species, could also constitute a significant impact.

As discussed in Chapter One, the State of Hawaii has the largest number of federal-ly listed endangered and threatened species. A total of 394 species are listed for the State of Hawaii, 294 of which are plants. Of the remaining 100 species, 26 are known to be present on the Big Island. **Table B3** lists the known threatened and endangered animal species for Hawaii County. According to maps prepared by the Hawaii Department of Fish and Wildlife, the airport environs are classified as an area with low concentration of threatened and endangered plant species.

<b>TABLE B3</b>	
<b>Hawaii County Threatened and Endangered Animals</b>	
<b>Species</b>	<b>Status</b>
<b><i>Mammals</i></b>	
Bat, Hawaiian hoary; Ōpe`ape`a	Endangered
Whale, humpback; Koholā	Endangered
Hawaiian monk seal; Īlio-holo-i-ka-uaua	Endangered
<b><i>Birds</i></b>	
Duck, Hawaiian; Koloa maoli	Endangered
Goose, Hawaiian; Nēnē	Endangered
Hawk, Hawaiian; `Io	Endangered
Crow, Hawaiian; `Alalā	Endangered
Coot, Hawaiian; `Alae ke`oke`o	Endangered
Moorhen, Common; Hawaiian gallinule; `Alae `ula	Endangered
Akia pōlā`au	Endangered
Stilt, Black-necked; Hawaiian stilt; Ae`o	Endangered
Palila	Endangered
Ākepa, Hawai`i	Endangered
Creeper, Hawai`i	Endangered
Ō`ū	Endangered
Petrel, Dark-rumped; Hawaiian Petrel; `Ua`u	Endangered
Shearwater, Newell's	Threatened
<b><i>Reptiles</i></b>	
Turtle, Loggerhead sea; (incidental in Hawai`i)	Threatened
Turtle, Green sea; Honu	Threatened
Turtle, Leatherback sea; (incidental in Hawai`i)	Endangered
Turtle, Hawksbill; `Ea	Endangered
Turtle, Olive ridley sea; (incidental in Hawai`i)	Threatened
<b><i>Anthropods</i></b>	
Moth, Blackburn's sphinx	Endangered
Picture-wing fly, Hawaii ( <i>Drosophila heteroneura</i> )	Endangered
Picture-wing fly, Hawaii ( <i>Drosophila mulli</i> )	Threatened
Picture-wing fly, Hawaii ( <i>Drosophila ochrobasis</i> )	Endangered
Source: U.S. Fish and Wildlife Service – Pacific Islands Endangered Species	

As previously stated, land cover near the airport consists primarily of `a`a and pa-hoehoe lava flows. The resulting vegetation is characterized as Lowland Vegetation Community. The habitat is dominated by fountain grass, an alien African grass. There is minimal vegetation found on the lava flows, especially along the western

and northern portions of the northeast side of the airport. This habitat is not identified as a critical habitat within the State of Hawaii.

According to the *Final Environmental Assessment for Construction and Operation of a C-17 Short Austere Airfield Within the State of Hawaii, October 2004*, a faunal survey was completed for the airport environs in December 1999 to determine if habitat is present that would support the existence of any state or federally listed endangered, threatened, proposed, or candidate avian or mammalian species. The survey indicated a lack of habitat for any federally listed species. During the field survey, one mammalian species, an Indian mongoose was observed. This species is not a federally listed species. Additionally, 14 avian species were observed, 13 of which are alien species to the Hawaiian Islands. The Pacific Golden Plover, a native Hawaiian species, was observed, but is not a federally listed species. The Hawaiian Stilt, an endangered species, has been observed within the airport boundaries, but was not observed during the 1999 field study. A field survey was conducted by the United States Department of Agriculture, Wildlife Services as part of a Wildlife Hazard Assessment for KOA. Survey findings indicate the presence of Hawaiian Stilts on and near the airport. During the field observations, which occurred periodically between August 2000 and September 2001, there were three Hawaiian Stilt sightings within the airport boundary. Over 200 sightings were noted at the Cyanotech facility adjacent to the airport. Cyanotech has an artificial breeding area for the Hawaiian Stilt which consists of a small pond constructed to attract the birds. Additionally, a Hawaiian Stilt nest was observed approximately 200 feet from the runway. Due to wildlife hazard concerns, this nest was removed with permission from the site.

The State of Hawaii has prepared a Comprehensive Wildlife Conservation Strategy (CWCS) as its statewide wildlife conservation plan which identifies the State's species of greatest conservation need. Prior to proceeding with airport development projects, the CWCS should be consulted to ensure consistency with the state's conservation goals.

