Final Environmental Assessment

Diamond Head Public Safety Radio Station Master Plan

August 2008

Prepared For:
State Civil Defense Agency
Department of Defense
State of Hawaii

Prepared By: SSFM International

FINAL ENVIRONMENTAL ASSESSMENT REPORT

FOR

DIAMOND HEAD PUBLIC SAFETY RADIO STATION MASTER PLAN PROJECT

DIAMOND HEAD, HAWAII

August 2008

PREPARED FOR:

Department of Accounting and General Services
State of Hawai‘i
P.O. Box 119
Honolulu, Hawaii 96810

PREPARED BY:

SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

TABLE OF CONTENTS

LISTING OF FIGURES

LISTING OF TABLES

LISTING OF APPENDICES

CHAPTER 1
INTRODUCTION

1.1 PURPOSE FOR ENVIRONMENTAL ASSESSMENT

The Department of Accounting and General Services (DAGS), State of Hawai‘i, on behalf of the State Civil Defense (SCD), State Department of Defense (DOD), is proposing to consolidate existing radio equipment and antennas present within the Diamond Head State Monument to a single site, and implement other accessory improvements associated with this consolidation. Radio equipment currently located in Birkhimer Tunnel and at Batteries Dodge and Huling along the northeastern rim of Diamond Head Crater are planned to be relocated to a single existing building formerly used by the Federal Aviation Administration (FAA) and located at a nearby site on the northeastern rim identified as the Link Site. Related antennas currently scattered at different locations along the Crater rim will also be consolidated at this site.

The improvements are planned to help the SCD support homeland security, public safety, and emergency management duties, and allow them to efficiently maintain a single centralized site. The SCD has developed a “Diamond Head Public Safety Radio Station Consolidation Master Plan” to identify specific radio equipment and antenna consolidations and other accessory improvements that would be phased to occur over a 15-year period. This Master Plan was completed in January 2006 and is intended to serve as a guide for the funding and construction of these improvements during this timeframe.

This project will involve a complete renovation of the existing building at Link Site to accommodate the relocated radio equipment. The building and relocated antennas that will be consolidated on and surrounding the building will be known as the State Civil Defense Public Safety Radio Station. Accessory improvements that are part of this project include the removal of some existing utility poles, placing present above-ground conduits underground and installation of new, underground electrical and communication conduits.

This project is situated within the Diamond Head Crater, which is formally known as Diamond Head (Lē‘ahi) State Monument. Diamond Head State Monument is located in the southeastern portion of the Island of O‘ahu. It is located along Diamond Head Road, and is accessible through access roads located across Kapi‘olani Community College. The crater floor is identified as Tax Map Key 3-1-042: 006 and the FAA Link Site is 3-1-042: 016. Figure 1.1 shows the project’s location and general vicinity. A summary of pertinent project related information is provided in Table 1.

The State Department of Land and Natural Resources (DLNR) is the fee simple owner of the Diamond Head State Monument. The crater serves primarily as a recreational area, and is also the location of a number of buildings that are used by two divisions of the State DOD; the

PROJECT LOCATION AND GENERAL VICINITY MAP

Figure 1.1

Diamond Head Public Safety Radio Station Master Plan
State Civil Defense, Department of Defense, State of Hawai'i

Source:
Digital Global Aerial (2005)

SSFM INTERNATIONAL

Table 1 Summary Information

Project Name:	State Civil Defense Public Safety Radio Station Project
Proposing Agency:	Department of Accounting and General Services State of Hawai‘i P.O. Box 119 Honolulu, Hawai‘i 96810 Contact: Mr. Lance Y. Maja
Agency's Consultant:	SSFM International, Inc. 501 Sumner Street, Suite 620 Honolulu, Hawai‘i 96817 Contact: Mr. Jared K. Chang
Accepting Agency:	Department of Accounting and General Services, State of Hawai‘i
Project Description:	Relocation of all existing radio equipment and antennas located in Diamond Head Crater into a single building (formerly the FAA Link Site Building) that will be renovated. Also implement other accessory improvements associated with this consolidation.
Project Location:	This project is situated in the Diamond Head/Kapahulu community located in the Primary Urban Center (PUC) District of the island of O‘ahu
Existing Use:	The building and adjacent area where radio equipment and antennas will be consolidated is currently vacant. The building was formerly used by the Federal Aviation Administration as a Link Site.
Land Ownership:	State of Hawai‘i, Department of Land and Natural Resources
Tax Map Key:	3-1-042: 016 & portion of 006
Land Area:	The existing building to be renovated into the SCD Public Safety Radio Station is within a parcel consisting of approximately 0.29 acres.
State Land Use/Subzone:	Conservation / Resource Subzone, General Subzone
City Zoning:	P-1, Restricted Preservation
SMA District:	Diamond Head Crater is located within the Special Management Area as designated by the City and County of Honolulu.
Special District:	Diamond Head Crater is within the Diamond Head Special District as established by the City and County of Honolulu.

Hawai‘i National Guard (HING) and SCD. The crater also includes a number of tunnels, batteries (Birkhimer, Hulings, and Dodge) and a historic trail that leads from an information center to Lē‘ahi Summit, which is maintained by the DLNR Division of State Parks.

Environmental Requirements & Proposing Agency

Actions which "trigger" the requirement for environmental review of a project are prescribed under Chapter 343 (Environmental Impact Statements) of the Hawai‘i Revised Statutes (HRS), and Title 11, Chapter 200 (Environmental Impact Statement Rules) of the State Department of Health's Administrative Rules (HAR). Four of these "triggers" apply to this State Civil Defense Public Safety Radio Station project: 1) the use of State funds to implement the consolidation improvements planned; 2) use of State lands associated with Diamond Head State

Monument; 3) use of land classified as Conservation District under the State land use districts; and 4) use of a historic site designated on the National and State register of historic places.

This Final Environmental Assessment (Final EA) was prepared to address the probable impacts on the surrounding environment resulting from the proposed improvements associated with the project. This document was prepared in conformance to the regulatory requirements prescribed under Chapter 343, Hawai‘i Revised Statutes (HRS), and Title 11, Chapter 200, Hawai‘i Administrative Rules (HAR).

A Draft Environmental Assessment (Draft EA) was published in the August 23, 2007 issue of *The Environmental Notice* in conformance to these regulatory requirements. The 30-day public comment period for the review of that Draft EA ended on September 23, 2007. Subsequently, this Final EA was prepared based upon the comments received on the Draft EA, and a Finding of No Significant Impact (FONSI) is consequently being issued for this project.

1.2 BACKGROUND

State Civil Defense

The State Civil Defense is one of three main active divisions under the State of Hawai‘i Department of Defense supporting the overall mission to assist authorities in providing for the safety, welfare, and defense of the people of Hawai‘i. The State DOD maintains its readiness to respond to the needs of the people in the event of disasters, either natural or human-caused through the assistance of support agencies such as the SCD (DOD, 2005) [1].

The specific mission for the SCD is to prepare for and respond to disasters and emergencies. The civil defense system organization is authorized by Chapters 127 and 128 of the Hawai‘i Revised Statutes, and provides the legal framework for a comprehensive system at the State and County levels. SCD serves as the office of record for all major disasters impacting the State of Hawai‘i. The SCD also functions as Hawai‘i’s Emergency Management and Homeland Security Agency, and administers U.S. Homeland Security Grants funds which are made available to County, State and private agencies to help them with the training, preparation, and necessary equipment needed to deal with the constant threat of terrorism.

As noted, the SCD completed in January 2006 a Master Plan which identifies the various improvements needed in the Diamond Head State Monument to support their operations, and to facilitate their ability to fulfill their mission and responsibilities.

Former FAA Link Site

The proposed new SCD Public Safety Radio Station will be in an existing building that was formerly used by the FAA as a Link Site. The FAA constructed the building in 1958 for the

[1] Department of Defense (DOD), State of Hawai‘i. 2005. *Department of Defense; Annual Report; Fiscal Year 2004*. Honolulu, Hawai‘i.

critical National Air Space equipment needed for air traffic control. The FAA relocated most of its equipment in 2001 when it relocated its air traffic control facilities to Hickam Air Force Base on the island of O‘ahu. In the agreement transferring this building from the FAA to the State of Hawai‘i, the FAA has reserved space in this building for use by the SCD and other Federal agencies for their communications equipment and antennas.

1.3 LAND USE CLASSIFICATIONS AND DESIGNATIONS

1.3.1 State Land Use Districts

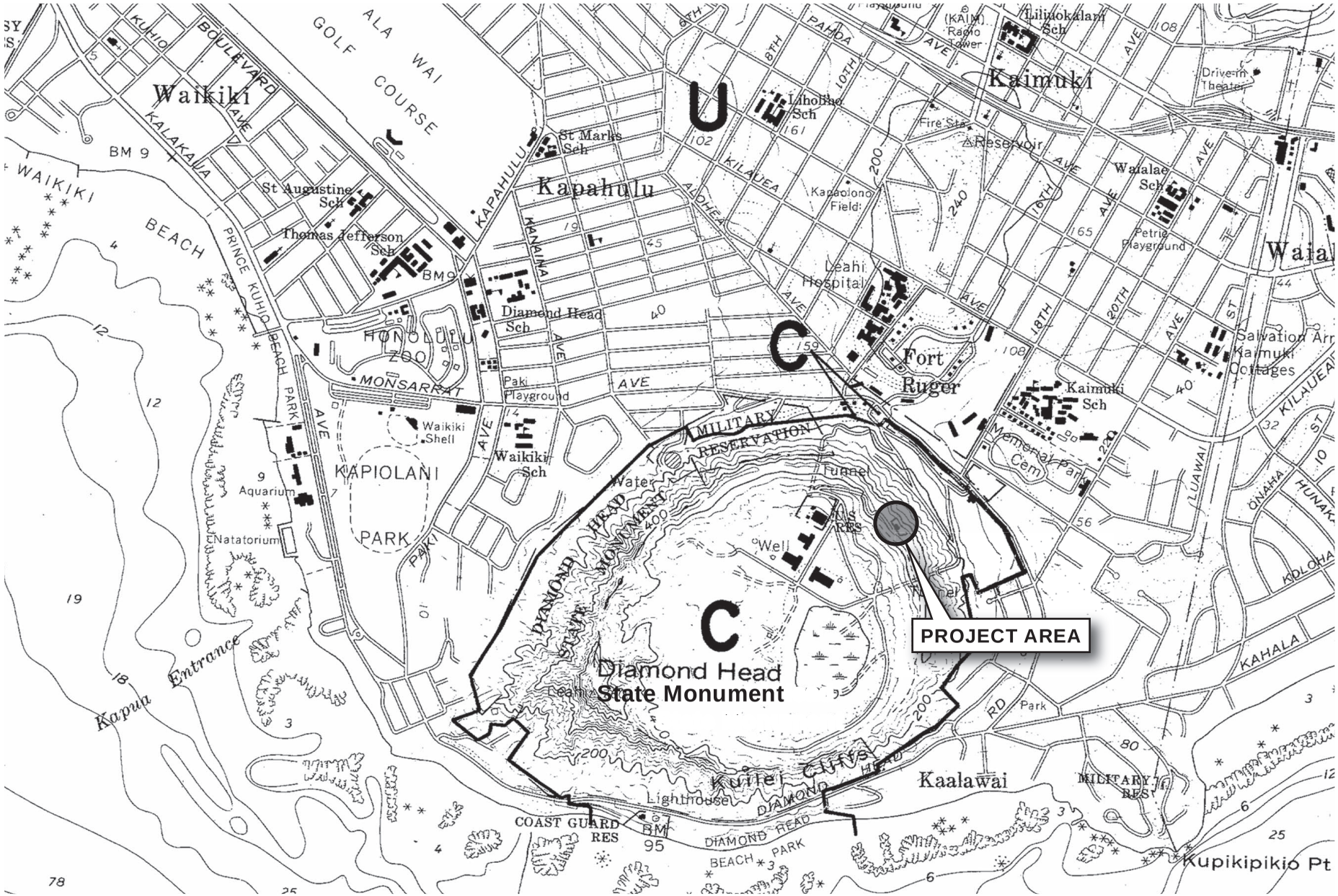
The Diamond Head State Monument area is classified as “Conservation District” on the State’s Land Use District Boundary Map. Figure 1.2 shows the project area in relation to the State’s land use district boundaries. Conservation District lands are further designated into five subzones which are Protective, Limited, Resource, General, and Special. Within Diamond Head State Monument, there are areas designated both General and Resource Subzones. Figure 1.3 shows the project site in relation to the Subzone Map.

The proposed Radio Station project site is located within the Resource Subzone. Other existing antennas and radio equipment that are planned to be relocated are similarly situated within the Resource Subzone. However, a portion of the easements for the access road to this station site along with above ground conduits along this road are located within the General Subzone. Further, other areas along the crater rim planned as part of accessory improvements are similarly situated within the General Subzone.

Jurisdiction over land uses and activities conducted within the Conservation District generally falls under the State Board of Land and Natural Resources under regulations prescribed under Title 13, Chapter 5, Conservation District, HAR. Such activities are regulated by the State Department of Land and Natural Resources under these regulations.

The purpose of these regulations are to “regulate land use in the conservation district for the purpose of conserving, protecting, and preserving important natural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety and welfare.” The objectives of these subzones are identified below, and further discussion of the project’s consistency with Conservation District policies are covered in a later chapter of this document.

1. Resource (R) Subzone – The objective of this subzone is “to develop, with proper management, areas to ensure sustained use of the natural resources of those areas.” The resource subzone encompasses lands used for parks or for outdoor recreational uses.
2. General (G) Subzone – The objective of this subzone is “to designate open space where specific conservation uses may not be defined, but where urban use would be premature.”

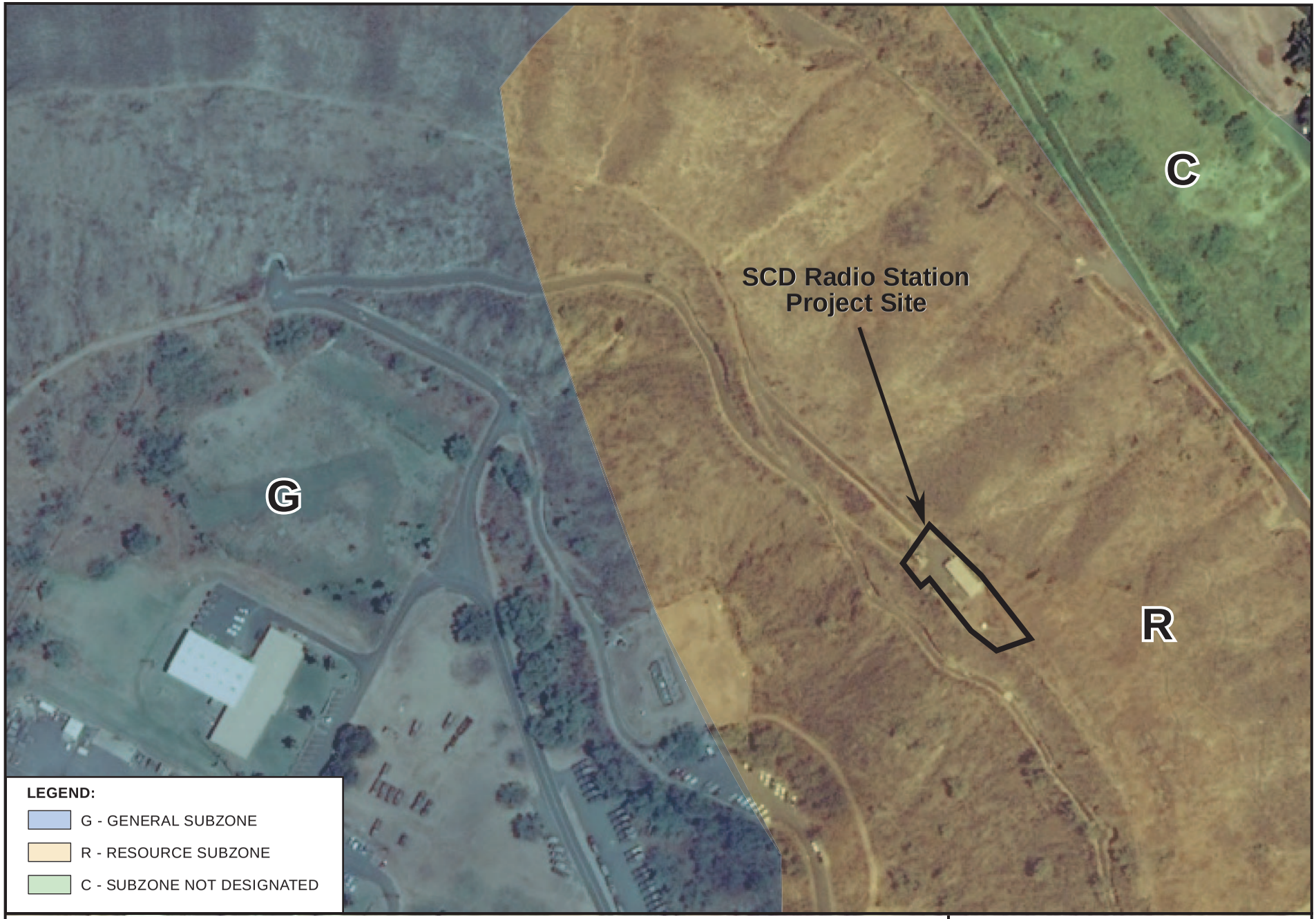


STATE LAND USE DISTRICTS MAP

Figure 1.2

Diamond Head Public Safety Radio Station Master Plan
State Civil Defense, Department of Defense, State of Hawai'i

Source:
Digital Globe Aerial (2005)



CONSERVATION DISTRICT SUBZONE BOUNDARIES

Figure 1.3

Diamond Head Public Safety Radio Station Master Plan
State Civil Defense, Department of Defense, State of Hawai'i

Source:
Digital Globe Aerial (2005)
State Offic of Planning (GIS Data)

SSFM INTERNATIONAL

1.3.2 City and County Development/Sustainable Community Plans

The City and County of Honolulu (City) has eight Development Plans addressing geographic regions of the island as mandated by the City Charter to guide the development and improvement of the City. Six of these plans were recently re-designated as "Sustainable Communities Plans" to highlight the vision that these regions should not be heavily developed, and existing communities along with special qualities associated with the regions should be sustained and improved. The remaining two plans continue to be designated as "Development Plans" and encompass regions to which growth in population and economic activity will be directed over the next 20 years and beyond.

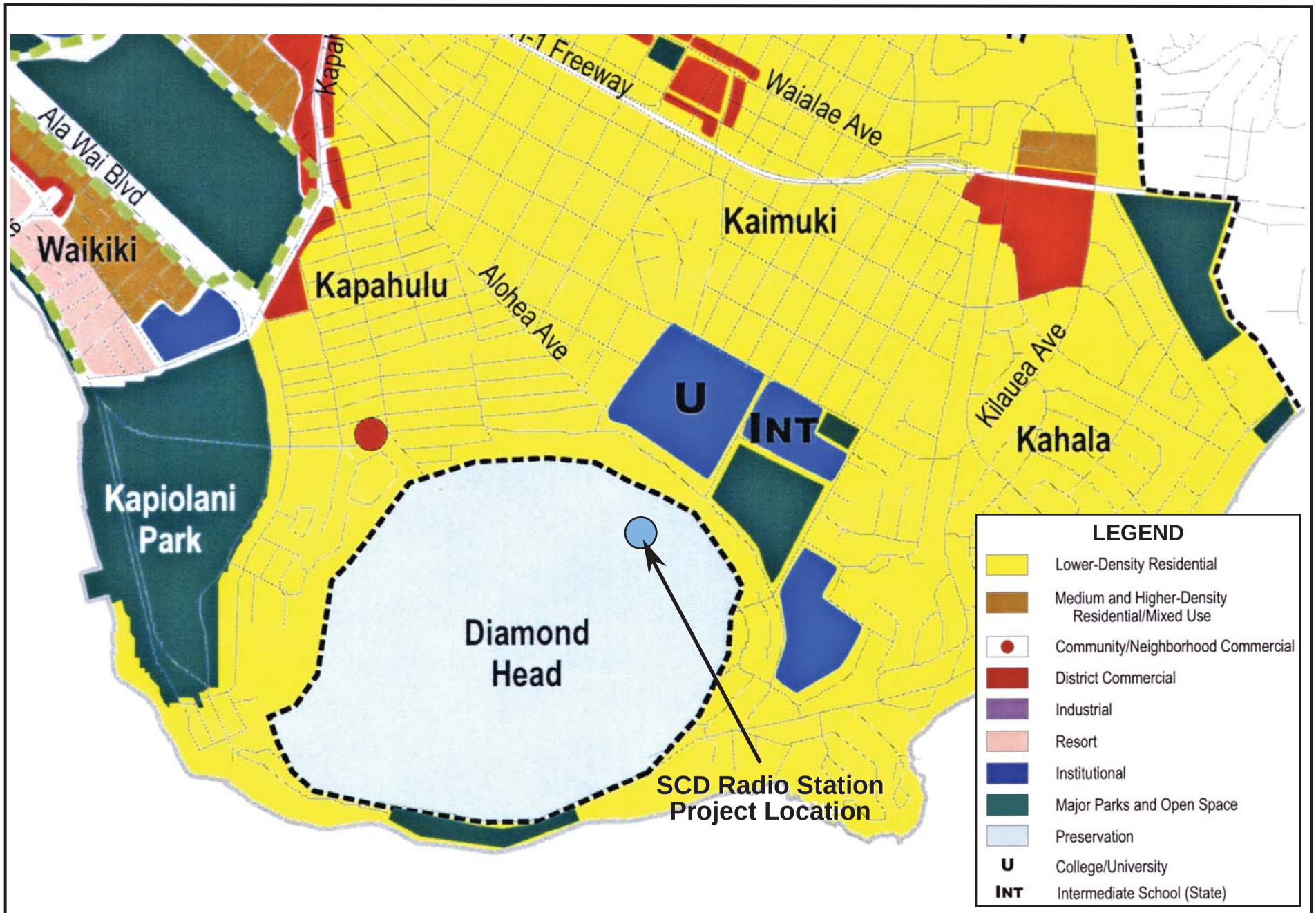
Together with the City General Plan, these Development/Sustainable Community Plans provide a policy context for the land use and budgetary actions of the City. The purpose of the plans is to set forth the desired sequence, patterns, and characteristics of future development or sustainability of a region or community. These plans consist of visions for the region, and policies and guidelines for various factors such as infrastructure, public facilities and natural resources. They also include land use maps and others that are intended to provide visionary, conceptual schemes without parcel specific detail.

Diamond Head State Monument is located within the Primary Urban Center (PUC) Development Plan. This Plan, updated in 2004, includes the vision, policies, and guidelines to guide public policy, investment, and decision-making within the PUC through the 2025 planning horizon (City, 2004).

Under this Development Plan's Land Use Map, Diamond Head State Monument is designated as "Preservation". Lands designated Preservation consists primarily of State Conservation District classified lands which are outside of the Development Plan's urban community boundary. Figure 1.4 graphically shows the Development Plan's land use designations for Diamond Head State Monument, which includes the project area, along with the surrounding area. Discussion of the project's consistency with this Development Plan is provided in a later chapter of this document.

1.3.3 City and County Zoning Districts

All lands within the City are categorized, or zoned, into specific districts. These districts and the land uses permitted within them are regulated under the City's Land Use Ordinance (Chapter 21, Revised Ordinances of Honolulu), and are shown on zoning maps. The purpose of the Land Use Ordinance is to regulate land use in a manner which encourages orderly development in accordance with adopted land use policies, and to protect and promote public health, safety, and welfare. This Land Use Ordinance addresses a wide range of development and design standards, permitted uses, administration, and procedures for zone changes or other approvals.



PRIMARY URBAN CENTER DEVELOPMENT PLAN LAND USE MAP (PUC - EAST)

Figure 1.4

Diamond Head Public Safety Radio Station Master Plan
State Civil Defense, Department of Defense, State of Hawai'i

Source:
City & County of Honolulu, PUC Development Plan (June 2004)

Diamond Head Crater in its entirety is zoned P-1, Restricted Preservation based upon the City's Zoning Map No. 2, Kahala-Kuliouou. As a result, the project area is situated within this P-1, Restricted Preservation District. This zoning district classification is intended for lands within State land use designated Conservation District areas.

Surrounding areas to the east are zoned P-2, General Preservation (Kapi‘olani Community College), and R-5, Residential (Waialae/Kahala area). To the south, the Black Point residential area is zoned R-7.5, Residential. The northern flank of Diamond Head is the location of the old Cannon Club, and is zoned F-1, Federal, with the western flanks of Diamond Head zoned R-20, Residential (La Pietra School area).

Lands within the City's P-1, Restricted Preservation, zoning district classification are governed by the appropriate State agency. As a result, the regulation of all permitted uses, structures and development standards fall under the jurisdiction of the State Board of Land and Natural Resources under Title 13, Chapter 5, Conservation District, HAR. Therefore, the proposed project would not be subject to these zoning district requirements and development standards.

1.3.4 Diamond Head Special District

Chapter 21, Revised Ordinances of Honolulu (ROH) establishes Special Districts designated for various areas throughout the Island of Oahu. These Special Districts are established to provide certain areas in the community in need of restoration, preservation, redevelopment, or rejuvenation, to be designated in order to guide development to protect and/or enhance the physical and visual aspects of an area for the benefit of the community (Sec. 21-9.20, ROH).

Diamond Head State Monument, including the crater floor, is located within the Diamond Head Special District as prescribed under Section 21-9.40 of the ROH. The boundary of this special district also encompasses several other areas which generally includes Ala Wai Golf Course, portions of Kapahulu, Kapi‘olani Park and surrounding areas, and portions of Kahala.

As previously discussed, the Diamond Head State Monument is zoned P-1, Restricted Preservation district, and subsequently falls under the jurisdiction of the State Board of Land and Natural Resources under Title 13, Chapter 5, Conservation District, HAR. Therefore, the design controls and activities regulated under the Diamond Head Special District (§21-9.40, ROH) are not applicable for uses and activities within the Diamond Head State Monument. Thus, the proposed project would not be subject to these special district requirements.

1.3.5 Special Management Area

Under Chapter 205A (Coastal Zone Management) of HRS, the City and County of Honolulu is given authorization to regulate land uses located within the established Special Management Area (SMA) for the Island of Oahu. Review of the City's SMA map for the Diamond Head area shows that the entire Diamond Head State Monument is situated within the City's Special Management Area. Figure 1.5 graphically presents the proposed project area in relation to the SMA boundaries.

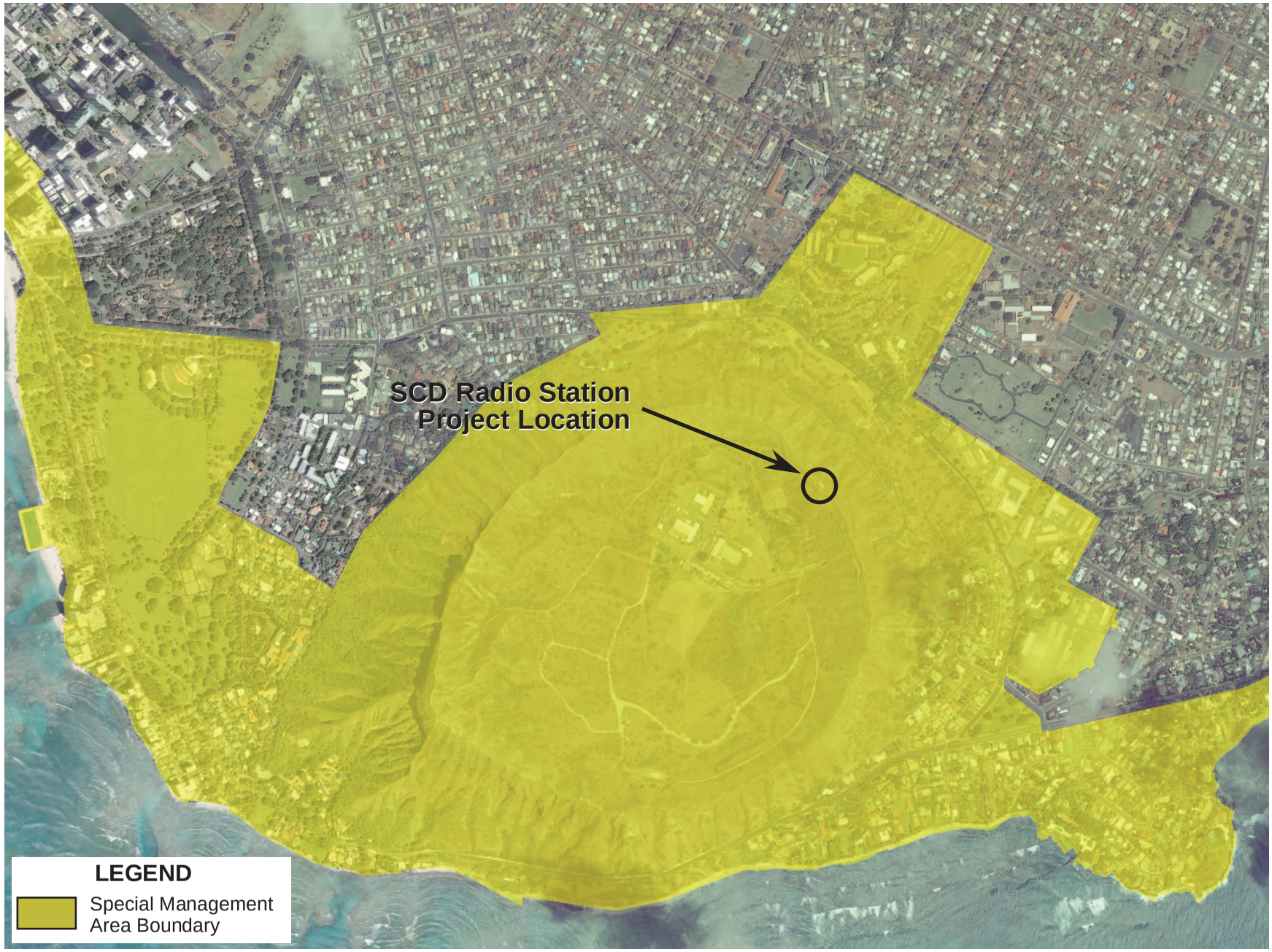
The City Department of Planning and Permitting has determined that this project is exempt from the definition of "development" as stated in Section 205A-22, Hawai'i Revised Statutes, as amended by Act 76 effective May 17, 2004, and therefore exempt from City SMA requirements. A copy of the related correspondence is included in Appendix B.

1.3.6 Diamond Head State Monument Master Plan

Preparation of the original Diamond Head Master Plan was initiated in 1977 to plan, define, and develop an expanded Diamond Head State Monument. The official Master Plan was accepted by the Board of Land and Natural Resources in 1979, and subsequently adopted by the Legislature as the official document guiding the future of the Diamond Head State Monument. The resulting plan represents a culmination and consensus of recommendations provided by both public and private entities.

Since the Master Plan's adoption in 1979, the Diamond Head State Monument has become one of the State's most popular visitor attractions, receiving approximately 800,000 visitors per year compared to just 40,000 in 1980. The significant increase in use created an urgent need to develop the Monument to accommodate larger numbers of visitors while protecting the site's natural and historic resources. To address this issue, an update to the 1979 Master Plan was initiated in 1997. An Environmental Impact Statement for the Diamond Head State Monument Master Plan Update was completed in September 2000, and the Master Plan Update report was completed in July 2003.

The Master Plan Update identifies several elements critical to the preservation of the crater as a natural, cultural, historical, and recreational resource. It establishes plans and designs for the incremental development of the Monument, including a visitor/interpretive center. Detailed descriptions of the Master Plan elements, as well as the project's consistency with the plans and policies established by this Master Plan, are provided in Chapter 7 of this document.



SPECIAL MANAGEMENT AREA BOUNDARY MAP

Figure 1.5

Diamond Head Public Safety Radio Station Master Plan
State Civil Defense, Department of Defense, State of Hawai'i

Source:
Digital Global Aerial (2005)
City & County of Honolulu, GIS Data (2006)

CHAPTER 2
PROJECT DESCRIPTION

2.1 PROJECT LOCATION AND VICINITY

The improvements proposed for SCD Public Safety Radio Station project would occur entirely within the Diamond Head State Monument situated on the southeastern end of the Island of Oahu. The primary thoroughfare in the immediate area of the crater is Diamond Head Road, which is a County roadway generally circling the crater and providing vehicular access into the crater. Within Diamond Head State Monument are a number of roadways that provide access to the recreational area, and areas utilized by some State agencies.

Diamond Head State Monument is located within the City's Primary Urban Center (PUC) Development Plan area. This is a large area generally bounded to the north (inland or mauka) by the southern flanks of the Koʻolau Mountain Range and to the south (seaward or makai) by the shoreline. This district includes the entire area extending from Āliamanu Crater near Red Hill in the west towards Hawaiʻi Kai in the east.

The PUC area has a firmly established urban character essentially consisting of suburban-like residential communities surrounding the metropolitan area of downtown Honolulu, and the tourist destination area of Waikīkī. Moving further inland towards the Koʻolau Mountains, are a number of valleys where residential communities such as Moanalua, Kalihi, Pauoa, Mānoa, and Pālolo, are located. The major commercial and business districts of Honolulu are also located within the PUC area.

2.1.1 Existing Surrounding Uses

Several established predominantly residential communities surround Diamond Head State Monument consisting of Kahala and Kaimukī to the north and east, and Kapahulu and the Waikiki resort district to the west. These residential communities surrounding Diamond Head Crater generally consist of predominantly moderate to more affluent residences such as those associated with Kahala and along the shoreline fronting Diamond Head Crater.

Surrounding Diamond Head Crater are a number of parks, and educational institutions such as Diamond Head Beach Park, Fort Ruger Park, Kapiolani Park, Kīlauea Recreational Park, Kapāolono Field, Kapiʻolani Community College, and Kaimukī Middle (Intermediate) School. Other notable land uses in the surrounding vicinity include the Honolulu Zoo and the Waikiki resort district. Figure 2.1 shows the project site within Diamond Head State Monument in relation to the surrounding community in the immediate vicinity.

DIAMOND HEAD STATE MONUMENT VICINITY MAP

Figure 2.1

Diamond Head Public Safety Radio Station Master Plan
State Civil Defense, Department of Defense, State of Hawai'i

Source:
Digital Global Aerial (2005)

2.1.2 Diamond Head State Monument

Diamond Head Crater, which is also known as Lē‘ahi, consists of a nearly circular crater about two-thirds of a mile in diameter situated on the southern coastline of the Island of O‘ahu. The improvements planned under the master plan for the Public Safety Radio Station Project would be located on the northeastern end of Diamond Head Crater generally along the interior slopes of the crater and at the former FAA Link Site situated near the crater rim.

Formed approximately 300,000 years ago by a single volcanic eruption, Diamond Head consists of an extinct volcanic tuff cone that has a variable-height rim surrounding the recessed interior area. This interior area is accessible via two tunnels which are the Kapahulu Tunnel and Kahala Tunnel. The Kahala Tunnel is currently open to visitors and the general public. The highest point on Diamond Head is the southwest rim known as the Lē‘ahi Summit. The lookout provided at this summit provides visitors with a spectacular panorama of the coastline after climbing a steep trail and stairway system.

The interior crater floor is an extensive open space area that has several buildings and accessory structures present which are used by the Hawai‘i Army National Guard and State Civil Defense. A recreational area is also established for visitors which consists of an information kiosk, comfort station, toll booth, bus shelter, and 0.8-mile hiking trail that leads to Lē‘ahi Summit approximately 761 feet above sea level.

Establishment as State Monument

Diamond Head Crater was historically used by the Federal government as a site for coastal defense starting in 1904. By 1943, five Batteries used to house coastal artillery were built within the crater and exterior slopes. In 1961, the Federal Aviation Administration (FAA) established offices within the crater and erected a tracking station for trans-pacific flights.

Diamond Head was first officially established as the Diamond Head State Monument under Executive Order 2000 in 1962. This initial designation covered about 145 acres in a horseshoe configuration preserving this landmark’s famous profile, and the south and west exterior slopes from the crater rim down to Diamond Head Road.

In 1968, the Monument was designated as a National Natural Landmark, and the boundaries of the Monument were extended to include approximately 415 acres. Subsequently, Executive Orders 3642, 3688, and 3743 added additional lands to this Monument resulting in an area of approximately 475 acres. Recently, Executive Order 3918 added the approximately 7.0-acre Cannon Club site (TMK: 3-01-042: 011) to this Monument increasing the total area to 482 acres.

In 1976, the Division of State Parks, Department of Land and Natural Resources (DLNR) became the agency generally responsible for the planning and management of the Diamond Head State Monument. The State DOD is responsible for the management of their facilities, accessory structures, and areas under their jurisdiction within this Monument.

2.2 PROJECT SITE AND EXISTING CONDITIONS

2.2.1 State Civil Defense Background

The SCD operates from the Birkhimer Battery located on the northeastern end of Diamond Head State Monument near the Kahala Tunnel's entrance. As part of their agency duties and responsibilities, they manage the operations and activities associated with radio equipment and antennas present within the crater that are utilized by several Federal, State, and City agencies.

