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EXECUTIVE CHAMBERS

HONOLULU

DAVID Y. IGE
GOVERNOR

December 24, 2020

VIA ELECTRONIC MAIL
Suzanne Case
Director
Department of Land and Natural Resources
1151 Punchbowl Street
Honolulu, Hawaii 96813-3047

Dear Director Case:

I hereby accept the Final Environmental Impact Statement for the Kawainui-Hāmākua Master Plan Project, as satisfactory fulfillment of the requirements of Chapter 343, Hawai'i Revised Statutes. The economic, social, and environmental impacts that will likely occur, should this project be implemented, are adequately described in the statement. The analysis, together with the comments made by reviewers, provide useful information to policy makers and the public.

My acceptance of the statement is an affirmation of the adequacy of that statement under the applicable laws. I find that the mitigation measures proposed in the environmental impact statement will minimize the negative impacts of the project.

In implementing this project, I direct the Department of Land and Natural Resources and/or its agent to perform these or comparable mitigation measures at the discretion of the relevant agencies. The mitigation measures identified in the environmental impact statement are summarized in the attached document.

With warmest regards,

David Y. Ige
Governor, State of Hawai'i

Enclosures

c: Office of Environmental Quality Control

21-101

AGENCY
PUBLICATION FORM

Project Name:	Kawainui-Hamakua Master Plan Project
Project Short Name:	Kawainui-Hamakua Master Plan Project
HRS §343-5 Trigger(s):	Improvements using State lands and funds; restoration activities and cultural practices within the State Conservation District and historic site on National Register.
Island(s):	O'ahu
Judicial District(s):	Ko'olaupoko District
TMK(s):	(1) 4-2-003: 017 and 030; 4-2-013: 005, 010, 022 and 038; 4-2-016: 002 and 015; 4-2-017: 020; 4-2-103: 018 and 035; and 4-4-034: 025
Permit(s)/Approval(s):	Special Management Area Use Permit, Conservation District Use Permit, Department of the Army Permit, NPDES Permit, Construction Noise Permit
Proposing/Determining Agency:	State of Hawai'i, Department of Land and Natural Resources (DLNR), Division of Forestry and Wildlife (DOFAW)
Contact Name, Email, Telephone, Address	Mr. David G. Smith, Administrator; Division of Forestry and Wildlife; David.G.Smith@hawaii.gov; (808) 587-0166 State of Hawai'i, Department of Land and Natural Resources 1151 Punchbowl Street, Room 325 Honolulu, Hawai'i 96813
Accepting Authority:	Governor, State of Hawaii
Contact Name, Email, Telephone, Address	The Honorable David Y. Ige; (808) 586-0034 Executive Chambers, State Capitol Honolulu, Hawai'i 96813
Consultant:	HHF Planners
Contact Name, Email, Telephone, Address	Ronald Sato, AICP; rsato@hhf.com; (808) 457-3172 733 Bishop; Street, Suite 2590 Honolulu, Hawai'i 96813

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

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

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

The State of Hawai‘i, Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW), in partnership with the Division of State Parks (DSP), is preparing an Environmental Impact Statement (EIS) for the Kawainui-Hāmākua Master Plan Project. The State-owned project area encompasses 986 acres in Kailua, on the island of Oahu. The project area includes the Kawainui wetland and upland areas, Hāmākua Marsh Wildlife Sanctuary, and Pu‘uoehu hillside.

Proposed improvements are needed to support DOFAW and DSP’s efforts in achieving their agency missions, to sustain and enhance the natural and cultural resources associated with this area, and increase public access and outdoor recreational opportunities. Project improvements being proposed are based upon a draft master plan prepared to serve as a guide for prioritizing and implementing future improvements by DOFAW and DSP.

Proposed improvements fall into three major categories: 1) natural resource management; 2) cultural resource management; and 3) educational and recreational initiatives. Natural resource management include wetland restoration, upland reforestation, storm water improvements, and support for management operations. Cultural resource initiatives support traditional Hawaiian cultural practices in the area. Educational and recreational improvements would improve public access, provide passive outdoor recreational use, support educational programs, and provide stewardship opportunities.

ATTACHMENT

MITIGATION MEASURES FOR THE KAWAINUI-HAMAKUA MASTER PLAN FINAL ENVIRONMENTAL IMPACT STATEMENT

The following is a summary of significant impacts and proposed mitigation measures discussed in Chapters 3, 4, and 5 of the Final EIS.

2.1 Geology, Topography and Soils

Geology

The project is not expected to adversely impact project area geology. Wetland restoration and upland reforestation initiatives would not involve extensive cut or fill activities. Additional drainage improvements along Kapa'a Quarry Road (north of Kahanaiki) would further reduce discharge of sediment, plant material, and other debris into the wetland. These efforts would have a positive impact by slowing or reversing the process of terrestrialization and the loss of wetland habitat due to human-influence from urbanization, infilling, and other land modification activities. Specific project initiatives such as education programs and community service projects would increase public awareness of the area's geologic history and Kawainui's long term terrestrialization. Community participation in these programs and activities would further support DOFAW's efforts to slow or reverse the process of terrestrialization and the loss of wetland habitat.

Construction of proposed facilities should have minimal, if any, effects on project area geology and the terrestrialization of Kawainui's wetland. Some grading in specific areas may be required to level site conditions for proposed facilities, but such activities should have minimal effect on area geology. Sustainability components and BMPs would be incorporated into such facility design to minimize geologic impacts. Stewardship responsibilities undertaken by non-profit organizations as requirements for managing their areas would support DOFAW's efforts in maintaining wetland areas and support reversal of terrestrialization.

Topography

Wetland restoration activities should not adversely impact site topography because removal of invasive vegetation occurs within the upper foot of the ground surface. BMPs would be incorporated in excavation plans to prevent discharge of material into the wetland and to minimize sediment discharges during heavy rains. Large scale grading is not proposed as part of upland reforestation, although minor reshaping of certain areas may occur to accommodate a DOFAW vehicle maintenance trail. Impacts associated with reforestation efforts would primarily involve short-term construction-related effects.

There should not be long-term impacts on the topography of upland area because activities would consist of management and maintenance activities (e.g. cutting grass, trimming trees, etc.). BMPs would be incorporated in design plans to address short-term impacts. Drainage repairs and improvements occurring along Kapa'a Quarry Road and within upland areas would have a positive impact by reducing ongoing erosion in those areas.

Construction of path segments around Kawainui would not significantly impact project area topography. Several path segments along with a boardwalk section have been eliminated from the project, further reducing impacts on topography. Paths would be cleared of vegetation only, and would follow the existing topography. Some leveling activities may be required for improved pedestrian trails and sections meeting ADA requirements (e.g. trails to the education center), but such changes should not significantly impact topographic conditions.

Grubbing and grading activities required for proposed structures are anticipated to be minimal. In particular, structures constructed for the education center would require grubbing and grading of the sites to accommodate building footprints. Given the sloped topography of the education center site, the building would be designed using post and pier construction to minimize the need for grading. BMPs would also be incorporated in design plans to address short-term impacts, such as erosion, during construction activities. Final site conditions, siting of building footprints, and BMPs implemented would be developed during the design phase of improvements.

Soils

No adverse impact to soils are anticipated from wetland restoration and upland reforestation activities. Wetland restoration improvements would not impact wetland soil characteristics because associated activities predominantly involve cutting vegetation and removing the peat mat within a few inches from the surface. This would not disturb sediment below the vegetation. Restoration activities within Hāmākua will include excavating adjacent lowland areas that are predominantly comprised of fill material. Excavated material would likely be dispersed within the Hāmākua area, and thus should not significantly alter overall soil conditions of the site.

Upland reforestation efforts would essentially consist of landscaping activities that would not involve extensive cutting or filling of the existing terrain. Therefore, activities should have minimal impact on the area soil conditions. Additional drainage improvements implemented along Kapa‘a Quarry Road (north of Kahanaiki) would have a positive effect on area topography by further reducing erosion and discharges of sediment, plant material, and other debris into the wetland. Associated impacts would primarily involve short-term construction-related effects. Long-term impacts on soil conditions are not anticipated because activities would consist of management and maintenance activities. Therefore, BMPs would be incorporated in plans for additional upland areas to address short-term impacts.