Prior to project implementation in previously undisturbed areas, including the planned helipad facility north of the terminal complex and the planned parallel runway, further coordination with the FWS and Hawaii Department of Fish and Wildlife is required. It is likely that field surveys will be required to determine the presence of listed species. Projects planned to occur in previously disturbed areas, such as the planned apron expansion and the connecting taxiways, may not require field surveys.

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

The airport will need to continue to comply with a National Pollution Discharge Elimination System (NPDES) permit, which will ensure that pollution control measures are in place at the airport. As development occurs at the airport, the permit will need to be modified to reflect the additional impervious surfaces and stormwater retention facilities. The addition and removal of impervious surfaces may require modifications to this permit should drainage patterns be modified. Net increases in impervious surfaces are minimized by the removal of old pavement.

The airport must comply with applicable pollution control statutes and requirements. Impacts may occur when changes to the quantity or type of solid waste generated, or type of disposal, differ greatly from existing conditions.

Solid waste disposal facilities, such as landfills, can cause a hazard to aircraft by attracting wildlife and, most importantly, birds. A bird hazard exists if the landfill is located approximately 5,000 feet from runways used by piston aircraft and 10,000 feet from runways used by turbojet aircraft. There are no landfills within the vicinity of the airport.

As a result of increased operations at the airport, solid waste output may slightly increase; however, these increases are not anticipated to be significant. No impacts related to hazardous materials are anticipated as a result of the planned airport improvements.

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

Determination of a project's environmental impact to historic and cultural resources is made under guidance in the *National Historic Preservation Act* (NHPA) of 1966, as amended, the *Archaeological and Historic Preservation Act* (AHPA) of 1974, the *Archaeological Resources Protection Act* (ARPA), and the *Native American Graves Protection and Repatriation Act* (NAGPRA) of 1990. In addition, the *Antiquities Act of 1906*, the *Historic Sites Act of 1935*, and the *American Indian Religious Freedom Act of 1978* also protect historical, architectural, archaeological, and cultural resources.

Section 106 of the NHPA of 1966, as amended, requires federal agencies to take into account the effects of their undertakings on historic properties and determine if any properties in or eligible for inclusion in the National Register of Historic Places (NRHP) are present in the area. In addition, it affords the Advisory Council on Historic Preservation a reasonable opportunity to comment. The historic preservation review process mandated by Section 106 is outlined in regulations issued by the council.

The ARPA is triggered by the presence of archaeological resources on federal or Indian lands. The AHPA describes the process when consultation with resource agencies indicates that there may be an impact on significant scientific, prehistoric, historic, archaeological, or paleontological resources. The process provides for the preparation of a professional resource survey of the area. Should the survey identify significant resources, the National Register process described above will be followed. Should the survey be inconclusive, a determination is made whether it is appropriate to provide a commitment to halt construction if resources are recovered, in order for a qualified professional to evaluate their importance and provide for data recovery as necessary.

The NAGPRA is triggered by the possession of human remains or cultural items by a federally funded repository or by the discovery of human remains or cultural items on federal or tribal lands and provides for the inventory, protection, and return of cultural items to affiliated Native American Groups. The Act includes provisions that, upon inadvertent discovery of remains, the action will cease in the area where the remains were discovered and the appropriate agency will be notified.

The *Antiquities Act of 1906* was the first general law providing protection for archaeological resources. It protects all historic and prehistoric sites on federal lands and prohibits excavation or destruction of such antiquities without the permission of the Secretary of the department having jurisdiction.

The *Historic Sites Act of 1935* declares as national policy the preservation for public use of historic sites, buildings, objects, and properties of national significance. It gives the Secretary of the Interior authority to make historic surveys, to secure and preserve data on historic sites, and to acquire and preserve archaeological and historic sites. This Act also establishes the National Historic Landmarks program for designating properties having exceptional value in commemorating or illustrating the history of the United States.

The *American Indian Religious Freedom Act of 1978* requires consultation with Native American groups concerning proposed actions on sacred sites, on federal land, or affecting access to sacred sites. It establishes federal policy to protect and preserve for American Indians, Eskimos, Aleuts, and Native Hawaiians their right to free exercise of their religion. It allows these peoples to access sites, use and possess sacred objects, and freedom to worship through ceremonial and traditional rites. The Act requires federal agencies to consider the impacts of their actions on religious sites and objects that are important to Native Americans regardless of the eligibility for the NRHP. Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*, and the Presidential Memorandum of April 29, 1994, *Government to Government Relations with Native American Tribal Governments*, outline the government-to-government consultation process between the federal agency and the potentially affected tribe.