These radio equipments are located within several former military batteries along Diamond Head Crater, and their associated antennas are similarly present along the crater rim. These SCD facilities include; 1) Battery Hulings, 2) Battery Harlow, and 3) Battery Dodge, which are all generally located on the northeastern end of the crater rim. Figure 2.2 shows the general locations for these facilities.

Radio Equipment And Antennas

Radio equipment such as transmitters and receivers are currently housed in Birkhimer Tunnel located on the eastern rim of the Diamond Head Crater and two batteries identified as Dodge and Hulings Vault III. The equipment are owned and maintained by a number of agencies including the Federal Government, various State agencies, and the City.

Antennas for these transmitters and receivers are located in various locations on the crater rim, primarily on the eastern rim in close proximity to Batteries Dodge and Hulings. A number of antennas, utility poles, and microwave dishes are also located at the proposed project site as well. Figure 2.3 identifies the general locations of these instruments. Figures 2.4 and 2.5 include photographs of some antennas.

It should be noted that all radio equipment and associated antennas are for the use and activities of various authorized government agencies. No private companies, such as cellular telephone companies, are permitted to have radio equipment or antennas within the crater. A listing of the various government agencies with radio equipment and/or antennas within Diamond Head State Monument is provided below.

Federal Agencies

Air Force
Department of Army
Department of Transportation, Federal Aviation Administration
Department of Treasury, U.S. Customs Service
National Oceanic and Atmospheric Administration
Secret Service

State Agencies

Department of Defense, Hawaii Air National Guard
Department of Defense, Hawaii Army National Guard
Department of Defense – State Civil Defense
Department of Land and Natural Resources
Department of Public Safety, Sheriff's Division

City Agencies and Others

American Red Cross
Emergency Amateur Radio Club
Honolulu Fire Department
Oahu Civil Defense Agency
Radio Amateur Civil Emergency Services

EXISTING FACILITIES MAP

Figure 2.2

Diamond Head Public Safety Radio Station Master Plan
State Civil Defense, Department of Defense, State of Hawai'i

Source:
Digital Globe Aerial (2005)

Battery Dodge

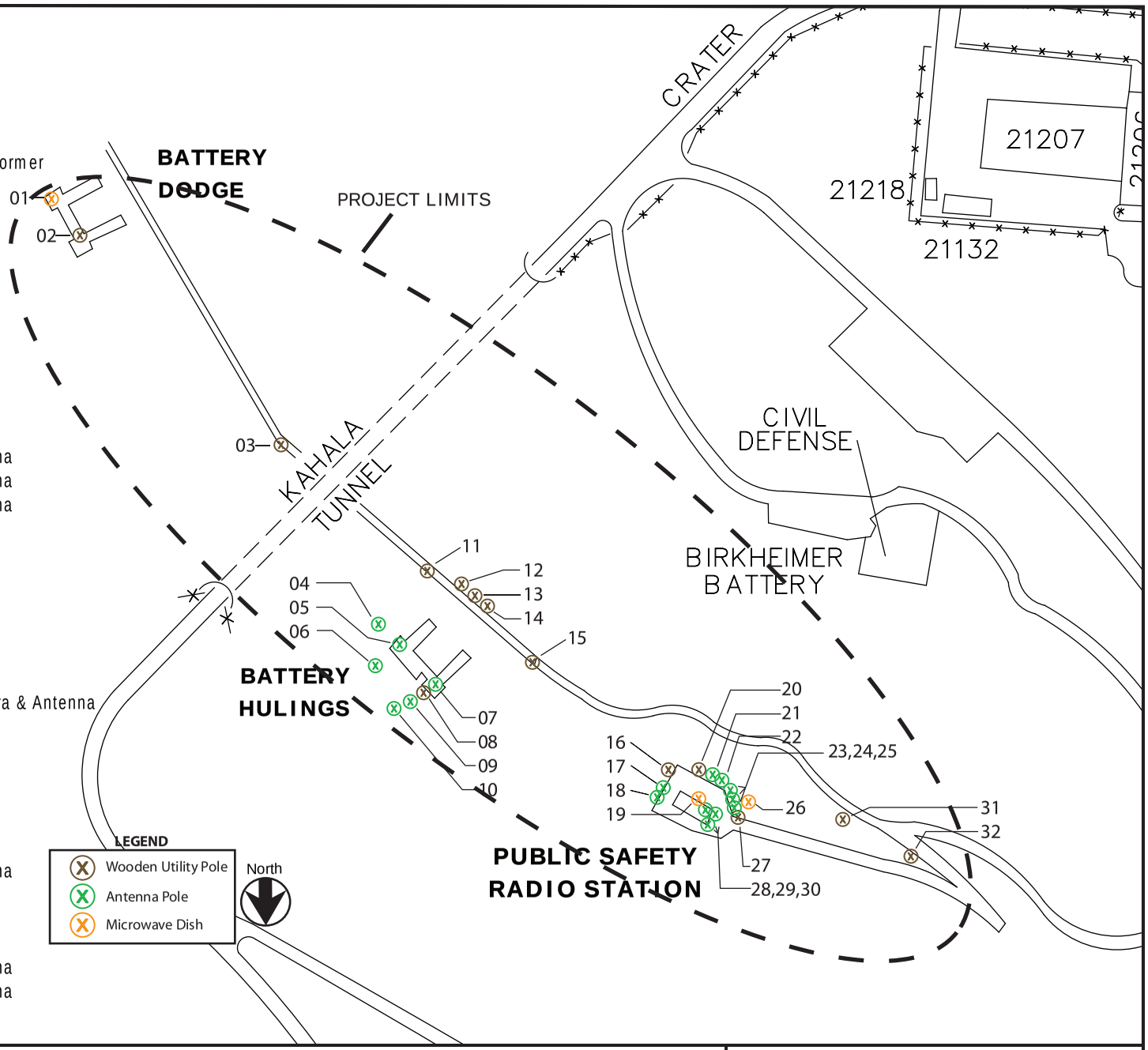
Structure	Structure Type
01	Microwave Dish
02	Wood Utility Pole w/ Transformer
03	Wood Utility Pole

Battery Hulings

04	Antenna Pole
05	Antenna Pole
06	Antenna Pole
07	Antenna Pole
08	Wood Utility Pole
09	Antenna Pole
10	Antenna Pole
11	Wood Utility Pole
12	Wood Utility Pole w/ Antenna
13	Wood Utility Pole w/ Antenna
14	Wood Utility Pole w/ Antenna
15	Wood Utility Pole

Former FAA Link Site

16	Wood Utility Pole
17	Antenna Pole
18	Antenna Pole
19	Microwave Dish
20	Wood Utility Pole w/ Camera & Antenna
21	Antenna Pole
22	Antenna Pole
23	Antenna Pole
24	Antenna Pole
25	Antenna Pole
26	Microwave Dish (2)
27	Wood Utility Pole w/ Antenna
28	Antenna Pole
29	Antenna Pole
30	Antenna Pole
31	Wood Utility Pole w/ Antenna
32	Wood Utility Pole w/ Antenna



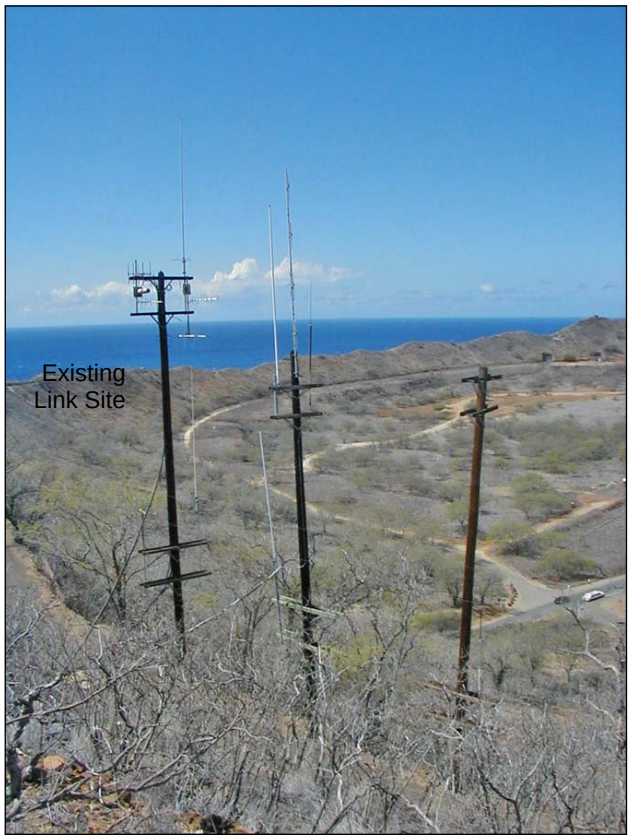
EXISTING STRUCTURES LOCATION MAP

Figure 2.3

Diamond Head Public Safety Radio Station Master Plan
State Civil Defense, Department of Defense, State of Hawai'i

Source:
Digital Globe Aerial (2005)
Cedric Chong & Assoc., Inc.

SSFM INTERNATIONAL



View of Antennas at Battery Hulings Entrance

View of Battery Hulings Antennas on Crater Rim

View of Battery Hulings Antennas on Crater

View of Antenna at Battery Dodge

VIEWS OF EXISTING ANTENNAS AT BATTERIES HULINGS AND DODGE

Figure 2.4

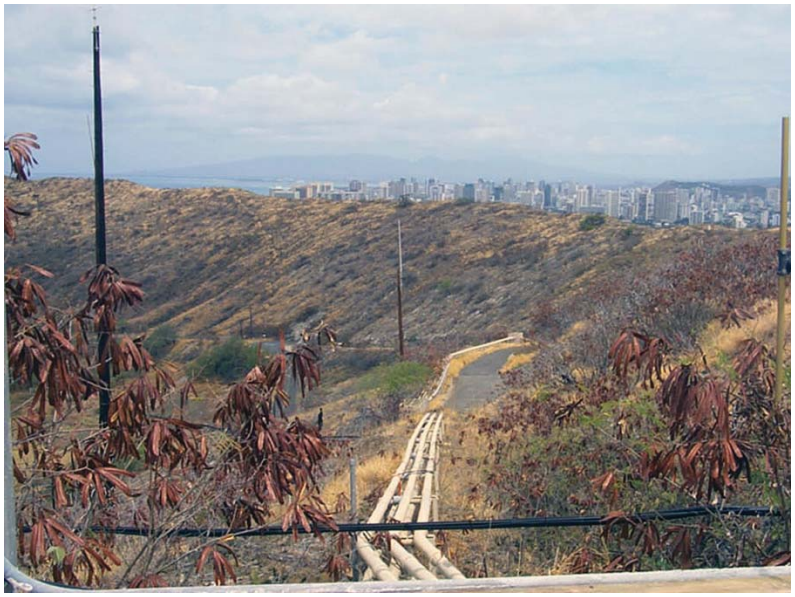
Diamond Head Public Safety Radio Station Master Plan
State Civil Defense, Department of Defense, State of Hawai'i

Source:
SSFM International, Inc.

View of Antennas on Link Site Building

View of Antennas at Link Site Facility

View of Antennas Near Link Site Building



View of Antennas Along Link Site Access Road

VIEWS OF EXISTING ANTENNAS AT LINK SITE

Figure 2.5

Diamond Head Public Safety Radio Station Master Plan
State Civil Defense, Department of Defense, State of Hawai'i

Source:
SSFM International, Inc.

SSFM INTERNATIONAL

The former FAA Link Site building is shared with other Federal, State, and County agencies for their critical equipment. Any interruption to this equipment will affect air traffic control, emergency management and Homeland Security operations. Access to the site must be available on a 24 hour, 7 day a week basis for equipment maintenance and restoration. Any added security measures will need to be coordinated with all of the affected government agencies.

Existing utilities serving SCD controlled facilities include overhead electrical lines on several wooden utility poles present along the crater rim and serving facilities located along the access road leading up to the link site. Emergency or backup power is to be provided by engine generator for all Link Site building equipment.

2.2.2 Existing Link Site Facility and Background

The planned SCD Public Safety Radio Station site is located on the northeastern, interior slopes of the crater, within the boundaries of Diamond Head State Monument. This radio station site encompasses a parcel of 0.29 acres (12,632 square feet) of land, and consists of a single-story concrete building, several existing radio antennas, and a paved parking lot.

Background on FAA Link Site

The planned radio station site was formerly used by the FAA as a communications Link Site for air traffic control. The building within this parcel was subsequently referred to the as the "Link Site" building. FAA also had a large building complex on the crater floor. However, this FAA building has since been demolished in 2001. The clearing of this building occurred as part of FAA relocating their air traffic control facilities to another area on the island (see photo ►). This site now consists of a flat vacant area on the crater floor.


Former FAA Building on Diamond Head Crater Floor (2001)

With FAA relocating from Diamond Head, the existing Link Site building has become available for use. As a result, the SCD is proposing to renovate and utilize this building as the new Public Safety Radio Station site allowing for the consolidation of radio equipment within this building. The other area associated with this site will also be used for the consolidation of radio antenna. SCD coordinated the planned use of this building with FAA during their relocation of air traffic control facilities from Diamond Head State Monument.

Existing Link Site Facility

The 0.29-acre parcel for the planned radio station site presently consists of the former FAA link site building, several radio antennas which are in operation, and a paved parking area. Although the FAA for the most part, has vacated its use of this building, it is still being used for certain equipment critical to the National Air Space and by various Federal, State, and County agencies for their emergency management and Homeland Security operations.

The existing building is a single-story structure with a rectangular shape, and is approximately 1,072 square feet in size. The height of this building is about 10 feet tall. There are several radio antennas attached to this building which are currently being utilized by other government agencies (see photo ►).


Existing "Link Site" Building on Diamond Head Crater Rim

There are several radio antennas located at this radio station site presently being utilized by various government agencies as shown on the photographs on previous figures. These antennas are generally situated near the driveway entrance to this site and on the paved parking area along the inner (makai) boundary of the site. The base structures supporting these antennas vary in height, but they do not meet the current FCC height requirement for transmitting antennas.

A paved parking area is provided at this site which is connected to a one-lane paved access road from the SCD Birkheimer Battery. This access road is gated at its intersection with the Kapahulu Tunnel. An underground electrical vault is also present to serve the radio equipment and antennas. Above-ground conduit lines are located along the access road generally extending from the Kapahulu Tunnel access road to this electrical vault.

The area surrounding this radio station site is predominantly undeveloped since it is located near the crater rim. As a result, the existing environment consists of vegetation and conditions similar to other areas of the crater. A paved access road runs southeast along the crater wall past this site to the other Batteries, and there are several wooden utility poles with lines situated along this access road and on the crater rim.

2.2.3 Property Ownership

All parcels comprising the Diamond Head State Monument are owned by the State of Hawai‘i. The Monument includes nearly 500 acres of land that were covered under Executive Order No. 2000 (1962), No. 3642 (1995), and No. 3688 (1996). Executive Order No. 3688 overlaps parcels under Executive Order No. 1997 which is under the State DOD.

The Tax Map Key (TMK) numbers for these parcels are: 3-01-042: 006, 008, 010, 014, 017, 021, 023, 024, 025, 037, and 038. Executive Order No. 3743 (1998) added TMK: 3-01-035: 022 and 023 (DLNR, 2003). Executive Order No. 3918 (2002) added about 7.0 acres of land comprising the Cannon Club as used by the U.S. Army and identified as TMK: 3-01-042: 011 (DLNR, 2003).

There are other land parcels identified for future inclusion into the Monument, however, these parcels have yet to be incorporated. These parcels include

- About two (2) acres of land currently used as a State Parks baseyard along Diamond Head Road as identified as TMK: 3-1-42: portion of parcel 20.
- About 3.4 acres of land that up until recently had been used by the FAA within the Crater identified as TMK: 3-01-042: 015.

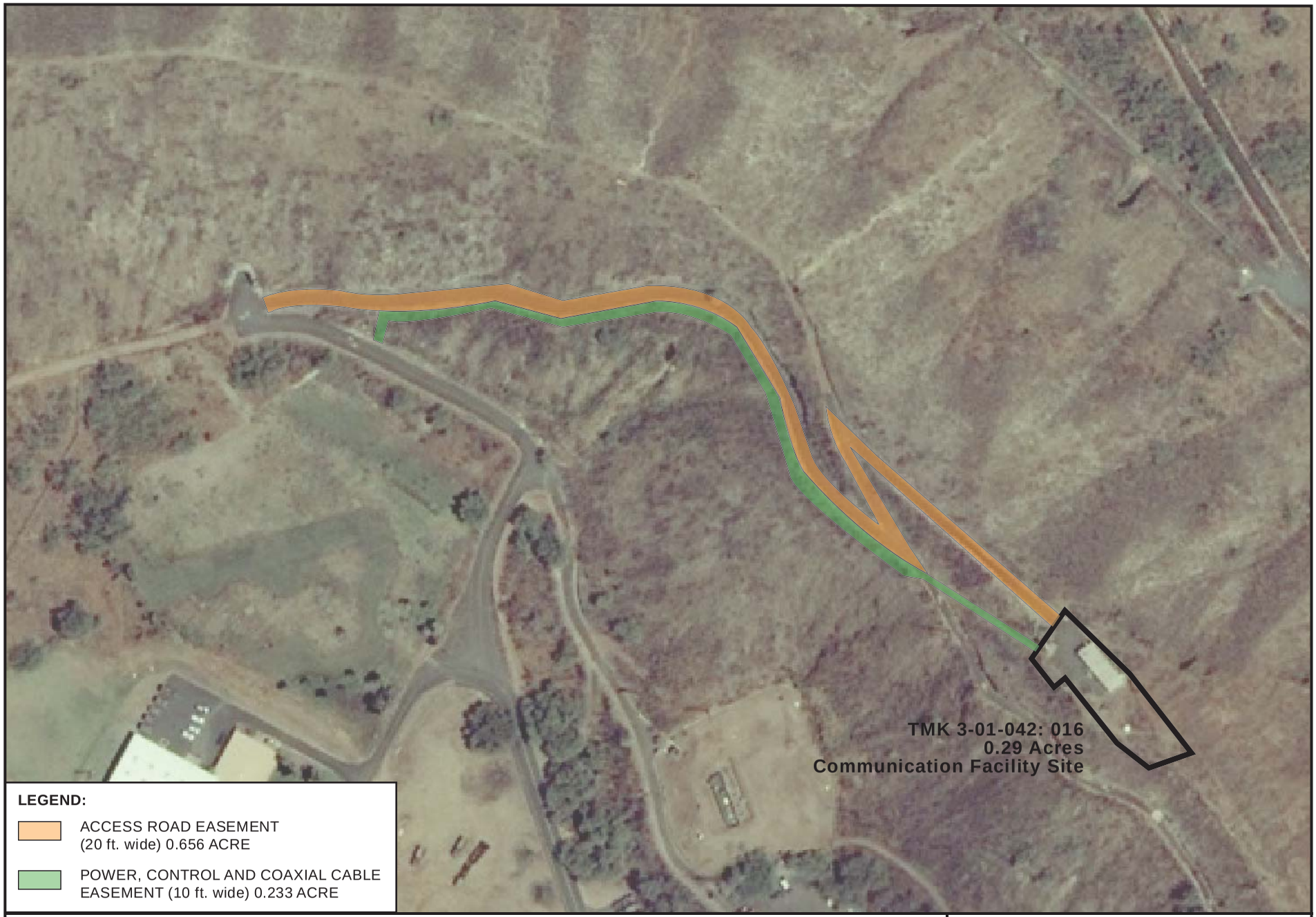
Radio Station Site Executive Order No. 4055

The currently proposed radio station site, that was formerly FAA’s link site, is identified as TMK 3-01-042: 016 (0.29 acres). Recently, an Executive Order was enacted on June 28, 2004 conveying this site from the FAA to the State Department of Defense. In addition, this Executive Order included a 20-foot-wide easement for the access road leading to this site (0.656 acre), and a 10-foot-wide easement for the above ground conduits (0.233 acre).

A total of 1.179 acres has therefore been included under Executive Order No. 4055, and identifies this area as Communication Facility Site. This Order designates the control and management of this area to the State of Hawaii, Department of Defense, Civil Defense Division. Figure 2.6 shows the area designated for this communication facility site under this Executive Order.

2.3 PROJECT NEED AND OBJECTIVES

The State Civil Defense is initiating this consolidation project to improve their ability to manage existing radio equipment and antennas within Diamond Head State Monument. The equipment and antennas consolidation and other planned accessory improvements will help support their mission to prepare for and respond to disasters and emergencies. In supporting homeland security efforts, public safety, and emergency management activities for the State of Hawai‘i, the SCD needs to ensure that important facilities, such as these radio equipment and antennas, are properly managed and maintained because they are vital to the operations of other Federal, State, and County agencies.



STATE CIVIL DEFENSE RADIO STATION SITE AND EASEMENT UNDER EXECUTIVE ORDER NO. 4055

Diamond Head Public Safety Radio Station Master Plan
State Civil Defense, Department of Defense, State of Hawai'i

Figure 2.6

Source:
Digital Globe Aerial (2005)
State DLNR (EO 4055)

Other important reasons for completing this project are:

- Bring the Radio Station into full compliance with FCC regulations associated with height requirements for transmiting antennas.
- Support the Diamond Head State Monument Master Plan Update plan to utilize Battery Dodge as a visitor attraction, and allow Battery Hulings to be utilized as well.
- Improve existing views of Diamond Head by removing existing utility poles from the crater rim, and placing above ground electrical conduits underground.

As noted, the SCD has developed a "Diamond Head Public Safety Radio Station Consolidation Master Plan" to identify specific radio and antenna consolidation and other accessory improvements that would be phased to occur over a 15-year period. This Master Plan was completed in January 2006 and is inteneded to serve as a guide for the funding and construction of these improvements during this timeframe.

A detailed description of the planned improvements that are included in this project is provided in Section 2.4. The reasons for making them, as outlined above, are described in more detail immediately below.

Improve Management and Maintenance of Facilities

Presently, radio equipment are located in both Batteries Dodge and Hulings making it less efficient to manage these sites and ensure their security. Radio antennas are also spread over several areas along the northeastern end of the crater rim. The maintenance of these facilities is not efficient, and access to them is more easily available to the general public increasing the security risk.

Therefore, the consolidation plan would centralize all radio equipment and antennas in a single location managed by SCD. The project site's location also affords unique communications coverage for much of the most populated areas of O'ahu which are the southern and eastern ends of the island. This consolidation would permit SCD to better control access to this facility for the maintenance of radio equipment and antennas. Security at this single site will also be improved since it can be better monitored and public access can be limited or restricted. A security camera present at the Public Safety Radio Station site and controlled by SCD staff will facilitate this security of the building and antennas.

Compliance with FCC Regulations

Current FCC regulations require the base of all transmitting antennas to be located 10 meters (about 33 feet) above the ground. Presently, very few of the existing antennas on Diamond Head meet this requirement. Therefore, SCD needs to bring all existing transmission antennas into compliance with these regulations.

Implementing this requirement without the proposed consolidation plan will require installing several large utility poles along the crater rim so that transmission antennas can be

raised to meet height requirements. This will affect current views of the crater rim due to the height, size, and color of such utility poles.

Thus, existing antennas on the crater rim need to be modified to comply with these regulations. These antennas are consequently being addressed under the proposed Master Plan associated with this Public Safety Radio Station Project. Relocating and consolidating these antennas to the Radio Station site will allow them to be constructed to meet the FCC requirements. Consequently, a comprehensive hazard study is not required or warranted. The photos below show an example of antennas likely to not be in compliance and one that is likely compliant.

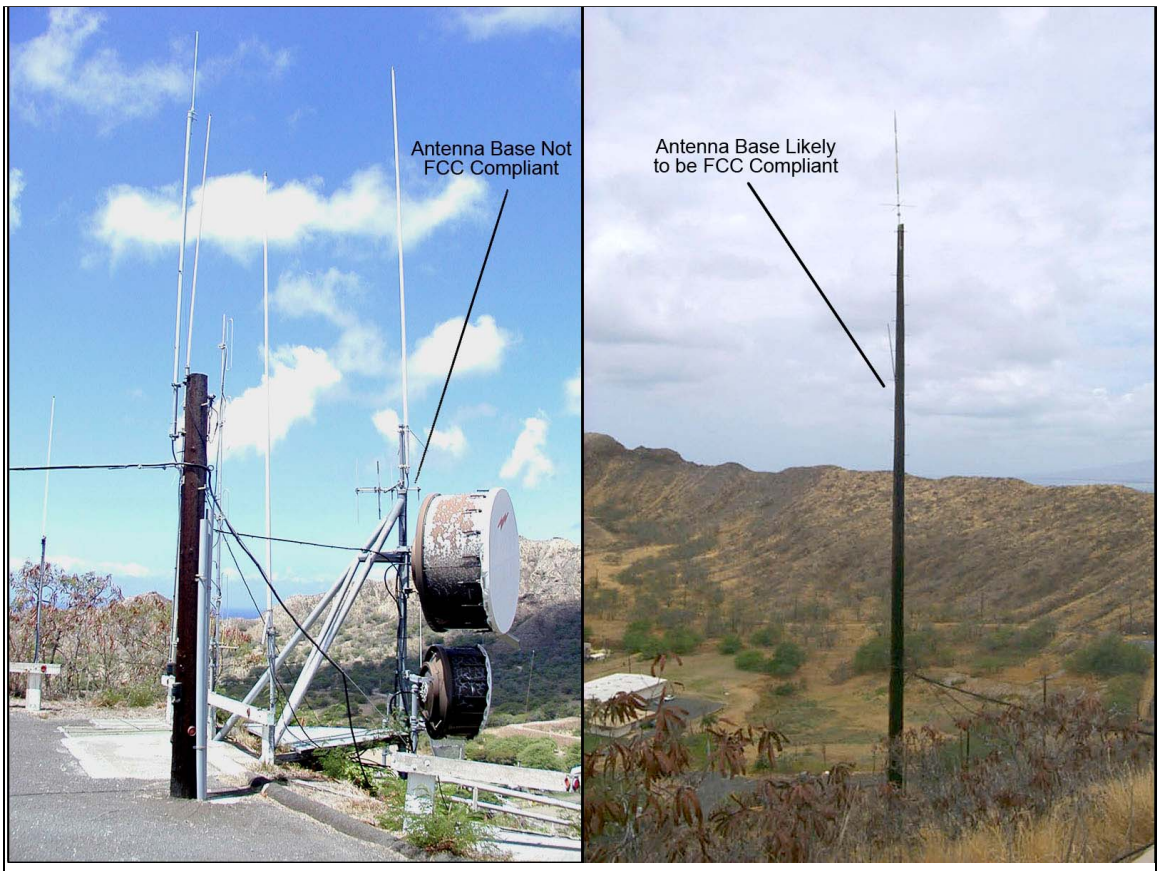


Photo Comparison of Antennas with FCC Height Requirements

These antenna poles would be located on the Radio Station building and generally within the paved parking area associated with this site. The pole structures used to hold these antennas can be designed to be less visually obtrusive since the large wooden dark colored utility poles would not be necessary. Some of the antenna pole structures will also have crossbars to allow them to hold multiple transmission and receiving antennas. Over time, the number of antenna structures may be reduced due to the possible use of shared antennas and enhanced radio equipment resulting from improved technology.

Support Diamond Head State Monument Master Plan

The Diamond Head State Monument Master Plan Update (DLNR, 2003)[2] developed an updated master plan which is similar to the original 1979 Master Plan since many of the major elements have been incorporated. In addition, this updated master plan included several other improvements to support the projected increase in visitors to this Monument since 1979. Those improvements pertinent to this SCD consolidation master plan are:

- Opening the road/trail from the FAA Link Site to the retractable searchlight on the southeastern edge of the crater rim;
- Utilizing Battery Dodge and the gun emplacements along the eastern edge of the crater as lookouts; and
- Removing the overhead utility lines between Battery Birkhimer and the crater rim and relocating them to the aboveground conduits to the Link Site. Eventually, the SCD will replace these above ground conduits with underground conduits.

The project improvements planned under this project will support the Diamond Head State Monument Master Plan improvement objectives. Relocating existing radio equipment to the centralized location of the Radio Station site will allow for both Batteries Dodge and Hulings to be used for crater lookouts and visitor interpretive purposes. Without this consolidation of radio equipment, these Batteries would have to remain closed to the public.

The Radio Station site will be secured and have security surveillance, therefore, the proposed pedestrian trail along this site to the retractable searchlight on the crater rim can be accommodated. The radio antennas will be consolidated to this site to ensure security and for easier maintenance. Without these improvements, the opening of the trail will cause security concerns and issues for SCD due to increased public accessibility to these radio equipment and antennas.

Finally, several of the existing overhead utility lines between Battery Birkhimer and the crater rim are proposed to be removed under this Master Plan which implements an objective of the updated Monument master plan. These utility lines would not be needed because the radio equipment and antennas would be consolidated at a single location. The existing above ground conduits leading up to the Radio Station site will provide sufficient electrical service. Furthermore, these conduits are planned to be placed underground further improving views of the crater.

Amendment of the Diamond Head State Monument Master Plan to incorporate this project will be an important step in facilitating SCD's ability to program and secure the necessary funding to implement the proposed improvements over the planned 15-year period. Such amendments may be adopted by the Board of Land and Natural Resources in accordance with

[2] State of Hawai'i, Department of Land and Natural Resources. July 2003. *Diamond Head State Monument Master Plan Update*. Prepared by PBR Hawaii. Honolulu, Hawai'i.

the provisions of Chapter 6E-32 HRS. Proposed amendments are subject to the review and recommendation of a Citizens Advisory Committee (CAC) prior to their consideration and adoption by the Board.

Improve Views of Diamond Head

As already discussed, the consolidation of radio antennas to the new Radio Station site will allow for the removal of several existing utility poles and structures present along the crater rim supporting existing antennas. Without the consolidation of these antennas, these existing utility poles will need to be raised up to a height of 10 meters (33 feet) to accommodate the transmitting antennas placed on top of them. These dark wooden utility poles are most visible along the Diamond Head crater, and will thus become more visually obtrusive.

The antenna consolidation will improve views of Diamond Head crater because these existing utility poles would be removed. New antenna poles will be located on the Radio Station building and within the paved parking area. Structures holding these antennas will be designed to be less visually obtrusive, and some will be able to hold multiple transmission antennas thereby reducing the total number of poles required. Over time, the number of antenna structures may also be reduced due to use of shared antennas and improved technology for radio equipment.

Other components of this project include removing existing overhead utility lines and associated poles from the crater in the area near Battery Birkhimer. The existing above ground conduits along the access road to the Radio Station site will be placed underground and new underground electrical and communication conduits will be constructed to support the radio equipment. These improvements will further improve views of the Diamond Head crater from both within and outside of the crater.

2.4 DESCRIPTION OF PROJECT

2.4.1 Consolidation Improvements

This project involves the consolidation at a single site of existing radio equipment and antennas within the Diamond Head Monument. The improvements are planned to occur over the next 15 years. These existing equipment and antennas will be relocated and consolidated to the former FAA link site building on Diamond Head crater. This building and site will subsequently be known as the State Civil Defense Public Safety Radio Station site. There will also be other accessory improvements, such as the removal of existing utility poles, and the relocation of current above ground conduits underground.

The following main components of this project are listed and discussed in greater detail below. Figure 2.7 shows a Site Plan for the Public Safety Radio Station site.

1. Renovation of the former FAA link site building in converting it to the new Public Safety Radio Station site.

2. Consolidation of existing radio equipment from Batteries Dodge and Hulings to the new radio station site.
3. Consolidation of existing antennas to the radio station site, and installing bases for transmission antennas to comply with FCC regulations.
4. Removal of under-utilized utility poles and overhead lines on the crater rim in the area of the radio station site.
5. Relocation of existing above ground electrical conduits underground and installation of new underground electrical and communication conduits..
6. Provision of landscaping for the radio station site using native vegetation.
7. Provision of solar voltaic panels on radio station building roof to reduce electrical costs.

Radio Station Building Renovation

The public safety radio station building will consist of the renovation of the existing 1,072 square foot building formerly used by the FAA as a Link Site to provide communication services for air traffic control activities. Existing radio equipment currently located in Batteries Dodge and Hulings will then be relocated to this radio station building.

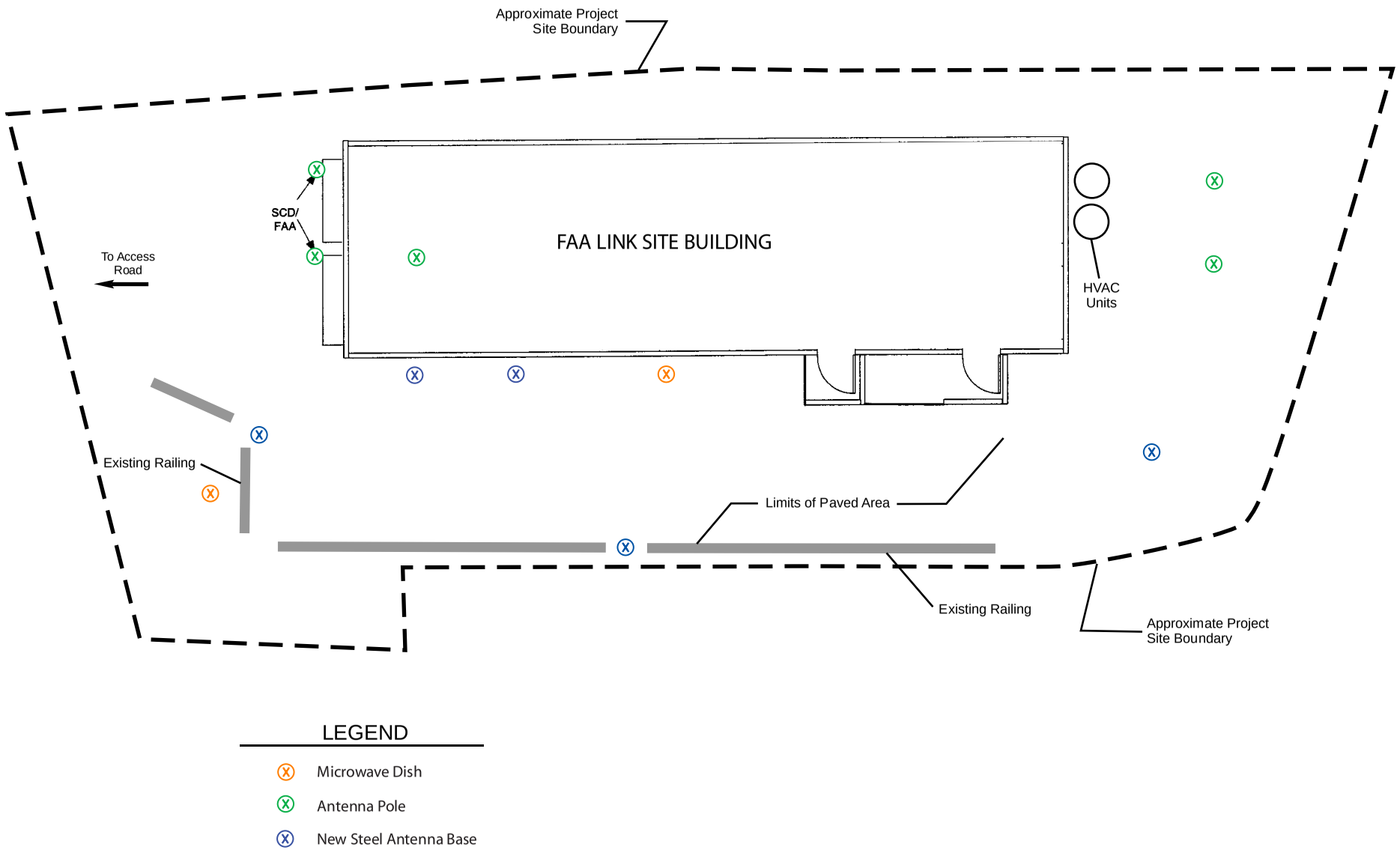
Renovation improvements to this single-story concrete building will predominantly include interior work so that radio equipment can be relocated there. As shown on the Site Plan, this building will have several racks constructed to hold the various radio equipment used by the different government agencies present. Other accessory improvements inside this building include providing new lighting along with electrical and cable wiring to serve the radio equipment. A generator room will be provided to serve as backup power for this facility.

Relocation of Radio Antennas

All of the existing radio antennas at Batteries Hulings and Dodge will be relocated to the public safety radio station site under this project. A total of 10 antenna structures will consequently be relocated from these two batteries. The total number of antennas affected will actually be more since several of these structures have multiple antennas located on them.

At the Radio Station site, there are also several existing antennas present which are located at various areas such as on wooden railings around the parking area, on the ground, and on the building itself. See photos below which identify some of these antennas. About eight (8) of these existing antennas will also be relocated to designated antenna structures established at the radio station site.

A total of 10 antenna structures are planned at this radio station site as shown on the Site Plan. These structures will consist of renovating the eight (8) existing poles currently there to meet FCC height requirements, and reconfiguring them to hold both transmitting and receiving antennas.