Proposed buildings, driveways and parking areas have been sited to minimize grading and potential impacts on soils from erosion. Design features can be incorporated to minimize site disturbance and reduce erosion potential (e.g. post and pier design of buildings). BMPs would also be incorporated in design plans to address short-term impacts during construction activities. In particular, the education center is proposed on a sloped area and is envisioned to be built with post-and-pier construction to minimize ground modification. The structure’s parking area and associated entry road has been sited to minimize grading.

Construction of the trail segments around Kawainui would have no significant impact on soils. Additionally, several trail segments have been eliminated from the proposed project, further reducing potential impacts to soils. Some leveling of site conditions may be required for improved pedestrian trails and sections meeting ADA requirements, but such changes should not significantly impact soils. During construction, BMPs would be utilized to manage stormwater and potential erosion during larger storm

events. Once the structures and trail segments are completed, there would be no long-term impacts on soils.

2.2 Natural Hazards

Hurricane Hazards

A hurricane of significant strength and high winds could damage trees and vegetation within the additional upland areas of Kawainui and Hāmākua improved under the project. Trees and other vegetation would recover over time and be supported by DOFAW management and maintenance operations along with continued cultural landscape activities by non-profit organizations. The wetlands of both Kawainui and Hāmākua should not be negatively impacted by heavy rainfall and increased stormwater discharges because they already serve as a detention basin for flood protection. Drainage improvements planned under the project would help reduce discharges into the wetland and potential erosion of upland areas under heavy rainfall.

Pedestrian and hiking trails along with parking and staging areas should not be significantly impacted by a hurricane because these improvements are site improvements and would be constructed using pervious materials. Parking areas can also be closed in advance of a hurricane to restrict access by visitors until the threat passes.

All structures, particularly buildings, are vulnerable to damage from strong winds and heavy rainfall generated by a hurricane. The entire State of Hawai‘i has been designated a “wind borne debris region” under the IBC. However, no structures are proposed in areas that are directly vulnerable to storm surge. None of these structures are intended for permanent habitation or residential occupancy, except for a caretaker cottage proposed for the cultural center at Kapa‘a. Buildings and accessory structures are planned to be constructed using current applicable building design standards that would be reviewed and approved by the State. Such facilities could also be designed to meet City building code requirements, and pertinent ministerial permits obtained subject to City review.

Tsunami Hazards

Existing trees and vegetation within Kawainui and Hāmākua upland areas improved under the project should not be significantly impacted by a tsunami. Trees and other vegetation would recover over time and be supported by DOFAW management and continued restoration efforts, along with cultural landscape activities by non-profit organizations. Kawainui's wetland would serve to disperse and dissipate waters entering it from Kawainui Canal due to a tsunami. Hāmākua's wetland would similarly serve to disperse and dissipate waters entering it from Kaelepulu Stream.

Pedestrian and hiking trails along with parking and staging areas should not be significantly impacted by a tsunami because these site improvements are located within upland areas surrounding the large wetland basin of Kawainui.

Structures built in several locations throughout the project area should similarly not be significantly impacted by a tsunami because of their location within upland areas and distance away from Kawainui Canal. Planned structures should generally not be subject to any increased exposure to damages from a tsunami as compared to other existing urban development in Kailua and are located further away from the shoreline than the majority of businesses and residences in Kailua. Buildings and accessory structures are planned to be constructed using current applicable building design standards that would be reviewed and approved by the State. Such facilities could also be designed to meet City building code requirements, and pertinent ministerial permits obtained subject to City review.

Flood Hazards

No adverse flooding impacts are expected as a result of project improvements. The project would continue and expand the current wetland restoration and upland reforestation efforts, further enhancing the wetland's flood control function. Efforts to clear invasive vegetation and increase open water area would increase the wetland's flood water retention capability and improve stream and water flow through the wetland, thereby improving the wetland's function as flood control over the long-term. Additional drainage improvements implemented within the project's upland areas along Kapaʻa Quarry Road would further provide measures to detain runoff, reduce sediment discharge into the wetland, and reduce erosion of upland area. Hāmākua Marsh would be expanded mauka along the lower areas below Puʻuoehu, creating up to 4 acres of additional wetland.

Pedestrian trail segments and hiking trails should have minimal effect on existing flood conditions and would not increase flood hazards. Trails are either located within upland areas or along the wetland perimeter and would consist of pervious surfaces or dirt/grassed hiking trails. Trails along the Kahanaiki to Kapaʻa subarea would be located within upland areas or along Kapaʻa Quarry Road which are outside flood hazard areas (Zone X; outside 500-year flood) or in areas undetermined (Zone D). Between Nā Pōhaku and Kapaʻa, there is a short section generally across of the City's transfer station that is within Zone A (100-year flood) extending across Kapaʻa Quarry Road. The pedestrian trail is planned to be routed along Kapaʻa Quarry Road at this section, and should not change potential flooding here.

Between the Waiʻauia to DOFAW management station subarea, the pedestrian trail would generally be routed along the foot of upland areas generally along the wetland perimeter. This would include areas within Zone A (100-year flood), Zone X (outside 500-year flood), and Zone D. Two boardwalk segments planned within Zone A flood hazard areas along Kapaʻa Quarry Road from Nā Pōhaku to the Model Airplane Park would cross possible low-lying drainageway crossings. These boardwalk segments should

not negatively impact flood hazard areas because they would be designed to be elevated above the base flood elevation allowing water to flow beneath and minimize impeding potential stormwater discharges at drainageway crossings. Boardwalks would not require cut or fill of existing topography, not change drainage patterns, and should involve minimal site clearing of vegetation.

All structures proposed at the sites of the education center and cultural complex at Kapa‘a would be sited outside of flood prone areas (Zone X). Structures would increase impervious area within these sites, however, site design would include measures, such as detention basins, to minimize increased stormwater discharges from the site. Therefore, these uses should not significantly change existing drainage patterns that sheet flow toward the wetland or increase the amount of stormwater discharges from the site.

A portion of the Wai‘auia site on Kailua Road planned for a cultural complex is within flood Zone AEF, which is identified as a floodway subject to the 100-year flood likely due to it being adjacent floodplain area near Kawainui Stream. Other upland areas of this site are outside the flood hazard (Zone X) and structures should not be impacted by flood. Design of structures would need to address compliance with the City’s flood hazard requirements. Further design work would be conducted when being implemented to evaluate the flood condition of site in more detail, and could include modifying the building configuration or location to minimize being within the flood hazards. Structures would comply with applicable provisions of the Chapter 21A (Flood Hazard Areas), ROH, as amended. Accessory structures constructed support passive outdoor recreational activities (e.g. pavilions, restroom, observation decks) would be sited within upland areas located outside of flood hazard areas to the extent possible.

Climate Change

Expanded wetland restoration and upland reforestation activities with the project would have a beneficial effect by further reducing the likelihood or occurrence of human-induced climate change in Hawai‘i. Project improvements would serve to strengthen the resilience of the biological environment in the project area. Additional activities implemented would have a positive effect by employing ecosystem and watershed-based conservation of native and endemic species, wetlands and high elevation forests to avoid extinction. Monitoring for invasive species prevention and control would continue to be a part of DOFAW’s management and operations at both Kawainui and Hāmākua helping to protect existing ecosystems.

The 3.2 foot increase in sea level predicted by the Hawai‘i Climate Change Mitigation and Adaptation Commission (HCCMAC) study would result in inundation of small areas of the central portion of the Kawainui wetland. Wetland restoration activities expanding into this area would not increase susceptibility to climate change hazards in other areas. Restoration activities would enhance the wetland in alignment with UH Sea Grant recommendations. These activities could also be modified given DOFAW adaptive management principles guiding these efforts should inundation necessitate modifications to restoration efforts. This flexibility supports HCCMAC recommendations to improve flood risk management.

The proposed education center, cultural complexes, pedestrian trails and associated accessory structures (e.g. viewing platforms), and improvements to DOFAW’s management station are all located inland of areas potentially affected by sea level rise under the sea level rise scenarios. Given the historic change in mean sea level at Honolulu Harbor of less than 6 inches per century, these structures and activities conducted there should not be affected by sea level rise.

2.3 Biological Resources

Botanical Resources

Proposed improvements would not have an impact on Federal or State-listed threatened or endangered, or candidate threatened or endangered botanical species because none were observed during current and prior botanical surveys. Wetland restoration and upland reforestation initiatives would have a positive impact on area botanical resources primarily by replacing invasive vegetation with native vegetation.