A project would affect a property that is on or eligible for inclusion in the NRHP if it has the potential to alter the characteristics of the property which make it eligible for listing. Federal agencies can make one of three types of “effects findings” for an action: “no properties affected,” “no adverse effect,” and “adverse effect.” The level of finding depends upon how severely a project would alter the characteristics of a property that make it eligible for the NRHP. Although the FAA works closely with the State Historic Preservation Officer (SHPO) and/or the Tribal Historic Preservation Officer (THPO), the FAA is ultimately responsible for the effect decision, not the SHPO or THPO.

The Section 106 consultation process includes consideration of alternatives to avoid adverse effects on National Register listed or eligible properties, of mitigation measures, and of accepting adverse effects. The FAA makes the final determination on the level of effect, and advice from the SHPO/THPO may assist the FAA in making that determination.

According to the November 2000 EA, archaeological surveys were conducted in April 2000 for all of the airport environs to determine the presence of historical or cultural sites. This survey was undertaken to validate prior findings, identify new sites, and to collect information on traditional Hawaiian uses of the airport property. During the survey, nine previously recorded sites were re-evaluated and it was confirmed that these sites are not considered eligible for listing on the National Register of Historic Places.

As the planned projects include disturbance of land that was not included as part of previous coordination, further coordination with the SHPO is required regarding potential impacts to cultural or archaeological resources in these areas. It is anticipated that a cultural resource survey will be requested as portions of the proposed development areas have not been surveyed for cultural resources.

## **PUBLIC ACCESS SHORELINE HAWAII RIGHTS**

This master plan provides for the development of facilities necessary to meet the facility needs of existing users as well as the continued safety of both the traveling public and airport tenants. It is expected that with continued development of the airport, there will be an ongoing need to maintain public shoreline access rights. The current provision of public shoreline access will continue to be provided in accordance with State Law. Concerns regarding future development will likely be addressed on a case-by-case basis as required. In the past, concerns have been raised regarding limited access, potential impacts to archaeological and historical sites, access to prime fishing grounds, loss of native plants, and potential impacts to aquifers and seabeds.

## **DEPARTMENT OF TRANSPORTATION ACT: SECTION 4(f)**

The Department of Transportation (DOT) Act, Section 4(f) provisions state that the Secretary of Transportation will not approve any program or project that requires the use of any publicly owned land from a public park, recreation area, wildlife and waterfowl refuge or historic site of local, state, or national significance as determined by the officials trusted with the oversight of the subject property. Project approval may be granted if there is no feasible and prudent alternative to the use of such land, and the project includes all possible planning to minimize harm resulting from the use.

A significant impact would occur when a proposed action involves more than a minimal physical use of a Section 4(f) property, or is deemed a “constructive use,” substantially impairing the Section 4(f) property where mitigation measures do not reduce or eliminate the impacts. Substantial impairment would occur when impacts to Section 4(f) lands are sufficiently serious that the value of the site, in terms of its prior significance and enjoyment, is substantially reduced or lost.

As discussed in Chapter One, a portion of the Mamalahoa Trail is located on airport property. The Mamalahoa Trail was built by conscripted labor forces to transport goods and food along the western side of the big island. A disconnected segment of the Mamalahoa Trail was created during the initial construction of KOA. The remaining portion of the trail is located between the runway and parallel taxiway. The master plan proposes to construct an additional parallel taxiway that would require further disturbance to the trail. Coordination with the SHPO and field investigation will be required to determine the significance of this site.

Additionally, there are several park sites within the vicinity of the airport, including the Kaloko-Honokōhau National Historic Park, located 3.5 miles to the south; the Makaulu-O`oma Mauka Tract Forest Reserve, located 5.5 miles to the east; and Kekaha Kai State Park, located 2 miles to the north. As the planned airport improvements are intended to accommodate the existing airport users, impacts to these resources are not anticipated.

## **LIGHT EMISSIONS AND VISUAL EFFECTS**

Airport lighting is characterized as either airfield lighting (i.e., runway, taxiway, approach and landing lights) or landside lighting (i.e., security lights, building interior lighting, parking lights, and signage). Generally, airport lighting does not result in significant impacts unless a high intensity strobe light, such as a Runway End Identifier Light (REIL), would produce glare on any adjoining site, particularly residential uses.