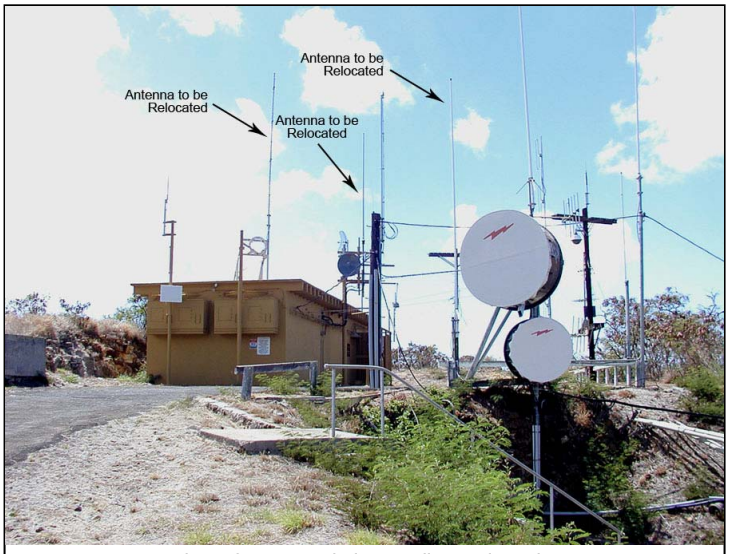


FUTURE SITE PLAN FOR PUBLIC RADIO STATION SITE

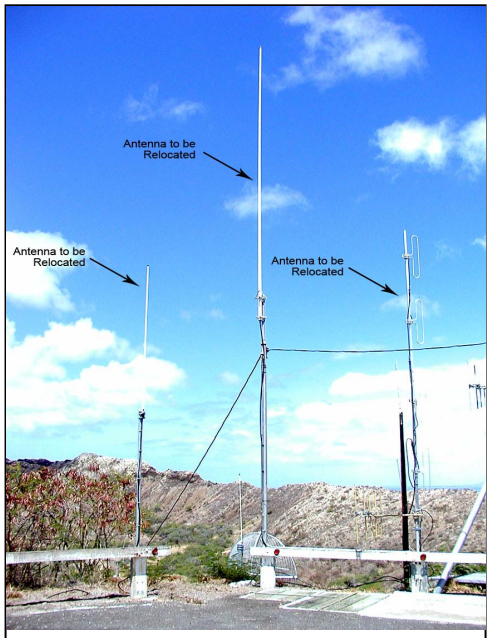
Figure 2.7

Diamond Head Public Safety Radio Station Master Plan
State Civil Defense, Department of Defense, State of Hawai'i

Source:
SSFM International, Inc.
State Civil Defense Agency, Dept. of Defence



View of Some Existing Radio Station Site
Antennas Being Relocated



View of Other Radio Station Site
Antennas Being Relocated

Existing wooden utility poles will be replaced with the steel poles. Two (2) steel poles will also be added to this radio station site to help accommodate the relocated antennas from Batteries Hulings and Dodge. There are also a few satellite dishes present at the radio station site which will remain under this project.

The Honolulu Police Department has also expressed an interest in relocating some antennas and equipment to the radio station site for their use from another site outside of Diamond Head. The Honolulu Police Department used to have equipment located within Diamond Head before, but had to relocate them to the present site due to a lack of space at that time. No firm plans have been developed at this time for their relocation back to Diamond Head, but the radio station site will have space to accommodate them when necessary.

In the future, the number of antennas and pole structures needed to accommodate them could be reduced due to the possible use of shared antennas and enhanced radio equipment resulting from improved technology in this field. No established plans have been developed to outline the specifics of this reduction in antennas since the technology is not available yet. However, this future potential modification to the antennas at the radio station site is noted for inclusion under the Diamond Head Public Safety Radio Station Consolidation Master Plan. Such future advances in technology would provide benefits to both government agencies using equipment in Diamond Head and the DLNR, State Parks Division in reducing facilities on the crater rim.

FCC Requirements for Antenna Bases

With the relocation of antennas to the Radio Station site, improvements will also be required to existing antenna structures there to meet FCC requirements. Radio antennas present on Diamond Head crater consist of both transmitting and receiving antennas. These FCC regulations require the antennas bases for transmitting antennas to be situated 10 meters (33 feet) above the ground. These transmitting antennas need to be placed at the required height because they emit power associated with the radio signals being transmitted. Therefore, all antenna structures present at this radio station site will be improved to meet this requirement.

A conceptual representation of how these antenna structures will typically be configured is shown on Figure 2.8. These structures will consist of steel poles having diameters of 8 to 12 inches. A top crossbar will be provided on this pole 33 feet above the ground in conformance with FCC requirements and will hold up to three (3) transmitting antennas. A second cross bar will be situated 10 to 15 feet above the ground to hold up to three (3) receiving antennas. These radio antennas will range in height from 6 to 8 feet. The steel antenna pole is planned to be painted light blue or another suitable color to blend in with the blue sky and thus minimize its view from the ground. To minimize visual impact, all new work (including relocated poles, new equipment, and the renovated building) may be painted a subdued, earth-tone color with a non-reflective finish to blend with the landscape.

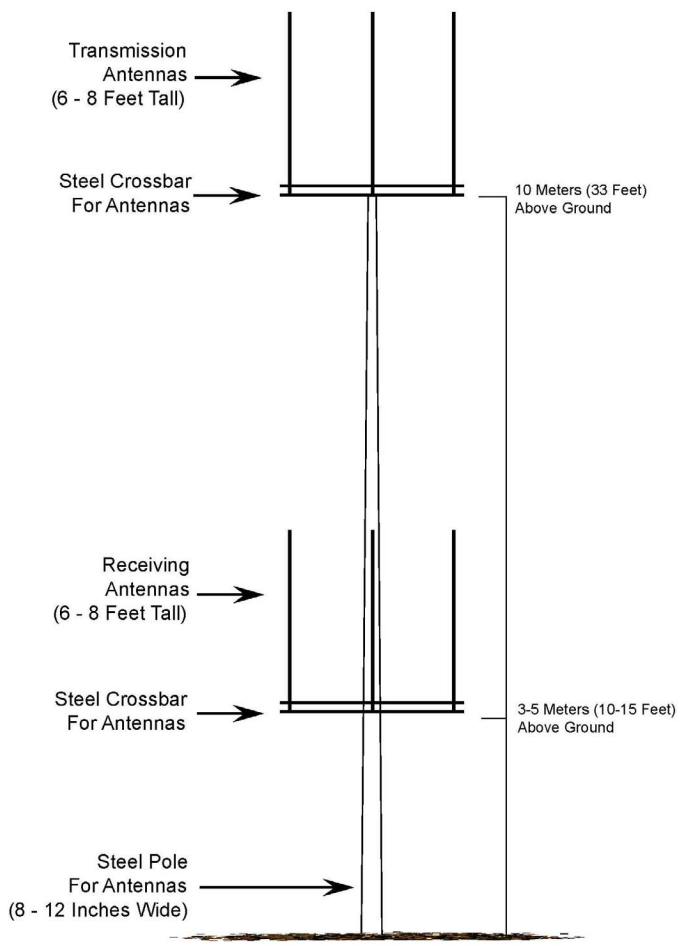


Figure 2.8. Conceptual Representation of Antenna Pole Configuration

Visual Implications with Relocated Antennas

The relocation of existing radio antennas to the Public Safety Radio Station site will change existing views along Diamond Head's crater rim in the area from this site to Batteries Hulings and Dodge situated east of the Kāhala Tunnel entrance. Overall, there should be a significant improvement to current views of

the crater rim because the antennas would be consolidated at a single location. The existing wooden utility poles at Batteries Hulings and Dodge would be removed thereby improving views of the crater rim by returning it to its more natural landscape. Furthermore, the steel poles used at the radio station site should be less visible than the large wooden utility poles present.

If the radio antennas were not consolidated to the Radio Station site, they would still need to be modified at their current locations to comply with FCC height requirements. Those wooden utility poles which do not meet the 33-foot (10 meters) height requirement would need to be raised to allow the transmitting antennas to be conforming. Increasing the height of these dark wooden utility poles would make them more noticeable negatively affecting views of the crater rim.

With the consolidation of antennas at the Radio Station site, some of the antennas mounted on the steel poles would be visible. However, they would be far less noticeable than if they were mounted on the darker wooden utility poles either at the radio station site or if left at their present locations. The steel poles, which can be painted light blue to blend with the blue sky or other appropriate color like earth-tone colors to be blended with the landscape which would make them more difficult to see, thereby minimizing visual effects. Chapter 3 discusses visual effects associated with this project in greater detail.

2.4.2 Other Accessory Improvements

Other improvements included under this project involve related accessory improvements associated with the radio station site and to improve views of Diamond Head crater in the project area. Accessory improvements planned include the following:

1. Security Gate. A security gate for the Radio Station site access road is already present at the Kapahulu Tunnel entrance. However, another security gate for this access road will be provided further up the crater at its junction with the access road leading to Batteries Hulings and Dodge to deter entry by unauthorized personnel. This additional security gate is required to provide more access control to the site because Batteries Hulings and Dodge will eventually be utilized for visitor amenities. The Diamond Head State Monument Master Plan also plans to open up and utilize the access road leading from these Batteries to the retractable searchlight site on the western end of the crater. Thus, visitor access along this road, or future trail, will increase and result in the need for more control over entry into the radio site.
2. Landscaping. Landscaping around the Radio Station site will be implemented using native vegetation or other suitable vegetation in consultation with the State DLNR. The purpose for the landscaping is to provide a visual screen around the inner (makai) portion of the site and to provide additional security by reducing public accessibility. Vegetation used will be tolorant of environmental conditions on the crater rim because no irrigation system is planned.

3. Solar Panels. Solar voltaic panel may be added to the roof of the radio station site building to reduce electrical demands and resulting costs. If installed, the solar voltaic panels should not protrude more than one (1) foot above the existing roofline and should not be visually noticeable.
4. Underground Conduits. Another improvement planned is placing a set of existing above ground electrical conduits underground. These conduits are currently routed along the access road leading to the radio station site from the Kapahulu Tunnel area, and are visually noticeable along the crater (see photo ►). Consequently, placing these conduits underground will increase their reliability, reduce the possibility for damage or vandalism, and improve the visual character of this area. These conduits will be placed within the SCD easement established under Executive Order No. 4055.


View of Above Ground Electrical Conduits

5. New underground electrical and communication conduits will be constructed to support the radio equipment. These new conduits will be placed within existing access and utility easements.
6. With the relocation of radio equipment and antennas to the radio station site, existing overhead utility lines presently serving Batteries Hulings and Dodge will no longer be required. The placing of electrical conduits along the access road underground and implementing other associated electrical improvements to the radio station site will also reduce the use of existing utility lines in the area. Therefore, the SCD plans to remove these soon to be under utilized wooden utility poles and overhead lines located in the project area (see photo ►). This would greatly improve views from the inside of the crater.


View of Existing Overhead Utility Lines and Poles on Crater Rim

7. Relocating existing radio equipment to the centralized location of the Radio Station site will allow for both Batteries Dodge and Hulings to be used for crater lookouts and visitor interpretive purposes. Without this consolidation of radio equipment, these batteries would remain closed to the public. The Radio Station site will be secured and have security surveillance, allowing the opening of the proposed pedestrian trail along this site to the retractable searchlight on the crater rim.

2.5 DEVELOPMENT PHASING SCHEDULE AND ESTIMATED COSTS

Initiation of the design for the first phase of improvements under this project is planned after completing the environmental review process and obtaining necessary entitlements. This review and entitlement process is planned to be completed before the end of 2008. Therefore, design work would likely commence in 2009 pending availability of funding. The estimated opinion of probable construction costs for the improvements identified in the Diamond Head Public Safety Radio Station Consolidation Master Plan is $1,000,000.

2.5.1 Preliminary Phasing

Implementation of project improvements are planned to be phased over a 15 year period. The actual components completed will be dependent upon available funding appropriations, construction progress, coordination with other agency users, and adjustments to SCD priorities. The phasing plan described in the Consolidation Master Plan calls for the improvements to be completed in five (5) year increments.

1. Years 1 to 5. This phasing period would have the majority of work associated with the consolidation of radio equipment and antennas after completing the renovation of the Public Safety Radio Station building.
   - Renovate the former FAA link site building converting it into the Public Safety Radio Station building.
   - Consolidate existing radio equipment from Batteries Hulings and Dodge to the Public Safety Radio Station building.
   - Consolidate existing radio antennas to the radio station site.
   - Construct new underground electrical and communication conduits.
   - Add new security gate.
   - Remove the unused antenna structures.
   - Clean-up of Batteries Hulings and Dodge.
   - Remove unused wooden utility poles and overhead lines in the vicinity of the radio station site and Batteries Hulings and Dodge.
   - Initial turn-over of Batteries Hulings and Dodge to DLNR.
2. Years 6 to 10. Improvements made during this period would focus on refinements to the improvements already made, and incorporating technological advances as appropriate.
   - Make refinements to the number of antennas and pole structures relocated based

upon advances in technology allowing for shared use or other changes to user requirements.

- Relocate the existing above ground electrical conduits underground.
- Implement landscaping using native vegetation around the radio station site.

3. Years 11 to 15. Improvements made during this final period would focus on further refinements to the improvements already made, incorporate technological advances as appropriate, and clean up the landscape of the crater rim.
   - Implement further refinements to the number of antennas and pole structures relocated based upon advances in technology allowing for shared use or other changes to user requirements.
   - Add solar voltaic panels to the radio station building if appropriate.

2.5.2 Listing of Required Permits

The following permits would be required for this project:

State of Hawai‘i Permits

- Conservation District Use Application (CDUA)

City and County of Honolulu Permits

- Building permits
- National Pollutant Discharge Elimination System (NPDES) permit

2.6 ALTERNATIVES CONSIDERED

This section discusses the alternative design concepts for the project that were considered and eliminated from further consideration. These design concepts were eliminated based on the failure of the alternatives to meet project objectives, safety and security concerns, potential impacts to neighboring uses, and increased project costs.

No Action Alternative

The No Action Alternative would consist of performing no renovations to the existing building to accommodate the relocation of radio user equipment and antennas. This alternative would result in continued use and operations for radio users, their equipment and antennas. Equipment would thus continue to be stored in Batteries Hulings and Dodge with their respective antennas continuing to be operated at the various locations within Diamond Head. In addition, all existing transmission antennas will need to have their wooden utility or steel poles raised to meet the FCC height requirement of 33 feet (10 meters) above the ground.

This alternative was eliminated because it would not properly address the current need for consolidation of radio equipment within the crater. In addition, this Alternative would not address the concerns of safety and security of the crater’s batteries. Further, the State SCD may now be required to fund the cost of demolishing the former FAA link site building since the FAA

did not demolish this building at the request of SCD when they relocated their operations to another site on Oahu.

The FCC requirement to raise the height of all existing transmission antennas would further affect views of Diamond Head since these wooden utility poles will need to be raised. Lastly, DLNR would not be able to implement the Diamond Head Monument Master Plan improvements proposed because Battery Dodge will still be used for radio equipment. Battery Hulings would not be available for DLNR's use as well for the same reason. The continued use of these batteries would also impact the plan to create a crater rim trail from the eastern to western end of Diamond Head because of security concerns for the various antennas and radio equipment.

Delaying Renovation for the Radio Station and Consolidation

The Delayed Action Alternative would involve postponing renovation of the existing building, and subsequently delaying consolidation of radio equipment to some date in the future. As a result, the current status of radio equipment occupying space within existing batteries, and antennas in various locations of the crater would continue for an unspecified amount of time, and the concerns of safety and security of the crater's batteries would continue.

This alternative was also eliminated from further consideration because the same concerns as those stated in the No-Action Alternative would persist. Delaying construction into the future would increase the possibility of higher renovation costs due to inflation.

Alternative Site Locations

Alternative sites both within and outside of Diamond Head were also considered for the public safety radio station site. However, these sites were determined to be unfeasible or inappropriate for SCD, and will not adequately meet their project needs, objectives, and equipment requirements.

Many of the alternative sites considered within the crater consisted of other existing buildings or structures on the crater floor. However, these buildings or structures were not immediately available, and will involve the relocation of the facility's current users. The additional costs to relocate existing building occupants and site users coupled with the additional costs to accommodate radio user and antenna requirements makes this impractical and not economically feasible.

Even if the radio equipment could be relocated to one of the buildings, the relocation of the radio antennas to that site would not be practicable. The radio antennas need to meet FCC height requirements, be situated at certain locations on the crater rim for unobstructed communication corridors, and have suitable height elevations for the transmission and receiving of signals. Having them placed on the crater floor would not adequately meet these equipment requirements. They would also be more noticeable and affect views of the crater floor especially with most of the visitor activities occurring there.

Alternative sites outside of Diamond Head Crater were not immediately available, and likewise, may require relocation of existing occupants. New sites may not be able to accommodate radio user and antenna requirements, or may require extensive renovation or the construction of a new radio station building. Outside of Diamond Head alternative locations were also eliminated from consideration because the proposed radio station, equipment, and antennas would have to possibly be located adjacent to residences, school facilities, and other urban uses that may negatively cause concern and effects on their activities. Finally, construction of facilities at a new off-site location would be more costly due to potential off-site electrical work required, mitigation measures for visual and other concerns, security, etc.

Consolidate Equipment at Existing Batteries

The alternative to consolidate the radio equipment within Batteries Dodge and Hulings was also considered but eliminated from further consideration. The conditions associated with this alternative would be similar to the No Action Alternative in that existing radio antenna structures will need to be replaced and raised to meet FCC height requirements. Further, continued use of these batteries will similarly affect visitor improvements planned for Diamond Head under DLNR's master plan.

CHAPTER 3
PHYSICAL AND BIOLOGICAL ENVIRONMENT

This chapter describes the existing surrounding environment in the vicinity of the project site. The probable environmental impacts associated with implementation of the improvements planned under the master plan are discussed, and mitigative measures are identified if necessary.

3.1 CLIMATE

The State of Hawai‘i climate is relatively moderate throughout the island chain, although, moderate differences in these conditions may occur from one location to another due to the mountainous topography associated with each island. Annual and daily variation in temperature depends to a large degree on elevation above sea level, distance inland, and exposure to the trade winds. On O‘ahu, the Ko‘olau and Wai‘anae mountain ranges are oriented almost perpendicular to the trade winds, which account for much of the variation in local climatology.

O‘ahu’s temperatures have small seasonal variation such that the temperature range averages only 7 degrees between the warmest months (August and September) and the coolest months (January and February) and about 12 degrees between day and night. Average monthly temperatures range from 73 to 81 degrees Fahrenheit throughout the year. Average daily maximum temperatures usually run from the low 80’s in winter to the high-80’s in summer, while daily minimum temperatures run from the mid-60’s to the low 70’s, respectively.

Temperatures in the Diamond Head area are expected to be similar to those island-wide averages. Based upon historic data from a recording station in Waikiki, average daily temperatures are similar to island-wide numbers. Average daily maximum temperatures run from the low 80’s in winter to the high-80’s in summer, and daily minimum temperatures run from the mid-60’s to the low 70’s, respectively (WRCC 2007).

Winds are predominantly “trade winds” from the east-northeast except for occasional periods when “Kona” storms generate strong winds from the south, or when the trade winds are weak and land breeze to sea breeze circulations develop. Wind speeds typically vary between 5 and 15 miles per hour providing relatively good ventilation much of the time. Lower velocities (less than 10 mph) occur frequently when the usual northeasterly trade winds tend to fall giving way to light, variable wind conditions through the winter and on into early spring.

Rainfall on O‘ahu is highly variable depending upon elevation and location with respect to the tradewinds. The Diamond Head State Monument area has a semi-arid climate with historic average annual rainfall of 24 inches. Monthly average rainfall is similarly low with generally less than 1 inch of rainfall during the summer (June to August), and less than 4 inches during the winter periods (November to January). Most of the rainfall occurs during the fall and winter storms usually taking place from October through April (WRCC 2007).

3.2 TOPOGRAPHY AND SOILS

3.2.1 Topography

Diamond Head Crater consists of a broad, saucer-shaped crater. The nearly level floor of this roughly circular crater is about two-thirds of a mile (3,520 feet) in diameter. Its highest point is located on the southwest rim at an elevation of 761 feet above mean sea level (msl).

About 25 percent of the total rim perimeter has an elevation less than 400 feet above msl. About 50 percent of the total rim perimeter is between 400 and 500 feet above msl, and the remainder is more than 500 feet above msl. The radio station site is situated near the northeastern end of the crater rim at an elevation of about 500 feet above msl.

The massive rim of Diamond Head is eroded by numerous deep, narrow ravines that follow radial courses down the steep surface. Most of the crater rim is a sharply crested, circular ridge of 500- to 800-feet width at its base. The slopes are steep with the outer crater slopes dissected into alternating ravines and spurs. Most of these ravines from the crater rim range from slopes of 70 degrees to vertical or slightly overhanging declivities. Between the ravines are long, narrow, radial spurs having slopes ranging from 30 to 45 degrees (DLNR July 2003).

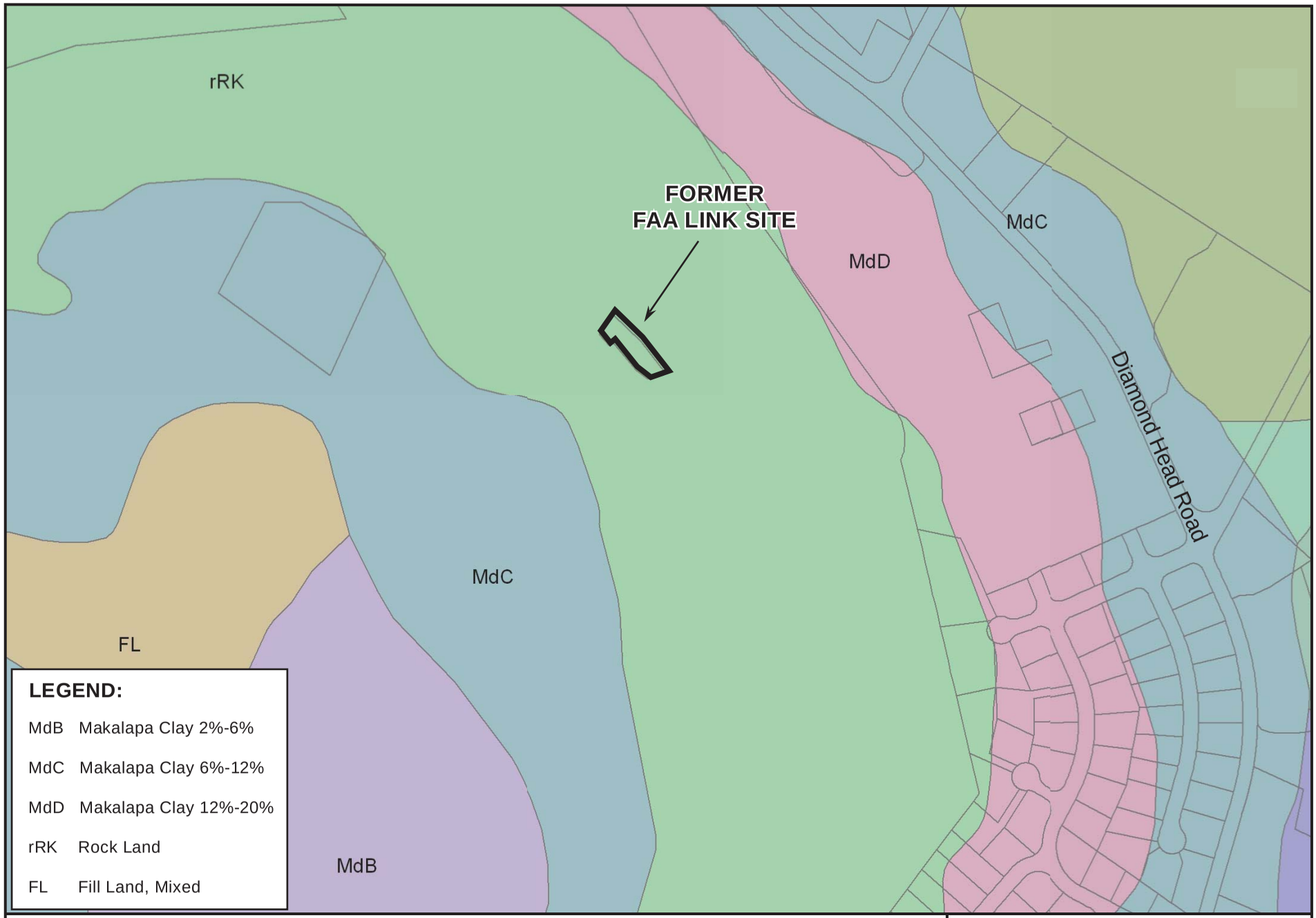

View of Inner Crater Topography Near Radio Station Site

The topography associated with the inner crater rim in the vicinity of the radio station site generally vary from 30 up to 50 degrees (see photo ►). The outer crater rim slopes are much steeper in the range of 45 to 70 degrees.

3.2.2 Soils

As indicated in the *Soil Survey of Islands of Kaua‘i, O‘ahu, Maui, Moloka‘i, and Lana‘i* (SCS, 1972), most of the land within the crater consists of Makalapa clay (MdB and MdC), and Fill land, mixed (FL). The crater walls are primarily Rock land (rRK). The Makalapa Series consists of well-drained soils found on the uplands of O‘ahu in Diamond Head, the Mokapu Peninsula and near Salt Lake Crater (Aliamanu).

The following descriptions of the land and soils types are from the *Soil Survey of Islands of Kaua‘i, O‘ahu, Maui, Moloka‘i, and Lana‘i* (SCS, 1972). Figure 3.1 graphically shows the soil types associated with the project area.



SOILS MAP

Figure 3.1

Diamond Head Public Safety Radio Station Master Plan
State Civil Defense, Department of Defense, State of Hawai'i

Source:
Natural Resource Conservation Service,
U.S. Dept. of Agriculture (2006)

- Makalapa Clay, 2 to 6 percent slopes (MdB)
  This soil is gently sloping. The surface layer is very dark grayish-brown clay about 8 inches thick. The subsoil is 18 to 36 inches deep, and is very dark grayish-brown clay to subangular blocky silty clay loam. The substratum is light-gray to dark grayish-brown weathered volcanic tuff. The soil is mildly alkaline in surface layer and mildly alkaline to moderately alkaline in the subsoil layer. Permeability is slow, runoff is slow, and the erosion hazard is slight.
- Makalapa Clay, 6 to 12 percent slopes (MdC)
  This soil is similar to Makalapa Clay (MdB), except that it occurs on fans. Runoff is slow to medium, and the erosion hazard is slight to moderate. This soil is primarily used for urban development, and pasture.
- Rock land (rRK)
  Rock land is made up in areas where exposed rock covers 25 to 90 percent of the surface. Main characteristics are rock outcrops and very shallow soils. Elevations range from sea level to nearly 6,000 feet. In many areas, especially on O‘ahu, the soil material associated with rock outcrops are very sticky and very plastic, and has high shrink-swell potential.

3.2.3 Effects on Topography and Soils

Renovation of the proposed radio station along with the consolidation of radio equipment and existing antennas would occur within a relatively small area of the Diamond Head Crater that has been established for SCD use. Renovation activities associated with the building would be minimal and primarily associated with improvements constructed inside the building. Most of the area surrounding this building is also paved. Thus, building improvements should have minimal if any effect on the site’s topography and soils since there is only very minimal grading and no other significant site preparation work necessary.

Consolidation of existing antennas would similarly involve minimal disturbances to the existing topography and soils associated with this site. Ground disturbing activities would primarily involve installing antenna poles into the ground. No mass grading or excavation would be required at the site, thus, the improvements would not change the topography of the area or existing soils composition. It is expected that the construction and renovation would only require minor site alteration which do not change the drainage pattern with respect to abutting properties, or exceed 50 cubic yards of cut or fill or 3 feet in vertical height at its deepest point. Thus, a grading permit is not necessary. Some antenna structures would be connected to the existing building or installed within the existing paved area around the building further minimizing ground disturbing activities.

The existing crater slopes and relatively steep topography do provide some positive benefits for the project be creating a natural security buffer for the radio station site. The steep outer crater rim has natural slopes of 70 degrees to vertical making access to the radio station site

from that side very difficult and provides a natural protective barrier for security. The inner crater slopes are slightly more accessible to the radio station site, but are still relatively steep varying from 30 up to 50 degrees making it difficult for public access. Consequently, access to the site for management and security can be controlled using the existing access road due to the existing site topography associated with the crater rim.

Some trenching along the site's access road would occur for the relocation of existing above-ground utilities lines underground. However, such work is not expected to significantly alter the topography and site conditions along this access road or change existing soils present. Trenches created would be properly backfilled after the lines are installed, and returned to existing conditions.

Other accessory improvements would include removing existing overhead utility line poles that are no longer needed after the consolidation improvements are implemented. Removal of such wooden poles should have minimal impact to the existing topography of the areas affected. Similarly, other accessory improvements planned under the master plan are not expected to have a significant impact on the existing topography or soil conditions. They would not involve major site grading or similar type activities.

3.2.4 Short-Term Effects from Construction Activity

Short-term impacts would be associated with construction activities conducted for the implementation of improvements planned under this master plan. Construction of the improvements would inevitably involve some land-disturbing activities such as holes dug for antennas or trenches dug for utility lines relocation. Although the areas disturbed by such activities would be small, it may result in some potential for soil erosion during heavy storms. However, the project area has a semi-arid climate with low average annual rainfall (24 inches) minimizing the potential for such erosion during storms.

Various applicable mitigative measures will be incorporated into the project's design to minimize potential short-term erosion impacts during construction activities. Such erosion control measures considered may include: stationing a water truck on the site during construction to provide sprinkling in active areas; use of temporary silt fencing, sand bags, or screens; minimizing areas disturbed during construction; or the backfilling or sodding of affected areas immediately after work has been completed. Thus, the potential for soil erosion would be minimized through implementation of pertinent measures.

The actual erosion control measures implemented would be developed during the final design of this project. Design plans prepared would also be submitted to pertinent agencies for their ministerial review and approval. These plans would comply with the City's erosion and sedimentation control regulations, State Department of Health NPDES permit requirements, and other applicable government permits or regulatory requirements.

A Phase 1 Environmental Site Assessment is not warranted for this project since there is no known history of pollutants occurring at the project site. Also, the project site is not expected to contain arsenic contamination and the project site is not known to have a history of previous releases of petroleum, hazardous substances, pollutants, or contaminants.

Air Quality Effects

Other potential short-term and temporary impacts from construction activities may include generating fugitive dust emissions affecting air quality. Exhaust emissions from construction equipment may also temporarily affect ambient air quality. However, these impacts are expected to be minor given the nature and type of improvements planned, and should not result in a significant impact or exceed State ambient air quality standards.

In complying with State Department of Health (DOH) rules (Chapter 11-59, HAR "Ambient Air Quality Standards" and Chapter 11-60.1, HAR "Air Pollution Control"), dust control measures would be implemented during construction to control airborne particulate matter. The use of approved erosion control plans and mitigative methods such as water sprinkling will further reduce the potential for emission of fugitive dust and effects on air quality. Engine exhaust emissions from construction vehicles will be minimized via the proper operation and maintenance of all equipment to further limit potential air quality impacts. Potential short-term and temporary impacts to air quality may result in the release of asbestos from renovation activities. Should this be the case, the contractor would be instructed to contact the Asbestos Abatement Office in the Noise, Radiation and Indoor Air Quality Branch.

Construction Related Noise Effects

Construction-related noise may be audible to visitors at the crater since construction is likely to occur during daytime hours. However, the majority of visitor activities are conducted on the crater floor (visitor parking area) or to the southwest end of the crater for hiking up to the Leahi Summit. As a result, these areas of activities are considerable distances away from the project site minimizing the potential for construction noises to be audible.

Construction-related noise may also be audible to existing government workers in the surrounding buildings on the crater floor or at Battery Birkhimer. However, such noise should only be slightly audible since most employee activities would be conducted within buildings of underground within Battery Birkhimer. Construction-related noise may also be slightly audible to surrounding residential areas outside of the crater. However, such noise should not be significant due to the location of residences outside the crater and distance away from the project area. Most of the construction activities would occur within the crater or along the crater rim.

Therefore, construction activities are not expected to have a significant impact on surrounding uses, existing government operations within the crater, or visitor activities conducted within the crater. Construction activities would only generate a short temporary impact on noise levels. Construction activities would need to comply with the State DOH Title

11, Chapter 46 (Community Noise Control), HAR along with obtaining a noise permit for such activities if applicable.

3.3 NATURAL HAZARDS

This section addresses natural hazards applicable to the SCD Public Safety Radio Station Project. Of the potential natural hazards, only earthquakes, hurricane, and flooding hazards are applicable and are addressed. There are no other known potential urban-related hazards applicable to the radio station project site such as airport clear zones, nuisances, or other hazardous waste issues associated with the area.

3.3.1 Earthquake Hazards

Earthquakes in the Hawaiian Islands are primarily associated with volcanic eruptions resulting from the inflation or shrinkage of magma reservoirs beneath which shift segments of the volcano (Macdonald et al., 1983). Earthquakes may occur before or during an eruption or from the underground movement of magma that moves to the surface. However, earthquakes also occur due to the shifting of tectonic plates.

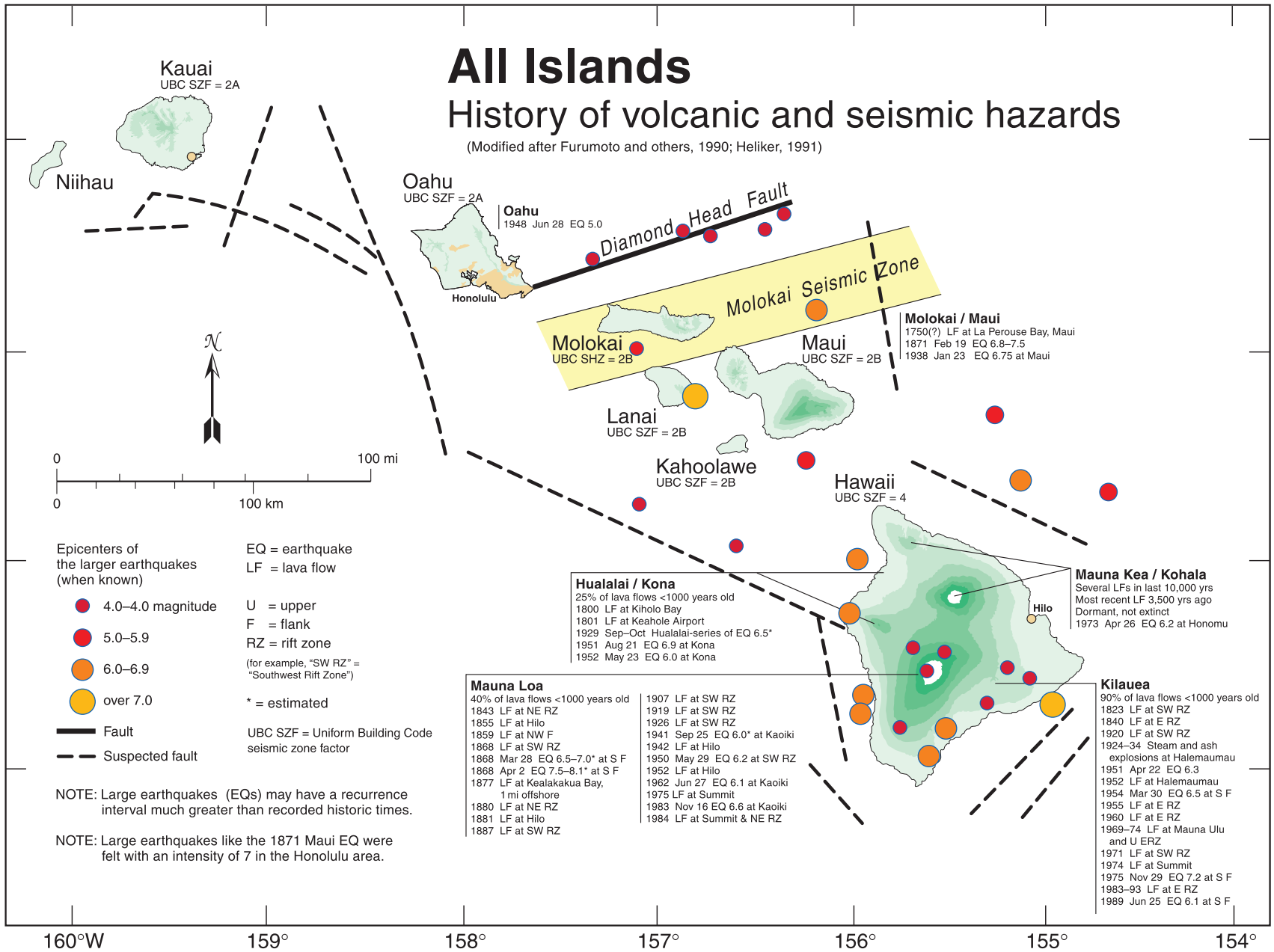
Except for the Island of Hawai‘i, the Hawaiian Islands are generally not situated in a high seismic area subject to numerous large earthquakes (Macdonald et al. 1983). Most of the earthquakes that have occurred in the past have been volcanic earthquakes causing little or no damage to the other islands. Available historical data indicates that the number of major earthquakes occurring have generally been fewer and of lower magnitude than those on other islands such as Hawai‘i. Strong earthquakes of magnitude 5 or higher, based on the Richter Scale, can cause property damage and endanger lives (USGS 2002). The exhibit provided identifies the recent (since 1950) significant earthquakes occurring in the Hawaiian Islands (USGS, February 2006). The most recent significant earthquake occurred on October 15, 2006 about 10 miles north-northwest of Kailua Kona (Island of Hawai‘i), and measured at magnitude 6.7 on the Richter Scale (USGS 2007).