The construction of the proposed pedestrian trails and structures would not have an adverse impact on botanical resources. Sites proposed for facilities such as the education center consist mainly of non-native invasive vegetation. Improvements would support clearing alien vegetation and replacing them with native vegetation. The education center would enhance environmental education for visitors and residents by emphasizing the importance of controlling invasive species and restoring native vegetation. Permanent facilities proposed at DOFAW's management and research station would support DOFAW restoration and management activities at Kawainui. Improving these management capabilities would have a positive effect in organization restoration abilities resulting in a beneficial influence on botanical resources.

Mitigation Measures: Because improvements would be implemented in a phased approach, updated botanical surveys should be conducted of areas planned for site development, such as cultural centers and pedestrian trails, to further minimize potential effects on botanical resources. Surveys can be incorporated in site design work and construction plans development. Landscape plans prepared as part of this phase can also use this information.

Avifaunal Resources

Wetland restoration improvements would have a beneficial effect by expanding nesting and foraging habitat for native waterbirds. The primary impact from wetland restoration and upland reforestation improvements would involve disturbance of nesting birds during the nesting season. DOFAW's ongoing management and predator control activities would continue. Activities include fencing and trapping to reduce threats to nesting birds from mongoose, feral cats, and humans.

Short-term construction of structures is not expected to have a significant impact on endangered waterbirds because important nesting habitat are not located near proposed sites. Once public access is increased with trails constructed, the main potential impact improvements pose to endangered waterbirds continue to be disturbance of nesting birds by visitors.

Mitigation Measures:

1. Mitigation measures would involve specific restoration activities being conducted in periods when waterbirds are not nesting.
2. To minimize and avoid adverse construction effects, management measures such as having an experienced biologist survey the area for suitable nesting habitat would occur to ensure nests are not impacted.
3. DOFAW may enact measures to address visitor access including imposition of additional restrictions on public access within certain areas or times of year, e.g., during bird nesting season.
4. Any outdoor building and site lighting would require appropriate design requirements, such as shielding of bulbs to avoid impacts on seabirds that may overfly facilities constructed within upland areas.

Mammalian Resources

All terrestrial mammals within the project area identified are alien species and are deleterious to native ecosystems. No mammalian species currently proposed for listing or listed under either the federal or State of Hawai'i endangered species statutes was identified. Wetland restoration and upland reforestation efforts should not adversely impact mammalian species present. Existing invasive mammalian species would continue to be present, threatening endangered waterbirds. DOFAW will continue and expand this trapping program to control invasive mammals present as they monitor the progress of wetland restoration and waterbird activity.

Short-term construction impacts for proposed improvements should not impact project area mammalian species. Construction of recreational trails will allow greater public access to the project area and may increase the presence of domesticated dogs, which are often walked illegally within portions of the project area designated as State Wildlife Sanctuaries. The education center would serve an important function in educating visitors of not introducing invasive mammals or bringing pets to this area, and staff operating the center would support monitoring of activities. Activities associated with the cultural centers would similarly abide by these same restrictions and would support stewardship and monitoring of their areas for potential violations of regulations and restrictions.

Mitigation Measures:

1. To avoid impacting Hawaiian hoary bats that may be present, avoidance of clearing large trees and shrubs (taller than 15 feet) during birthing and rearing season (June 1 through September 15) would be required.
2. DOFAW would continue to enforce rules prohibiting pets in these wildlife sanctuary areas under their jurisdiction, and visitors to the education center and associated upland areas would similarly be prohibited from bringing pets.

2.4 Water Resources

General Hydrology and Watershed

The project would allow DOFAW to expand their wetland restoration and upland reforestation efforts to additional areas within Kawainui and Hāmākua and further reduce terrestrialization of wetlands. These activities would further enhance the wetland's ability to provide an important hydrologic function by regulating the movement of water within this area of the watershed under DOFAW jurisdiction before discharging into Kailua Bay. Sediments transported into the project area from upland areas have time to settle, allow plants to filter out nutrients and other pollutants, all of which contribute to improved water quality in Kailua Bay.

Permanent facilities constructed at DOFAW's management and research station would greatly improve facilities used by staff for research, management, and overall operations supporting restoration and management activities at Kawainui. These facilities would support DOFAW's efforts to improve wetlands and their function within the watershed. Educational and recreational proposals such as the education center and trails support current initiatives for hands-on learning. They would provide new opportunities to appreciate and learn about the watershed. Schools, universities, and community groups could participate in scientific data collection and help create data sets that could be used by DOFAW in its management efforts. Cultural centers planned for use by non-profit organizations would include requirements to support DOFAW and DSP educational programs as well as implement stewardship activities to maintain those areas, all of which support DOFAW efforts and have a positive effect on wetland restoration, upland reforestation, and the watershed.

Groundwater

Project improvements are expected to have minimal effect on both the volume and quality of groundwater within the underlying aquifer. Wetland restoration and upland reforestation activities would be expanded to additional areas within Kawainui utilizing techniques similar to what is currently being done. Expansion of wetland area at Hāmākua would increase its functional value (e.g. filtering pollutants). These improvements would thus enhance wetlands and its function within the hydrologic system providing an overall improvement to the underlying aquifer systems by filtering nutrients and pollutants and groundwater recharge of the underlying aquifer even though these aquifers are not drinking water sources.

The removal of invasive vegetation and as part of vegetation control maintenance activities would occasionally require the use herbicides. But only approved herbicide would be used and would not adversely impact water sources within the underlying aquifer. DOFAW has obtained State NPDES general permit coverage for application of herbicide and pesticide within wetland and wildlife sanctuaries statewide.

The construction of parking and staging areas, pedestrian and hiking trails, and accessory passive outdoor recreational facilities (e.g. observation decks, pavilion) should have minimal effect on groundwater resources. Parking and staging areas would be constructed using pervious material, such as gravel, that would continue to allow infiltration into the underlying aquifer. Pedestrian trails would also utilize pervious material, and hiking trails would be dirt or grass. Accessory outdoor recreational structures would consist of relatively small areas, allow rainfall to sheet flow into the surrounding wetland for infiltration, and should have a minor, if any, effect on the underlying aquifer.

New structures constructed as part of the education center, cultural centers, permanent facilities at DOFAW's management station would increase the amount of impervious areas within those sites. The total increase in impervious areas based upon current project concepts is estimated to generally be in the range of about 6.6 acres spread over various upland areas at Kawainui and Hāmākua.

Site design for improvements would need to incorporate measures to detain increased runoff generated using detention basins or other measures. As a result, the net increase in stormwater runoff from these sites should generally equal existing conditions. This change is not expected to have a significant impact on the underlying aquifer systems and groundwater, which is not a drinking water source. Stormwater runoff discharged into the wetland would be detained within this basin to allow for infiltration and filtering of nutrients and pollutants.

New comfort stations included at applicable sites would utilize septic treatment systems or other possible sustainable design measures, such as constructed wetlands, and be determined during the design process when implemented. These systems would be designed in accordance with applicable State regulations. The comfort station at Waiʻauia would be connected to the municipal wastewater system that are available along adjacent roadways further reducing the effect of treated wastewater on the underlying aquifer system.

Mitigation Measures:

1. The cultural centers, education center, and other structures would be designed in accordance with applicable State and City regulations and permit requirements.

Streams

Wetland restoration and upland reforestation activities would reduce the current negative effects of invasive vegetation expansion on streams and within the wetland. Terrestrialization of streams would be addressed by restoration work significantly reducing ongoing negative effects on these streams and water flows. Expanded restoration activities would maintain wetland vegetation at more manageable levels, maintain more open water and allow the formation of seasonal mud flats supporting waterbird habitat. The stream beds and banks would not be impacted or modified, and no diversion of stream waters is proposed.

Removal of invasive vegetation would occasionally require the use of approved herbicides. DOFAW has obtained State NPDES general permit coverage for application of herbicide and pesticide within wetland and wildlife sanctuaries statewide. Compliance with permit conditions and application practices would ensure negative impacts on streams and their water quality do not occur.