Visual impacts relate to the extent that the proposed development contrasts with the existing environment and whether a jurisdictional agency considers this contrast objectionable. The visual sight of aircraft, aircraft contrails, or aircraft lights at night, particularly at a distance that is not normally intrusive, should not be assumed to constitute an adverse impact.

It is not anticipated that the planned airport development will result in significant lighting or visual impacts. If the potential for lighting or visual impacts is determined to be associated with the planned development, consultation with local residents and the owners of light-sensitive sites may be needed to determine possible alternatives to minimize these effects without risking aviation safety or efficiency.

Lighting at the airport will be shielded to reduce interaction both with the nocturnally flying dark-rumped petrel and Newell's Shearwater as well as to reduce off-airport lighting impacts.

## **NATURAL RESOURCES AND ENERGY SUPPLY**

In instances of major proposed actions, power companies or other suppliers of energy will need to be contacted to determine if the proposed project demands can be met by existing or planned facilities.

There are no existing powerlines near the airport that would need to be relocated as a result of the planned development at the airport. On-site, the relocation of the airport traffic control tower (ATCT) will require new duct banks to connect to the remote transmitter/receiver (RTR), which will remain at its present site. The master plan calls for the utility building currently located near the existing ATCT to be relocated to a new site at the corner of Keahole Street and Pao`o Street.

The airport has been in discussions with the Natural Energy Laboratory of Hawaii Authority (NELHA) on the use of deep sea water air conditioning (SWAC) through a heat exchanger that would be located on a site at the south end of the airport near Road M and Pao`o Street. Additionally, the airport plans to implement a 1.0 megawatt photovoltaic solar energy system to sustain the airport's current energy demand with capability for additional phases to accommodate future increases in consumption.

Increased use of energy and natural resources are anticipated as the operations at the airport grow. None of the planned development projects outlined on the airport layout plan are anticipated to result in significant increases in energy consumption. The Master Plan recommends that a utility audit along with a utility master plan be prepared for the airport.

## **SOCIOECONOMIC, ENVIRONMENTAL JUSTICE, AND CHILDREN'S HEALTH AND SAFETY RISKS**

Socioeconomic impacts known to result from airport improvements are often associated with relocation activities or other community disruptions, including alterations to surface transportation patterns, division or disruption of existing communities, interferences with orderly planned development, or an appreciable change in employment related to the project. Social impacts are generally evaluated based on areas of acquisition and/or areas of significant project impact, such as areas encompassed by noise levels in excess of 65 DNL.

Executive Order 12898, *Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations*, and the accompanying Presidential Memorandum, and Order DOT 5610.2, *Environmental Justice*, require the FAA to provide for meaningful public involvement by minority and low-income populations, as well as analysis that identifies and addresses potential impacts on these populations that may be disproportionately high and adverse.

Pursuant to Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are directed to identify and assess environmental health and safety risks that may disproportionately affect children. These risks include those that are attributable to products or substances that a child is likely to come in contact with or ingest, such as air, food, drinking water, recreational waters, soil, or products they may be exposed to.

The thresholds of significance for this impact category are reached if the project negatively affects a disproportionately high number of minority or low-income populations or if children would be exposed to a disproportionate number of health and safety risks. Significant socioeconomic impacts would result if an extensive number of residents need to be relocated and sufficient replacement housing is unavailable; if extensive relocation of businesses is required and this relocation would create a severe economic hardship for the affected communities; if disruptions of local traffic patterns would substantially reduce the level of service of the roads serving the airport and the surrounding community; or if there would be a substantial loss in the community tax base.

It is not anticipated that the proposed airport development projects would result in significant impacts within this impact category. The airport is not located within an area which would be considered an "environmental justice" area and the project area does not have high percentages of populations that are considered below poverty level or minority.

Potential risks to children from the development of the airport will be minimized through the use of standard security measures such as fencing and locks on cabinets or structures which contain hazardous materials.

## **WATER QUALITY**

The *Clean Water Act* provides the authority to establish water quality standards, control discharges, develop waste treatment management plans and practices, prevent or minimize the loss of wetlands, and regulate other issues concerning water quality. Water quality concerns related to airport development most often relate to the potential for surface runoff and soil erosion, as well as the storage and handling of fuel, petroleum products, solvents, etc.

According to the *Water Quality Standards Map of the Island of Hawaii*, coastal nearshore waters within the airport environs are classified as “AA.” Further analysis will likely be needed for large scale future projects to assess measures needed to maintain the protection of these waters.