Significant Earthquakes Since 1950

Year–Month–Day	Location	Magnitude
1951-08-21	Kona, Hawai‘i	6.9
1975-11-29	Kalapana, Hawai‘i	7.2
1983-11-16	Kaoiki, Hawai‘i	6.7
2003-08-27	Volcano, Hawai‘i	4.7
2005-07-15	Hawai‘i region, Hawai‘i	5.3
2005-07-17	Hawai‘i region, Hawai‘i	5.2
2006-10-15	Hawai‘i region, Hawai‘i	6.7

Source: USGS, Historic United States Earthquakes (Hawai‘i)

Volcanism is the source of energy for approximately 95 percent of the earthquakes on the Island of Hawaii. However, the area encompassing Maui and Oahu is identified as a “central region” where seismicity is generally related to tectonic activity on the seafloor near the Hawaiian Islands (USGS 2002). Tectonic activity capable of generating hazardous earthquakes in the central region is related to seafloor fractures and suspected faults around the islands. The largest of these are the Molokai Seismic Zone and the Diamond Head Fault. Figure 3.2 shows the location of the Diamond Head Fault in relation to the Diamond Head State Monument. Several earthquakes of 4.0 to 5.0 magnitude have been detected along this fault.



PREVIOUS VOLCANIC ACTIVITY MAP

Figure 3.2

Diamond Head Public Safety Radio Station Master Plan
State Civil Defense, Department of Defense, State of Hawai'i

Source:
USGS, Historic United States Earthquakes (Hawaii) (2007)

The Molokai Fracture Zone is an extension of a transform fault from the East Pacific Rise that extends from Molokai to the Gulf of California. This fracture is tectonic in origin and is suspected to contribute to central region seismicity because it is associated with a seismically active seafloor. Because two known earthquakes (1871 and 1938) have occurred along the fracture, it is referred to as the Molokai Seismic Zone (USGS 2002).

The U.S. Geological Survey's *Atlas of Natural Hazards in the Hawaiian Coastal Zone* (USGS, 2002) assigned seismic hazard intensity ratings for all islands in the State of Hawai'i. This report assigned a relative ranking scale based upon a hazard intensity scale from 1 to 5 with 1 representing lowest hazard and 5 the highest. The southern half of O'ahu extending from Makaha around Diamond Head and Makapuu Head up to Kaneohe Bay was assigned a volcanic/seismic risk ranking of 3 due to the proximity to the Moloka'i Seismic Zone. The remainder of the island is ranked a 2 with respect to the volcanic/seismic hazard (USGS 2002).

Probable Earthquake Effects On Project

Although difficult to predict, an earthquake of sufficient magnitude causing structural or other damage to the project's facilities or infrastructure could occur in the future. However, most of the earthquakes that have occurred in the State were volcanic earthquakes causing little or no damage on the Island of Oahu.

Oahu is periodically subject to episodes of seismic activity of varying intensity due to its proximity to the Moloka'i Seismic Zone and the Diamond Head Fault. However, earthquakes cannot be avoided or predicted with any degree of certainty, and an earthquake of sufficient magnitude (greater than 5 on the Richter Scale) may cause damage to the proposed radio station site and other accessory improvements planned under the master plan. However, damages to the project should be minimal, as appropriate building code standards will be followed. Thus, the risk of potential damage to this project will be no greater than that of other residences, commercial buildings, or infrastructure facilities existing on the Island of O'ahu.

3.3.2 Hurricane Hazards

Hurricanes are tropical storms with winds equal to or greater than 74 miles per hour that develop as brewing storms gain energy from warm (>26.5 C) ocean waters. Hurricanes have affected every island in the State and can cause major damage and injury usually resulting from high winds, marine over-wash, heavy rains, tornadoes, and other intense small-scale winds and high waves.

Hurricanes are one type of tropical cyclones affecting the State which also include tropical storms and tropical depressions. Between 1970 and 1992, 105 tropical cyclones have been identified in the central Pacific region resulting in an average of 4.5 storms per year. Not all of these storms directly pass thru the State, and actual hurricane strikes on the Hawaiian Islands are relatively rare in the modern record. More commonly, near-misses that generate large swells and

moderately high winds causing varying degrees of damage are the result of hurricanes passing close to the islands (USGS 2002).

The three major elements that make a hurricane hazardous are: 1) strong winds and gusts, 2) large waves and storm surge, and 3) heavy rainfall (FEMA 1993). Impacts from hurricanes can thus be severe and lead to beach erosion, large waves, high winds, and marine over-wash despite the fact that the hurricane may have missed a particular island (USGS 2002).

A hazard mitigation report prepared by the Federal Emergency Management Agency (FEMA) after Hurricane Iniki in 1992 determined that nine hurricanes approached within 300 nautical miles (about one day's travel time) of the Hawaiian Islands' coastlines between 1970 and 1992 (FEMA 1993). Most hurricanes affecting the islands have focused on Kaua'i. Based upon a tracking of hurricanes since 1950, there appears to be no geographical or meteorological reasons why hurricanes miss other islands and tend to steer toward Kaua'i (FEMA 1993). Figure 3.3 graphically shows the paths of hurricanes affecting the Hawaiian Islands.

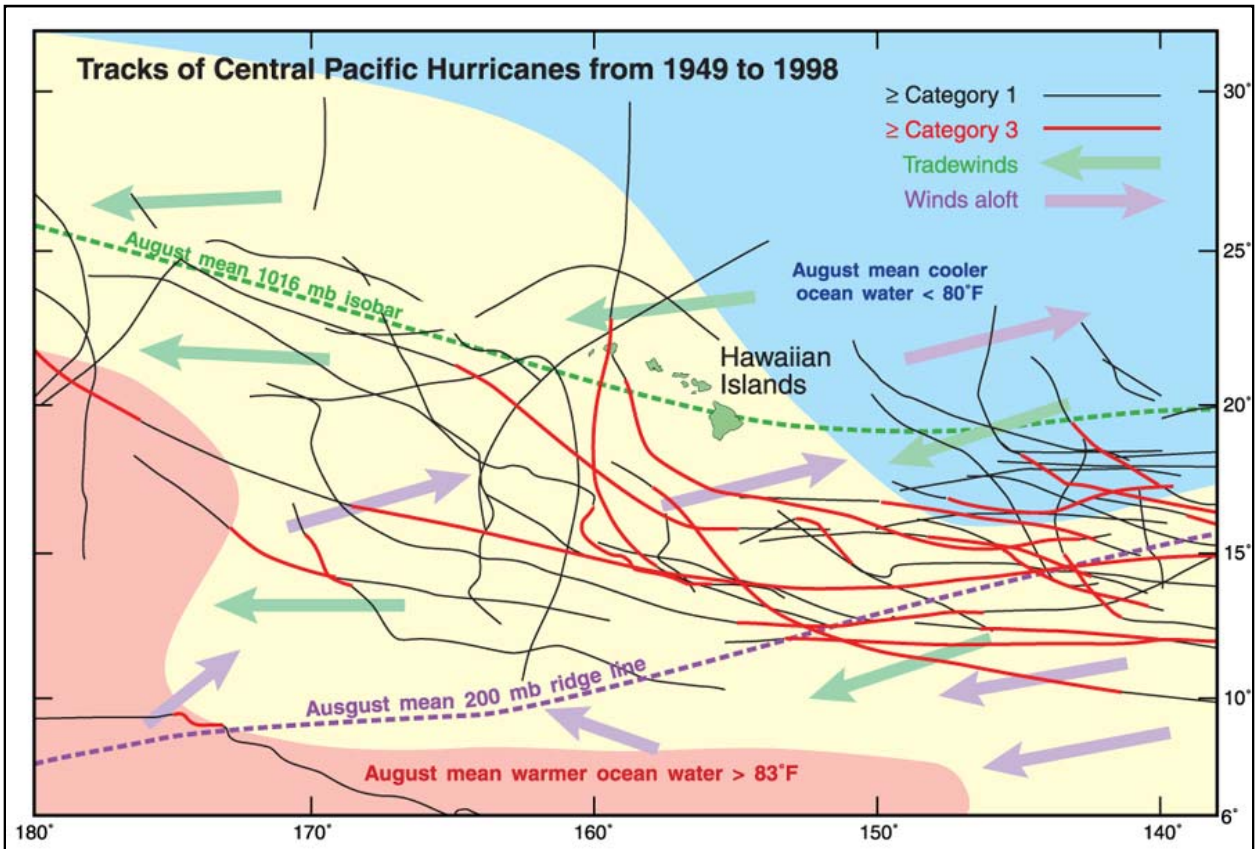


Figure 3.3
Tracks of Central Pacific Hurricanes from 1949 to 1998 (USGS, 2002)

Probable Hurricane Effects on Project

A hurricane of significant strength and high winds passing directly over or close to the Island of O'ahu could cause damage to the proposed radio station site and relocated antennas.

The main element of a hurricane that may cause damages to the project improvements are strong winds and gusts.

Large waves or other coastal water effects from a hurricane would not affect the radio station building and antennas due to its location sited at a high elevation along the crater rim well away from the shoreline. Heavy rainfall should also not affect the project because the radio station site is not subject to flooding due to its location on the crater rim.

The proposed radio station building is presently constructed of concrete and should therefore be susceptible to less potential damage from high winds as compared to residences or other buildings constructed of wood. The northeast side of this building is also sited near the crater rim and is thus protected by that feature reducing the building's exposure. However, other components associated with the building could receive some damage from winds of sufficient speed. Relocated antennas could also be susceptible to damage from high winds.

Some other accessory improvements proposed under the master plan should not be affected by a hurricane. This includes the relocation of existing above-ground electrical conduits underground. Relocating these utilities underground would have a beneficial effect by eliminating its susceptibility to damage from a hurricane. The removal of unused wooden utility poles would also have a beneficial effect since it would eliminate the potential for damages from high winds associated with a hurricane.

To minimize potential hurricane damages, the radio station building would be renovated in conformance to applicable building codes. Relocated antennas would also be constructed in conformance to applicable FCC regulations. Therefore, the risk of potential damage from high winds and should be minimized.

3.3.3 Tsunami Inundation And Flooding

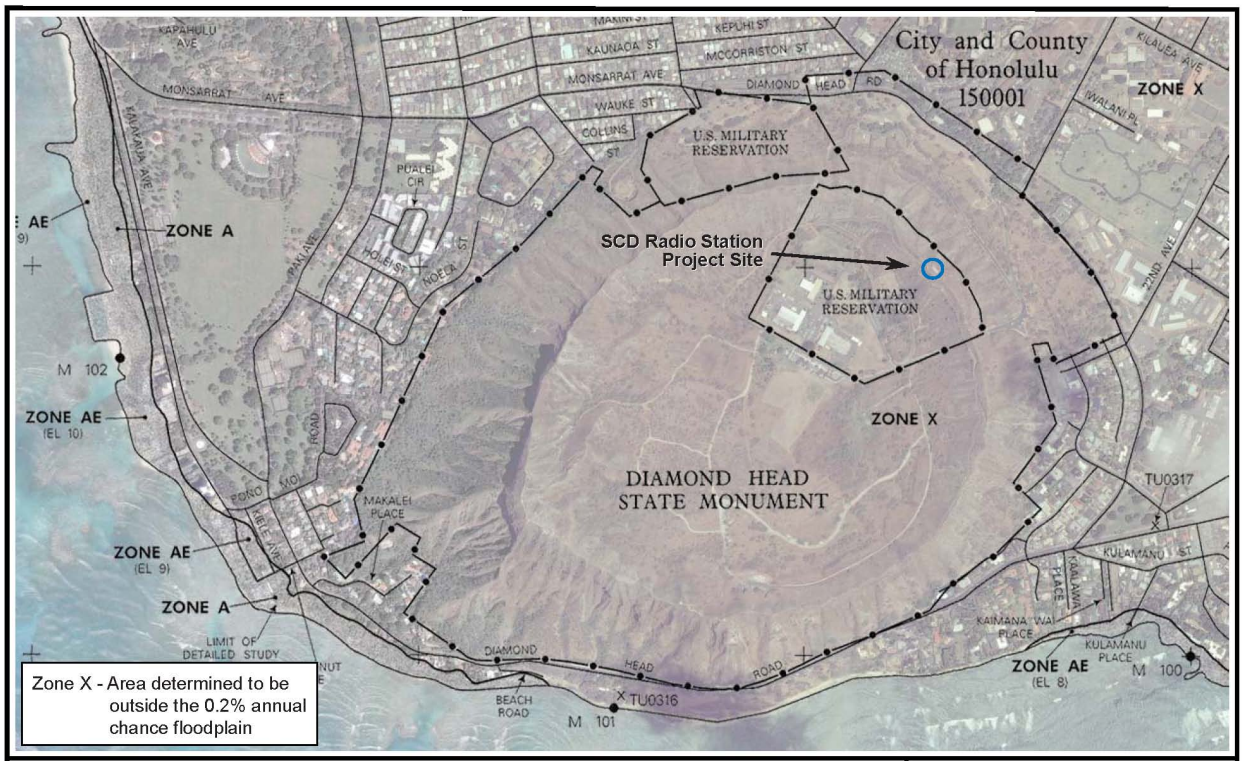
Tsunamis are caused by a sudden movement of the seafloor that generates a series of waves which travel across the ocean until they reach a coastline. Seafloor movements may include faulting, landslides, or submarine volcanic eruptions. Landslides originating either under the sea or above sea level and then sliding into the water may also generate a tsunami. Tsunamis manifest themselves as either large breaking waves, often largest around headlands where they are concentrated by wave refraction, or as rapidly rising sea level like a flooding tide.

The high degree of volcanism and seismic instability in and around the Pacific Ocean has contributed to a history of tsunami occurrences. The coastline of the Hawaiian Islands is thus under the continuous threat of tsunami inundation because this region is one of the most geologically active regions on Earth. The geography of the shoreline often plays an important role in the form of the tsunami. Tsunami waves may be very large in an embayment, actually experiencing amplification in long funnel-shaped bays. Fringing and barrier reefs appear to have a mitigating influence on tsunamis by dispersing the wave energy (USGS 2002).

Floods caused by heavy rainfall and strong winds normally occur during the winter months with January typically being the most frequent flood period. Heavy rainfall can also be associated with the tropical storm and hurricane season between the months of June and October. Areas subject to recurrent rainstorm floods are generally the coastal plains and flood plains (USGS 2002).

Flood Insurance Rate Maps (FIRM) prepared by FEMA identifies flood areas on the Island of O‘ahu. Based upon the FIRM No. 15003C0370F (revised September 30, 2004), Diamond Head State Monument falls entirely within Zone X.

Zone X represents areas of 0.2 percent annual chance of flood; areas of 1 percent annual chance of flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1 percent annual chance of flood (FEMA 2004). Figure 3.4 graphically shows the project site and Diamond Head State Monument in relation to the FIRM.



FLOOD INSURANCE RATE MAP

SCD Public Safety Radio Station
State Civil Defense, Department of Defense, State of Hawai‘i

Figure 3.4

Source:
FEMA Map No. 15003C0370F (2004)
Digital Globe Aerial (2005)

Probable Flood Effects On Project

Based upon the FIRM, the existing Link Site building where the proposed radio station site is planned along with the surrounding areas where accessory improvements are planned are

situated within Zone X. Thus, the proposed project is not located within a designated special flood hazard area subject to the 100-year flood. The site's location at a high elevation along the crater rim further minimizes the potential for it being subject to flooding which generally occurs along the coastal plains or flood plains. This area is also not subject to hazards associated with potential tsunami inundation that may occur along the coastline due to its location along the northeast Diamond Head crater rim.

Therefore, proposed improvements should not be subject to the effects and potential damages associated with these hazards. The improvements planned would also not significantly alter the existing character of the site making it more susceptible to damages from flooding or tsunami inundation. Therefore, this project should have no affect on these hazards or be significantly affected by these hazards.

Some other accessory improvements proposed under the master plan should have a positive effect by removing conditions currently making them susceptible to damage from flooding. This includes the relocation of existing above-ground electrical conduits underground eliminating its susceptibility to potential flood damage. The removal of unused wooden utility poles would also have a beneficial effect since it would eliminate the potential for damages associated with possible flooding.

To minimize potential damages, the radio station building would be renovated in conformance to applicable building codes. Relocated antennas would also be constructed in conformance to applicable FCC regulations. Therefore, the risk of potential damage from flooding should be further minimized.

3.4 AIR QUALITY

National ambient air quality standards (AAQS) have been established by the U.S. Environmental Protection Agency (EPA) for six criteria pollutants: carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, ozone, and concentrations of particulate matter less than 10 microns (PM_{10}) and 2.5 microns ($PM_{2.5}$). Since 2003, the State began participating in the National $PM_{2.5}$ speciation monitoring program. Additionally, a State standard has been established for hydrogen sulfide. Hawaii air quality standards are more stringent than national standards, except for those pertaining to sulfur dioxide and particulate matter. A summary of both State and Federal AAQS is presented below:

Summary of Federal and State Ambient Air Quality Standards

Pollutant	Sampling Period	Federal Primary	Federal Secondary	State Standards
Carbon Monoxide	1-Hour	40	40	10
	8-Hour	10	10	5
Nitrogen Dioxide	Annual	100	100	70
Sulfur Dioxide	3-Hour	n/a	1,300	1,300
	24-Hour	365	n/a	365
	Annual	80	n/a	80
Lead	Quarter	1.5	1.5	1.5

Ozone	1-Hour	235	235	n/a
	8-Hour	157	157	157
PM_{10}	Annual	50	50	50
	24-Hour	150	150	150
$PM_{2.5}$	Annual	15	15	n/a
	24-Hour	65	65	n/a
Hydrogen Sulfide	1-Hour	n/a	n/a	35

Note: All concentrations in micrograms per cubic meter ($\mu g/m^3$) except for carbon monoxide which is in milligrams per cubic meter (mg/m^3)

Present Air Quality

Air quality in Hawai‘i is generally characterized as relatively clean and low in pollution, and continues to be one of the best in the nation. The State DOH operates a network of air quality monitoring stations located in a number of areas across O‘ahu. Based upon available annual emission data reported for O‘ahu between 2001 and 2005 by the State DOH, all emissions associated with pollutant criteria monitored are well below both State and National AAQS (DOH 2005). Northeast tradewinds that are predominant throughout the year typically carry emissions and other air pollutants from inland areas out toward the ocean.

Present air quality within the crater area is primarily affected by vehicle emissions, and to a lesser extent by distant agricultural, industrial and natural sources. Much of the particulate emissions on O‘ahu originate from area sources such as mineral products industry and agriculture. Sulfur oxides are emitted almost exclusively by point sources such as power plants and refineries. Nitrogen oxides emissions emanate predominantly from industrial point sources. The majority of carbon monoxide emissions occur from area sources associated with motor vehicle traffic (PBR Hawai‘i 2000).

In the immediate area of the project site, there is minimal vehicular traffic occurring in the area since it is located near the top of the crater rim. Vehicular traffic to and from the site would only occur from government related activities associated with the maintenance and operation of equipment and antennas. Therefore, present carbon monoxide emissions from vehicular traffic should not be an issue affecting air quality associated with the project site and immediate area.

Probable Impacts And Mitigative Measures

Potential short-term and temporary impacts to air quality may occur from dust emissions during renovation activities and other accessory improvements implemented. Exhaust emissions from construction equipment may also temporarily affect ambient air quality. However, these impacts should not result in a significant impact or increase over State or National ambient air quality standards. Once the improvements are completed, there would be no permanent or long-term effects on air quality at the project site or immediate area along the crater rim due to the nature of this project and improvements.

Much of the renovation improvements would be interior work within the proposed radio station building along with electrical work associated with antennas. Relocated antennas would involve some soil disturbance for the poles constructed; however, such areas affected would be

limited. Other accessory improvements would involve some utility work that should be limited to the trenches created. Other improvements would involve removing unused utility poles that will require some limited soil disturbance. Therefore, the renovation activities and other improvements should not have a significant impact on air quality since areas affected will be limited. This work will also be temporary and will comply with other government regulations concerning construction activities.

In keeping with Department of Health (DOH) rules (Chapter 11-59, HAR "Ambient Air Quality Standards" and Chapter 11-60.1, HAR "Air Pollution Control"), pertinent dust control measures will be implemented during construction to control airborne particulate matter. The implementation of approved erosion control plans and best management practices to mitigative affects will further reduce potential effects on air quality from fugitive dust emissions.

3.5 NOISE

Existing dominant noise sources in the project area would consist of wind, occasional distant aircraft flybys, vehicular traffic, and human voices from visitor activities occurring along the crater floor. The majority of noise generated from vehicular traffic and voices are associated with the visitor activities occurring within Diamond Head State Monument. To a lesser extent, some noise from vehicular traffic would be associated with government activities occurring at Battery Birkhimer.

There are no noise sensitive resources such as residences or schools present within the immediate vicinity of the radio station project site because it is situated along the crater rim at an elevation of about 500 feet above msl. As shown on previous figures, the surrounding project area is undeveloped. As a result, the only dominant noise sources likely to be most noticeable at the project site consist of wind and occasional distant aircraft flybys.

Probable Impacts And Mitigative Measures

The only project related improvements that would have the potential to significantly affect existing ambient noise levels are those associated with short-term and temporary construction activities. Once completed, the radio station site and accessory improvements planned would not be a source of significant long-term noise.

Renovation work and other accessory related improvements constructed may temporarily increase ambient noise levels within the vicinity of the work area. Potential noise sources may include construction vehicles, minor trenching work, and other power equipment. However, such temporary noise generated is not expected to have a significant impact on noise sensitive resources since there are none in the immediate vicinity due to the project's site location on the crater rim.

Noise generated would also not negatively affect other government activities conducted in the immediate area or visitor related activities on the crater floor. Measures to control

construction noise include the use of mufflers on power equipment and vehicles. Construction activities are also expected to be limited to regular workday hours (8:00 a.m. to 3:30 p.m., Monday through Friday).

Under the DOH's Community Noise Control regulations (Title 11, Chapter 46, HAR), the proposed radio station site is situated within Class A zoning district. Therefore, the maximum permissible sound levels for construction activities is 55 dBA during daytime (7:00 a.m. to 10:00 p.m.) hours and 45 dBA during nighttime hours (10:00 p.m. to 7:00 a.m.). These levels should not be exceeded at or beyond the property line for more than 10 percent of any continuous 20-minute period. If necessary, a permit would be obtained by the contractor from the DOH to allow construction activities exceeding these noise levels. Specific permit restrictions for construction activities are:

1. No permit shall allow construction activities creating excessive noise before 7:00 a.m. and after 6:00 p.m. of the same day.
2. No permit shall allow construction activities that create excessive noise before 9:00 a.m. and after 6:00 p.m. on Saturdays.
3. No permit shall allow construction activities which exceed the allowable noise levels on Sundays and on holidays.

Therefore, short-term construction activities associated with implementing proposed project improvements are not expected to have a significant impact on noise.

3.6 VISUAL RESOURCES

This section addresses the project's effect on visual resources associated with Diamond Head State Monument. In order to assess the possible impacts, information associated with existing important visual resources in the Diamond Head crater area was identified. These visual resources consists of scenic resources such as major land forms, open spaces, viewing points, scenic drives, and other physical features that create the visual quality of the area. The framework also consists of City policies, guidelines, and regulations established to protect scenic resources that are of value and importance.

3.6.1 Identification of Visual Resources

Various references were researched to assist with identifying visual resources associated with Diamond Head State Monument along with public viewing locations. Sources identified consisted of: 1) the City's Primary Urban Center (PUC) Development Plan, 2) Diamond Head Special District under the City's Land Use Ordinance, and 3) a Coastal View Study.

Primary Urban Center Development Plan

The Primary Urban Center (PUC) Development Plan, adopted under Ordinance 04-14, presents guidelines, polices, and conceptual schemes that serve as a policy guide for more detailed zoning, maps and regulations. Under this Development Plan, panoramic views of

natural features and landmarks are identified under a Significant Panoramic Views Map depicting the vantage points and orientation of major panoramic views of objects within the Primary Urban Center. Diamond Head State Monument was identified as a landmark subject to significant panoramic views (DPP, 2004).

The majority of significant views identified on the map are of the northern and western profiles of Diamond Head from the northwest. The project area is located on the eastern end of the crater. A significant mauka-makai view identified of the north to northeast profile of Diamond Head crater is from the Kaimuki area generally up to the Lunalilo Freeway (H-1 Freeway). A significant east-west view identified is of the eastern profile of Diamond Head crater generally from the Kahala area. Although not specifically identified in the development plan, portions of the monument are visible from surrounding areas such as the University of Hawai‘i campus, Waialae Iki, Waialae Nui, and Hawai‘i Loa Ridge.

The Development Plan also identifies significant panoramic east-west views of Diamond Head from the peninsula known as “Magic Island” located within Ala Moana Beach Park. From this vantage point, the exterior southwestern slopes of Diamond Head serve as a well-recognized and prominent backdrop to Waikiki Beach. However, the subject project site is not visible from the beach park because it is situated along the northeastern crater rim behind the greater heights of the southwestern crater rim, thus the project would not affect east-west views of Diamond Head from Ala Moana Beach Park.

Diamond Head Special District (Land Use Ordinance)

Under the City’s Land Use Ordinance, the Diamond Head Special District is established as prescribed under Section 21-9.40 of the ROH. The boundary of this special district also encompasses several other areas which generally includes Ala Wai Golf Course, portions of Kapahulu, Kapi‘olani Park and surrounding areas, and portions of Kahala. This special district notes Diamond Head as a volcanic crater that has been declared a state and national monument.

Its natural appearance and prominent public views have special values of local, state, national and international significance. Consequently, the regulations under this special district are intended to preserve and protect views of the Diamond Head State Monument. The objectives are to: 1) preserve existing prominent public views and the natural appearance of Diamond Head by modifying construction projects that would diminish these resources; and 2) preserve and enhance the park-like character of the immediate slopes of the Diamond Head State Monument (City 1990).

There are several prominent public vantage points on public streets from which significant views of Diamond Head were noted. Of these viewing points, those pertinent to the eastern end of the crater where the project is located consist of:

- Diamond Head Road;
- 18th Avenue from Kilauea Avenue to Diamond Head Road; and

- Kilauea Avenue from Elepaio Street to 12th Avenue.

There are several prominent public view sites also noted of which those pertinent to the eastern end of the crater where the project is located consist of:

- Fort Ruger Park (Kahala Triangle Park);
- Kaimuki Intermediate School; and
- Kilauea Playground.

Coastal View Study

A Coastal View Study was completed for the City's Department of Land Utilization (now known as the Department of Planning and Permitting) that inventoried significant coastal views and coastal land forms which together make up the scenic shoreline resources on O‘ahu. The study identified views from public viewing points and coastal roadways within the City's Special Management Area. The visual quality of an area was also characterized using three concepts which were: 1) vividness, 2) unity, and 3) intactness (Chu 1987).

In Chu's study, Diamond Head Crater was identified being situated within the "Maunalua Bay Viewshed" of the East Honolulu area. This viewshed consists of three sections which are: 1) Kahala, 2) Maunalua Bay, and 3) Hawai‘i Kai. Diamond Head Crater is situated within the Kahala section which ranges from the crater's lookouts to the Waialae Golf Course. Diamond Head was identified as a prominent landmark and important coastal land form. This crater is in sharp visual contrast to the low-rise residential developments and accompanying ornamental landscaping that surrounds the crater's base.

Coastal views from roadways in the vicinity of Diamond Head Crater is limited to only Diamond Head Road as it travels along the coastline from Kahala. This road was identified as a coastal roadway having intermittent coastal views in the vicinity of Diamond Head. The Diamond Head lookout area along Diamond Head Road overlooking Diamond Head Beach Park was identified as a significant stationary viewing point. Lateral views along the eastern coastline at this lookout have been noted for its spectacular scenic quality. No other specific coastal views were noted due to the established residential community (Chu 1987).

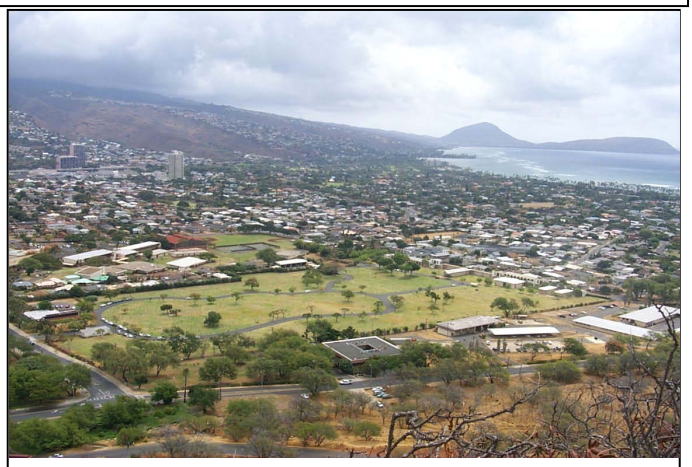
3.6.2 Existing Scenic Views

Diamond Head is a prominent National natural landmark, State monument, and scenic district that is visible from the sea, land, and air. The crater's profile is recognizable by residents and visitors worldwide. Views from Lē‘ahi Summit provide a 180 degree view of the southern shore of O‘ahu from Koko Crater to the Wai‘anae Mountains.

At the radio station site, spectacular panoramic views of areas both within Diamond Head Crater and outside the crater are available (see photo below ▼). Prominent views include the crater floor and southern half of Diamond Head Crater due to the high elevation along the crater rim associated with the project site. Spectacular views of the Koolau Mountain Range, East Honolulu and towards urban Honolulu are also available from this site.

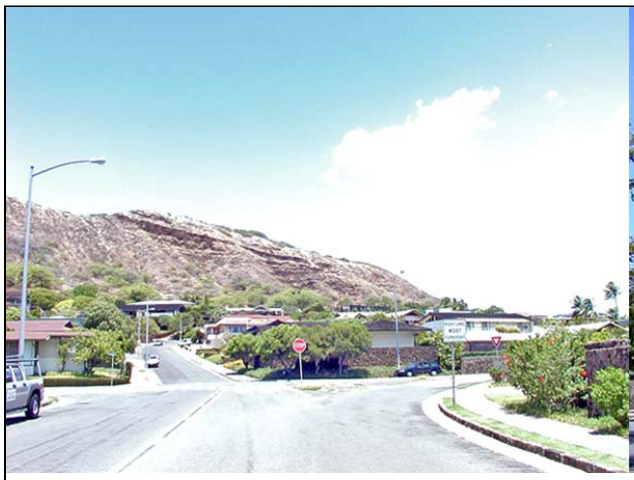
Panoramic View of Diamond Head Crater Floor from Radio Station Site

At Batteries Hulings and Dodge, similar panoramic views occur of the interior and exterior of Diamond Head Crater. These panoramic views available from these Batteries have the opportunity to enhance visitor experience as part of amenities along a crater rim trail desired by DLNR under their master plan. A view from the radio station site (see photo ►) is provided to give an example of such potential views of East Honolulu that occur from these Batteries.



East Honolulu View from Proposed Radio Station Site

Locations for prominent views of Diamond Head Crater were identified in the planning and regulatory documents previously identified. Of the many viewing sites, only a few were pertinent to the project area located on the eastern side of the crater. Photos of the project area from a couple viewing sites noted are provided. These photos are from 18th Avenue near Kaimuki Intermediate School and Fort Ruger Park (Kahala Triangle Park) along Paikau Street (see photos below). As shown on these photos, views of the existing former link site building are very difficult to see due to its located along the crater rim. However, more easily visible are the existing dark wooden utility poles present along the crater rim area.



West View of Diamond Head Crater from Fort Ruger Park

Southwest View of Diamond Head Crater from 18th Avenue

3.6.3 Visual Effects From Project

Based upon the project improvements planned under this radio station master plan, visual effects on Diamond Head Crater would mainly be associated with the relocation of existing antennas to the project site. Most improvements to the existing link site building would be interior renovations to accommodate equipment and would thus not be visible or affect views of Diamond Head Crater. Other accessory improvements planned are minor and would not significantly affect existing views within the crater such as a security gate. Some improvements, such as landscaping and the removal of unused utility poles would have a positive visual effect. Thus, the discussion of visual effects is focused on the relocation of existing antennas.

Visual Assessment Concepts Utilized

The concepts established in characterizing visual quality from the City's Coastal View Study was used to assess the visual impacts resulting from this project. Visual qualities associated with scenic resources were evaluated using three factors, or criteria, which were: 1) visual vividness, 2) unity, and 3) intactness. Using these criteria, the visual impact of a particular project was evaluated based upon the degree of change to an existing view or alteration of a scenic resource. These criteria are briefly described below:

1. *Visual Vividness.* The memorability of a landscape is derived from contrasting landscape components as they combine to create striking and distinctive visual patterns, taking into account form, line, texture and color.
2. *Visual Unity.* The degree to which the visual resources of a landscape scene join together to form a coherent, harmonious and visual pattern; a balanced composition between manmade and natural elements.
3. *Visual Intactness.* The extent to which the landscape is free from visually encroaching features (Chu 1987).

Information from field work and existing City references and resources previously discussed such as the Diamond Head Special District (§21-9.40, ROH) were used to identify important scenic resources and views. Pertinent viewing locations of the project site from both outside and within Diamond Head Crater were identified to assess project effects. Views of the project site were thus assessed from the following locations.

1. Within Diamond Head Crater at Tunnel 407; and
2. Within Diamond Head Crater near the visitor parking lot.
3. 18th Avenue between Kilauea Avenue to Diamond Head Road situated adjacent to Kaimuki Intermediate School;
4. Paikau Street next to Fort Ruger Park (Kahala Triangle Park);
5. Diamond Head Road near 22nd Avenue fronting the entrance to the DOD facility;

Most public viewing locations of this crater are from major public roadways such as Diamond Head Road and 18th Avenue near Kaimuki Intermediate School. However, most views of the radio station site and antennas are blocked by existing land uses (ex. residences, schools, etc.), and existing trees along roadways.

Visual Simulation Results

Photos from these locations were taken and used in visual simulations shown on the following figures to estimate what the project may look like with the relocated antennas. The relocated antennas were simulated with them conforming to the new Federal height requirements. Instead of the typical brown wooden utility poles, these antennas would be placed on steel poles painted light blue or another appropriate color to mask them with the surrounding environment making them more difficult to see.

In general, views of existing radio antennas along with other utility poles on the crater are most noticeable from within Diamond Head Crater. In particular, the large wooden utility poles are most noticeable. Views of these utility poles from outside the crater are more difficult because: 1) they are fewer poles on the crater rim and outer slopes, and 2) these structures are not easily visible from the large distance away and thus blend into the crater landscape background. Utility poles most easily visible are those situated on top of the crater rim because they protrude above the rim and the dark wooden color associated with them is easier to distinguish.

A summary of the project's effect on existing views based upon these simulations are discussed below.

1. **Tunnel 407 View Within Crater.** Existing view has a high level of visual vividness, unity, and intactness. The existing link site building is not easily noticeable and existing utility poles visible don't significantly alter the visual pattern or unity of the view. These features blend into the crater background due to the distance away associated with the view. Although not free from visually encroaching features, the overall visual intactness is high. The contrasting landscape components do combine to create a striking and distinctive view.
   With the project, the visual vividness, unity, and intactness would continue to be high. The relocated antennas at the site are difficult to view which doesn't significantly affect the visual pattern of the view and thus retains the overall intactness. A magnified view would be needed to view the relocated antennas along with the radio station building as indicated in the simulation (magnified 10 times). Existing wooden utility poles on the crater rim are also removed improving the overall views.
2. **Visitor Parking Lot View Within Crater.** Existing view has a moderate level of visual vividness, unity, and intactness. The existing link site building is noticeable but blends in fairly well with the overall crater rim pattern and landscape. However, the existing utility poles on the crater are easily noticeable serving as visually encroaching features disrupting the harmonious and visual pattern and composition between manmade and natural elements. The memorability of this view is thus affected.

Existing View of Link Site from Tunnel 407 (Normal)

Existing View of Link Site from Tunnel 407 (Magnified 10x)

Simulated View of Link Site from Tunnel 407 (Normal)

Simulated View of Link Site from Tunnel 407 (Magnified 10x)

SIMULATED VIEWS OF PUBLIC SAFETY RADIO STATION SITE WITHIN DIAMOND HEAD CRATER

Figure 3.5

Diamond Head Public Safety Radio Station Master Plan
State Civil Defense, Department of Defense, State of Hawai'i

Source:
SSFM International, Inc.