Proposed structures or trails would not impact streams or stream flows. Trails supporting access for DOFAW maintenance vehicles would include a bridge spanning Maunawili Stream near DOFAW's management station. The bridge design spanning the stream would ensure stream flow is not altered and minimize environmental impacts. Boardwalks would be used to cross drainageways and would minimize effects on them by not altering or preventing discharges when they occur. Proposed facilities and parking structures would incorporate LID elements such as permeable pavers that would minimize stormwater runoff produced by additional impermeable surfaces created. Site design for improvements would incorporate measures to detain increased runoff generated. As a result, the net increase in site stormwater runoff should generally equal existing conditions and not significantly impact existing drainageways or streams.

Mitigation Measures:

1. Continued compliance with State NPDES general permit coverage and conditions for use of herbicides within wetland and wildlife sanctuary.
2. DOFAW access road bridge across Maunawili Stream to be designed to span over stream.
3. Proposed facilities would incorporate LID elements into design plans, as appropriate.

Wetlands

Wetland restoration and upland reforestation would have beneficial impacts to wetland health and function. These efforts would replace non-native invasive vegetation with native vegetation and reduce terrestrialization of Kawainui and expand wetland area at Hāmākua. Facilities proposed are intended to support DOFAW management and maintenance along with community partners who are involved in volunteer wetland restoration efforts. These facilities would provide additional parking, restrooms, and equipment storage for volunteers that would facilitate more effective restoration efforts.

Water Quality

Wetland restoration activities would have positive impacts on the water quality within the project area. Continuation and expansion of these restoration activities would have long-term positive impacts on wetland function and improve water quality. Drainage improvements along Kapa'a Quarry Road would mitigate existing upland erosion occurring at discharge points. These efforts would improve the coastal water quality of Kailua Bay where Kawainui Channel discharges surface water from Kawainui.

A State DOH NPDES permit for construction activities was obtained by DOFAW for Kahanaiki restoration and reforestation improvements. The permit includes several conditions and requires implementation of proposed BMPs to minimize discharges into the wetland, further mitigating stormwater discharge impacts on wetlands and streams resulting from these activities. DOFAW also has General Permit Coverage under this NPDES for the use of approved herbicide within Kawainui.

Trails and paths account for about 40 percent of estimated runoff attributable to site improvements for public access. Runoff estimates for foot trails occur in part because they are assumed to be compacted soil trails with a high runoff coefficient. Runoff from both paths and trails would likely be reduced through implementation of low impact design features. Construction activities would similarly include BMPs as part of applicable City or State regulations or permit requirements. Minimal wastewater generated from activities occurring from the project would not negatively or significantly impact water quality at Kawainui. Further, the City Airplane Park's existing restroom facility and treatment system have not resulted in major issues or concerns with water quality at Kawainui based upon the water quality samples collected and the condition of that wetland area.

Anticipated runoff generated from proposed improvements would likely have an insignificant and unmeasurable impact to project area water quality. Adverse impacts are not anticipated because improvements would occur in specific areas around the perimeter of both wetlands that are smaller than undeveloped areas. Kawainui and Hāmākua's wetland cleansing functions would continue to protect downstream waters and have the capacity to cleanse additional runoff attributable to project improvements.

Mitigation Measures:

1. Continued compliance with State NPDES general permit coverage and conditions for activities conducted within the wetland and wildlife sanctuary.
2. Where applicable, obtain additional State NPDES general permit coverage for future improvements and development of facilities (e.g. cultural centers).
3. Incorporate LID elements into design plans, as appropriate, for facilities and trails.

Aquatic Biota

Wetland restoration would benefit existing aquatic biota within the project area that are presently negatively impacted by invasive vegetation and terrestrialization of the wetland. Existing wetlands covered by a layer of peat is biologically dead because oxygen cannot be generated by aquatic algae without light penetration. Restoration efforts (e.g. removing peat) creating additional open water area and increasing stream flow would allow sunlight to penetrate into stream waters, allowing algae to generate oxygen. This would improve the suitability of wetlands as habitat for aquatic biota that travel through or inhabit project area's waterways.

Reforestation and associated upland improvements, such as drainage and storm water improvements, would also have beneficial long-term effects for aquatic biota. These efforts reduce erosion and detain stormwater runoff, reducing rates of sedimentation into waters. This improves water quality, reduces peat mat and invasive vegetation growth within the wetland, and creates more open water which benefits aquatic biota.

Construction of proposed improvements would not adversely impact aquatic biota. BMPs would be implemented to mitigate impacts for any ground disturbing activities that may occur. Appropriate permits for this work would be obtained, and associated requirements for water quality monitoring during and after construction would be followed.

2.5 Historic, Archaeological and Cultural Resources

Historic and Archaeological Resources.

Wetland restoration should not have an adverse impact on historic properties because efforts would continue focusing on cutting vegetation and removing the peat mat that involve little disturbance beyond the surface soil layer. No grading activities would occur within the wetland. Expanded wetland restoration activities could affect possible cultural deposits and remnants of agricultural field walls or fishpond walls (SIHP # -2029). However, the likelihood of impacting such sites should diminish as restoration activities expand further north because land commission awards were primarily located in the southern end and along the Kūkanono area of Kawainui. Restoration activities occurring above the surface (e.g. vegetation

cutting) and within a few inches of the sediment under the mat of peat should thus not impact potential sites that would be located 1 to 2 feet below the surface.

At Hāmākua, excavation to expand the wetland would avoid what remains of the two habitation platforms (SIHP # -4428). A lithic scatter site (SIHP # -4429) and agricultural feature (SIHP # -4431) would be avoided because they are located well inland from the wetland. Another lithic scatter site (SIHP # -4430) inland of Hāmākua's wetland may be affected by excavation activities, and mitigation measures discussed later could be implemented as part of data recovery efforts.

Upland reforestation improvements would expand beyond Kahanaiki, and include the areas of Pōhakea, Mokulana, Kapaʻa, the hillside area from Waiʻauia to Ulupō Heiau SHP, DOFAW management station area, the area along Kapaʻa Quarry Road north of the City's model airplane park. Reforestation efforts would generally be implemented following the same SHPD approved process as that occurring at Kahanaiki which involves smaller management areas (<5 acres) or smaller "pods" (less than an acre) that are cleared and replanted in phases in accordance with. Therefore, these improvements should not have an adverse effect on known historic sites.

Pedestrian Trails. Pedestrian trails would not have an adverse effect on historic sites, and mitigation and mitigative measures are proposed to ensure this. A pedestrian trail planned from Kahanaiki to Pōhakea would utilize existing unpaved access roads through the area. A section of the trail would utilize a road remnant (SIHP # -7199) that is used for DOFAW maintenance access. Foot trails established within this area would also be designed to avoid impacting existing sites and would provide a connection between Kahanaiki and Nā Pōhaku.

From the levee up to the Ulupō Heiau area, the foot trail previously planned has been eliminated as part of reduced project improvements and would thus not impact historic sites. From Ulupō Heiau up to DOFAW's management station, the foot trail would pass several other historic properties situated within the Kūkanono hillside (SIHP # -2024, -2031, -3959, -3960, and -3961). These sites consist of terraces, agricultural features, etc., and the trail should have no adverse effect on them. The foot trail would be routed along the wetland edge minimizing potential effects on sites located on the hillside.

Within the Pu'uoehu hillside, maintenance trails are planned along the ridge and about midway up the hillside. These trails should have no effect on historic properties because no prior sites have been recorded of identified from studies conducted.

Boardwalk segments should not adversely impact possible cultural deposits and remnants of agricultural field walls or fishpond walls (SIHP # -2029). Archaeological monitoring of construction activities would mitigate potential impacts, and the route of boardwalk segments along Kapaʻa Quarry Road toward the Model Airplane Park can be relocated, if necessary.

Facilities. Facilities proposed within the Kahanaiki section are relatively small and should have no effect on historic sites within this area. Facilities would not be sited where terrace sites associated with SIHP # -2026 or the grinding stone (SIHP # -2029) are located.

At Pōhakea, the education center and kauhale complex should have no effect on historic properties. The stone terrace (SIHP # -3965) would be avoided along with two retaining walls (SIHP # -2023). The education center, or interim improvements (parking, restroom, pavilion), would be located where former ranch structures were previously located within disturbed areas that would not affect any historic sites.

The kauhale complex would support traditional cultural practices and educational programs integrated with the education center all of which have beneficial effects by restoring the historic character, cultural practices, and use of this area.
The education center would provide a safer and improved centralized point for managing visitors and educational programs occurring at Nā Pōhaku o Hauwahine. Cultural and educational programs integrated with Nā Pōhaku, the education center, and kauhale complex would have a significant beneficial effect supporting native Hawaiian history and cultural practices.