Water quality regulations and issuance of permits will normally identify any deficiencies in the proposed development with regard to water quality or any additional information necessary to make judgments on the significance of impacts. Difficulties in obtaining needed permits for the project, such as National Pollutant Discharge Elimination System (NPDES) or Section 404 permits, typically indicate a potential for significant water quality impacts.

With regard to construction activities, the airport and all applicable contractors will need to obtain and comply with the requirements of the construction-related NPDES General Permit and a Stormwater Pollution Prevention Plan prior to the initiation of project construction activities.

## **WETLANDS**

The U.S. Army Corps of Engineers (COE) regulates the discharge of dredged and/or fill material into waters of the United States, including adjacent wetlands, under Section 404 of the *Clean Water Act*.

Wetlands are defined by Executive Order 11990, *Protection of Wetlands*, as those areas that are inundated by surface or groundwater with a frequency sufficient to support, and under normal circumstances does or would support, a prevalence of vegetation or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Categories of wetlands include swamps, marshes, bogs, sloughs, potholes, wet meadows, river overflows, mud flats, natural ponds, estuarine areas, tidal overflows, and shallow lakes and ponds with emergent vegetation. Wetlands exhibit three characteristics: hydrology, hydrophytes (plants able to tolerate various degrees of flooding or frequent saturation), and poorly drained soils.

As outlined within FAA Orders 1050.1E and 5050.4B, a significant impact to wetlands would occur when the proposed action causes any of the following:

- The action would adversely affect the function of a wetland to protect the quality or quantity of municipal water supplies, including sole source, potable water aquifers.
- The action would substantially alter the hydrology needed to sustain the functions and values of the affected wetland or any wetlands to which it is connected.
- The action would substantially reduce the affected wetland's ability to retain floodwaters or storm-associated runoff, thereby threatening public health, safety, or welfare.
- The action would adversely affect the maintenance of natural systems that support wildlife and fish habitat or economically important timber, food, or fiber resources in the area or surrounding wetlands.
- The action would be inconsistent with applicable state wetland strategies.

According to National Wetland Inventory Maps prepared by the United States Fish and Wildlife Service, there are no wetlands within the vicinity of the airport. During a site survey completed in December 1999, a small anchialine wetland system (approximately 58 feet by 62 feet), located at the southern end of the runway was identified. Anchialine ponds exist in lava depressions near the ocean and are fed by water table fluctuations. These ponds are not considered jurisdictional wetlands. The airport is located in an area of previously disturbed soils. The planned development at the airport does not involve disturbing the water table or areas in which wetlands are located.

## **COASTAL ZONE MANAGEMENT**

Coastal zones are those waters and their bordering areas in states along the coastlines of the Atlantic and Pacific Oceans and the Gulf of Mexico and the shorelines of the Great Lakes. These zones include islands, beaches, transitional and intertidal areas and salt marshes. Under most conditions, airport actions that would occur in or would affect a coastal zone within a state having an approved coastal zone management program must comply with the requirements of the *Coastal Zone Management Act (CZMA) of 1972*, as amended. The CZMA requires that direct federal activities and development projects must be consistent with approved state coastal programs to the maximum extent practicable.

The State of Hawaii has an approved Coastal Zone Management Program in accordance with the provisions of the CZMA. The coastal areas identified within the plan, identified as Special Management Areas (SMAs), receive additional scrutiny when considering development proposals. All projects within the SMA must be consistent with the Hawaii Coastal Management Zone program, including those initiated by the government and will require a permit prior to construction. The entire airport property is located within an SMA; therefore, any airport project consid-

ered “development” will require an SMA permit from the Hawaii County Planning Department.

## **FLOODPLAINS**

Executive Order 11988 directs Federal agencies, including the FAA, to take action to reduce the risk of flood loss, minimize the impact of floods on human safety, health, and welfare, and restore and preserve the natural and beneficial values served by floodplains. A floodplain is defined as the “lowland and relatively flat areas adjoining inland and coastal waters...including at a minimum, that area subject to a one percent or greater chance of flooding in a given year” (i.e., an area that would be inundated by a 100-year flood).

A proposed project would be considered significant if it results in notable adverse impacts on natural and beneficial floodplain values. Typical mitigation measures for floodplain encroachments may include special flood-related design criteria, elevating facilities above base flood level, locating nonconforming structures and facilities out of the floodplain, or minimizing fill placed in floodplains.

According to the Federal Emergency Management Agency (FEMA) Federal Insurance Rate Map (FIRM) panel number 155166 0681C, airport facilities are not located within a 100-year floodplain or floodway. A 100-year floodplain is located west of the airport along the coast, but does not include any of the planned development areas.