SSFM INTERNATIONAL

Existing View of Link Site from Visitor Parking Area (Normal)

Existing View of Link Site from Visitor Parking Area (Magnified 3.5x)

Simulated View of Link Site from Visitor Parking Area (Normal)

Simulated View of Link Site from Visitor Parking Area (Magnified 3.5x)

SIMULATED VIEWS OF PUBLIC SAFETY RADIO STATION SITE WITHIN DIAMOND HEAD CRATER

Figure 3.6

Diamond Head Public Safety Radio Station Master Plan
State Civil Defense, Department of Defense, State of Hawai'i

Source:
SSFM International, Inc.

Existing View of Link Site from 18th Avenue (Normal)

Existing View of Link Site from 18th Avenue (Magnified 2x)

Simulated View of Link Site from 18th Avenue (Normal)

Simulated View of Link Site from 18th Avenue (Magnified 2x)

SIMULATED VIEW OF PUBLIC SAFETY RADIO STATION SITE FROM 18TH AVENUE

Figure 3.7

Source:
SSFM International, Inc.

Diamond Head Public Safety Radio Station Master Plan
State Civil Defense, Department of Defense, State of Hawai'i

Existing View of Link Site from Fort Ruger Park (Normal)

Existing View of Link Site from Diamond Head Road (Normal)

Simulated View of Link Site from Fort Ruger Park (Normal)

Simulated View of Link Site from Diamond Head Road (Normal)

SIMULATED VIEW OF PUBLIC SAFETY RADIO STATION SITE FROM FT. RUGER PARK & DIAMOND HEAD ROAD

Figure 3.8

Source:
SSFM International, Inc.

Diamond Head Public Safety Radio Station Master Plan
State Civil Defense, Department of Defense, State of Hawai'i

With the project, the visual vividness, unity, and intactness would be improved but should continue to be moderate. The relocated antennas would be somewhat visible and more concentrated at the site, but several existing utility poles on the crater rim and slopes would be removed improving views of those areas. A magnified view is needed to more distinctly see the relocated antennas along with the radio station building as indicated in the simulation (magnified 3 times). Thus, the overall visual pattern and composition between manmade and natural elements along with its memorability should continue to be moderate.

3. **18th Avenue View Of Crater.** Existing view has a high level of visual vividness, unity, and intactness. The existing link site building is not noticeable and existing utility poles on the crater rim are difficult to see. Thus, they don't significantly alter the visual pattern or unity of the view. These features blend into the crater background due to the distance associated with the view. The overall visual intactness is high as contrasting landscape and urban (Kapiʻolani Community College building) components do combine to create a distinctive view of the crater.
   With the project, the visual vividness, unity, and intactness would continue to be high. The relocated antennas at the site are difficult to view which doesn't affect the visual pattern or overall intactness of the view. The visual vividness of the view would also remain the same since the contrasting landscape and urban components primarily stand out and influence this view.
4. **Fort Ruger Park View Of Crater.** Existing view has a high level of visual vividness, unity, and intactness. The existing link site building is not noticeable and existing utility poles on the crater rim are difficult to see. Thus, they don't affect the visual pattern or unity of the view. A balanced composition between the crater and surrounding residential elements create a harmonious visual pattern. The visual vividness thus retains a distinctive visual pattern.
   With the project, the visual vividness, unity, and intactness would continue to be high because the relocated antennas would not be visible. The visual pattern and overall intactness of the view would be preserved.
5. **Diamond Head Road View Of Crater.** Existing view determined has a high level of visual vividness, unity, and intactness. The existing link site building is not noticeable and only a single existing utility pole on the crater rim is noticeable. Thus, the overall visual pattern or unity of the view is predominantly of the natural landscape of the crater. With th exception of that utility pole, the landscape is essentially free from visually encroaching features. Thus, the vividness of the view is distinctive.
   With the project, the visual vividness, unity, and intactness would continue to be high because the relocated antennas would not be visible because they are masked in the sky background. The existing utility pole on the crater would be removed improving the visual intactness and unity of the rim area. The visual pattern and overall vividness of the view would be preserved.

Visual Impacts

Views of the radio station site and existing antennas from outside Diamond Head are hardly noticeable due to the crater rim blocking views of the building and most of the antennas there. A few antennas are visible, but difficult to see from the normal eye perspective from public roadways. Existing residential and public facility uses along roadways along with the existing landscaping in the area and along Diamond Head Crater also limit the availability of such views. Within Diamond Head, the radio station site and antennas are visible, but not well seen from a normal view perspective. The existing tall wooden utility poles are more noticeable than the steel poles and whip antennas currently there.

The relocation of existing radio antennas to the Public Safety Radio Station site will change existing views along Diamond Head Crater in the area from this site to Batteries Hulings and Dodge situated east of the Kahala Tunnel entrance. However, the changes are not expected to have a significant impact on existing views of the crater in the area of the project site. Overall, there would be an improvement to current views of the crater rim because the antennas would be consolidated at a single location. Furthermore, it is possible to paint the steel poles to mask them with the surrounding environment which would make them less visible than the large wooden utility poles present. The antennas used should also be difficult to see because of their color and size which would blend into the sky background.

With the relocation, the existing wooden utility poles at Batteries Hulings and Dodge would be removed improving views of the crater rim by returning it to its more natural landscape view. A visual simulation showing the potential improvement to views of Battery Hulings from the relocation of antennas is provided on Figure 3.9. As shown on this figure, views of that crater area would be significantly improved by the relocation of antennas and the removal of existing utility poles.

The other simulated view of Battery Hulings from the radio station site shows the large wooden utility pole along the rim currently used for antennas being removed along with other utility poles. This wooden utility pole on the crater rim is more noticeable from public viewing locations outside the crater and along roadways. Thus, its removal would improve the visual intactness and unity of that rim area.

If the radio antennas were not consolidated to the radio station site (No Action Alternative), they would still need to be modified at their current locations to comply with FCC height requirements. Those wooden utility poles or other structures for existing antennas which do not meet the 33-foot (10 meters) height requirement would need to be raised to allow the transmitting antennas to be conforming. Increasing the height of these wooden utility poles would make them more noticeable negatively affecting views of the crater rim and slopes.

Existing View of Battery Hulings Antennas from
National Guard Parking Lot (Normal)

Existing View of Battery Hulings Antennas from
Existing Link Site (Normal)

Simulated View of Battery Hulings from
National Guard Parking Lot (Normal)

Simulated View of Battery Hulings from
Radio Station Site (Normal)

SIMULATED VIEW OF BATTERY HULINGS FROM SITES WITHIN DIAMOND HEAD CRATER

Figure 3.9

Source:
SSFM International, Inc.

Diamond Head Public Safety Radio Station Master Plan
State Civil Defense, Department of Defense, State of Hawai'i

Accessory improvements under the master plan would also improve views of the interior crater slopes in the project area. Placing existing electrical conduits along the access road leading to the link site underground and implementing other associated electrical improvements to the radio station site will eliminate the existing view of those conduits from the crater floor. As shown on the exhibit (see photo ►), the white colored conduits stand out contrasting to the natural colored landscape background of the crater. Thus, relocating them underground would eliminate their view and improve the visual unity and intactness of that section of the crater.

View of Existing Above Ground Electrical Conduits Leading Up to Radio Station Site

With the relocation of radio equipment and antennas, existing overhead utility lines presently serving Batteries Hulings and Dodge will no longer be required. Therefore, the SCD plans to remove these soon to be under utilized wooden utility poles and overhead lines located in the project area. This would greatly improve views of inside the crater. A photo simulation of this crater area with this improvement along with relocated antennas at the proposed radio station site is shown below to provide a sample of potential improvements to views.

Magnified View of Existing Utility Lines on Crater Rim and Simulated View of Utility Lines Removed

Consequently, the project is not expected to have a significant impact on existing views of significance or important visual resources. The existing building is single-story and will not increase in height or footprint. The consolidation of radio antennas and equipment along with other accessory improvements planned should have an overall positive impact on the existing visual character of Diamond Head Crater by minimize existing visual obstructions.

3.7 HISTORIC, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

An archaeological assessment was completed in 1998 as part of a Final Environmental Impact Statement (Final EIS) for the Diamond Head State Monument Master Plan Update of the (IARI, Inc., 1998). This study reviewed documentary information and historic maps concerning traditional and historic land uses in Diamond Head Crater, and conducted a limited field survey of areas within Diamond Head State Monument.

3.7.1 Diamond Head State Monument Background

Diamond Head is preserved as a State monument to the natural and cultural history of the region. Diamond Head is a noted representation of the natural forces of this island's creation. Looming over the Waikiki plain, it served as the backdrop for the activities of the Hawaiian chiefs from at least the 15th century until the late 1800s.

Historical research indicated a long history of human activity around the crater. But it wasn't until the 20th century, and through the development of coastal defenses, that significant landform-altering events occurred within the crater. This is reflected in the cultural resources that were identified in the archaeological assessment conducted, almost all of which are related to the military occupation of Fort Ruger. Plans are currently in the process of being developed by the Division of State Parks for an improved interpretive program that transmits an understanding and appreciation of the history of the crater to visitors (PBR Hawai'i, July 2003).

Previous Archaeological Studies

Several archaeological investigations have taken place within and in the vicinity of Diamond Head crater. Based on historical research and the previous archaeological investigations, it was determined that there is little likelihood for archaeological sites of pre-contact Hawaiian or early post-contact origin in the crater. The archival research suggests that the only Hawaiian activity that may have taken place in the crater was dryland farming (dating to 1822). There were unsubstantiated stories describing the remains of human sacrifices on the interior slopes and human burials in caves and crevices within the crater walls. However, no physical evidence of human sacrifices or human remains has been found.

Traditional Sites and Cultural Resources

There are several heiau that have been mentioned to be in the vicinity of Diamond Head, although none remain intact. Of the religious sites identified in the Waikiki region, the closest to the Diamond Head State monument were located on the lower exterior flanks of the crater which is outside of the Monument's boundaries. The reconstructed distribution of Waikiki heiau indicated a clear focus toward the Waikiki plain of heiau associated with the high chiefs. Therefore, Diamond Head seems to have been the background to, rather than the stage upon which, events took place (PBR Hawai'i, 2000).

However, one (Ahi Heiau) fell within the boundaries of the State Monument. Ahi Heiau is said to have been located on the rim of the crater, where navigational signal fires were kept lit. There is only one un-cited reference to this heiau from a Division of State Parks report, but no physical evidence of a structure has been identified. If such a heiau or signal fires were an actuality, such a condition would be a compelling argument for the name of the crater to be Lae-ahi or "cape of fire" as opposed to the translated reference to the ʻahi fish (PBR Hawaiʻi 2003).

The most significant heiau in proximity to the crater is Papaʻenaʻena Heiau, also called Lēʻahi Heiau. Before being destroyed, it was located on the western slopes of the crater, on a prominence overlooking Waikiki. It has been described as a large, quadrangular, paved terrace, with walls on three sides, and open on the west side. A series of stepped terraces descended to the west from the top of the platform. Most historical accounts and descriptions of this heiau place its use in the time of Kamehameha in the early 1800s. The ruling chief was said to have offered sacrifices in conciliation to the gods after two-thirds of his army was wiped out possibly by yellow fever in 1804. Other accounts indicate that Papaʻenaʻena Heiau was also a surfing heiau where surfers came to offer their sacrifices in order to obtain mana and knowledge of the surf (PBR Hawaiʻi, 2003).

Consultation with Dr. George Kanahele was also conducted as part of the archaeological assessment in 1998 to collect information on cultural practices and features including traditional and customary gathering rights of native Hawaiians associated with Diamond Head. Dr. Kanahele reported that:

> *"It seems clear to me that from a Hawaiian cultural point of view, Diamond Head's importance is mythological, i.e., rooted in Pele. It was kapu. The most kapu place was the crater or pit (or lua as luakini), where Pele resided. Hence, no Hawaiian would think of living, working, or even visiting there, just as no Hawaiian would think of living, working, or visiting a leina a ka uhane (leaping off place). This explains why no evidence of pre-Cook human habitation has been found in the crater. Besides, what thinking Hawaiian would want to live or work in that inaccessible and harsh environment.*
>
> *We can safely conclude that the kapu on Diamond Head and the crater was broken years ago, when Papaʻenʻena heiau lost its mana and when people ceased to worship there (unlike Halemaʻumaʻu where Hawaiian practitioners still worship and conduct ceremonies and rituals). In any case, the crater's importance, then, would be in its geological and botanical environment. In other words, the Hawaiian cultural importance of Diamond Head is to be found on its flanks rather than the crater."* (PBR Hawaiʻi, 2000).

Ft. Ruger Historical District

Portions of the Diamond Head State Monument have been identified as being located within the Fort Ruger Historic District (State Historic Sites Inventory No. 80-14-1350) which was listed on the National Register of Historic Places (NRHP) in 1983. The Fort Ruger Historic District is a noncontiguous district that includes the remnants of O‘ahu’s earliest U.S. Army coastal defense fortification. This includes five batteries, 12 gun emplacements on the rim of the crater, the Lē‘ahi Fire Control Station, remnants of a winch and cable system, the Kapahulu Tunnel, and remnants of the original guardhouse which has since been demolished (PBR Hawai‘i 2003).

Fort Ruger was placed on the Register because it was significant in the history of the military in Hawai‘i as the first coastal defense fortification established by the United States Army in the Islands. The Lē‘ahi Fire Control Station was particularly important as a unique example of such facilities, being the most elaborate construction of this type of facility in the United States. Since the 1950s, many of these facilities have been altered and demolished after the U.S. Army relinquished control over much of the installation. However, even if most of the support and administrative facilities of the fort are in alternative uses or are only concrete foundations, the defensive structures remain as testament to this important part of U.S. military presence in Hawai‘i. Many are in excellent condition and clearly demonstrate the important function they served in protecting O‘ahu’s southern coastline (IARI, Inc. 1998).

Military Sites

Virtually all historic sites documented in archaeological surveys were related to the development of Fort Ruger as part of the coastal defenses for the Island of Oahu. This clearly represents the most significant historical event in the history of Diamond Head. The sites date from 1909 to the 1950s, and range from massive reinforced concrete batteries, to reservoirs, and to soil-bermed firing ranges.

The essential components of the coastal defense complex of Fort Ruger are located within the Diamond Head State Monument boundaries. There are four batteries that are named Harlow, Hulings, Dodge, and Birkhimer, and they represent three main periods of defense development. Battery Harlow was the original coastal defense facility and the other three batteries were built as part of a subsequent land defense network. Battery Birkhimer was remodeled in 1920 to 21 and reflected the changing orientation in defensive strategy given post-World War I changes in armament technology.

The Lē‘ahi Fire Control Station was built in support of Battery Harlow as well as other batteries at Fort DeRussy, and was particularly significant as an unusually complex example of fire control buildings. The other sites include other fire control stations, searchlight housings, observation points, magazine tunnels, and gun emplacements.

3.7.2 Existing Sites Relative to Project

A total of 35 sites or site types were identified during the 1998 archaeological assessment survey of Diamond Head State Monument as shown on the previous figure. All these sites are the remains of 20th century use of the crater, primarily the development of Fort Ruger as the first coastal defense fortification on the island. Nine sites were located along the crater rim, 10 sites are within the crater exterior, 11 sites are in the general Fort Ruger area, and 6 sites are on the crater exterior (IARI, Inc. 1998).

Of these sites identified, only a few of them are located within the immediate vicinity of the project area or could potentially be affected by the planned improvements. These sites are generally those located on the northeastern end of Diamond Head crater generally along the crater rim. These consist of three military Batteries which are Hulings, Dodge, and Birkhimer. There are also a few portable gun emplacements located along the crater rim. Figure 3.10 graphically identifies these sites in relation to the project area.

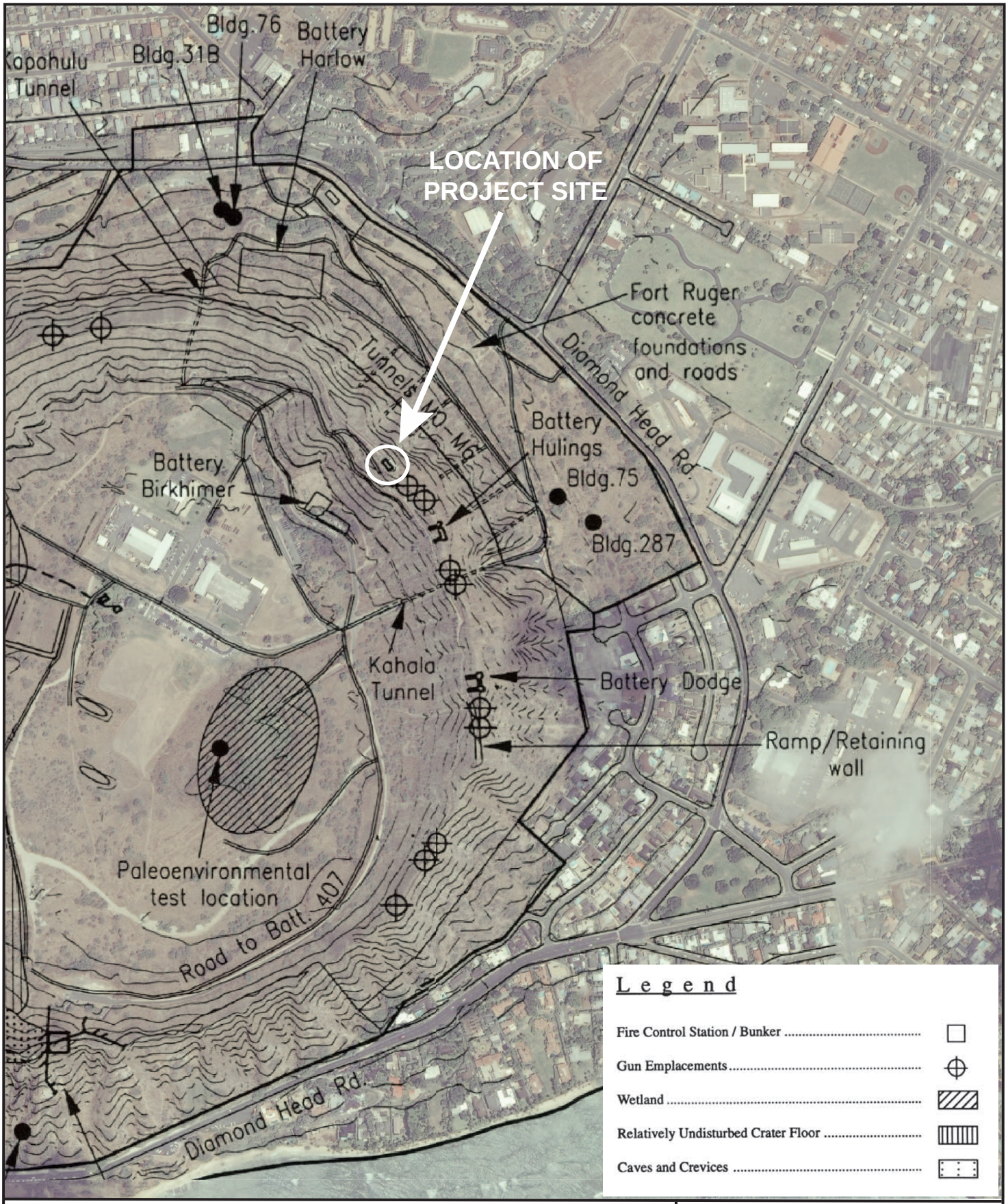
Batteries Hulings and Dodge

Batteries Hulings and Dodge are located just below and inside the eastern end of the crater rim. They are listed as Features 3 and 4, respectively, on the National Register nomination form for the Fort Ruger Historic District. These batteries were built in 1915 as part of the Army land defense system for the island. But by the mid-1920s, these land defense batteries were determined to be obsolete and were disarmed. Batteries Hulings and Dodge have since been used by the State DOD for the storage of communication equipment.

The entrances to the two batteries are from a dirt road cut into the interior hillslope just below the top of the crater rim. This dirt road also provides access to the various gun placements along the top of the crater rim and to the southern section of the crater rim. The batteries consist of reinforced steel concrete tunnels which extend through the wall of the crater. Each contains a single room with access from the interior rim road. They were unique in their design in that they are contained within underground tunnels using the natural earthen cover as protection from bombardment, and access to the cannon is from within the housing. Each battery contained two 4.7-inch Armstrong guns on pedestal mounts. The field of fire for these emplacements protected the eastern shoreline of the island from amphibious landing parties (IARI, Inc. 1998).

Battery Birkhimer

Battery Birkhimer lies on the northern edge of the crater floor, and is currently used by the State DOD as an operation center for the Civil Defense Division. This battery was completed in 1916 and covers more than 18,000 square feet of floor space. It is listed as Feature 6 on the National Register nomination form for the Fort Ruger Historic District.



HISTORIC PROPERTIES SITUATED IN VICINITY OF PROJECT SITE

Figure 3.10

Diamond Head Public Safety Radio Station Master Plan
State Civil Defense, Department of Defense, State of Hawai'i

Source: Digital Globe (Aerial)
PBR Hawaii - Final EIS (2000)

This battery was constructed as part of a land defense system for southern O‘ahu, and was initially designed with a 360-degree field of fire with four 12-inch mortars emplaced in two tandem pairs, separated by a central magazine. This battery was remodeled rather than disarmed when it became clear that the land defense system was obsolete. It underwent a major renovation in 1920-21 to serve as powder magazine space, and was re-listed as a harbor defense facility. In 1952, this battery was acquired by the State DOD, Civil Defense Division.

Portable Gun Emplacements

There are two portable gun emplacements situated on the crater rim near the existing link site building (see photos ►). These gun emplacements are part of several that are intermittently spaced along the eastern portion of the crater rim road probably constructed between 1915 and 1925.

These gun emplacements consist of semi-circular shaped retaining walls around a circular concrete floor. These structures are listed collectively as Feature 5 on the National Register nomination form for the Fort Ruger Historic District. They served as foundations for rapid-firing 6-pound guns that were installed as part of the land defense system built along the crater rim to protect the batteries from ground attack. The guns which serviced these positions were not stored in these locations, but rather, were housed in protected armories and wheeled out as needed (IARI, Inc. 1998).

View of Former Gun Emplacements along Crater Rim

FAA Link Site Building

The former FAA link site building was constructed in 1961 and utilized for communication purposes for air traffic control (PBR Hawai‘i, 2000). This is a concrete constructed building of 1,072 square feet in size. It was not identified as a historic site under the 1998 archaeological assessment. It has since been turned over from the FAA to the State DOD, Civil Defense Division for use as the proposed radio station site.

3.7.3 Probable Effects On Historic Sites & Cultural Resources

Based upon the historical research and previous archaeological investigations, it was determined that there is little likelihood for archaeological sites of pre-contact Hawaiian or early post-contact origin in the crater. Therefore, the project is not expected to affect archaeological sites of pre-contact Hawaiian or early post-contact origin. Historic sites present are associated with military uses of Diamond Head crater associated with the Fort Ruger Historic District.

The proposed consolidation of radio equipment and antennas would be confined within the former FAA Link Site area that has been designated to the SCD for such use under a Governor's Executive Order. As a result, these relocation improvements should not have an effect on the existing building or associated site since it is not identified as a historic site. Battery Birkhimer would not be affected by this project, and would continue to be used by the State DOD as an operation center for the SCD.

The relocation of equipment from Batteries Hulings and Dodge should have no or minimal negative effect on these historic properties. Communication equipment presently housed in these batteries were not associated with its historic use or function since they were added as part of SCD operations. Equipment relocation should not affect the reinforced steel concrete tunnels, rooms, or unique design features associated with these batteries which contribute to its historic value.

This relocation of communication equipment to the proposed radio station site would also have a positive effect on historic properties in the area since it would support improvements planned under the State DLNR's *Diamond Head State Monument Master Plan Update*. Project improvements would allow Batteries Hulings and Dodge to be utilized as crater lookouts and incorporated within the visitor interpretive program as indicated in the master plan. This would support the preservation of their historic character and provide educational benefits. Without the consolidation of radio equipment, these Batteries would have to remain closed to the public for SCD security reasons.

Project improvements would have further positive effects by allowing the trail from the Link Site to the retractable searchlight feature on the southeastern edge of the crater rim to be opened for public use supporting the State DLNR master plan. Finally, gun emplacements along the eastern edge of the crater could also be utilized as lookouts as indicated in the master plan.

The two portable gun emplacements situated on the crater rim near the existing Link Site building should not be significantly affected by the proposed relocation of communication equipment to this site. No improvements or changes are planned for these two gun emplacements, thus, they would remain as is. However, they would not be available for public use as lookouts due to security reasons for the protection of the communication equipment. Other gun emplacements along the eastern edge of the crater would be available for such use.

In the event that iwi kupuna or native Hawaiian cultural deposits, cultural artifacts, subsurface human remains or other indications of human activity older than 50 years are encountered during construction activities, all work would stop immediately and the State Historical Preservation Division (SHPD) notified. The treatment of any human remains encountered would be determined, and conducted in accordance with the applicable requirements of Chapter 6E, HRS, and Chapter 13-300, HAR. During the project's design phase, construction plans developed would also be coordinated with the SHPD for review and comment.

Effects on Cultural Resources

Traditional cultural practices are based on a profound awareness concerning the harmony between man and his surrounding natural resources. Native Hawaiian populations depended on these cultural practices for their survival. A familiarity with specific environments allowed Hawaiian populations to devise systems that fostered sustainable uses for resources. Many of these cultural practices have been passed down from generation to generation. Some Hawaiian communities continue to observe traditions and preserve their culture, to maintain the continuity of these practices.

In terms of cultural resources, this project is not expected to significantly affect traditional native Hawaiian cultural practices other traditional cultural practices occurring within the project area along the eastern end of the crater rim or in the immediate surrounding area. Historic sites within Diamond Head crater documented in previous archaeological surveys were related to the development of Fort Ruger as part of the coastal defenses for the Island of Oahu. This represents the most significant historical event associated with the history of Diamond Head crater (IARI, Inc. 1998).

The 1998 archaeological assessment for the master plan update of the Diamond Head State Monument consulted with Dr. George Kanahele to collect information on cultural practices and features including traditional and customary gathering rights of native Hawaiians associated with Diamond Head (PBR Hawai'i, 2000). He indicated that from a Hawaiian cultural point of view, Diamond Head's importance was mythological (i.e., rooted in Pele) since it was kapu. Thus, no Hawaiian would think of living, working, or even visiting there, and explains why no evidence of pre-Cook human habitation has been found in the crater. Based upon that consultation along with previous archaeological investigations, it was determined that there is little likelihood for archaeological sites of pre-contact Hawaiian or early post-contact origin in the crater.

Consequently, the improvements planned under the radio station consolidation master plan are not expected to affect traditional cultural practices. Improvements would also support the incorporation of historical sites into an interpretive program developed for Diamond Head State Monument, and support the improvements planned under that master plan update.

3.8 BOTANICAL RESOURCES

A field survey of botanical resources associated with the project area situated on the north rim of Diamond Head Crater was performed by AECOS, Inc. A copy of this report is included in Appendix C of this document.

The purpose of the survey was to assess existing botanical resources in relation to the proposed radio station site planned for the consolidation of equipment and antennas along with accessory improvements planned such as the removal of unused utility poles. Due to the nature of the project, the main concern was to assess the potential for possible effects on certain rare and endangered plants from construction activities that may be present within the area. Once the project is completed, there should be no effects on such plant resources.

Survey Methods

A field survey was conducted on August 26, 2005 that involved visiting a known planting site for the endangered *Schiedea adamantis,* and a wandering survey that traversed the roads, trails, and external areas of facilities on and just below the rim between Battery Dodge and the rim above the Kapahulu Tunnel. Staff from the State Department of Land and Natural Resources also attended this field survey and provided guidance in locating a *S. adamantis* planting site.

Unfortunately, August was a very dry month and well into the dry season for leeward Oahu. Many plants that are annuals or summer deciduous were thus not identifiable in the field. Some identifications were achieved by microscopic examination of dried flower or fruit in the laboratory, but other collected plant remains could not be identified. During the survey, the plant species and vegetation types present were recorded, and estimates of the abundance of each species were made. A plant checklist was compiled from all of the observations made by traversing the site as completely as possible (AECOS, Inc. 2006).

3.8.1 Existing Botanical Resources

The vegetation in this area of Diamond Head Crater consists of a Koa-Haole Shrubland, dominated by grasses (dry in the summer) and a short, scrubby growth of Koa-Haole (*Leucaena leucocephala* (see photo exhibit ►). This vegetation type has been mapped around the entire crater rim, with the lower outer and inner lower slopes and crater bottom representing a Kiawe/Koa-Haole Forest vegetation type. Although a majority of the constituents of the Koa-Haole Shrubland vegetation type are naturalized, non-native species, the association includes remnants of the native vegetation.

Photo of Summer Aspect (Typical) of Koa-Haole Shrubland Present along Northern Inner Slope of Crater (AECOS, Inc.)

A total of 38 species of plants representing species known from the project area are listed under Table 3.1. Entries are arranged alphabetically under family names. Included are the scientific name, the common name, and status (native or non-natve), and relative abundance of each species. Of the total number of species, only 29 species were observed during the August survey. The remaining 9 species were reported by Char (1998) as associated with the Koa-Haole Shrubland, and thus possibly occurs in or near the project area.

Of the species identified, 12 (31.5%) species are native to the Hawaiian Islands, and 8 (21% of the total) are endemic. Endemic species are found naturally only within the Hawaiian Islands, and are usually of greater environmental concern because their habitat range is rather restricted. Once they become uncommon or rare in Hawaii they become subject to listing as threatened or endangered species.

The majority of species identified, and certainly the plant biomass, are alien plants that have become naturalized in this dry, lowland surrounded by urban Honolulu. However, the number of native species is quite high in comparison with most lowland locations on Oahu. Thus, these native plants represent an important resource under the care of the State DLNR as part of the Diamond Head State Monument (AECOS, Inc. 2006).

Listed Species

Two species of endangered plants: *Shiedea adamantis* and *Spermolepis hawaiiensis* were found near the radio station project site. According to the U.S. Fish and Wildlife Service, the species *Cyperus trachysanthos (pu'uka'a)* is listed as an endangered plant that exists at the Diamond Head State Monument in the vicinity of the project site. However, this species was not identified during the botanical survey study. Another species, *Lipochaeta lobata var lobata*, also known as the '*nehe*' is considered rare by the Hawaii Natural Heritage Program (HNHP), but was last reported being on the outer southwest slope of the crater distant from the project site (Char, 1998).

The U.S. Fish and Wildlife Service has indicated that a large portion of the slopes of Diamond Head Crater are a critical plant habitat for the *Gouania meyenii* and *Spermolepis hawaiiensis.* As noted above, *Spermolepis hawaiiensis* were found near the project site, but the *Gouania meyenii* was not identified. The U.S. Fish and Wildlife Service also noted that a critical plant habitat for the *Cyperus trachysanthos* and *Marsilea villosa* exists on the crater floor. The nearest point on the perimeter of this area is located roughly 2/10ths of a mile, or over 1,000 feet, to the south of the project site.

Shiedea adamantis (Caryophyllaceae) is a shrub that grows from one to three feet in height, and is known to be present only along the northwestern rim of Diamond Head Crater. This area is distant from the project site which is on the northeastern rim of the crater.

Table 3.1
Listing Of Plant Species In The Project Area

Family	*Scientific Name*	*Common Name*	*Status*	*Abundance*
FLOWERING PLANTS - DICOTYLEDONES				
ANACARDIACEAE	*Schinus terebinthefolius*	Christmasberry	Nat.	R
APIACEAE	*Spermolepis hawaiiensis*	---	End.	--- (2)
ASCLEPIADACEAE	*Stapelia gigantea*	carion flower	Nat.	O
ASTERACEAE	*Bidens cynapiifolia*	---	Nat.	C (1)
	Emilia fosbergii	*pualele*	Nat	U
	Lipochaeta lobata	*Nehe*	End.	--- (2)
	Pluchia carolinensis	sourbush	Nat.	--- (2)
	Reichardia picroides	---	Nat.	O (1)
	Tridax procumbens	coat buttons	Nat.	O
CARYOPHYLLACEAE	*Schiedea adamantis*	---	End.	--- (2)
CONVOLVULACEAE	*Jacquemontia ovalifolia*	*pa'u-o-hi'iaka*	Ind.	U
CUCURBITACEA	*Coccinea grandis*	scarlet-fruited gourd	Nat.	R
EUPHORBIACEAE	*Chamaesyce hirta*	garden spurge	Nat.	U
FABACEAE	*Acacia faresiana*	*klu*	Nat.	U
	Leucauna leucocephala	*koa hale*	Nat.	AA
	Macroptilium lathyroides	cow pea	Nat.	U
	Prosopis pallida	*kiawe*	Nat.	C
LAMIACEAE	*Hyptis pectinata*	comb hyptis	Nat.	U (1)
	Leonotis nepetifolia	lion's ear	Nat.	C (1)
MALVACEAE	*Gossypium tomentosum*	*ma'o*	End.	--- (2)
	Sida fallax	*'ilima*	Ind.	A
NYCTAGINACEAE	*boerhavia acutifolia*	---	Ind.	A
SANTALACEAE	*Santalum ellipticum*	coast sandalwood	End.	R
PAPAVERACEAE	*Argemone glauca*	*pua kala*	End.	U
PASSIFLORACEAE	*Passiflora foetida*	running pop	Nat.	O
PORTULACACEAE	*Portalaca pilosa*	---	Nat.	R
SOLANACEAE	*Nicotiana glauca*	tree tobacco	Nat.	R
STERCULIACEAE	*Waltheria indica*	*'uhaloa*	Nat.	AA
FLOWERING PLANTS - MONOCOTYLEDONES				
ALOEACEAE	*Aloë vera*	aloe vera	Orn.	R
POACEAE	*Cenchrus ciliaris*	buffelgrass	Nat.	A
	Chloris radiate	radiate fingergrass	Nat.	U
	Digitaria insularis	sourgrass	Nat.	--- (2)
	Eragrostis variabilis	*kāwelu*	End.	O (1)
	Heteropogon contortus	*pili*	Ind.	--- (2)
	Melinus repens	Natal redtop	Nat.	U
	Muhlenbergia microsperma	littleseed muhly	Nat.	O (1)
	Panicum maximum	Guinea grass	Nat.	--- (2)
	Panicum torridum	*kakonakona*	End.	--- (2)

Status = distributional status
End. = endemic; native to Hawaii and found nowhere else.
Ind. = indigenous; native to Hawaii, but not unique to the Hawaiian Islands.
Nat. = naturalized, exotic, plant introduced to the Hawaiian Islands since the Arrival of Cook Expedition in 1778, and well established outside of cultivation.
Orn. = exotic, ornamental or cultivated; plant not naturalized (not well-established outside of cultivation)
Pol. = Polynesian introduction before 1778.

Abundance = occurrence rations for plants by area:
R – Rare – only one or two plants seen
U – Uncommon – several to a dozen plants observed
O – Occasional – found regularly, but not abundant anywhere
C – Common – considered an important part of the vegetation and observed numerous times.
A – Abundant – found in large numbers; may be locally dominant
AA – Abundant – abundant and dominant; defining vegetation type.

Notes:
(1) Identified from dried, dead material (August 2005)
(2) Not observed, but reported by Char (1998).

However, in recent years there have been attempts to establish populations of this species in other areas. At least one such site was attempted on the north outer slope of the crater west of the radio station site. This area was searched during the field survey, but no *S. adamantis* plants could be found. A seed bank (viable seeds in the soil) might still exist in the area which was marked by black plastic drip lines and round metal tags. However, no remains that could be identified with *S. adamantis* were found at this location (AECOS, Inc. 2006).

Spermolepis hawaiiensis (Apiaceae) is a slender annual herb that grows from 2 to 8 inches tall, and is characterized by finely dissected leaves. This listed species is extremely variable in population size at this location, with from a few to many hundreds of plants appearing after suitable rainfall conditions on the north rim of the crater (Char, 1998). The species is distributed on all of the major islands, although numbers are generally small. Only two populations are known from O‘ahu with one population located at Diamond Head and the other at Makua in the Waianae District of the island.

The project area was searched for this plant but none was seen and its presence would not be expected until sometime after rains of the wet season begin (typically in November). However, the *S. hawaiiensis* population location is described as being situated “on the east rim on a buttress ridge above the main [Kāhala] entrance tunnel” (Char 1998). This location is perhaps situated along the outside slope of the crater away from the project site. However, this location is between Battery Dodge and Battery Hulings, therefore, in the general project area.

Lipochaeta lobata var lobata (Asteraceae) is a daisy-like forb with somewhat prostrate or arching stems 20 to 60 inches long. It is not listed as threatened or endangered, but is considered quite rare under the HNHP database. It is reported as occurring in various locations at Diamond Head Crater, including the north rim of the crater. However, this plant was not seen during the August survey (AECOS, Inc. 2006).