At the Kapa‘a section north of Nā Pohaku, an educational and cultural center planned should have no effect on historic properties because none were previously identified or found. This upland area was formerly used by the City for vegetation processing activities and as a maintenance baseyard. The site consists of fill land that would likely not have been used for pre-contact historical use or structures. This area has also been disturbed from construction and operation of the former City maintenance baseyard and use for vegetation processing activities. The cultural center planned at Kapa‘a is intended to serve as a facility for spiritual, cultural and environmental well-being (e.g. kumu hula, sustainability practitioners, applying native Hawaiian conservation ethic, etc.). These activities support traditional native Hawaiian cultural practices and educational programs having a beneficial effect supporting native Hawaiian history of Kawainui and the cultural importance of the area.

In the Wai‘auia section, a small cultural center is planned for use by a non-profit organization to conduct cultural practices envisioned as a center for Hawaiian studies in the area of performing and literary arts. The improvements should have no effect on historic properties because there are no known historic properties within the site based upon prior studies.

DOFAW’s permanent structures proposed should not impact historic properties because none are located there.

Mitigation Measures:

1. Kawainui; Wetland Restoration. The existing Kahanaiki area archaeological monitoring plan (AMP) approved by the SHPD in June 2015 would be amended to include additional wetland areas planned for restoration activities.
2. Kawainui; Upland Reforestation. The existing Kahanaiki area AMP approved by the SHPD would be amended to include additional areas for upland reforestation when programmed for implementation. The same monitoring methods can be implemented if upland reforestation plans use the same methodology as that for the Kahanaiki area. Otherwise, revised monitoring methods would need to be developed in consultation with the SHPD.
3. Hāmākua; Wetland Expansion and Roadway Modification. The lithic scatter site (SIHP # -4430) inland of Hāmākua’s wetland may be affected by excavation activities for wetland expansion. Other sites could be affected by realignment of DOFAW’s access road. Therefore, an AIS should be conducted for this site to document new and previously identified historic properties to an AIS-level documentation. Mitigative recommendations in the AIS could include archaeological monitoring, data recovery, or preservation.
4. Kawainui SPR, Pōhakea. An AIS should be conducted for this site to document new and previously identified historic properties to an AIS-level documentation.
5. Kapa‘a. An AIS should be conducted for the cultural and educational complex site for areas planned for structures or major site development.
6. Ulupō Heiau SHP. An AIS should be conducted for areas planned for the pedestrian and foot trails, including accessory structures.

7. Mokulana Peninsula Area. An AIS should be conducted for areas planned for DOFAW access roads, staging area and accessory structures.
8. Hāmākua and Lower Pu'uoehu Area. An AIS should be conducted for areas planned for the pedestrian and foot trails, including accessory structures.
9. Potential Burials. Should burials (or other cultural finds) be encountered during ground disturbance or via construction activities, all work shall cease immediately and the SHPD notified pursuant to HAR §13-280-3.
    a. In the event that iwi kūpuna are identified, all earth moving activities in the area will stop, the area will be cordoned off, and the SHPD and Police Department will be notified pursuant to HAR §13-300-40.
    b. In the event of an inadvertent discovery of human remains, the completion of a burial site component of the preservation plan and/or the burial site component of the archaeological data recovery plan, in compliance with HAR §13-300-40 and HRS §6E-43.6, is required. Additionally, all lineal and cultural descendants of Kailua shall be contacted.

Cultural Resources

Wetland restoration activities would have a beneficial effect on freshwater, avifaunal (endangered waterbirds), and aquatic resources with the wetlands of Kawainui and Hāmākua (expansion of wetland area) that are culturally significant. Restoration activities support CIA findings expressing the need to improve its natural and cultural resources instead of leaving it alone because it is not in a pristine state now. Archaeological monitoring implemented for Kawainui's wetland restoration activities should minimize potential impacts on the cultural history and resources that may be present (e.g. (agricultural field walls or fishpond walls).

The expansion of upland reforestation activities within Kawainui and Hāmākua should not have an adverse effect on historic properties identified from prior surveys and should thus not impact cultural resources or the significance of this area. Replacing non-native invasive vegetation with native vegetation supports reestablishing historic environmental conditions and the cultural values associated with this area. In addition, native plants grown in areas could be a resource used by cultural organizations to support cultural practices (e.g. lei making, arts and crafts, etc.). Such opportunities would have a beneficial effect on cultural practices and would be coordinated and permitted through DOFAW.

The project includes facilities developed within new areas at Kawainui designated to support traditional Hawaiian cultural practices and stewardship of the area and resources by non-profit organizations in partnership with DOFAW and DSP. Increased access and areas proposed for allowing a permanent presence would have a significant beneficial effect by supporting expansion of Hawaiian culture and practices at Kawainui.

Pedestrian and foot trails planned would have a smaller beneficial effect by supporting access to areas that may be used for cultural practices. These improvements support the CIA consultation findings demonstrating the need to allow opportunities for cultural practices to occur, to provide stewardship opportunities supporting restoration efforts, and support the Hawaiian conservation ethic for resource management.

The project supports the opportunity for non-profit organizations to conduct the traditional practice of teaching and practicing Hawaiian culture of all types such as genealogy, sports, mo'olelo (stories), ritual

practices, dance, agriculture, etc. The opportunities provided by designated areas for cultural practices at Kawainui also support Kawainui's history of having an ancient learning center of significant size. Therefore, areas supporting cultural practices around Kawainui are pertinent to and consistent with the history of this area.

Mitigation Measures:

1. A clean, safe and culturally appropriate place should be created for iwi kūpuna to be protected and cared for in the event that they have to be disinterred and temporarily stored. Any such storage facility, should it be necessary, should be established, maintained, and monitored in full consultation with cultural and lineal descendants of Kailua. This storage could occur at the cultural center at Waiʻauia since a reinterment site is already there, and the organization maintaining this site would be operating out of this cultural center.
2. Architectural and construction plans and specifications should meaningfully integrate themes and styles that reflect Kailua's unique "sense of place" that preserve, enhance, and perpetuate the natural resources of Kailua (e.g., use of native and Polynesian-introduced plant species for landscaping); and that preserve, enhance, and perpetuate the cultural resources of Kailua.

2.6 Social and Economic Factors

Social Factors

Improvements proposed under the project should have minimal, if any, effect on the demographic characteristics of Kailua. The project should have no effect on the present and future number of housing units and residential population in Kailua. Cultural centers, the education center, pedestrian trails, and accessory improvements (e.g. restrooms, observation decks, greenhouse, etc.) planned would also not increase or decrease residential housing or change Kailua's resident population and demographics.

Improved public access and pedestrian trails for passive outdoor recreation at Kawainui would increase and improve the diversity of recreational amenities available for residents. This would contribute to the desirability of living in Kailua. Project-related improvements do not affect the core factors contributing to the popularity and desirability for living in Kailua. Kailua's popularity would continue to be primarily based upon its beach town character, convenient access to renowned beaches and availability of a variety of ocean recreational activities, being a more upscale and affluent residential community, availability and diversity of shops and businesses, and its convenient location from urban and downtown Honolulu.

The project would have no effect on military uses and jobs because improvements are not located within MCBH Kāneʻohe Bay and would not affect business operations occurring within the base. Project improvements would not affect industrial uses or employment within those businesses because there are no industrial uses planned. The project does not include any new commercial uses such as retail stores, restaurants, coffee shops, etc. operated by private businesses. Therefore, improvements would not affect commercial uses or employment within those businesses.

Improvements to Kawainui and increased public access would generate a somewhat moderate level of visitors. However, the majority of visitors to Kawainui would already be travelling to Kailua for other reasons (e.g. beaches, ocean recreation, etc.) as their primary destination purpose, and may make an incidental stop at Kawainui either on the way into or leaving Kailua. A small percentage (20%) of visitors are anticipated to travel to Kawainui as their main purpose and could then continue on to Kailua. These

new visitors (40 visitors a day) to Kailua due to the project could visit commercial areas resulting in a very small, but positive, effect for retail shops and restaurants.

The cultural centers planned would not be open to the general public and visitors because they would be intended for cultural practices and educational programs as managed and operated by non-profit organizations. However, persons attending classes and activities held at these centers could visit restaurants and other retail establishments in Kailua either before or after their activity. The majority of persons participating in these cultural activities are expected to be Kailua residents or residents of O'ahu, who are already familiar with Kailua town.

Influence on Community Issues. The level of visitor activity in Kailua is a major issue with many residents concerned with project improvements due to the potential to attract more visitors to Kailua. However, the concerns with this issue are not reflected by and shared by all residents and the business community who support visitors. Several factors have contributed to changes to the former neighborhood character of Kailua from the 1970's and concerns with visitors that has become more notable over the past 20 years.

The majority of the factors contributing to this current sentiment with visitors and changing character of Kailua are not related to improvements proposed by the project. The project would not influence the influx of new residents purchasing homes or moving into Kailua or change the demographics of Kailua's population. Improvements at Kawainui-Hāmākua, such as wetland restoration, upland reforestation, centers for cultural practices operated by non-profit organizations, and pedestrian trails for wildlife viewing, would thus likely not serve as significant factors influencing a person's decision to relocate to Kailua. Restoration efforts and improved public access at Kawainui would provide visitors to Kailua with another passive outdoor recreational and educational site to visit. However, activities at Kawainui (wildlife viewing) would not serve as a primary destination that attracts most visitors. Wildlife viewing, historic sites, and natural landmarks are not as popular with visitors to Hawai'i as compared to beach-related activities. Much of the visitor-related concerns with the project were also attributable to misinformation distributed throughout the community that leads to misinterpretation of what is actually planned at Kawainui-Hāmākua.

Concerns raised by the public were more focused with the social and economic impacts of the proposed structures and trails associated with additional visitors and effect on the character of Kailua.

Over-Commercialization. Concerns were expressed about improvements becoming commercialized and being additional tourist attractions. Others cited the need for clear rules about allowable activities and the importance of enforcement. Existing State regulations for Kawainui (Chapter 126, HAR) already allow DLNR to permit up to 100 visitors per day as part of commercial activities (subject to DOFAW authorization), even without the project. DLNR and DOFAW have currently not permitted any such commercial activities but could do so in the future if warranted under a permit system. Therefore, the project would not change this regulatory limit on commercial visitors, and the regulation prevents Kawainui from becoming over-commercialized if DOFAW does decide to allow this.

Proposed pedestrian trails and the education and cultural centers (structures) would not support or be impacted by over-commercialization, such as commercial tours, because commercial activities are not permitted at these uses. The areas designated for cultural centers would be operated by a non-profit organization to support their cultural practices conducted. Programs and activities conducted at these cultural centers would not be open to the general public, would not be allowed to have commercial or retail businesses, and would not be allowed to have commercial tours visiting. The education center would

also be operated by a non-profit organization, and commercial tours would not be allowed unless permitted by DSP. As a result, the potential over commercialization of this center feared should not occur.

Pedestrian trails would be open the public, but commercial tours or other related operations would not be permitted to utilize these trails. Similarly, other existing DSP lands, such as Ulupō Heiau and Nā Pōhaku, would continue to be open to the public and used by authorized non-profit organizations for educational and cultural activities.

An important mitigative measure to ensure commercial activities don't illegally occur within the project area would be effective enforcement of these restrictions. DOCARE would be responsible for the enforcement of these regulations, and would need to work in partnership with DOFAW, DSP, and non-profit organization(s) operating the education center or conducting programs in the area to observe and report violations. To support this, additional permanent DOCARE staff would be necessary to effectively patrol and enforce regulations.

Potential to Attract More Tourists to Kailua. The level of visitor activity in Kailua is a major issue with many residents who feel that their quality of life and lifestyle from the 1970s has been threatened. However, this position is not reflected by and shared by all residents along with the business community who support visitors. Therefore, there is concern with project proposals that could attract more "outsiders" or visitors to Kailua, whether from other communities on Oʻahu or out of state.

Project improvements would support increased public access for both residents and visitors within Kawainui at several designated activity areas. The two cultural centers at Kapaʻa and Waiʻauia would not be open to the general public and subsequently not attract or be available for daily visits by tourists or island residents. These areas would be used for cultural practices and would be constructed and operated by non-profit organizations.

Only the proposed education center at Pōhakea would serve as an activity node supportive of attracting visitors. The education center and adjacent kauhale complex at Pōhakea are intended to support visitors to Kawainui by providing a centralized location and center for receiving visitors along with persons participating in educational and cultural programs. Projected monthly visitors to the education center is about 6,000 visitors per month (200 visitors a day). It is estimated that 80% of these visitors would be making an incidental stop to Kawainui while already on their way to or from visiting Kailua as part of their main trip purpose (e.g. beaches). Therefore, only 20%, or about 40 visitors per day, would be making a trip to Kawainui specifically for that reason. Consequently, the impact of the education center with surrounding pedestrian trails attracting additional tourists to Kailua would be rather small, or about 20 to 30 additional visitors a day.

Effective management of Kawainui is a priority for both DOFAW and DSP that would be implemented to address potential effects from an unexpectedly significantly greater number of visitors to the education center. The non-profit organization operating the education center would be able to monitor activities and coordinate any concerns with DSP and DOFAW. Within the wildlife sanctuary, DOFAW is able to restrict public access if warranted ranging from no access to conditional access during established times (e.g. weekends only, or only through programs). DOFAW thus has the regulatory ability to effectively manage public access if visitor activity is too high. DSP also has the ability to close or restrict public use of their jurisdictional areas when necessary for the protection of an area or for the safety and welfare of the public under Chapter 146, HAR. Therefore, public access at visitor levels can be restricted or limited if DSP believes warranted.

Traffic Impacts on Residential Areas. Increased traffic congestion within Kailua town is another issue that has been attributed to the many visitors to Kailua. The proposed education center and cultural centers are not expected to have much effect on these traffic issues because these conditions are the result of other factors. The project would not generate a significant amount of daily traffic impacting these areas. An estimated 40 new visitors a day (10 to 15 vehicles) to Kailua resulting from this education center and public access to Kawainui should have minimal effect on congestion within Kailua town.

Traffic issues within Kailua town could be partly attributed to visitor activity particularly around beaches, but it is also likely due to the developed urban town center that's comprised of several businesses, restaurants, shops, etc. that generate a lot of activity from both residents and visitors. Lanikai traffic issues are likely attributable to island residents visiting the area on weekends and holidays. Otherwise, this condition would occur on a daily basis if mainly caused by visitors to Kailua. Traffic concerns within the Kūkanono residential area are also largely the result of non-project related factors. The Windward YMCA generates far more daily traffic than the Ulupō Heiau, and churches in the area generate a fair amount of traffic, particularly on weekends. Castle Medical Center employees parking within the neighborhood and patient visitor traffic are also factors not associated with the project.

Security, Crime and Homeless Issues. There are concerns about the security of residences along the project area and potential crimes that could occur along the proposed trails and around Kawainui. The Kūkanono subdivision is the only residential area where project improvements consisting of the pedestrian trail would occur in their vicinity. In general, crime and homeless issues would be improved by the project because DOFAW and DSP would have additional partners (non-profit organizations) to support monitoring, management and stewardship of various areas. Increased activities and the presence of DOFAW staff, DOCARE officers, and visitors in areas reduce the potential for illegal activities to occur unnoticed or opportunely, or for homeless encampments to become established.

There are concerns with pedestrian trails and accessory structures (e.g. observation decks, small shelters) potentially serving as gathering places for homeless individuals. Increased activity areas and personnel operating around Kawainui, such as cultural centers and DOFAW's management station, should significantly reduce the potential for homeless encampments from becoming established. This is because less areas around Kawainui would be isolated, secluded, and hidden by restoration activities and use of areas. DOCARE officers would be available to respond to suspicious or inappropriate activities, enforce regulations, and ultimately increase security in areas. Furthermore, national studies of public trails provide considerable evidence that similar trails do not attract or increase crime (e.g. comprehensive study of criminal activity on 372 trails across the U.S. conducted by the Rails-to-Trails Conservancy in cooperation with the National Park Service).

Management and Maintenance. Concerns have been expressed with the State's ability to adequately manage and maintain areas developed or opened for public access over the long-term. Management of public access at Kawainui and Hāmākua along with its resources are a priority for both DOFAW and DSP. Effective management requires cooperation and coordination among DOFAW, DSP, DOCARE and non-profit organizations operating at Kawainui to ensure appropriate monitoring of activities and enforcement action are implemented, as warranted. The following management practices would be implemented that focus on addressing public access: 1) phased approach in opening areas to the public; 2) restricting access; and 3) increasing stewardship partnerships.