3.8.2 Probable Effects On Botanical Resources

The long-term (post-construction) effects on botanical resources at Diamond Head Crater in the vicinity of the project site is expected to have a generally beneficial impact on botanical resources along with the overall resource value of the Diamond Head State Monument. This is due to the planned consolidation of communication facilities to the proposed radio station site (former FAA Link Site) along with the planned removal of unused or abandoned utility poles. Once completed, only periodic maintenance activities for radio equipment and antennas would occur at the project site which would not affect existing botanical resources or critical habitats at the site.

Thus, the only potential effects on botanical resources would be construction-related. A majority of the construction work occurring would take place at and immediately surrounding the proposed radio station site building which is located directly upslope from the Birkheimer Battery. It is thus unlikely that any environmental harm to rare or listed plant species will occur

as a result of this construction work at the proposed radio station site because the ground is already paved all around this existing building.

However, there is the potential for construction activities to adversely impact native plants, including listed species, at areas outside of the immediate vicinity of the project site especially along the crater rim. The distribution of *S. hawaiiensis* in relation to areas outside the radio station site that may be affected by construction activities is not known at this time. Such details would be developed during the project's design phase and preparation of construction documents.

To mitigate potential effects, it is recommended that a re-survey of the specific sites planned for construction activities, such as pole removal, be conducted during the wet season to establish if and where sensitive botanical resources are located relative to these work areas. Populations or individuals of endangered or rare plants should be marked with plant flags or flagging tape until the construction phase is completed.

If it is not possible for construction activities to avoid the marked areas, consultation with the U.S. Fish and Wildlife Service and State DLNR should be conducted. A plan to avoid or minimize impacts would then need to be developed. This plan could include botanical monitoring during construction work in "sensitive" areas.

During the design phase of this project, coordination with the State DLNR should be conducted in developing construction plans to minimize potential effects on the *Schiedea adamantis* and *Spermolepis hawaiiensis* populations and on the *Gouania meyenii/Spermolepis hawaiiensis* critical plant habitat that occupies a large portion of the slopes of Diamond Head Crater. Such coordination efforts should also include future phased accessory improvements such as the placing of electrical conduits underground and removal of existing wooden utility poles and overhead lines. Any landscaping provided around the radio station site for security and screening views of this site would also be coordinated with DLNR to support their efforts to remove and control alien plants.

3.9 MAMMALIAN AND AVIFAUNA RESOURCES

A wildlife survey was completed in 1998 as part of a Final Environmental Impact Statement for the master plan update of the Diamond Head State Monument (Ohashi, 1998). This survey was conducted to assess birds and other wildlife within Diamond Head Crater. Fourteen count stations were established consisting of 7 stations located inside the crater and 6 on the outside.

3.9.1 Existing Mammals And Avifaunal Resources

The overall fauna present today in Diamond Head Crater is generally dominated by introduced, alien species. According to the State DLNR, an 1899 photograph of the crater interior indicated grazing animals, possibly cattle, horses, and/or goats were present within the

crater, and the crater floor appeared to have been a grassy pasture. Mules were also used by the Army in the construction of the batteries and Fire Control Station Diamond Head in the crater (PBR Hawai‘i, 2003).

The historic presence of these grazing animals may account in part for the shift in the crater’s botanical environment to a Koa-Haole Shrubland, dominated by grasses and a short, scrubby growth of Koa-Haole. As discussed in the previous section, this vegetation type has been mapped around the entire crater rim, with the lower outer and inner lower slopes and crater bottom representing a Kiawe/Koa-Haole Forest vegetation type.

Mammal Resources

Mammalian species present or commonly sighted in and around the crater include the Small Indian Mongoose (*Herpestes auropunctatus*), feral cats (*Felis cattus*), and various types of rodents. The Small Indian Mongoose is a common species with the naturalized kiawe forest community throughout the Hawaiian Islands. Some tracks have been seen on the unpaved trails within the crater along with a carcass of a mongoose found outside of the crater. The mongoose is an aggressive highly adaptable species and has spread to all vegetative zones of each island, and is a known predator of birds.

Feral cats have been seen within the crater, and scats of feral cats were found throughout the crater and along the foot trail on the outside base of the crater. These cat colonies are common throughout Oahu and their presence within Diamond Head State Monument is no exception. They are an important predator on rodents, but may also be a significant predator on doves and other ground foraging species.

There are four species of rodents present on O‘ahu which are the Roof rat (*Rattus rattus*), the Norway rat (*Rattus norvegicus*), the Polynesian rat (*Rattus exulans*), and the European house mouse (*Mus domesticus*). It is very likely that at least the European house mouse is present within the crater and probably the Roof rat as well. The house mouse is very well adapted to the field and can subsist entirely in a wild state. High populations of this mouse can also compete with seed eating birds for resources. The Roof rat is adapted to a wide variety of environments, and has been noted specifically as a predator on native birds where it is the prominent species in remote forests of Hawaii.

The native federally listed endangered Hawaiian hoary bat (*Lasiurus cinerius semotus*) was not observed during the survey. Hawai‘i Natural Heritage Program records also revealed no bat sightings within the Diamond Head State Monument boundaries or within adjacent areas such as Kapi‘olani Park and the Honolulu Zoo (Ohashi, 1998).

Avian Resources

In terms of avifaunal species, Diamond Head Crater is dominated by various types of alien bird species which are common in an urban setting. Such species include the Zebra dove (*Geopelia striata*), Spotted dove (*Streptopelia chinensis*), Feral pigeons (*Columba livia*), House

finches (*Carpodacus mexicanus*), English sparrows (*Passer domesticus*), Common myna (*Acridotheres tristis*), Red-vented bulbuls (*Pyncnonotus cafer*), Java sparrows (*Padda oryzivora*), Red-crested cardinal (*Paroaria coronata*), Japanese bush warbler (*Cettia diphone*), Japanese white-eye (*Zosterops japonicus*), Northern cardinal (*Cardinalis cardinalis*), Pacific golden plovers (*Pluvialis dominica*), and Gray francolins (*Francolinus pondiceriamus*) (Ohashi, 1998).

The presence of native Hawaiian birds in the crater has not been well documented, but the following birds may be present in the general vicinity during various times of the year and under certain environmental conditions: Hawaiian Owl or Pueo (*Asia flammeus sandwichensis*), Hawaiian Coot or ‘Alae Ke‘oke‘o (*Fulica alai*), and Hawaiian Gallinule or ‘Alae ‘Ula (*Gallinula chloropus sandvicensis*). The U.S. Fish and Wildlife Service has also indicated that two endangered avian species, the Hawaiian coot and the Common moorhen, occur on or near the proposed project site. However, the Hawaiian Coot and Hawaiian Gallinule would only likely be found in marshes and ponds associated with the crater floor. These birds would not be expected inhabiting the crater rim area where the Radio Station site is located because there are no suitable habitats (PBR Hawai‘i, 2003).

Hawai‘i Natural Heritage Program records showed a Pueo (*Asio flammeus sandwichensis*) record for Diamond Head Crater in 1992. The Pueo population on Oahu is listed by the State as endangered, however, the knowledge of their distribution and status on this island is poor. The Pueo are active at dawn, dusk, and often at midday. They inhabit dry lowlands and rain forests but are more often seen in grasslands where they hunt for rodents. They build their nests on the ground, and may be highly vulnerable to introduced mammalian predators (PBR Hawai‘i, 2000).

3.9.2 Probable Effects On Faunal And Avifaunal Resources

The radio station consolidation improvements along with other accessory improvements planned under the master plan is expected to have no long-term (post-construction) effects on mammalian and avifaunal resources at Diamond Head Crater in the vicinity of the project site. Improvements would generally be limited to the proposed radio station site (former FAA Link Site) along with the planned removal of unused or abandoned utility poles. Such improvements would not affect any wetland habitats that these fauna would potentially use; therefore, the proposed project would not present a threat to their presence. .

The vast majority of fauna potentially present in the project are also alien species that are abundant throughout the island. Once completed, only periodic maintenance activities for radio equipment and antennas would occur at the project site which would not affect existing mammalian or avifaunal resources present near the site and surrounding area.

Short-term construction activities are also not expected to have a significant negative impact on existing mammals or avifauna that may be present in the project area. Construction activities would be concentrated at the proposed radio station site which is already developed and

paved. Relocation of existing antennas and the removal of abandoned utility poles would similarly not adversely impact such resources.

Furthermore, coordination with the State DLNR would be conducted during the project's design phase and preparation of construction documents. Therefore, such coordination would ensure that construction related activities planned would not significantly affect potential mammal or avifaunal resources within Diamond Head Crater.

3.10 HYDROGEOLOGICAL RESOURCES

Under the State's Water Resource Protection Plan, aquifers of the island of Oahu have been classified under an aquifer coding system to identify and describe these aquifers. This system is comprised of Aquifer Sectors, and then Aquifer Systems located within these sectors.

An Aquifer Sector reflects an area with broad hydrogeological (subsurface) similarities while maintaining traditional hydrographic (surface), topographic and historical boundaries. The Aquifer system is an area within a sector that is more specifically defined by hydrogeologic continuity, particularly hydraulic connections among aquifer types and units (CWRM 1990).

Diamond Head Crater is within the Honolulu Aquifer Sector (301). Within this Honolulu aquifer sector, there are five aquifer systems which are the Palolo, Nuʻuanu, Kalihi, Moanalua, and Waialae. Diamond Head Crater is situated partially within the Pālolo Unit (30101), and partially within the Waiʻalae Unit (30105) (CWRM 1990).

The proposed radio station project site is situated within the Waiʻalae Aquifer Unit (30105) which generally spans in a mauka-makai direction from the ridgeline of the Koʻolau Mountains to the shoreline and from Diamond Head to Makapuʻu Point. The Honolulu Aquifer Sector has an estimated sustainable yield of 53 million gallons per day (mgd).

Probable Impacts

The construction of the proposed radio station is expected to have minimal if any impact on the surrounding groundwater aquifer system. The building renovation and operations along with the relocation of existing antennas will not require demand for potable water that may affect the aquifer or its sustainable yield. Accessory improvements planned will also not require the use of potable water and have no effect on the aquifer.

Some water could occasionally be trucked to the site to water landscaping associated with the project site. However, native plants used for landscaping are intended to be similar to existing vegetation on the crater slopes which require minimal water due to the dry conditions present there. No irrigation lines for landscaping are planned, thus, watering for landscaping would primarily be from rainfall having negligent if any effect on the aquifer.

3.11 STREAMS AND AQUATIC RESOURCES

There are no streams present in the immediate vicinity of the project site. This is due to the existing link site building being situated near the crater rim at a high elevation. As a result, there are no physical geological conditions present above this site for which storm water runoff and streams would occur near the project. Storm water runoff from torrential rain storms that do occasionally occur in this area would quickly sheet flow down the crater slopes following any of the numerous deep, narrow ravines and spurs before collecting in the crater floor. As a result, there are no aquatic resources present in the immediate vicinity of the project area. There are no known water bodies affected by the project which are on the current List of Impaired Waters in Hawai‘i.

The coastal waters around Oahu are of generally good quality because the former practice of ocean disposal of municipal, agricultural, and industrial wastes has been much improved or eliminated by land treatment and water-reuse practices. Coastal waters in the vicinity of Diamond Head Crater are designated as “Class A.” The objective of Class A waters use is for recreational purposes and aesthetic enjoyment to be protected. Based upon the State DOH Water Quality Standards (Chapter 11-54, HAR), these waters are not to act as receiving waters for any discharge which has not received the best degree of treatment or control compatible with the criteria established for that class.

Probable Impacts

The proposed radio station project will have no effect on streams and aquatic resources since none are present in the immediate vicinity near the crater rim.

Building improvements should have minimal if any effect on the site’s topography and soils since no grading or other significant site preparation work should be necessary. Consolidation of existing antennas would similarly involve minimal disturbances to the existing topography and soils associated with this site. Best management practices will be implemented by the contractor to minimize soil erosion during construction activities. Design plans prepared would also be submitted to pertinent agencies for their ministerial review and approval. As a result, construction activities would be temporary and are not expected to have a significant impact on coastal waters.

CHAPTER 4
ECONOMIC AND SOCIAL FACTORS

This chapter discusses the project's probable impact on economic and fiscal factors associated with the State and County, as well as social factors such as changes in resident population, housing, and character of the community.

4.1 ECONOMIC AND FISCAL FACTORS

This section discusses the effects of the project on both the County and State's economic and fiscal factors. Project improvements will have different effects in relation to the City and the State of Hawai'i. Improvements planned under the master plan should have a small minor positive economic impact mainly associated with the creation of short-term construction related jobs.

Short-Term Construction Related Jobs

The projected construction cost for the renovation of the proposed radio station and related improvements are conservatively estimated to be $1,000,000. This renovation and consolidation project would create several construction jobs over the anticipated construction period. In discussions of jobs and income, three broad types are distinguished:

- *Direct* jobs are immediately involved with construction of a project or with its operations.
- *Indirect* jobs are created as businesses directly involved with a project purchase goods and services in the local economy.
- *Induced* jobs are created as workers spend their income for goods and services.

Construction of the project improvements should have a minor short-term positive economic impact associated with the creation of short-term construction related jobs. Direct construction jobs would typically consist of on-site laborers, tradesmen, mechanical operators, supervisors, etc. These new jobs created would also generate additional personal income for construction workers. Personal income is defined as the wages paid to the direct construction workers or operational employees associated with a development. It is anticipated that these construction jobs would likely be filled by residents from the Island of Oahu employed within the construction industry.

Direct construction jobs created would also stimulate indirect and induced employment within other industries on the island such as retail, restaurants, material distributors, and other related businesses supporting the construction industry.

Based upon the construction budget, it was estimated that eight (8) new direct construction jobs would be created by the project. It was estimated that another 10 indirect and induced jobs could be generated by this project for a total employment impact of 18 jobs.

These new jobs would generate additional personal income for construction workers of approximately $373,000. Personal income is defined as the wages paid to the direct construction workers or operational employees associated with a development. Indirect and induced income would also be generated on the order of approximately $324,600 from this project.

Fiscal Factors

Fiscal impacts associated with this project would primarily involve some additional tax revenue generated to the State due to construction costs expended for this project. Tax revenue sources for State government are composed primarily of general excise taxes (GET) on development costs and construction materials, along with corporate income tax, and personal income tax from construction workers. Construction related tax revenues would be one-time or short-term increases in revenue since they are only associated with construction activities.

In addition, GET taxes on indirect and induced income spent stimulated by the spending of direct income would also contribute new revenues to the State. The approximately $1,000,000 expended for renovation of the proposed project improvements was estimated to generate increased tax revenue of approximately $160,500 to the State.

The improvements planned for the project under this master plan should contribute to the property value of Diamond Head State Monument increasing it slightly. However, since City revenues are primarily limited to property tax revenues, there should be no effect to the City revenues from this project. Diamond Head Crater is a State-owned property that is exempt from paying City property tax. Therefore, with the project improvements, there would be no changes to the City property tax revenues.

No changes to the property values of existing surrounding residences are also anticipated from this project. This project would also not generate any new in-migrant residents to the island of O‘ahu since construction jobs are expected to be filled from residents within Oahu.

4.2 SOCIAL IMPACT FACTORS

The proposed radio station is not expected to change the existing resident population in the Diamond Head community or surrounding region. This project is a State-initiated capital improvement project. There are no new residential units or visitor units associated with this project, and no in-migration of individuals residing within the City would result. As a result, there should be no impact on the existing resident population.

This proposed SCD Public Safety Radio Station project would also not change or alter the character of the Diamond Head/Kāhala/Kapahulu community or the character of the Diamond Head Crater. The project essentially renovates an existing building in Diamond Head Crater, to implement internal plans of the State Civil Defense, and the Diamond Head (Lē‘ahi) State Monument Master Plan. Consequently, this project would not change existing uses in the surrounding area or have a significant impact on surrounding land uses.

4.3 CUMULATIVE AND SECONDARY IMPACTS

Cumulative Impacts

Cumulative impacts are effects on the environment which result from the incremental impact of a project when added to past, present, and reasonably foreseeable future actions.

There are no other known public or private developments or major projects planned to occur in the vicinity of the project site before the construction timeframe or completion date for this project.

Therefore, the discussion of impacts presented within this document has addressed the cumulative impacts associated with the project and other reasonably foreseeable future actions being implemented. This indicates that there are no major cumulative impacts associated with this project.

Secondary Impacts

Secondary impacts, or indirect effects, are effects which are caused by an action and are later in time or farther removed in distance, but are still reasonably foreseeable. Such effects may include growth-inducing impacts and other effects related to changes in land use patterns, population density or growth rate, and related effects on air, water, and other natural systems.

The proposed project is not expected to have any secondary impacts on resident populations, land use patterns, public facilities and infrastructure, or the natural environment. The impacts of this project on the physical and biological environment, as described in Chapter 3, will be either totally unrelated to these areas of potential impact – as in the case of resident populations and land use patterns – or will be at a very minor and generally beneficial level – as in the case of public facilities and the natural environment. As such, there is no reasonable basis to expect that adverse secondary impacts could occur.

Construction of this project is expected to generate minor short-term effects associated with construction activities. However, the creation of short-term construction jobs is not expected to generate any in-migration of workers to the Island of Oahu to fill these jobs. It is anticipated that qualified local contractors on the island or within the State of Hawai‘i would likely be used for the project’s construction. Consequently, the construction of this project would not have any long-term or permanent secondary effects on the number of resident construction workers in the City or State.

CHAPTER 5
INFRASTRUCTURE FACILITIES

This chapter discusses the project's probable impact on infrastructure facilities serving the immediate surrounding area. Due to the nature of improvements proposed for this project, most of the impacts would be associated with construction-related activities. As a result, there would be no increase in agency users or communication equipment generated by the project. Therefore, there should be minimal, if any, changes to infrastructure demands resulting from this project.

5.1 WATER FACILITIES

The potable water system currently servicing the Diamond Head (Lē'ahi) State Monument is provided by DLNR through connection to the City and County of Honolulu's Board of Water Supply (BWS). Water sources are primarily the Honolulu and Pearl Harbor Aquifers, from which water is conveyed to storage reservoirs at Wilhemina (2.0 million gallons) and Palolo (500,000 gallons). These reservoirs provide service to the Kaimukī, Kāhala and Diamond Head areas. The BWS conveys potable water to users through a system of 8-inch water lines that spur off a 12-inch water main located beneath Diamond Head Road (Mitsunaga and Associates, 1998).

Water lines extend into Diamond Head Crater, where potable water is supplied to government facilities operated in the crater such as the State Department of Defense, State Civil Defense at Battery Birkhimer and Diamond Head State Monument, where water is used for domestic and irrigation purposes associated with visitor facilities.

Under the master plan, radio equipment will be consolidated from Batteries Hulings and Dodge to the proposed radio station building along with relocating existing antennas. As a result, there will be no demand generated for potable water to service the new radio station building and no water lines constructed. Therefore, this project should have no effect on the City's water facilities serving Diamond Head Crater and the surrounding area.

5.2 WASTEWATER FACILITIES

Wastewater generated in the Diamond Head Crater is collected from the various buildings and locations to a sewer lift station located south of Building 303 (vicinity north of state park parking lot). The lift station then pumps sewage through a 4-inch force main to a manhole in the Kāhala Tunnel. From the manhole, sewage is conveyed through gravity flow to the City and County's manhole located at Paikau Street and 22nd Avenue. Sewage is eventually transmitted to the Sand Island Wastewater Treatment Plant for treatment and disposal.

The improvements planned under the master plan for this project should have no effect on existing wastewater facilities in the area operated by the City. No potable water will be required

for the new radio station building, and no staff will be working within this building. Individuals who do occasionally access the building will generally be there as part of maintenance activities associated with the communication equipment. As a result, there will be no new wastewater generated by this project or its operations. Injection wells for wastewater disposal or surface runoff will not be needed for this project, and the project does not involve a golf course.

5.3 DRAINAGE FACILITIES

Diamond Head Crater has no natural drainage outlet to the ocean for surface run-off. The existing drainage system consists of natural drainage ways, culverts, lift stations, and drain lines. Water generally sheet flows down the crater walls to lower areas on the crater floor where it collects. From here, lift stations pump water through force mains to a manhole at the Kāhala Tunnel, and subsequently to a manhole at Paikau Street and 22nd Avenue.

The renovation and consolidation improvements for this project should have minimal if any impact on the existing drainage system serving this area. The possibility of some additional paved area created for parking in the area of the radio station building will increase the amount of impervious surface at the site. However, this increase will be minimal, and should have negligible if any effect on existing runoff quantities. With the proposed project improvements, existing drainage facilities within Diamond Head Crater serving this area should be adequate. It is expected that discharges associated with the project will comply with the applicable State Water Quality Standards under your Administrative Rules and requirements contained in Chapters 11-54 and 11-55.

5.4 SOLID WASTE

Solid waste collection for the Diamond Head State Monument is managed by the DLNR, State Parks staff. Solid waste management for the Department of Defense within the crater is provided by the State Department of Accounting and General Services (DAGS).

Solid waste collected from Diamond Head as well as other areas on Oahu is disposed of at the Waimānalo Gulch Sanitary Landfill and at the James Campbell Industrial Park H-Power energy recovery incinerator, both of which are located in the ‘Ewa District of O‘ahu. Construction-generated solid waste may also be disposed of at the privately-owned PVT Nānākuli Construction and Demolition Material Landfill on Lualualei Naval Station Road. This facility manages over twenty percent of O‘ahu’s waste stream.

Prior to the start of construction activities; a solid waste management plan will be developed during the project’s design phase. The improvements proposed under the master plan will generate some solid waste associated with construction-related activities. Solid waste generated during the project’s construction will be directed to a permitted solid waste or recycling facility. The volume of solid waste generated is expected to be small due to the limited areas that will be affected by building renovation, consolidation of antennas, and accessory

improvements. Construction-related solid waste generated will be a short-term impact, and consist primarily of vegetation, rocks, and other debris created from clearing, excavation, and other related construction activities. The contractor will be required to properly dispose of all debris generated in conformance with agency regulations.

Minimal solid waste is expected to be generated from the operations associated with the new radio station site since it will primarily consist of communication equipment. No other activities would be conducted on a regular basis at that facility which may generate solid waste. Periodic maintenance activities for the equipment may generate some waste, however, that would only occur occasionally and not generate large amounts of waste. Waste generated from this project would be disposed of by the SCD or DAGS since it is associated with the State facility. As a result, this project is expected to have minimal effects on solid waste facilities.

5.5 TRANSPORTATION FACILITIES

Diamond Head Road in the area of the Diamond Head Crater is a 2-lane, 2-way roadway under the jurisdiction of the City and County of Honolulu. This roadway traverses the south, east, and north slopes of Diamond Head. Access to Diamond Head Crater is off of Diamond Head Road at an intersection across the Kapiʻolani Community College. This primary access road leads to the Kāhala Tunnel, which provides access to the crater floor, and the Diamond Head State Park, where it terminates into a parking lot.

A secondary access road spurs off of the primary access road, and leads to the project site. Traffic on the primary access road is primarily due to visitors and recreational users of the Diamond Head State Monument. Traffic on the secondary access road is sporadic, and is primarily due to State Department of Defense or DLNR employees using the road to service areas of the crater.

With the project, there should be no effect on existing transportation facilities serving Diamond Head State Monument. There will be no employees at the radio station site, and operations of the facility will be by existing SCD employees. Thus, the project will not generate any new trips to the site.

CHAPTER 6
PUBLIC FACILITIES AND UTILITIES

This chapter discusses the project's probable impact on public facilities and utilities serving the Project Site and surrounding area. Due to the nature of improvements proposed for this radio station renovation and relocation project, impacts would be primarily associated with construction related activities.

6.1 ELECTRICAL AND COMMUNICATION FACILITIES

Electrical services are provided to the Diamond Head Crater area via Hawaiian Electric Company's (HECO) distribution lines. HECO's primary lines in the area are located along Makapu'u and Alohea Avenues.

Electrical lines located within the crater are brought via overhead sub-transmission lines to the Kapahulu Tunnel. The lines are underground through the tunnel, and then are subsequently overhead lines situated on wooden utility poles within the crater.

Telecommunication and cable television services are provided to the project site by Verizon Hawaii and Oceanic Time Warner Cable, respectively, via overhead lines following the electrical lines.

For the radio and antenna consolidation improvements planned, electrical, telecommunication, and cable lines for the proposed station site will utilize both new and existing conduits. The existing electrical conduit/handhole system up to serve the existing link site building is exposed along the edge of the access road leading up to this site since it is situated above ground. This will be replaced with a new underground system installed within the access roadway. The conduits will be concrete encased and the handholes will be rated for vehicular traffic. New underground communications conduits will also be installed from the SCD's operation center in Birkhimer Battery up to the proposed radio station building.

These improvements are not expected to have a significant impact on HECO's existing distribution system serving this area or its capacity to provide electrical service. In addition, the removal of unused overhead lines and utility poles would also not impact HECO's distribution system. Appropriate coordination with this utility company would be conducted during the design phase of this project to ensure improvements meet both agency and HECO requirements. Construction activities would also be coordinated with the contractor to minimize disruptions to existing electrical services.

Coordination with the respective telecommunication and cable television service providers will also be carried out during the design phase to ensure that improvements will not impact their facilities and systems.

6.2 EDUCATIONAL FACILITIES

The Diamond Head Crater area is within the Kalani Complex Area. The area currently contains 12 public schools operated by the State Department of Education (DOE). There are seven (7) elementary schools, one (1) middle school, one (1) high school, and three (3) special schools.

Within close proximity of the project site is Kaimukī Middle School, located 0.4 miles east of the project site at the corner of 18th Avenue and Kīlauea Avenue. Variety Club School, a private school for children with learning disabilities, is located 0.4 miles southeast of the project site.

Kapiʻolani Community College (KCC), part of the University of Hawaiʻi System, is a state-sponsored, two-year degree-granting academic institution. The KCC campus extends up to 18th Avenue and along Diamond Head Road in the project area. KCC attracts students from across the U.S. and internationally, and serves a diverse student population with widely varying needs. The fully accessible campus includes 20 modern buildings integrated within natural surroundings. In addition to offering college credit classes, KCC offers continuing education, training and general interest classes.

Probable Effects

The proposed improvements planned under the master plan are expected to have no long-term impact on these educational institutions since improved facilities will be located within Diamond Head Crater. Since this project includes the consolidation and relocation of radio equipment and antennas at the radio station site on the crater rim, the operations associated with that facility will not impact these educational facilities.

Only short term constructed related effects that may occur could possibly affect such school facilities, and would be due to fugitive dust emissions or construction noise. The closest school to the project site is KCC. However, it is expected that dust emissions or construction noise will not impact the KCC school campus because of its location a distance away from Diamond Head Crater, and because the project area is located on the crater rim. Construction activities would not involve extensive grading or other type of activities that generate a lot of noise from heavy equipment or other machinery. Thus, the potential for dust emissions and noise would be relatively minimal and confined due to the type of improvements planned.

Furthermore, the contractor would be required to comply with applicable regulations and permit conditions governing construction activities to minimize fugitive dust and noise. These were discussed in greater detail in Chapter 3. Best management practices would also be implemented to minimize dust, erosion, and other nuisances from such short-term construction activities. Therefore, such activities are not expected to have a significant impact.

6.3 POLICE AND FIRE PROTECTION

Police Protection

The Honolulu Police Department provides services to the Waiʻalae-Kāhala area through District 7 of the Central Patrol Bureau. This bureau is housed at the main police station on Beretania Street in Downtown Honolulu, and also operates substations within the district. Police staff may also be requested to assist enforcement officers of the State Department of Land and Natural Resources in patrolling Diamond Head Crater and surrounding areas.

The proposed consolidation project is expected to have minimal impacts on the operations of the Honolulu Police Department. Improvements should not generate the type of activities that would increase the demand for their services since the radio station site will not be occupied. Therefore, the project is not expected to affect their ability to provide adequate protection services to the surrounding community and the larger Primary Urban Center District.

The improvements could have a positive effect on the Police Department's operations. The Police Department has expressed an interest in relocating some antennas and equipment to the radio station site for their use from another site outside of Diamond Head. If accommodated, the radio station site will help ensure continued reliable communication services to support their operations and activities.

Fire Protection

The Honolulu Fire Department has two fire stations in the immediate area; one in Kaimukī, and the other in Waikīkī. The Waikīkī Fire Station is equipped with a 5-person engine, and a 5-person quint (combination pumper/ladder truck). The Kaimukī Station is similarly equipped. The Waikīkī Station is located approximately 1 mile away from the project site, while the Kaimukī Station is located 0.75 mile away. Both stations have a response time of approximately 2 to 3 minutes to Diamond Head Crater. Back-up service is provided by fire stations located in McCully, Pālolo, Mānoa, Pāwaʻa, and Wailupe.

The proposed consolidation project is expected to have minimal impacts on the operations of the Honolulu Fire Department. Improvements should not generate the type of activities that would increase the demand for their services. Therefore, the project is not expected to affect their ability to provide adequate fire protection services to the surrounding community. Further more, the on-site fire protection requirements will be coordinated with the Fire Prevention Bureau for the Honolulu Fire Department.

The improvements would have a positive effect on the Fire Department's operations by ensuring continued reliable communication service through the use of the proposed radio station site. The Department already has equipment and antenna on the crater that will be consolidated. Thus, the project would support communication services associated with their operations and activities.

6.4 RECREATIONAL FACILITIES

Recreational facilities in the area are designated by the City as regional parks, community parks, neighborhood parks, and beach/shoreline parks. Regional parks are large recreational complexes. Community parks serve an approximate population of 10,000 people and normally include playfields, courts, and a recreation building. Neighborhood parks serve an approximate population of 5,000 people and normally include playfields, courts, and a comfort station. Beach/shoreline parks are day use parks primarily for sunbathing, and picnicking.

Recreational facilities located in the vicinity of the project site on Diamond Head Crater include Kapiʻolani Regional Park, Pākī Park, Kapāolono Park, Kīlauea District Park, Fort Ruger Park, Diamond Head Lookout Recreational Park, Kuilei Cliffs Beach Park, Diamond Head Beach Park, Lēʻahi Park, Mākālei Park, and Diamond Head State Park.

Since February 1968, Diamond Head has been designated as a National Natural Landmark (NNL) through the National Natural Landmarks Program which is administered by the U.S. Department of the Interior, National Park Service. This program recognizes and encourages the conservation of outstanding examples of the country's natural history (NPS, 2008). Per comments received on the Draft EA, the U.S. Department of the Interior, National Park Service has determined that the proposed project should not have a deleterious effect on Diamond Head NNL and the proposed project is located outside of the NNL boundary. A copy of this letter is included in Appendix B.

Renovation and construction activities associated with this project and eventual use of the radio station are not expected to result in any significant impacts on these facilities or severely disrupt existing recreational activities occurring thereon. Construction activities and subsequent use of the radio station site will not involve the use of these recreational facilities or impede existing activities conducted there.The City Department of Parks and Recreation, has determined that the proposed project will not impact any of the Department of Parks and Recreation programs or facilities. A copy of this letter is included at Appendix B.

As discussed in Chapter 2, the project improvements would support the DLNR master plan for the Diamond Head State Monument. This would include turning over use of Batteries Hulings and Dodge to State DLNR for their use as visitor attractions. Therefore, the project would have some positive effects on the future DLNR plans for the Diamond Head State Monument.

6.5 MEDICAL FACILITIES

Two medical facilities are situated in close proximity, approximately 0.5 miles north, of the project site. The Diamond Head Health Center (DHHC) is one of the few hospitals that provides HIV and AIDS programs and services, and also provides adult and children mental health services and life skill programs.

Adjacent to the DHHC is Lē‘ahi Hospital. Established in the 1900’s by the Victoria Hospital Association, Lē‘ahi Hospital is well known for its treatment for tuberculosis. The hospital, now operated by the State of Hawai‘i, has 192 beds, close to 310 employees, and also provides long-term care, and adult and children’s psychiatric in-patient services.

Emergency medical services are available at Kaiser Permanente’s Honolulu Clinic, Straub Clinic and Hospital, and the Queen’s Medical Center, located approximately 4 miles northwest of the project area.

The improvements planned under the master plan are expected to have no long-term impact on these medical institutions since the improved communication facilities will be located within Diamond Head Crater. The operations associated with this facility will not impact these facilities since the consolidation and relocation of radio equipment and antennas at the radio station site are situated on the crater rim.

Only short term construction related effects that may occur could possibly affect such medical facilities, and would be due to fugitive dust emissions or construction noise. However, it is expected that dust emissions or construction noise will not impact such facilities because they are located a considerable distance away from Diamond Head Crater, and because the project area is located high on the crater rim. Construction activities would not involve extensive grading or other type of activities that generate a lot of noise from heavy equipment or other machinery. Thus, the potential for dust emissions and noise would be relatively minimal and confined due to the type of improvements planned.

Furthermore, the contractor would be required to comply with applicable regulations and permit conditions governing construction activities to minimize fugitive dust and noise. These were discussed in greater detail in Chapter 3. Best management practices would also be implemented to minimize dust, erosion, and other nuisances from such short-term construction activities. Therefore, such activities are not expected to have a significant impact.

CHAPTER 7
CONFORMANCE WITH PLANS AND POLICIES

This chapter discusses the project's conformance with the State Land Use District regulations, State Environmental Policy (Chapter 344, HRS), and the regulations, policies, and goals set forth by the City and County of Honolulu General Plan.

7.1 STATE LAND USE DISTRICT

Pursuant to Chapter 205, HRS, all lands in the State of Hawaii are classified by the State Land Use Commission (LUC) into four major land use districts which are referred to as State Land Use Districts. These four land use districts are the Urban, Rural, Agricultural, and Conservation Districts. State Land Use District Boundary Maps maintained by the State Land Use Commission for Oahu indicates that the proposed Radio Station site, and immediate surrounding areas associated with the Diamond Head State Monument are classified as being within the State Land Use Conservation District.

Conservation District

Conservation District designated lands fall under the jurisdiction of the State Board of Land and Natural Resources (BLNR). The BLNR has the authority to establish zones (also known as subzones) within lands designated as Conservation District. Permitted uses within subzones are delineated in the BLNR's Administrative Rules, Section 13-5-23 of Title 13, Chapter 5, HAR.

The proposed Radio Station project site is located within the Resource Subzone based upon review of the DLNR's subzone maps. Other existing antennas and radio equipment that are planned to be relocated are similarly situated within the Resource Subzone. However, a portion of the easements for the access road to this station site along with above ground conduits along this road are located within the General Subzone. Other areas along the crater rim planned as part of accessory improvements are similarly situated within the General Subzone.

The objective of the Resource Subzone is to "develop, with proper management, areas to ensure sustained use of the natural resources of those areas" (Section 13-5-13(a), HAR). The objective of the General Subzone is to "to designate open space where specific conservation uses may not be defined, but where urban use would be premature" (Section 13-5-14(a), HAR).

Land uses permitted in both the Resource and General subzones include those identified as "public purpose uses" for which the improvements proposed under the project's master plan would qualify under. Public purpose uses includes land uses "undertaken by the State of Hawaii or the counties to fulfill a mandated government function, activity, or service for public benefit and in accordance with public policy and the purpose of the conservation district. Such land uses

may include transportation systems, water systems, communications systems, and recreational facilities" (§13-5-22(b)(P-6), HAR). A Conservation District Use Permit would be required for the development of this project.

The proposed project improvements would be a permissible use within these subzone classifications, and consistent with the objective and permitted uses associated with those subzones. As discussed under Chapter 2, the project site has been set aside by the Governor's Executive Order No. 4055, and identifies this area as a Communication Facility Site. This Order designated the control and management of this area to the State Department of Defense, Civil Defense Division. Therefore, this radio station site has been authorized as a public purpose use undertaken by the State to fulfill a mandated government function and associated activities.

The SCD is initiating the establishment of this consolidation project to improve their ability to manage existing radio equipment and antennas within Diamond Head State Monument. This consolidation and other accessory improvements planned will help support their mission to prepare for and respond to disasters and emergencies. In supporting homeland security efforts, public safety, and emergency management activities for the State of Hawai'i, the SCD needs to ensure that important facilities, such as these radio equipment and antennas, are properly managed and maintained because they are vital to the operations of other Federal, State, and County agencies.

7.2 CHAPTER 344, STATE ENVIRONMENTAL POLICY

This section discusses the project's conformance and consistency with the pertinent goals, policies, and guidelines described under Chapter 344, HRS, State Environmental Policy.

Environmental Policy

1. ***Conserve the natural resources, so that land, water, mineral, visual, air and other natural resources are protected by controlling pollution, by preserving or augmenting natural resources, and by safeguarding the State's unique natural environmental characteristics in a manner which will foster and promote the general welfare, create and maintain conditions under which humanity and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of the people of Hawaii.***

The Radio Station project will be consistent with this environmental policy because the proposed improvements would utilize an existing structure within the Diamond Head (Lē'ahi) State Monument. These improvements will be designed and constructed to minimize effects on natural resources, control pollutants during construction by implementing best management practices, and include review and approval by pertinent regulatory agencies. The project site is relatively level with no need for extensive grading. It is also located away from the shoreline area.