Mitigation Measures:

1. DOFAW has the ability to restrict opening additional areas to the public if they cannot manage it, or closing access to previously opened areas, if required. DSP can also manage access by not implementing improvements or providing public access if management of areas is not possible.
2. Design measures that could be implemented to minimize potential security issues associated with pedestrian trails can include the following.
    a. Pedestrian and foot trails along the Kūkanono residential subdivisions have been sited to be a significant distance away from residences (buffer of about 250 feet or greater).
    b. No access to the trail would be provided through the Kūkanono residential subdivision.
    c. Fencing along the southern edge of the trail from Ulupō Heiau up to DOFAW's management station is planned. Fencing is also planned along the State's property boundary separating residences and churches within the Kūkanono to Wai'auia section.
    d. Motorized vehicles and bicycles would be prohibited from using the trail. Only the levee would be available for use by bicyclists.
    e. Necessary signage would be posted at appropriate locations to educate and inform trail users of restrictions.
3. The following management practices for public access are proposed under this project.
    a. DOFAW and DSP would implement a phased approach by incrementally opening up areas for public access and would only allow such access of areas if they are able to manage them.
    b. DOFAW is able to restrict public access in accordance with regulations under Chapter 126, HAR. Such restrictions on public access can range from no access permitted for areas to conditional access during established times (e.g. weekends only, or only through programs). DSP has the ability to close or restrict public use of their jurisdictional areas when necessary for the protection of an area or for the safety and welfare of the public under Chapter 146, HAR.
    c. Partnerships with non-profit organizations participating in stewardship activities within Kawainui is another important component to support DOFAW and DSP management of public access. Non-profit organizations already serving as curators of areas along with new partners for the cultural centers and education center would contribute to stewardship efforts for those areas, and support monitoring public access and activities.

Fiscal and Economic Effects

Project improvements proposed would have a relatively minor effect on both the City and State's economic and fiscal factors. The primary economic and fiscal effects from construction improvements would be associated with short-term construction jobs that would generate a small minor positive economic impact over the several years for which phased improvements are implemented. Overall, implementation of these improvements would also generate some indirect and induced jobs throughout the entire phasing period. The total employment impact (direct, indirect, induced) would be relatively small over the entire phasing period in comparison to the larger island employment. Nevertheless, it would still have a positive impact in employment for the island and residents.

Wetland restoration and upland reforestation improvements are estimated to create a total of about 4 to 6 direct new jobs annually during the phased long-term implementation period. Implementation is expected to occur over some time subject to funding availability by the Legislature, and also subject to

DOFAW receiving additional personnel to support executing the work, operations, and maintenance activities.

Development of the cultural centers at Wai‘auia and Kapa‘a would be privately funded and constructed by non-profit organizations. Construction costs for these facilities could be fairly significant depending upon their design and would likely be implemented in phases over time. Maintenance of these cultural centers would be the responsibility of the non-profit organizations. Development of the educational center at Pōhakea could be either privately funded by the non-profit organization operating it or funded by the State (DSP). Construction and management of the kauhale complex would be performed by a non-profit organization.

Fiscal impacts would involve additional tax revenue generated to the State from project construction. Tax revenue generated for the State would be relatively minor in comparison to the overall State revenue because work would be implemented in phases over several years. Nevertheless, this revenue would have a minor beneficial effect on the State's fiscal condition because of the short-term increase in revenue associated with construction activities. The property associated with these areas are all owned by the State, therefore, no City property tax is presently paid by the State. Project improvements would not change this.

2.7 Noise

Noise generated by wetland restoration and upland reforestation activities should have minimal impact to existing uses surrounding areas these activities are proposed for. Restoration and reforestation improvements would generate minor short-term noise during the day and would not be scheduled at night. Such activities would temporarily increase ambient noise levels within the vicinity of the work area. To minimize impacts, activities would be limited to regular workday hours. Once completed, activities would generate additional noise primarily in the form of human voices as part of conversations and vehicles entering and exiting sites. Adverse noise impacts should not result on proximate sensitive noise receptors.

2.8 Air Quality

Some fugitive dust emissions may arise from dirt moving activities associated with vegetation clearing, replanting of upland areas, and drainage improvements. If required, a dust control plan for upland areas would be prepared and implemented by the contractor in compliance with State air pollution regulations. Dust control measures could involve implementation of a watering program and other best management practices would be implemented at the job site (i.e. tire washing program).

Air quality impacts from construction of structures and trails are not anticipated. Construction of the education center and cultural centers would involve earthmoving activities generating some fugitive dust. State air pollution controls prohibiting visible emissions of fugitive dust from construction activities at the property line would be followed by the contractor. Other BMPs would also be incorporated into design plans for implementation by the contractor, such as a dust control plan.

2.9 Visual Resources

The project would have a beneficial effect by improving the scenic character of Kawainui and Hāmākua through wetland restoration and upland reforestation improvements. Expanded upland reforestation

improvements would improve and restore the natural character of a healthy Kawainui with phased removal of existing non-native and invasive vegetation and trees. Vegetation would still be continued along the major roadways to serve as partial screens and visual buffers.

Other improvements, such as pedestrian trails, would increase stationary public viewing locations of the scenic resources associated with Kawainui. The education center and cultural centers established in designated areas would increase public views of Kawainui and support the educational experience and cultural significance of the area. The education center's design would be compatible with this upland site that was formerly used for ranch activities and included various structures and would be reviewed and approved by DSP. Being situated within upland areas and sufficiently setback from the wetland's periphery, this center would not negatively impact the scenic character of Kawainui's wetland.

Cultural centers designated at Wai'auia and Kapa'a should similarly not have a significant negative impact on views of Kawainui or the scenic value of the wetland. Although not open to the general public, these centers would still create new areas where Kawainui can be viewed by participants of cultural practices and activities occurring there, along with students and the public as part of educational and cultural programs conducted in partnership with both DOFAW and DSP. The design of buildings and structures should be compatible with the surrounding environment because they would serve as cultural centers. Landscaping can be provided at these sites to screen views of the structures from roadways.

2.10 Hazardous Materials

Kawainui was generally not subject to adverse environmental impact from known or potential sources of hazardous materials. Known releases of hazardous materials have been located outside the project area and situated down gradient from the wetland. Wetland restoration and upland reforestation activities are not expected to have an impact on hazardous materials, and most of these activities will occur at or below less than a foot from the surface. These activities would disrupt some sediment at the surface that likely contain heavy metals present. However, the levels of heavy metals were lower than the maximum concentration of contaminants for meeting the definition of EP Toxicity (being characterized as a regulated hazardous material). This was found to be comparable to other O'ahu watersheds, given that heavy metals are naturally occurring in weathered basalt and expected in sediments derived from erosion of this material. Therefore, disturbing this sediment as part of wetland restoration activities should not have a significant impact on Kawainui Marsh or downstream (northbound) areas.

The construction of trails, boardwalks, parking areas and buildings (and foundations) would involve some excavation and disturbance of soils below the surface. None of the proposed structures or trails are sited at or near the two sites identified in the Phase I ESA as having environmental concern. Any contractor working in the area would be made aware of the potential to uncover potentially hazardous waste or petroleum products, and contingency plans prepared in the event of an inadvertent discovery as part of the design phase and BMP measures.

2.11 Infrastructure Facilities

Water Facilities

Expansion of ongoing wetland restoration and upland reforestation activities would have a negligible impact on potable water systems or resources because non-potable water would be used. Non-potable

water using rain catchment systems with drip irrigation lines would be used to irrigate additional upland areas as part of reforestation activities.

DOFAW may want to add a service lateral(s) for other areas besides Kahanaiki to provide a more reliable source of water to support upland reforestation efforts. Additional potable water demand should not have a significant impact on the BWS water system because reforestation areas would be implemented in phases. Coordination with the BWS would be conducted to determine additional demand and service requirements, and improvements would be designed in accordance with water system standards and submitted to BWS for review and approval.