Therefore, this project will conserve natural resources such as open space lands, and is not anticipated to impact the shoreline and the ocean waters beyond. The State's unique natural environment will be safeguarded as development of the project will foster conditions where man and nature can co-exist. The project will provide opportunities for expanding recreational activities already occurring in the crater and provide needed State communication facilities.

Guidelines

2. Land, water, mineral, visual, air, and other natural resources

A. Encourage the management practices which conserve and protect watersheds and water sources, forest, and open space areas.

B. Establish and maintain natural area preserves, wildlife preserves, forest preserves, marine preserves, and unique ecological preserves.

C. Encourage management practices which conserve and protect watersheds and water sources, forest, and open space areas.

The Radio Station project will be consistent with these guidelines because the improvements would not impact those natural resources identified such as watersheds, forest preserves, wildlife preserves, or unique ecological preserves. The project would not impact an area that is valuable as important open space area since the Radio Station will be located in an existing, renovated building within the Diamond Head Crater. Appropriate measures would be incorporated into the project's design to minimize erosion and address appropriate drainage requirements to help conserve and protect natural resources.

3. Flora and fauna

A. Protect endangered species of indigenous plants and animals and introduce new plants or animals only upon assurance of negligible ecological hazard.

B. Foster the planting of native as well as other trees, shrubs, and flowering plants compatible to the enhancement of our environment.

As discussed in Chapter 3 of this document, two endangered plant species have been identified in or near the project site. The project will be consistent with the guidelines to mitigate negative impact to these habitats. Information gained from the consultation process will help determine the Best Management Practices that will be developed and implemented during the construction phase to minimize disturbance of the population areas.

Birds, mammals, reptiles, and amphibians that may frequent the project site are expected to be alien or indigenous species that are commonly found in urban environments. Fauna species present within the project site are not expected to be negatively affected since development of this project should not drastically alter the existing environment. For the Hawaiian owl, pueo, and the two federally listed endangered birds, the Hawaiian coot and the Common moorhen, presumed to be found in the crater, mitigation measures will be implemented. Input received as part of the consultation process will help identify any protective practices to be implemented.

This project will not introduce new plants or animals to the area, which may have an ecological hazard.

4. Parks, recreation, and open space

A. Establish, preserve and maintain scenic, historic, cultural, park and recreation areas, including the shorelines, for public recreational, educational, and scientific uses.

B. Protect the shorelines of the State from encroachment of manmade improvements, structures, and activities.

C. Promote open space in view of its natural beauty not only as a natural resource but as an ennobling, living environment for its people.

The project is not expected to impact significant historic properties or cultural resources and practices as discussed in Chapter 3 since there are no known sites present or traditional cultural practices affected by the project. The project site is located within the Diamond Head Crater, and will have a positive impact on existing public and recreational uses within the crater. The project site is located away from the shoreline area, thus protecting the shoreline from encroachment of manmade improvements, structures and activities. The project will improve accessibility and enjoyment of the open space and natural environment of the area by opening up a new trail and look-out vista.

5. Citizen participation

A. Provide for expanding citizen participation in the decision making process so it continually embraces more citizens and more issues.

The environmental review process undertaken for this project allows for public and government agency input of concerns and comments associated with the project. Such opportunities include pre-assessment consultation and review of the Draft EA. Thus, the public consultation process incorporated within this environmental review process provides decision-makers with a diverse array of information to consider in evaluating this project.

7.3 CITY AND COUNTY OF HONOLULU GENERAL PLAN

This section discusses the project's conformance with pertinent objectives and policies from the City and County of Honolulu General Plan.

Natural Environment

1. Objectives

A. To protect and preserve the natural environment.

B. To preserve and enhance the natural monuments and scenic views of Oahu for the benefit of both residents and visitors.

2. Policies

A. Protect Oahu's natural environment, especially the shoreline, valleys, and ridges, from incompatible development.

B. Require development projects to give due consideration to natural features such as slope, flood and erosion hazards, water-recharge areas, distinctive land forms, and existing vegetation.

C. Design surface drainage and flood-control systems in a manner which will help preserve their natural settings.

D. Protect the natural environment from damaging levels of air, water, and noise pollution.

E. Protect plants, birds, and other animals that are unique to the State of Hawaii and the Island of Oahu.

F. Protect the Island's well-known resources: its mountains and craters; forests and watershed areas; marshes, rivers, and streams, shoreline, fishponds, and bays; and reefs and offshore islands.

G. Protect Oahu's scenic views, especially those seen from highly developed and heavily traveled areas.

J. Locate roads, highways, and other public facilities and utilities in areas where they will least obstruct important views of the mountains and the sea.

The project will comply with all of these objectives and policies. The impact of existing radio antennas on Diamond Head Crater's natural environment in general, and on scenic views of the crater rim in particular, will be reduced through their consolidation. Except for construction-related impacts (discussed below), there will be no air, water or noise impacts from this project. Consolidation of radio equipment and antennas at one already developed site will also enhance the ability to protect endangered plant, bird, and animal species inhabiting the area. By virtue of the project's location, there will be no impacts on the shoreline, surface drainage or flood control systems.

As discussed in Chapter 3, construction-related disturbances to the environment will be minimal and short-term. Virtually all areas that will be disturbed were previously developed, thus ensuring minimal if any impact on natural areas and important habitats. In addition, Best Management Practices and other design measures will be incorporated to mitigate the short-term nuisances caused by construction activities.

Public Safety

1. Objectives

A. To protect the people of Oahu and their property against natural disasters and other emergencies, traffic, and fire hazards, and unsafe conditions.

2. Policies

A. Design safe and secure public buildings.

B. Develop civil defense plans and programs to protect and promote public health, safety, and welfare of the people.

This project is being undertaken specifically to promote public safety. The State Civil Defense is initiating this consolidation project to improve their ability to manage existing radio equipment and antennas within Diamond Head State Monument. The equipment and antennas consolidation and other planned accessory improvements will help support their mission to prepare for and respond to disasters and emergencies. In supporting homeland security efforts, public safety, and emergency management activities for the State of Hawai‘i, the SCD needs to ensure that important facilities, such as these radio equipment and antennas, are properly managed and maintained because they are vital to the operations of other Federal, State, and County agencies.

Consolidation of the radio equipment and antennas will also improve public safety by improving access controls to and general security of the station. The planned building renovations will further improve the site’s safety and security.

Culture and Recreation

1. Objectives

A. To protect Oahu’s cultural, historic, architectural, and archaeological resources.

2. Policies

A. Encourage the restoration and preservation of early Hawaiian structures, artifacts, and landmarks.

B. Identify, and to the extent possible, preserve and restore buildings, sites, and areas of social, cultural, historic, architectural, and archaeological significance.

C. Cooperate with the State and Federal governments in developing and implementing a comprehensive preservation program for social, cultural, historic, architectural, and archaeological resources

As discussed in Chapter 3, the project is not expected to impact cultural, historic, architectural, or archaeological resources. Coordination with State Historic Preservation Division (SHPD) will be conducted to address the potential presence of historic sites. In the event of a burial encounter during construction, all work would stop and SHPD would be notified.

Removal of existing radio equipment and antennas from Batteries Dodge and Hulings will also enhance park use of Diamond Head Crater because it will then be possible to use these sites for crater lookouts and visitor interpretive hikes. These uses are recommended in the 2003 Diamond Head State Monument Master Plan Update.

7.4 PRIMARY URBAN CENTER (PUC) DEVELOPMENT PLAN

This section discusses the project’s conformance with key elements of the vision and the land use policies, and guidelines of the Primary Urban Center (PUC) Development Plan that are

pertinent to this project. The Land Use Map for PUC East classifies the Radio Station project site along with the rest of Diamond Head Crater as a Preservation area.

Preservation areas are lands which lie primarily in the State Conservation District, outside of the Urban Community Boundary (City, 2004). These lands are valued primarily for their natural, cultural, or scenic resource values. These lands generally include important wildlife habitat, cultural sites, significant landforms, views, or hazard areas, such as lands used for national, state, or city parks.

Key Element of the Vision for the PUC's Future

- ***Honolulu's natural, cultural, and scenic resources are protected and enhanced.***

  "The mountain lands and shorelines that frame the city are protected and preserved, as are the natural, cultural and scenic areas and resources that lie within the urban area. ... Historic sites and mountain lands are actively manages and improved. ... Physical access ... is assured and continually enhanced.

  ...

  "Culturally and historically important sites, landforms and structures continue to be preserved and enhanced. Historic and cultural districts are improved and interpreted for visitors.

  "People enjoy the panoramic views of Honolulu's mountain ridges, craters and coastlines from key vantage points. ..."

Policies

- *Preserve historic and cultural sites*
- *Preserve and protect natural resources and constraint areas.*
- *Preserve panoramic views of natural landmarks and the urban skyline.*
- *Improvement access to shoreline and mountain areas.*
- *Provide parks and active recreation areas.*

Guidelines

Mauka Conservation Areas:

- *In preservation areas, avoid disturbance to native species and prevent the visual intrusion of structures, including utility and telecommunications installation, when seen from below and from hiking trails.*
- *Ensure access for traditional and customary practices and gathering rights, consistent with the provisions of the Constitution of the State of Hawaii.*

Urban Skyline and Mauka-Makai Views

- *Preserve the following panoramic views indicated schematically in Figure 3.1 by establishing building height limits and setbacks that are based on viewplane analyses to determine the sight lines and desired view dimensions and characteristics.*

– *From Punchbowl Lookout toward Diamond Head.*

The project will be in conformance with the above Key Element and each of its related Policies and Guidelines. The natural, scenic and recreation resources of the Diamond Head State Monument, and existing panoramic views of Diamond Head Crater, will be protected and enhanced by the proposed consolidation of existing radio equipment and antenna.

Appropriate coordination has been and will continue to be conducted with the State Historic Preservation Division to address the potential impacts on historic properties and implement appropriate mitigative measures if necessary. There are no known significant historic or cultural resources on the project site or immediate areas. The project will not restrict access to adjacent areas that may have been or could in the future be used for traditional native Hawaiian practices or cultural activities.

The exposed conduit system along the edge of the access road will be removed and replaced with a new underground system within the road. All unused and abandoned electrical and communications equipment in and around the building site will also be removed to prevent visual intrusion.

Disturbance to native species will be mitigated as determined by input from the consultation process. Existing antenna will be removed from the upper slopes of the crater and replacement antenna will be consolidated to minimize visual impact for hikers. Viewplane analyses have been undertaken to determine site lines and view dimensions and characteristics. Batteries Dodge and Hulings could be utilized for enhanced recreational and interpretive use according to the State Department of Land and Natural Resources plans. Therefore, the project will be consistent with these policies and guidelines.

7.5 CITY AND COUNTY OF HONOLULU ZONING

The project site and surrounding land is presently zoned P-1, Restricted Preservation, by the City and County of Honolulu. Since the project site is within the State Conservation District, it is under the jurisdiction of the State Board of Land and Natural Resources. Therefore, the project area is not subject to the rules and regulations of the City's Land Use Ordinance.

Permitted uses, structures, and development standards within the P-1, Restricted Preservation District, are governed by appropriate state agencies (§21-3.40 and §21-3.40-1, ROH). Thus, the State Department of Land and Natural Resources, through its statutes and administrative rules, sets forth permitted uses, structures, and development for the project site.

7.6 SPECIAL MANAGEMENT AREA

The project site is located within the City and County of Honolulu's Special Management Area. However, the City Department of Planning and Permitting has determined that this project is exempt from the definition of "development" as stated in Section 205A-22, Hawai'i Revised Statutes, as amended by Act 76 effective May 17, 2004, and therefore exempt from City SMA

requirements. A Special Management Area Use Permit will not be required for this project. A copy of the related correspondence is included in Appendix B.

7.7 DIAMOND HEAD STATE MONUMENT MASTER PLAN UPDATE

The Diamond Head State Monument Master Plan Update is the official document guiding the future of the Diamond Head State Monument. As required under the Hawai‘i Revised Statutes (HRS) Chapter 6E-32, any amendments to the original 1979 Diamond Head Master Plan must be approved by the Board of Land and Natural Resources with the review and recommendations of the Diamond Head Citizens Advisory Committee. Improvements proposed under this project fall under this category, therefore, the proposed project must be incorporated as a revision to the original Master Plan, as established by law. The proposed project must also be consistent with the critical elements and objectives of the Diamond Head State Monument Master Plan Update.

The proposed project is consistent with the following objectives of the Diamond Head State Monument Master Plan Update.

1. *Endangered Plants: Rare and endangered plants existing in the Monument must be protected.*

The proposed project is consistent with this objective as improvements will not affect the existing botanical resources present near the project area. Preventive measures to avoid impacts on endangered plants are discussed in detail in Chapter 3 of this document. Also, consultation and coordination over this matter with the U.S. Fish and Wildlife Service and the State Department of Land and Natural Resources is planned to occur during the construction phase of the project.

2. *Fragile Soils: The fragile soils of the crater must be protected from hikers straying off the only "official" trail open to the public, causing erosion and altering the appearance of the crater.*

The proposed project is consistent with this objective as improvements may reduce tendencies of hikers to stray off the only "official" trail open to the public. Relocating existing radio equipment to a centralized location would open public access to both Batteries Dodge and Hulings for crater lookouts and visitor interpretive purposes. The subsequent development of a pedestrian trail leading to these areas would provide a safe route that hikers can use that may minimize erosion due to trampling and abuse of the crater's surrounding areas.

3. *New Lookouts and Trails: The development of new lookouts, trails, and hiking opportunities at the crater are encouraged to alleviate crowding of the existing access areas.*

The proposed project is consistent with this objective as improvements would open up Batteries Dodge and Hulings for public use. The improvements would result in the creation of

new and safe lookout locations, trails, and hiking opportunities. Without the improvements, antennas and radio equipment may cause security and safety concerns.

4. *Visitor/Interpretive Center: A new visitor/interpretive center between Kāhala Tunnel and Battery Birkhimer was planned to educate uninformed visitors and users of the unique geological, biological, and historical resources of the crater.*

The proposed project is consistent with this objective as improvements would not interfere with the operations of the visitor/interpretive center. Instead, improvements would enhance the aesthetic beauty of the crater and accentuate the uniqueness of its natural resources.

5. *New Picnic Areas. Three new picnic areas are planned, each with a new comfort station.*

The proposed project is consistent with this objective as improvements would restore the natural landscape of Diamond Head and improve its aesthetic value, thereby encouraging picnic activities. The improvements would enhance users' enjoyment of the place, creating positive attitudes towards Diamond Head.

CHAPTER 8
CONSULTATION EFFORTS

8.1 EARLY CONSULTATION WITH AGENCIES

Consultation with various government agencies and community organization was undertaken in order to gather information and to develop this Draft Environmental Assessment. Those providing written responses are identified with a "**»**" symbol. Copies of written comments received are included in Appendix B. Comments received have been addressed in the appropriate sections of this Draft EA.

Federal Agencies

- **»** Department of the Army
- **»** U.S. Department of the Interior
- **»** U.S. Department of Transportation, Federal Aviation Administration

State of Hawaii Agencies

- **»** Department of Accounting and General Services, Public Works Division
- **»** Department of Education
- **»** Department of Hawaiian Homelands
- **»** Department of Health
- **»** Department of Land and Natural Resources
- Land Use Commission, Department of Business, Economic Development & Tourism
- Office of Planning, Department of Business, Economic Development & Tourism
- **»** Office of Hawai‘ian Affairs
- State Department of Defense, Civil Defense Division
- **»** Department of Transportation

City and County of Honolulu Agencies

- » Board of Water Supply
- » Department of Community Services
- » Department of Design and Construction
- » Fire Department
- » O‘ahu Civil Defense Agency
- **»** Department of Planning & Permitting
- **»** Department of Parks and Recreation
- **»** Department of Transportation Services

Other Agencies

- Chief, Real Estate Element, 15th Civil Engineer Squadron
- Hawaiian Air National Guard, 169th Aircraft Control and Warning Squadron
- Hawaii Army National Guard, J3/Director of Operations & Military Support
- Waikiki Neighborhood Board No. 9

Kaimuki Neighborhood Board Presentation

A powerpoint presentation on the proposed radio site improvement project was made to the Kaimuki Neighborhood Board, No. 4 on May 18, 2005 as a part of consultation efforts. A summary of the results of this presentation is provided.

1. A short briefing on the purpose for the presentation and the background of the project was made to the Board. After this presentation, questions and comments from the Board and the general public were taken.
2. DLNR intends to open the crater to more public use, including ADA access.
3. A community member inquired what the cost of the renovation of the existing building would be. It was responded that the cost will be approximately $1 million.

Diamond Head/Kapahulu/St. Louis Neighborhood Board Presentation

A powerpoint presentation on the proposed radio site improvement project was made to the Diamond Head/Kapahulu/St. Louis Heights Neighborhood Board No. 5 on June 9, 2005 as a part of consultation efforts. A summary of the results of this presentation is provided.

1. A short briefing on the purpose for the presentation and the background of the project was made to the Board. After this presentation, questions and comments from the Board and the general public were taken.
2. The board requested to be kept updated on the environmental review process.
3. A comment was made on the UHF and VHF frequencies used by the radio equipment. No interference is anticipated. Some FAA equipment remains in the building.
4. An assurance was made that the area has security cameras and controlled access.
5. A request was made that the Diamond Head Advisory Committee be sent project information.
6. A community member inquired concerning awareness of Diamond Head Monument and other restrictions. It was responded that awareness of such restrictions exist.
7. It was clarified that solar panels that will be mounted flat to the existing roof of the building.
8. A suggestion was made that clearer photos of the project be provided.
9. It was clarified that the height of the building will remain unchanged.
10. A draft master plan for the project is in process.
11. It was confirmed that landscaping is included in the project.

Diamond Head Citizens Advisory Committee Meeting

A meeting was held on June 16, 2005 with the Diamond Head Citizens Advisory Committee to present the planned improvements and obtain comments on the project. General comments received from committee members are summarized below.

1. The committee would like to review the draft master plan that will be made available to the public.
2. The updated Diamond Head State Monument Master Plan acknowledges the ongoing SCD operations and improvements taking place within the crater, in the parcel that was designated for a communications facility under Executive Order No. 4055.
3. Concern was expressed that improvements to the building draw attention to its existence. It was suggested that a clear sealant could be used rather than paint for to make it less "visible."
4. Compliance with FCC requirements is essential to our public safety system.
5. It was discussed that antenna bases can be "blended" into the surroundings, and that in the future, some of the antenna bases will be removed.
6. The relocation of SCD from Batteries Dodge and Hulings will help toward DLNR's implementation of the expanded crater rim trail.

8.2 DRAFT ENVIRONMENTAL ASSESSMENT COMMENTS

The Draft EA for this Diamond Head Public Safety Radio Station was published in the August 23, 2007 issue of the State Office of Environmental Quality Control's *The Environmental Notice* initiating a 30-day public comment period that ended on September 24, 2007. Copies of the Draft EA were distributed to the following parties for review and comments.

Those parties that submitted comments are indicated with a "**»**" next to them. Comment letters received from these parties along with corresponding response letters from the State of Hawai'i, Department of Accounting and General Services are included in Appendix B. This Final EA has incorporated additional information in response to comments received on the Draft EA.

Federal Agencies

- Department of the Army
- » U.S. Department of Agriculture, Natural Resources Conservation Services
- » U.S. Department of the Interior, National Park Service, Pacific West Region
- » U.S. Department of Transportation, Federal Aviation Administration

State of Hawaii Agencies

- Department of Accounting and General Services, Public Works Division
- » Department of Education
- Department of Hawaiian Homelands
- » Department of Health

- Department of Land and Natural Resources
- Land Use Commission, Department of Business, Economic Development & Tourism
- Office of Planning, Department of Business, Economic Development & Tourism
- Office of Hawai'ian Affairs
- State Department of Defense, Civil Defense Division
- Department of Transportation

City and County of Honolulu Agencies

- Board of Water Supply
- Department of Community Services
- Department of Design and Construction
- Department of Facility Maintenance
- Department of Parks and Recreation
- Department of Planning & Permitting
- Department of Transportation Services
- Fire Department
- O'ahu Civil Defense Agency
- Police Department

Diamond Head Citizens Advisory Committee

An additional meeting was held on February 13, 2008 with the Diamond Head Citizens Advisory Committee to present the project and obtain any comments on the published Draft Environmental Assessment. Comments received from committee members are summarized below:

FCC Antenna Compliance Background Questions and Answers:

1. How many cross bars will there be and how many feet apart are the five (5) proposed antenna structures?

   Response: There would be 2 crossbars per structure and they are approximately 30 feet apart, with the exception of 2 located near the building which are about 6-7 feet apart.

2. Will there be any fencing around the area?

   Response: Aside from natural landscaping acting as a barrier for the site, there will be no fence around the area. There will be a new security gate installed at the access road entrance.

Draft EA Comments

1. The committee didn't receive copies of the Draft EA and would like a copy.

Response: A State Parks representative indicated that the committee was informed of the availability of the Draft EA and for comments. SSFM agreed to send copies of the Draft EA to the committee members. SSFM informed the committee that their comments will be accepted even despite the fact that the comment period has ended.

Summary of Informal Draft EA Concerns

1. The committee would like to review the paint color of the building.
2. The committee would like to review the landscaping plan.

c. The committee would like assurances that the existing wooden utility poles are removed at the same time when the new antennas structures are installed at the radio station site.

Response: Items 1 and 2 are design issues and will be determined by the design contractor. Furthermore, the design team will be required to present those plans to the committee when they are prepared. Item 3 will be addressed in the Final EA, however it is contingent upon available funding.

CHAPTER 9
FINDINGS AND DETERMINATION

To determine whether a proposed action may have a significant effect on the environment, the Approving Agency needs to consider every phase of the action, the expected primary and secondary consequences, cumulative effect, and the short- and long-term effects. The Approving Agency's review and evaluation of the proposed action's effect on the environment would result in a determination whether: 1) the action would have a significant effect on the environment, and an Environmental Impact Statement Preparation Notice should be issued, or 2) the action would not have a significant effect warranting a Finding of No Significant Impact (FONSI).

This chapter discusses the results of the environmental assessment conducted of the proposed Diamond Head Radio Station in relation to the 13 Significance Criteria prescribed under the State Department of Health's Administrative Rules Title 11, Chapter 200. The purpose of this assessment was to consider the "significance" of potential environmental effects which includes the sum of effects on the quality of the environment along with the overall and cumulative effects. The resulting findings are discussed below for each criteria.

9.1 FINDINGS

1. *Involves an irrevocable commitment to loss or destruction of any natural or cultural resource.*

The proposed improvements would not result in the irrevocable commitment to loss or destruction of any natural or cultural resource. As discussed in Chapter 2 of this Draft EA, the improvements are intended to consolidate the use and operation of radio equipment for public safety purposes to a central location under the jurisdiction of the State Civil Defense. The State Civil Defense has jurisdiction on a property within Diamond Head Crater, upon which there is an existing building that can be renovated to accommodate radio equipment and the maintenance thereof. Thus, there would be no destruction or loss of any significant, endangered, or threatened botanical, faunal, geological, or other natural resources.

In terms of archaeological and historic resources, there are no known historic or culturally significant sites within or surrounding the project site. In the event subsurface human remains or other indications of human activity older than 50 years are encountered during construction activities, all work would stop immediately and the SHPD shall be notified.

The treatment of human remains encountered would be determined and conducted in accordance with the applicable requirements of Chapter 6E, HRS, and Chapter 13-300, Hawaii Administrative Rules.

The project would also not restrict access to surrounding areas that may be potentially used for traditional native Hawaiian cultural practices. This project would not prevent access to shoreline areas or surrounding mauka areas that may be used for traditional gathering or other cultural practices, as the project site is located within a parcel that was formerly an FAA link site, and other access points exist to reach the shoreline and surrounding mauka areas.

2. *Curtails the range of beneficial uses of the environment.*

The project would not curtail the range of beneficial uses of the surrounding environment. The project site has been used by the FAA for many years as a link site. Existing surrounding uses would remain as the public safety radio station is within the Diamond Head Crater, and surrounding uses in the crater area and outside slopes would continue. Thus, the proposed project will not limit or significantly impact existing uses or the surrounding environment.

3. *Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders.*

The improvements proposed under this project would not conflict with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS. This Draft EA addressed the probable environmental impacts associated with the project, which would be primarily associated with short-term construction activities. Consequently, the project would be consistent in conserving natural resources in the area, and enhancing the quality of life and public safety for residents in Honolulu, and Statewide.

4. *Substantially affects the economic, social welfare, or cultural practices of the community or State.*

As discussed under Chapter 4, the project would not have any significant negative impacts on the economic structure of the Honolulu region, or the social welfare of the Waikiki, Kaimuki, or Kahala communities. The project would create a short-term, minor economic benefit generating construction jobs and personal income. Improvements planned are limited to renovation of an approximately 1,072 square foot building, and necessary infrastructure such as electrical connections, and the erection of 10-meter antenna bases to meet requirements of the Federal Communications Commission. All proposed improvements will occur within the property under the jurisdiction of the State Department of Defense, Civil Defense Division. As a result, there should be no negative impact or change to the overall character of the community. In terms of cultural practices, there are no known cultural resources at the project site or traditional native Hawaiian cultural practices occurring within the project area. Consequently, the proposed public safety radio station project is not expected to have an impact on cultural resources or traditional cultural practices.

5. *Substantially affects public health.*

The project is not expected to substantially affect public health since it would involve renovation of an existing building to accommodate radio equipment.

6. *Involves substantial secondary impacts, such as population changes or effects on public facilities.*

The project should not have any secondary impacts on the social environment or infrastructure and public facilities. The project strictly involves only renovation of an existing building, and the erection of antenna bases to accommodate radio users and to meet the requirements of the FCC and does not include residential housing or visitor accommodations. Therefore, there would not be any elements of the project contributing to in-migration of residents or additional visitors to the island. The project would also not significantly impact other existing infrastructure facilities or public facilities in the immediate area due to the type of improvements being proposed as discussed under Chapter 2.

7. *Involves a substantial degradation of environmental quality.*

The proposed project would not involve a substantial degradation to the quality of the surrounding environment. Improvements are limited to renovation of an existing 1,072 square foot building, and necessary infrastructure such as electrical and communications connections. As a result, construction activities would be performed on already developed area, and necessary measures would be implemented during construction to minimize erosion and other short-term impacts.

8. *Is individually limited, but cumulatively has considerable effect upon the environment or involves a commitment for larger actions.*

This project only involves the renovation of an existing building and the erection of antenna bases to meet Federal requirements. Impacts associated with these improvements were addressed in this document, and are mainly associated with renovation activities. Thus, the cumulative impacts of these improvements were considered in assessing environmental impacts, and it was determined that the project would not have a significant effect on the environment. This project does not involve the commitment for larger actions in the Diamond Head Crater.

9. *Substantially affects a rare, threatened, or endangered species, or its habitat.*

As discussed in Chapter 3, the construction and operation of a public radio station will not substantially impact known endangered, threatened, or rare species or critical habitat identified on or near the project site. Necessary control measures and BMPs will be implemented to minimize runoff and other potential short-term impacts associated with construction activity.

10. Detrimentally affects air or water quality or ambient noise levels.

The project should not have a detrimentally significant impact on air, water quality, or ambient noise levels. Impacts associated with these factors would be limited to short-term construction activities. However, such impacts are expected to be minor due to the relatively minor amount of grading and excavation proposed. To further minimize impacts, construction activities would be subject to applicable State regulations as discussed under Chapter 3.

11. Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters.

The project site is not located within an environmentally sensitive area such as a flood plain, tsunami zone, erosion-prone area or geologically hazardous area. Consequently, this property would not be affected by such hazards or impact such environmentally sensitive areas. Renovation of the public safety radio station would be done in conformance to City design standards and other agency requirements.

12. Substantially affects scenic vistas and viewplanes identified in county or state plans or studies.

The proposed public safety radio station would not affect scenic vistas or viewplanes. As discussed in Chapter 3, there are no significant scenic and open space viewing points for the public from the project site, as access to the site has been restricted to government personnel (Federal, State and County). The property already has an existing building upon it, and they only items that may impact view planes of the eastern slopes of Diamond Head will be the erection of antenna bases.

However, these antenna bases are being erected to relocate antennas now located at various sites along the crater rim to meet Federal requirements. Over time, as technology becomes more advanced, it is projected that some of the antenna bases will be removed, leaving only a minimum amount of antenna bases to meet future requirements.

13. Requires substantial energy consumption.

The project will not require substantial energy consumption or increased electrical facilities to serve the radio station. Improvements planned are relatively minor and can be serviced using existing electrical distribution facilities and power generating sources.

9.2 DETERMINATION

A Finding of No Significant Impact (FONSI) determination should be warranted for the Diamond Head Public Safety Radio Station Project based upon the information provided in this Final EA document. The findings supporting this determination are based upon the previous discussion of the project's affect on the environment in relation to the 13 Significance Criteria.

CHAPTER 10
BIBLIOGRAPHY

Char, Winona. (November, 1998). *Botanical Study; Diamond Head State Monument Master Plan Update.* Diamond Head State Monument; Master Plan Update; Final Environmental Impact Statement. Prepared for Department of Land and Natural Resources, State of Hawai‘i. Honolulu. Hawai‘i.

Chu, Michael S., Robert B. Jones. 1987. *Coastal View Study*. City and County of Honolulu, Department of Land Utilization. Honolulu, Hawai‘i

City and County of Honolulu (City). 1990. *Revised Ordinances of Honolulu, as amended*. Honolulu, Hawai‘i.

City and County of Honolulu, Department of Planning and Permitting (City). 2004. *Primary Urban Center Development Plan*. On-line version.

[http://www.honoluludpp.org/planning/DevSust_PrimaryUrbanCenter.asp].

Honolulu, Hawai‘i.

Department of Planning and Permitting (DPP). (June, 2004). *Primary Urban Center Development Plan*. City and County of Honolulu. Adopted under City Ordinance 04-14. On-line version. Honolulu, Hawai‘i.
[http://www.honoluludpp.org/planning/DevSust_PrimaryUrbanCenter.asp].

Fletcher, Charles H., Eric E. Grossman, Bruce M. Richmond, and Ann E. Gibbs (2002). *Atlas of Natural Hazards in the Hawaiian Coastal Zone.* Prepared in cooperation with Univerisity of Hawai‘i, State of Hawai‘i Office of Planning, and National Oceanic Atmospheric Administration. Honolulu, Hawai‘i: Author.

Furumoto, Augustine S., Norby N. Nielsen, and William R. Phillips. 1973. *A Study of Past Earthquakes, Isoseismic Zones of Intensity, and Recommended Zones for Structural Design for Hawaii*. Hawaii Institute of Geophysics. University of Hawai‘i. Honolulu, Hawai‘i.

Harrigan-Lum, June Katina Henderson and Linda Koch (2004, June). *Final 2004 List of Impaired Waters in Hawai‘i Prepared Under Clean Water Act §303(d).* Prepared for the Environmental Planning Office, Department of Health, State of Hawai‘i. Honolulu, Hawai‘i: Author.

International Archaeological Research Institute, Inc. (IARI, Inc.) (October, 1998). *Exploring a Backdrop to Waikiki’s Past: Historical Research and Archaeological Assessment of Diamond Head State Monument, Oahu.* Diamond Head State Monument; Master Plan Update; Final Environmental Impact Statement. Prepared for Department of Land and Natural Resources, State of Hawai‘i. Honolulu. Hawai‘i.

Macdonald, Gordon A., Abbott, Agatin T., and Peterson, Frank L. 1983. *Volcanoes in the Sea, The Geology of Hawaii*. Second Edition. University of Hawai‘i Press. Honolulu, Hawai‘i.

Mitsunaga and Associates. 1998. *Design Development of Diamond Head State Monument Master Plan.* Honolulu, Hawai‘i.

National Park Service. (NPS). 2008. “Explore Topics: National Natural Landmarks Program.” U.S. Department of the Interior. http://www.nature.nps.gov/nnl/

Ohashi, Tim. (November, 1998). *Wildlife Survey; Diamond Head State Monument.* Diamond Head State Monument; Master Plan Update; Final Environmental Impact Statement. Prepared for Department of Land and Natural Resources, State of Hawai‘i. Honolulu. Hawai‘i.

PBR Hawai‘i. July, 2003. *Diamond Head State Monument Master Plan Update.* Prepared for the State of Hawai‘i, Department of Land and Natural Resources. Honolulu, Hawai‘i. [http://www.hawaii.gov/dlnr/dsp/DH_MastPlan.pdf]

PBR Hawai‘i. September, 2000. *Diamond Head State Monument Master Plan Update – Final Environmental Impact Statement*. Prepared for the State of Hawai‘i, Department of Land and Natural Resources. Honolulu, Hawai‘i.

Soil Conservation Service (SCS). 1972. *Soil Survey of Islands of Kaua‘i, O‘ahu, Maui, Moloka‘i, and Lana‘i, State of Hawai‘i*. U.S. Department of Agriculture. In cooperation with the University of Hawai‘i, Agricultural Experiment Station. Washington, D.C.

State of Hawai‘i. *Hawai‘i Revised Statutes, as amended*.

State of Hawai‘i, Commission on Water Resource Management (CWRM). 1990. *Water Resources Protection Plan, Hawai‘i Water Plan*. Prepared by George A.L. Yuen and Associates, Inc. Honolulu, Hawai‘i.

State of Hawai‘i, Department of Business, Economic Development, and Tourism. 2004. *State Data Book 2003, A Statistical Abstract*. On-line version. Honolulu, Hawai‘i

State of Hawai‘i, Department of Defense (DOD). 2005. *Department of Defense; Annual Report; Fiscal Year*. Honolulu, Hawai‘i.

State of Hawai‘i, Department of Health. (No month, 2005). *2005 Annual Summary Hawai‘i Air Quality Data*. Clean Air Branch. Honolulu, Hawaii.

State of Hawai‘i, Department of Health. *Community Noise Control*. Chapter 11-46, Hawai‘i Administrative Rules. On-line version.

[http://www.hawaii.gov/health/about/rules/11-46.pdf]

State of Hawai‘i, Department of Health. *Water Quality Standards*. Chapter 11-54, Hawai‘i Administrative Rules. On-line version.

[http://www.hawaii.gov/health/about/rules/11-54.pdf]

State of Hawai‘i, Department of Health. *Solid Waste Management Control*. Chapter 11-58.1, Hawai‘i Administrative Rules. On-line version.

[http://www.hawaii.gov/health/about/rules/11-58.pdf]

State of Hawai‘i, Department of Health. *Ambient Air Quality Standards*. Chapter 11-59, Hawai‘i Administrative Rules. On-line version.
[http://www.hawaii.gov/health/about/rules/11-59.pdf]

State of Hawai‘i, Department of Health. *Air Pollution Control*. Chapter 11-60.1, Hawai‘i Administrative Rules. On-line version.
[http://www.hawaii.gov/health/about/rules/11-60-1.pdf]

State of Hawai‘i, Department of Land and Natural Resources. *Conservation District*. Chapter 13-5, Hawai‘i Administrative Rules. On-line version.
[http://www.hawaii.gov/dlnr/occl/rules/Ch13_5.pdf]

University of Hawai‘i at Hilo, Department of Geography. 1998. *Atlas of Hawai‘i.* Third Edition. University of Hawai‘i Press. Honolulu, Hawai‘i.

U.S. Geological Service (USGS). 2007. Historic United States Earthquakes. Earthquake Hazards Program. Retrieved March 5, 2007.
[http://earthquake.usgs.gov/regional/states/historical_state.php].

U.S. Geological Service. February, 2006. Magnitude 6.7 – Hawai‘i Region, Hawaii. Earthquake Hazards Program. Retrieved March 5, 2007.
[http://earthquake.usgs.gov/eqcenter/eqinthenews/2006/ustwbh/index.php].

Western Regional Climate Center (WRCC). 2007. National Oceanic and Atmospheric Administration, U.S. Department of Commerce. Historical Climate Information. Climate Data Summary. [http://www.wrcc.dri.edu/index.html]

APPENDICES

APPENDIX A

PHOTOGRAPHS OF PROJECT SITE AND SURROUNDING AREAS

Photo 1
View of north side of old FAA Link Site Building

Photo 2
View of south side of old FAA Link Site Building; Antennas in background

Photo 3
View of west side of old FAA Link Site Building

PHOTOGRAPHS OF PROJECT SITE AND SURROUNDING AREA

Figure A-1

Diamond Head Radio Station
Department of Accounting and General Services, State of Hawaii

Source:
SSFM International, Inc.

Photo 4
View of internal portion of old FAA Link Site Building

Photo 5
View of internal portion of old FAA Link Site Building

Photo 6
View of internal portion of old FAA Link Site Building

PHOTOGRAPHS OF INTERNAL PORTION OF OLD FAA LINK SITE BUILDING

Figure A-2

Diamond Head Radio Station
Department of Accounting and General Services, State of Hawaii

Source:
SSFM International, Inc.