The pedestrian trails and accessory structures (e.g. observation decks, pavilion) would not impact the water system and supply because no water service is required (e.g. hose bib, showers). Additional potable water demand would be generated by new facilities established within the project area. A summary of the total projected average water daily demand generated by the project is 2,650 gpd, and is not expected to have a significant impact on BWS's water system. The City BWS indicated that the existing water system is adequate to accommodate proposed improvements in an October 28, 2016 letter. The availability of water serving individual sites will be confirmed during the design phase for these improvements, and when building permit applications are submitted to BWS for approval.

Wastewater Facilities

Continuation and expansion of ongoing restoration and upland reforestation would have no impact on existing municipal sewer systems because no wastewater would be generated requiring treatment and sewer system improvements.

Pedestrian trails and accessory structures (e.g. observation decks, pavilion) would not impact the sewer system because no wastewater would be generated. Facility improvements proposed would generate wastewater from restrooms and activities conducted. Connection to the municipal sewer system is available for the following: 1) Wai'auia Cultural Center; and 2) restroom at Hāmākua. Overall, the entire project's projected average daily wastewater generated would be about 2,650 gpd, and should have minimal impact on the City's municipal system because the majority of wastewater would be treated by individual septic systems. Additional demands placed on the sewer system from the restroom at Hāmākua and cultural center activities at Wai'auia should not have a significant impact due to the relatively low average daily volumes projected.

Drainage Facilities

Continued and expanded wetland restoration activities to areas further north from Kahanaiki would occur within the wetland and not include major drainage system improvements. BMPs would be implemented as part of expanded wetland restoration activities to minimize short-term effects from sediment discharges during periods of heavy rainfall.

Upland reforestation activities mainly involve landscaping work that would not require constructing new permanent drainage system improvements. However, some drainage improvements would occur within upland areas as part of continued erosion control improvements. Projects could involve replacement or reconstruction of existing drainage culverts or other measures to detain stormwater runoff such as creating terraced walls downstream of drainage culverts, causeways, detention areas, etc. These drainage repairs and improvements to address erosion control would have a positive effect in reducing discharge

of sediment into the wetlands, increase infiltration from storm water detention, and improve the wetland's water quality.

The construction of facilities proposed through the project would increase the area of impervious surfaces within the project area. Trails account for about 40 percent of estimated runoff attributable to site improvements for public access. Trails and other proposed improvements would need to incorporate necessary BMPs into site planning and design to detain storm water runoff and minimize the impact of runoff to receiving wetlands. Source control BMPs and treatment control BMPs that would be implemented would help control pollutants at their source, filter sediment, and remove storm water pollutants prior to discharge into receiving waters. The project area includes hundreds of acres of landscaped area that could act as an effective source control BMP, and LID elements can be incorporated into the design of improvements to further reduce effects.

Solid Waste Facilities

Expanded wetland restoration and upland reforestation activities would increase the volume of vegetated debris generated within the project area. Green waste would be processed and disposed of as is currently done (Hawaiian Earth Products or vegetation processing site).

Solid waste would be generated from both short-term construction activities and long-term operations of facilities proposed. Construction of pedestrian trails, accessory structures, cultural centers, education center with kauhale, etc. would generate debris that would need to be properly disposed of at the PVT Nānākuli Construction and Demolition Material Landfill. Solid waste generated from construction of these improvements would be typical of construction-related activities. Construction waste generated would have a short-term impact, and consist primarily of vegetation, rocks, lumber, plastics, etc. which the contractor would need to properly dispose of.

The increased presence of visitors and volunteers at pedestrian trails, viewing areas, and interpretive shelters would generate some trash that will need collection and disposal. Trash generated from persons viewing the area or participating in educational programs would likely be minimal on a daily basis, especially since educational programs would only occur occasionally. Waste would typically consist of organics (food), paper, and plastics associated with eating or drinking. Trash receptacles would be provided at selected locations, and DOFAW and DSP would contract with a vendor to collect and dispose of waste. The non-profit organizations operating these cultural centers would have control over the activities conducted there, and would be responsible for managing and disposing their waste.

Electrical and Communication Facilities

The expansion of DOFAW's wetland restoration, upland reforestation, and maintenance operations to additional areas would not generate a demand for electrical, telephone, or cable service requiring new utility infrastructure improvements. The pedestrian trails and accessory structures (e.g. observation decks, restrooms) would not generate a demand for electrical, telephone or cable service requiring new utility infrastructure improvements. Electrical and communication service would be required for permanent facilities, such as the education center and cultural centers, constructed within the Kawainui-Hāmākua project area. Overall, the total additional electrical demand generated by these facilities would be small and should be accommodated by HECO. Most areas already have existing electrical service provided in the area and would just require extending electrical service to facilities within the sites.

Transportation Facilities

With all project improvements implemented, only about 40 additional daily trips during the weekday afternoon peak hour would be generated. Therefore, the project would not have a significant impact on State highways and study intersections, and no improvements would be required as part of mitigative measures. This was confirmed in a late Draft EIS comment letter received from the State Department of Transportation.

Wetland restoration and upland reforestation activities should not result in adverse impacts on traffic in the area and transportation facilities. The movement of staff and equipment on vehicles between DOFAW's management station and the project area would increase slightly, but should have little, if any noticeable, effect on roadways and intersections. Traffic generated by program related activities from the education center and cultural centers would be minimal on a daily basis and have negligible effect on traffic conditions along area roadways. Visitors to Kawainui would also occur outside the weekday morning and afternoon peak hours, and the additional traffic generated would be minimal.

2.12 Public Facilities

Recreational Facilities

Wetland restoration and upland reforestation improvements should not has a significant impact on recreational facilities and activities within the project area and in the immediate surrounding areas. There are no recreational activities permitted within the wetlands of Kawainui and Hāmākua. Upland reforestation around Kawainui would have a beneficial effect by supporting establishing pedestrian trails and foot trails planned around the perimeter of the wetland.

A primary project purpose is to increase public access, educational opportunities, and passive outdoor recreation use within Kawainui, in compliance with Section 6(f) of the federal Land and Water Conservation Fund (LWCF). Creation of pedestrian trails and viewing platforms to enhance public access supports State compliance with LWCF recreational access requirements. The education center at Pōhakea would support passive outdoor recreation and increased public access. Other project improvements support both public access and outdoor recreation.

Medical Facilities

Wetland restoration and upland reforestation activities should not have any short or long-term impact on medical facilities or operations in the area. Pedestrian trails, accessory structures, the education center, and cultural centers established would similarly have minimal impact on existing medical facilities or their operations. Increased activities within Kawainui would create opportunities for potential injuries, however, the likelihood for such incidents is very low, would likely be minor (e.g. cuts), and DOFAW has not experienced many such situations occurring from their activities.

Educational Facilities

Wetland restoration and upland reforestation improvements should not have short- or long-term impacts on existing educational facilities because these facilities are situated outside of the project area and are considerable distances away. Restoration and reforestation improvements would have a long-term beneficial effect of providing additional areas to use for educational and community service-learning

projects. Additional areas restored would expand the range and opportunities being used as a resource for activities further benefitting students from all schools and community organizations. This supports DOFAW opportunities to partner with schools and non-profit organizations to expand educational activities and service-learning projects having a beneficial effect on education.

Proposed trails and accessory improvements would similarly have a beneficial effect on supporting educational programs and community service-learning projects by improving access within upland areas and allowing students to see and experience the natural environment. Proposed structures such as the education and cultural centers would support educational programs by providing facilities where programs can occur or by supplementing the content of program materials. In the long-term, facilities supporting environmental and cultural education would increase the public's understanding and appreciation of project area resources.

Police and Fire Protection

Wetland restoration and upland reforestation activities are expected to have minimal, if any, long-term effect on police, fire and emergency services. There are no residential or visitor units planned that could increase demand for police, fire and emergency services.

Pedestrian trails would increase public access within areas that are currently inaccessible or have minimal use. It is possible that there could be future calls to police and DOCARE due to thefts, vandalism, and enforcement or intervention, as is the case with any recreational area open to the public. DOCARE would be responsible for overall security and management of state lands and additional DOCARE personnel would be required. HPD and HFD personnel would be available to provide assistance and service as needed.

Parking areas and staging areas would be gated and closed during the evening to prevent unauthorized access. Restrooms, observation decks, and pavilions would also be patrolled and monitored to prevent unauthorized use or activities. Rules governing the use of pedestrian trails and parks, including hours of operation and allowed activities, would be posted at the education center, at trail heads, and near public facilities for the public.