Photo 7
Antennas at old FAA Link Site
(facing west)

Photo 8
Various antennas at old FAA
Link Site Building

Photo 9
Antennas on Crater Rim

PHOTOGRAPHS OF ANTENNAS

Figure A-3

Diamond Head Radio Station
Department of Accounting and General Services, State of Hawaii

Source:
SSFM International, Inc.

Photo 10
Conduits leading to old FAA Link Site Building

Photo 11
Roadway leading to old FAA Link Site Building
(Waikiki and Downtown Honolulu in background)

Photo 9
Antennas on Crater Rim

EXISTING INFRASTRUCTURE

Figure A-4

Diamond Head Radio Station
Department of Accounting and General Services, State of Hawaii

Source:
SSFM International, Inc.

Photo 13
Southeast view from old FAA Link Site Building
(Kahala area)

Photo 14
Northeast view from old FAA Link Site Building
(Kaimuki/Waialae area)

Photo 15
South view from old FAA Link Site Building
(Black Point/Diamond Head area)

VIEWS FROM OLD FAA LINK SITE BUILDING

Figure A-5

Diamond Head Radio Station
Department of Accounting and General Services, State of Hawaii

Source:
SSFM International, Inc.

Photo 16
View of existing buildings in Diamond Head Crater

Photo 17
View of crater floor

Photo 18
View of Old FAA Building on crater floor
(since demolished)

VIEWS OF CRATER FLOOR

Figure A-6

Diamond Head Radio Station
Department of Accounting and General Services, State of Hawaii

Source:
SSFM International, Inc.

APPENDIX B

CONSULTATION EFORTS

APPENDIX B1

PRE-ASSESSMENT CONSULTATION COMMENT LETTERS AND RESPONSES

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96858-5440

REPLY TO
ATTENTION OF

August 22, 2005

Regulatory Branch

Ronald A. Sato, AICP
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, HI 96817

Subject: State Civil Defense Diamond Head radio site improvements, Diamond Head Crater, Oahu, Hawaii. File No. **POH-2005-440**

Dear Mr. Sato:

This letter is written in regard to your request on behalf of the State Department of Defense, State Civil Defense (SCD) agency for a pre-assessment consultation for proposed improvements to radio facilities within the Diamond Head Crater. The proposed project will consolidate radio equipment currently existing within two former military batteries along with radio antennas along the crater rim into a single building and location. An existing building formerly used by the FAA as a "link site" for air traffic control activities will be renovated to house the relocated radio equipment.

Since the new facility will be located in association with an existing building, it does not appear that the construction activities will result in discharges into waters of the United States subject to our jurisdiction. **Therefore, a Department of the Army (DA) permit will not be required.**

Should you have questions, you may contact Ms. Connie Ramsey by phone at 438-9258, by facsimile at 438-4060, or by electronic mail at Connie.L.Ramsey@usace.army.mil . Please use the file number referenced above for future inquiries. Thank you for your cooperation with our regulatory program.

Sincerely,

George P. Young, P.E.
Chief, Regulatory Branch

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Council of Engineering Companies, Member

June 15, 2007

SSFM 2000_107.000

Mr. George P. Young, P.E., Chief
Regulatory Branch
Department of Army
U.S. Army Engineer District, Honolulu
Fort Shafter, Hawai‘i 96858-5440

Dear Mr. Young:

Subject: State Civil Defense Diamond Head Radio Site Improvements
Pre-Assessment Comments, Draft Environmental Assessment
Diamond Head Crater, O‘ahu, Hawai‘i

Thank you for your letter dated August 22, 2005 providing pre-assessment consultation comments for the preparation of the Draft Environmental Assessment (Draft EA) for the subject project.

We confirm that the construction activities associated with the project should not result in discharges into waters subject to your department’s jurisdiction. Thus, a Department of the Army (DA) permit should not be required for this project.

If you have any questions on this matter, please give me a call at 356-1242. Thank you.

Sincerely,

SSFM INTERNATIONAL, INC.

Jared K. Chang
Planner
.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122, Box 50088
Honolulu, Hawai'i 96850

In Reply Refer To:
1-2-2005-TA-351

SEP 14 2005

Mr. Ronald A. Sato, AICP
Senior Project Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, HI 96817

Dear Mr. Sato:

Thank you for your letter dated August 8, 2005, requesting a list of threatened and endangered species that may occur in the vicinity of the proposed project area inside Diamond Head (Le'ahi) State Monument on the island of O'ahu. We received your letter on August 10, 2005. The proposed project is to consolidate radio equipment currently located at two former military batteries (Dodge and Huling) and radio antennas currently on the crater rim into a single building located on the inner NE face of the crater, and formerly used by the FAA. The proposed project also includes the renovation of the former FAA building. Your letter did not identify any Federal agencies as part of this project, but did state that the project is being proposed by the State of Hawai'I, Department of Accounting and General Services, on behalf of the State Civil Defense.

We reviewed the information you provided and pertinent information in our files, including data compiled by the Hawai'i Natural Heritage Program. The following list of federally listed or proposed threatened or endangered species, or proposed or designated critical habitat occur on or near (within 536 meters = 1/3 mile) the proposed project site. These species or habitats may need special consideration before and during the execution of your project. A map of these species and the critical habitats is attached to this letter.

Diamond Head (Le'ahi) State Monument

Endangered Plants
Cyperus trachysanthos (pu'uka'a)
Schiedea adamantis (no common name)
Spermolepis hawaiiensis (no common name)

Endangered Birds
Fulica alai (Hawaiian coot; 'alae ke'oke'o)
Gallinula chloropus sandvicensis (Common moorhen; 'alae 'ula)

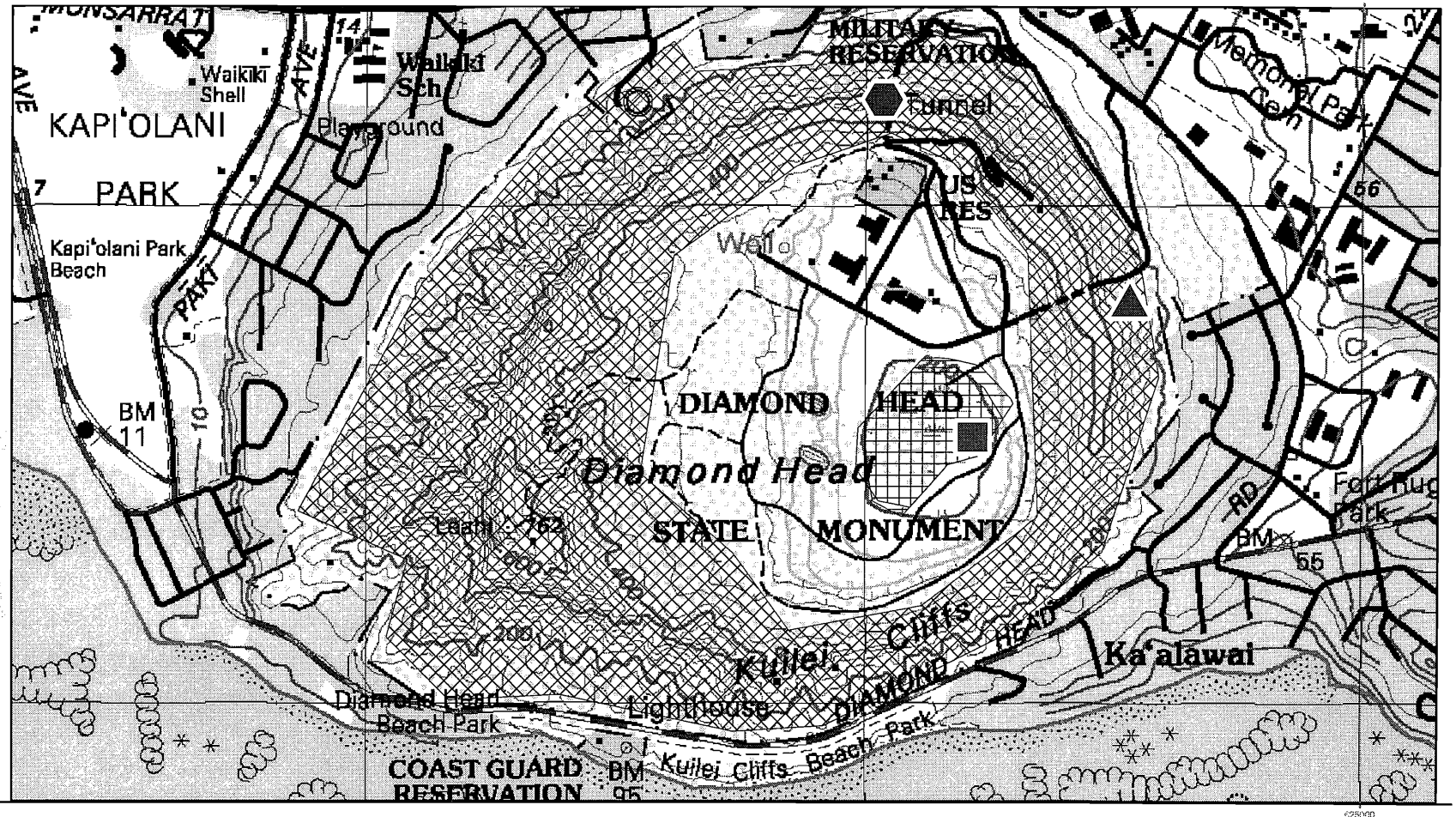
Plant Critical Habitat
Cyperus trachysanthos (pu'uka'a)
Gouania meyenii (no common name)
Marsilea villosa ('ihi'ihi)
Spermolepis hawaiiensis (no common name)

We appreciate your efforts to conserve endangered species. If you have questions, please contact Assistant Field Supervisor Gina Shultz (phone: 808/792-9400; fax: 808/792-9581).

Sincerely,

Patrick Leonard
Field Supervisor

Enclosure (1)



N

0 0.1 0.2 Kilometers

0 0.06 0.12 Miles

1:13,120 UTM Zone 4, Nad83

Federally Listed Plants

- *Cyperus trachysanthos*
- *Schiedea adamantis*
- *Spermolepis hawaiiensis*

Federally Listed Birds

- *Fulica alai*
- *Gallinula chloropus sandvicensis*

Plant Critical Habitat

- *Cyperus trachysanthos*
- *Gouania meyenii*
- *Marsilea villosa*
- *Spermolepis hawaiiensis*

In Reply Refer To: 1-2-2005-TA-351

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Council of Engineering Companies, Member

June 15, 2007

SSFM 2000_107.000

Mr. Patrick Leonard, Field Supervisor
Pacific Islands Fish and Wildlife Office
Fish and Wildlife Service
United States Department of the Interior
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawai‘i 96850

Dear Mr. Leonard:

Subject: State Civil Defense Diamond Head Radio Site Improvements
Pre-Assessment Comments, Draft Environmental Assessment
Diamond Head Crater, O‘ahu, Hawai‘i

Thank you for the letter dated September 14, 2005 providing pre-assessment consultation comments for the preparation of the Draft Environmental Assessment (Draft EA) for the subject project.

We appreciate the information provided on federally listed or proposed threatened or endangered species and proposed or designated critical habitats. That information will be incorporated in the assessment conducted for this project.

If you have any questions on this matter, please give me a call at 356-1242. Thank you.

Sincerely,

SSFM INTERNATIONAL, INC.

Jared K. Chang
Planner
.

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

Western-Pacific Region
Real Estate and Utilities Section, AHNL-54B

P. O. Box 50109
Honolulu, Hawaii 96850-5000

September 1, 2005

Mr. Ronald A. Sato, AICP
Senior Project Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, HI 96817

Dear Mt. Sato:

State Civil Defense Diamond Head Radio Site Improvements Project Pre-Assessment Consultation for Draft Environmental Assessment

Your letter of August 8, 2005, requested comments on the subject draft Environmental Assessment.

The Federal Aviation Administration (FAA) supports this effort to consolidate the existing radio equipment and antenna facilities located within Diamond Head Crater.

As this project proceeds, the FAA looks forward to participating in the design and facility development as we are concerned that existing operations continue without interruption, on a noninterfering basis, and that all governmental agencies are accommodated safely with provisions for future growth and modernization.

We appreciate this opportunity to comment. Please contact me at 541-1236, if there are any questions.

Sincerely,

Darice B. N. Young
Realty Contracting Officer

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Council of Engineering Companies, Member

June 15, 2007

SSFM 2000_107.000

Mr. Darice B.N. Young, Realty Contracting Officer
Western-Pacific Region
Real Estate and Utilities Section, AHNL-54B
Federal Aviation Administration
United States Department of Transportation
P.O. Box 50109
Honolulu, Hawai‘i 96850-5000

Dear Mr. Young:

Subject: State Civil Defense Diamond Head Radio Site Improvements
Pre-Assessment Comments, Draft Environmental Assessment
Diamond Head Crater, O‘ahu, Hawai‘i

Thank you for the letter dated September 1, 2005 providing pre-assessment consultation comments for the preparation of the Draft Environmental Assessment (Draft EA) for the subject project.

We appreciate your support of the efforts to consolidate the existing radio equipment and antenna facilities. Your department will be coordinated with in the design and construction of this project to ensure existing operations continue without interruption and that all governmental agencies will be accommodated safely with provisions for future growth and modernization

If you have any questions on this matter, please give me a call at 356-1242. Thank you.

Sincerely,

SSFM INTERNATIONAL, INC..

Jared K. Chang
Planner
.

LINDA LINGLE
GOVERNOR
STATE OF HAWAII

MICAH A. KANE
CHAIRMAN
HAWAIIAN HOMES COMMISSION

BEN HENDERSON
DEPUTY TO THE CHAIRMAN

KAULANA H. PARK
EXECUTIVE ASSISTANT

STATE OF HAWAII

DEPARTMENT OF HAWAIIAN HOME LANDS

P.O. BOX 1879

HONOLULU, HAWAII 96805

SSFM INTERNATIONAL, INC.
RECEIVED
AUG 23 2005
rAS

August 22, 2005

FILE COPY
FILE

Mr. Ronald A. Sato
Senior Project Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Mr. Sato:

Thank you for the opportunity to participate in the pre-assessment consultation process on the proposed "Diamond Head Radio Site Improvements" project for the Department of Civil Defense in preparation of a draft environmental assessment report. The Department of Hawaiian Home Lands has no comments to offer.

Should you have any questions, please call the Planning Office at (808) 586-3836.

Aloha and mahalo,

Micah A. Kane, Chairman
Hawaiian Homes Commission

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Council of Engineering Companies, Member

June 15, 2007

SSFM 2000_107.000

Mr. Micah A. Kane, Director
Department of Hawaiian Home Lands
State of Hawaii
P.O. Box 1879
Honolulu, Hawai‘i 96805

Dear Mr. Kane:

Subject: State Civil Defense Diamond Head Radio Site Improvements
Pre-Assessment Comments, Draft Environmental Assessment
Diamond Head Crater, O‘ahu, Hawai‘i

Thank you for your letter dated August 22, 2005 providing pre-assessment consultation comments for the preparation of the Draft Environmental Assessment (Draft EA) for the subject project.

We note that your department has no comments with the project at this time.

If you have any questions on this matter, please give me a call at 356-1242. Thank you.

Sincerely,

SSFM INTERNATIONAL, INC.

Jared K. Chang
Planner
.

LINDA LINGLE
GOVERNOR

PATRICIA HAMAMOTO
SUPERINTENDENT

STATE OF HAWAI'I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI'I 96804

OFFICE OF THE SUPERINTENDENT

August 23, 2005

Mr. Ronald Sato
Senior Project Planner
SSFM International
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Mr. Sato:

Subject: State Civil Defense Diamond Head Radio Site Improvements Project
Pre-Assessment Consultation for Draft Environment Assessment

The Department of Education (DOE) has reviewed the information provided and finds no impact to the DOE; therefore, we have no comment at this time.

Should you have any questions, please contact Rae Loui, Assistant Superintendent of the Office of Business Services, at 586-3444 or Theron Nichols of the Facilities Development Branch at 733-4860.

Very truly yours,

Patricia Hamamoto

Patricia Hamamoto
Superintendent

PH:jl

cc: Rae Loui, Assistant Superintendent, OBS
Estelle Wong, CAS, Kaimuki/Kalani Complexes
Duane Kashiwai, Facilities Development Branch
Sanford Beppu, Planning Section, Facilities Development Branch

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Council of Engineering Companies, Member

June 15, 2007

SSFM 2000_107.000

Ms. Patricia Hamamoto, Superintendent
Department of Education
State of Hawaii
P.O. Box 2360
Honolulu, Hawai‘i 96804

Dear Ms. Hamamoto:

Subject: State Civil Defense Diamond Head Radio Site Improvements
Pre-Assessment Comments, Draft Environmental Assessment
Diamond Head Crater, O‘ahu, Hawai‘i

Thank you for your letter dated August 23, 2005 providing pre-assessment consultation comments for the preparation of the Draft Environmental Assessment (Draft EA) for the subject project.

We note your review indicates that the project should have no impact on State Department of Education facilities, and thus you have no comment at this time.

If you have any questions on this matter, please give me a call at 356-1242. Thank you.

Sincerely,

SSFM INTERNATIONAL, INC.

Jared K. Chang
Planner
.

Pat Owan

From: Ronald Sato
Sent: Monday, August 22, 2005 3:30 PM
To: Pat Owan
Subject: FW: Pre-Assessment Consultation Re: State Civil Defense Diamond Head Radio Site Improvements Project

please take care in getting these comments downloaded and recorded along with their email.

thanks.

From: Jiacai Liu [mailto:JLiu@eha.health.state.hi.us]
Sent: Monday, August 22, 2005 3:01 PM
To: Ronald Sato
Subject: Pre-Assessment Consultation Re: State Civil Defense Diamond Head Radio Site Improvements Project

Dear Mr. Sato:

Thank you for allowing us to review the subject project. We offer Standard Comments at: http://www.state.hi.us/health/environmental/env-planning/landuse/landuse.html or clicking (Standard Comments) for pre-assessment consultation. We are looking forward to seeing the DEA and please send the document to our office at:

Environmental Planning Office
Department of Health
919 Ala Moana Blvd., Room 312
Honolulu, Hawaii 96814

Thank you.

Jiacai Liu
Land Use Review Coordinator
Environmental Planning Office /DOH
(808) 586-4346

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Council of Engineering Companies, Member

June 15, 2007

SSFM 2000_107.000

Mr. Jiacai Liu
Land Use Review Coordinator
Environmental Planning Office
Department of Health
919 Ala Moana Blvd., Room 312
Honolulu, Hawai‘i 96814

Dear Mr. Liu:

Subject: State Civil Defense Diamond Head Radio Site Improvements
Pre-Assessment Comments, Draft Environmental Assessment
Diamond Head Crater, O‘ahu, Hawai‘i

Thank you for your e-mail of August 22, 2005 providing pre-assessment consultation comments for the preparation of the Draft Environmental Assessment (Draft EA) for the subject project.

We will review the standard comments referenced in your response, and will appropriately include information in the Draft EA to address those comments pertinent to this project. A copy of the published Draft EA will be submitted to your office as indicated.

If you have any questions on this matter, please give me a call at 356-1242. Thank you.

Sincerely,

SSFM INTERNATIONAL, INC.

Jared K. Chang
Planner
.

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
DEPUTY DIRECTOR - LAND

DEAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

DIVISION OF STATE PARKS
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

September 2, 2005

Mr. Ronald A. Sato, AICP
Senior Project Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

RE: Pre-Assessment Consultation for the Draft EA for the SCD Diamond Head Radio Site Improvements Project

Thank you for the opportunity to comment as part of the pre-assessment consultation for the Draft Environmental Assessment (EA) for the State Civil Defense (SCD) Diamond Head Radio Site Improvements Project.

General Comments

There is an existing Diamond Head State Monument (DHSM) Master Plan and Environmental Impact Statement (EIS) adopted by the Board of Land and Natural Resources. This Master Plan and EIS, as the primary documents for DHSM, should be incorporated into all subsequent work/plans for the Monument lands. The SCD's Master Plan and Environmental Assessment (EA) should utilize the elements of the DHSM Master Plan and EIS that address the Radio Site.

The DHSM Master Plan calls for Batteries Dodge and Hulings to be opened to the public as lookouts/view planes. In addition, the road leading from the SCD Radio Site, along Batteries Dodge and Hulings, to the retractable searchlight is to be opened to the public. The EA should address this access issue.

Visual Impact Concerns of DHCAC

The Diamond Head Citizen's Advisory Committee (DHCAC), at the two meeting that SSFM staff has presented the Radio Site Project plans, has expressed concerns regarding the visual impacts of the consolidated antennas project.

Biological Resources

Staff has been working with the SSFM consultants on the biological resources portion of the EA. Please note that there are endangered species within or adjoining the project

site. The only known population of *Schiedea adamantis*, an endangered plant, is found adjacent to the project site. One of the telephones poles to be removed (on the rim) is in the middle of an identified *S. adamantis* population area. Another endangered plant, *Spermolepis hawaiiensis*, is supposed to have a population above the Kahala Tunnel, between Batteries Dodge and Hulings.

In addition, there have been recent, unconfirmed reports by State Parks staff of a pueo (*Asio flammeus sandwichensis*) seen in the crater at dawn/dusk

Thank you for the opportunity to comment as part of the pre-assessment consultation for the Draft Environmental Assessment (EA) for the State Civil Defense (SCD) Diamond Head Radio Site Improvements. Please continue to work with staff on the Master Plan and the Environmental Assessment. If you have any questions or need additional information, please contact Yara Lamadrid-Rose, Diamond Head Park Coordinator at 587-0294.

Sincerely,

Daniel S. Quinn
State Parks Administrator

c: Yara Lamadrid-Rose, State Parks

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Council of Engineering Companies, Member

June 15, 2007

SSFM 2000_107.000

Mr. Daniel S. Quinn, State Parks Administrator
Division of State Parks
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawai‘i 96809

Dear Mr. Quinn:

Subject: State Civil Defense Diamond Head Radio Site Improvements
Pre-Assessment Comments, Draft Environmental Assessment
Diamond Head Crater, O‘ahu, Hawai‘i

Thank you for the letter dated September 2, 2005 providing pre-assessment consultation comments for the preparation of the Draft Environmental Assessment (Draft EA) for the subject project.

We are familiar with the Diamond Head State Monument master plan and Final Environmental Impact Statement documents that have been published. Pertinent elements from these documents would be incorporated into project plans. The consolidation plan would support the master plan’s intended use of Batteries Dodge and Hulings as public lookouts since radio equipment would be relocated from these locations. The road along these Batteries would also be available for use by the public with the consolidation improvements. The Draft EA will address this access item.

The Draft EA will include an assessment of visual effects associated with the project.

We appreciate the assistance your staff has provided our team by attending a field inspection of the project area as part of the botanical study conducted. We are familiar with the endangered plants identified in the area discussed along with the unconfirmed report of the Pueo. The Draft EA will address the project effects on these resources and identify necessary mitigative measures.

If you have any questions on this matter, please give me a call at 356-1242. Thank you.

Sincerely,

SSFM INTERNATIONAL, INC.

Jared K. Chang
Planner

PHONE (808) 594-1888

FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

SSFM INTERNATIONAL, INC.
RECEIVED
SEP 01 2005
ras

HRD05/1985

FILE COPY

FILE

August 28, 2005

Ronald A. Sato, AICP
Senior Project Planner
SSFM International, Inc.
501 Sumner St., Suite 620
Honolulu, HI 96817

RE: Pre-Environmental Assessment (EA) Consultation on proposed State Civil Defense Diamond Head Radio Site Improvement Project, Le'ahi State Monument, O'ahu

Dear Ronald A. Sato,

The Office of Hawaiian Affairs (OHA) is in receipt of your August 8, 2005, request for comments on the above project, which would include consolidating existing radio equipment and antenna facilities within Diamond Head Crater, and the modification of transmission antennas to be compliant with the Federal Communications Commission's requirements. We look forward to reviewing the forthcoming Draft EA, and offer the following general comments.

Despite the area of effect having already been heavily impacted, OHA will request assurances that should iwi kupuna or Native Hawaiian cultural or traditional deposits be found during ground disturbance or excavation, work will cease, and the appropriate agencies will be contacted pursuant to applicable law. Also, please consult with local cultural practitioners who may have concerns about further impacts on the crater, including changing viewplanes.

Thank you for the opportunity to comment. If you have any further questions or concerns please contact Heidi Guth at 594-1962 or e-mail her at heidig@oha.org.

Sincerely,

Clyde W. Nāmu'o
Administrator

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Council of Engineering Companies, Member

June 15, 2007

SSFM 2000_107.000

Mr. Clyde W. Nāmuʻo, Administrator
Office of Hawaiian Affairs
State of Hawaii
711 Kapiʻolani Boulevard, Suite 500
Honolulu, Hawaiʻi 96813

Dear Mr. Nāmuʻo:

Subject: State Civil Defense Diamond Head Radio Site Improvements
Pre-Assessment Comments, Draft Environmental Assessment
Diamond Head Crater, Oʻahu, Hawaiʻi

Thank you for the letter dated August 28, 2005 providing pre-assessment consultation comments for the preparation of the Draft Environmental Assessment (Draft EA) for the subject project.

In the event subsurface human remains, cultural layer, artifacts, or other indications of human activity older than 50 years are encountered during construction activities, all work would stop immediately and the State Historic Preservation Department notified. The treatment of any human remains encountered would be determined, and conducted in accordance with the applicable requirements of Chapter 6E, HRS, and Chapter 13-300, HAR. Local cultural practitioners who may have concerns about further impacts on the crater will be consulted as appropriate.

If you have any questions on this matter, please give me a call at 356-1242. Thank you.

Sincerely,

SSFM INTERNATIONAL, INC.

Jared K. Chang
Planner

LINDA LINGLE
GOVERNOR

RODNEY K. HARAGA
DIRECTOR

Deputy Directors
BRUCE Y. MATSUI
BARRY FUKUNAGA
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

IN REPLY REFER TO:

STP 8.1882

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

September 7, 2005

Mr. Ronald A. Sato, AICP
Senior Project Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Mr. Sato:

Subject: State Civil Defense Diamond Head Radio Site Improvements Project
Pre-Assessment Consultation for Draft Enviromental Assessment

Thank you for your transmittal requesting our review of the subject project. The proposed consolidation of existing radio equipment and antenna facilities located within Diamond Head Crater will not impact our State highway facilities.

We appreciate the opportunity to provide comments.

Very truly yours,

RODNEY K. HARAGA
Director of Transportation

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Council of Engineering Companies, Member

June 15, 2007

SSFM 2000_107.000

Mr. Barry Fukunaga, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawai‘i 96813

Dear Mr. Fukunaga:

Subject: State Civil Defense Diamond Head Radio Site Improvements
Pre-Assessment Comments, Draft Environmental Assessment
Diamond Head Crater, O‘ahu, Hawai‘i

Thank you for the letter dated September 7, 2005 providing pre-assessment consultation comments for the preparation of the Draft Environmental Assessment (Draft EA) for the subject project.

We note your comment that the proposed project improvements will not impact your State highway facilities.

If you have any questions on this matter, please give me a call at 356-1242. Thank you.

Sincerely,

SSFM INTERNATIONAL, INC.

Jared K. Chang
Planner

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

August 29, 2005

Ronald Sato, AICP
SSFM International, Incorporated
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Mr. Sato:

Subject: Your Letter of August 8, 2005, on the Draft Environmental Assessment for the State Civil Defense Diamond Head Radio Site Improvements Project, TMK:3-1-42:6

Thank you for the opportunity to comment on the proposed project.

The existing water system is presently adequate to accommodate the proposed improvements.

The developer will be required to obtain a water allocation from the State Department of Land and Natural Resources.

The availability of water will be confirmed when the building permit is submitted for approval. When water is made available, the applicant will be required to pay our Water System Facilities Charges for transmission and daily storage.

The on-site fire protection requirements should be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.

The proposed project is subject to Board of Water Supply cross-connection control and backflow prevention requirements prior to issuance of the Building Permit Application.

If you have any questions, please contact Joseph Kaakua at 748-5442.

Very truly yours,

K. Shida

KEITH S. SHIDA
Principal Executive
Customer Care Division

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Council of Engineering Companies, Member

June 15, 2007

SSFM 2000_107.000

Mr. Keith Shida, Principal Executive
Customer Care Division
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawai‘i 96843

Dear Mr. Shida:

Subject: State Civil Defense Diamond Head Radio Site Improvements
Pre-Assessment Comments, Draft Environmental Assessment
Diamond Head Crater, O‘ahu, Hawai‘i

Thank you for the letter dated August 29, 2005 providing pre-assessment consultation comments for the preparation of the Draft Environmental Assessment (Draft EA) for the subject project.

We offer the following responses to your comments provided:

1. We confirm the existing water system is presently adequate to accommodate the proposed improvements.
2. A water allocation will be obtained from the State Department of Land and Natural Resources during the design phase of the project.
3. We acknowledge the availability of water will be confirmed when the building permit is submitted for your department’s approval. The Water System Facilities Charges, as appropriate, will be taken care of by the State.
4. On-site fire protection requirements will be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.
5. Applicable cross-connection control and backflow prevention requirements will be addressed during the project’s design phase.

If you have any questions on this matter, please give me a call at 356-1242. Thank you.

Sincerely,

SSFM INTERNATIONAL, INC.

Jared K. Chang
Planner

DEPARTMENT OF COMMUNITY SERVICES
CITY AND COUNTY OF HONOLULU
715 SOUTH KING STREET, SUITE 311 ● HONOLULU, HAWAII 96813 ● AREA CODE 808 ● PHONE: 527-5311 ● FAX: 527-5498

MUFI HANNEMANN
MAYOR

DEBORAH K. MORIKAWA
DIRECTOR

AARON S. FUJIOKA
SPECIAL ADVISOR

SSFM INTERNATIONAL, INC.
RECEIVED
SEP 15 2005
ras

FILE COPY

FILE

September 12, 2005

Mr. Ronald A. Sato
SSFM International, Inc.
501 Sumner Street, Suite 260
Honolulu, Hawaii 96817

Dear Mr. Sato:

Subject: State Civil Defense Diamond Head Radio Site Improvements Project
Pre-Assessment Consultation for Draft Environmental Assessment

We have reviewed the information provided regarding the subject consultation and have determined that the project will not have any impact on affordable and special needs housing, and will not affect any of the programs and services provided by the Department of Community Services. We therefore have no comment on the project at this time.

We appreciate the opportunity to review and comment on this project. Should you have any questions on this matter, please feel free to call Mr. Randy Wong of our Community Based Development Division at 523-4435.

Sincerely,

Deborah K. Morikawa

DEBORAH K. MORIKAWA
Director

DKM:dk

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Council of Engineering Companies, Member

June 15, 2007

SSFM 2000_107.000

Ms. Deborah K. Morikawa, Director
Department of Community Services
City and County of Honolulu
715 South King Street, Suite 311
Honolulu, Hawai‘i 96813

Dear Ms. Morikawa:

Subject: State Civil Defense Diamond Head Radio Site Improvements
Pre-Assessment Comments, Draft Environmental Assessment
Diamond Head Crater, O‘ahu, Hawai‘i

Thank you for your letter dated September 12, 2005 providing pre-assessment consultation comments for the preparation of the Draft Environmental Assessment (Draft EA) for the subject project.

We note your determination that the proposed project will not have any impact on affordable and special needs housing, or affect any of the programs and services provided by your department.

If you have any questions on this matter, please give me a call at 356-1242. Thank you.

Sincerely,

SSFM INTERNATIONAL, INC.

Jared K. Chang
Planner

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 523-4564 • Fax: (808) 523-4567
Web site: www.honolulu.gov

MUFI HANNEMANN
MAYOR

WAYNE M. HASHIRO, P.E.
DIRECTOR

EUGENE C. LEE, P.E.
DEPUTY DIRECTOR

SSFM INTERNATIONAL, INC.
RECEIVED
AUG 19 2005
ras

FILE COPY
FILE

August 18, 2005

SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Attention: Mr. Ronald A. Sato, AICP
Senior Project Planner

Gentlemen:

Subject: State Civil Defense Diamond Head Radio Site Improvements Project, Pre-Assessment Consultation for Draft Environmental Assessment

This is in response to your letter dated August 8, 2005, regarding the above subject matter.

We have no comments on the draft environmental assessment.

By copy of this letter, we are requesting a direct response to you from the Department of Information Technology.

Please call Gerald Hamada at 527-5002 if you have any questions.

Very truly yours,

for WAYNE M. HASHIRO, P.E.
Director

WMH:rv (#115781)

c: Department of Information Technology

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Council of Engineering Companies, Member

June 15, 2007

SSFM 2000_107.000

Mr. Wayne M. Hashiro, P.E., Director
Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, Hawai‘i 96813

Dear Mr. Lee:

Subject: State Civil Defense Diamond Head Radio Site Improvements
Pre-Assessment Comments, Draft Environmental Assessment
Diamond Head Crater, O‘ahu, Hawai‘i

Thank you for the letter dated August 18, 2005 providing pre-assessment consultation comments for the preparation of the Draft Environmental Assessment (Draft EA) for the subject project.

We note that your department has no comments at this time.

If you have any questions on this matter, please give me a call at 356-1242. Thank you.

Sincerely,

SSFM INTERNATIONAL, INC.

Jared K. Chang
Planner

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
3375 KOAPAKA STREET, SUITE H425 • HONOLULU, HAWAII 96819-1869
TELEPHONE: (808) 831-7761 • FAX: (808) 831-7750 • INTERNET: www.honolulufire.org

MUFI HANNEMANN
MAYOR

ATTILIO K. LEONARDI
FIRE CHIEF

JOHN CLARK
DEPUTY FIRE CHIEF

August 24, 2005

Mr. Ronald A. Sato, AICP
Senior Project Manager
SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Mr. Sato:

Subject: Preassessment Consultation for Draft Environmental Assessment
State Civil Defense
Diamond Head Radio Site Improvements Project

We received your letter dated August 8, 2005, requesting our comments on the above-mentioned subject.

The Honolulu Fire Department has no objections to the proposed project.

Should you have any questions, please call Battalion Chief Lloyd Rogers of our Fire Prevention Bureau at 831-7778.

Sincerely,

ATTILIO K. LEONARDI
Fire Chief

AKL/DL:bh

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Council of Engineering Companies, Member

June 15, 2007

SSFM 2000_107.000

Mr. Kenneth G. Silva, Fire Chief
Fire Department
City and County of Honolulu
636 South Street
Honolulu, Hawai‘i 96813-5007

Dear Mr. Silva:

Subject: State Civil Defense Diamond Head Radio Site Improvements
Pre-Assessment Comments, Draft Environmental Assessment
Diamond Head Crater, O‘ahu, Hawai‘i

Thank you for your department’s letter dated August 24, 2005 providing pre-assessment consultation comments for the preparation of the Draft Environmental Assessment (Draft EA) for the subject project.

We note your department has no objections to the project at this time.

If you have any questions on this matter, please give me a call at 356-1242. Thank you.

Sincerely,

SSFM INTERNATIONAL, INC.

Jared K. Chang
Planner

OAHU CIVIL DEFENSE AGENCY
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

Mufi Hannemann
MAYOR

William D. Balfour, Jr.
ACTING ADMINISTRATOR

SSFM INTERNATIONAL, INC.
RECEIVED
AUG 2 9 2005
KAS

August 26, 2005

Mr. Ronald A. Sato, AICP
Senior Project Planner
SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 96817
Honolulu, Hawaii 96817

FILE COPY

FILE

Dear Mr. Sato:

RE: STATE CIVIL DEFENSE DIAMOND HEAD RADIO SITE IMPROVEMENTS PROJECT PRE-ASSESSMENT CONSULTATION FOR DRAFT ENVIRONMENTAL ASSESSMENT

Thank you for the opportunity to review the project summary, maps and locators for the above mentioned radio site. At this time, the Oahu Civil Defense Agency does not have any comments.

Sincerely,

W. D. Balfour, Jr.

WILLIAM D. BALFOUR, JR.
Acting Administration

/ms

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Council of Engineering Companies, Member

June 15, 2007

SSFM 2000_107.000

Mr. Peter J.S. Hirai, Acting Administrator
Department of Emergency Management
City and County of Honolulu
650 South King Street
Honolulu, Hawai‘i 96813

Dear Mr. Hirai:

Subject: State Civil Defense Diamond Head Radio Site Improvements
Pre-Assessment Comments, Draft Environmental Assessment
Diamond Head Crater, O‘ahu, Hawai‘i

We previously received a letter dated August 26, 2005 from the former O‘ahu Civil Defense Agency providing pre-assessment consultation comments on the preparation of the Draft Environmental Assessment (Draft EA) for the subject project.

That letter indicated that the O‘ahu Civil Defense Agency did not have any comments on the project at that time. However, we will provide your department with a copy of the published Draft EA for review and comments.

If you have any questions on this matter, please give me a call at 356-1242. Thank you.

Sincerely,

SSFM INTERNATIONAL, INC.

Jared K. Chang
Planner

DEPARTMENT OF PARKS AND RECREATION

CITY AND COUNTY OF HONOLULU

KAPOLEI HALE, 1000 ULUOHIA STREET, STE. 309 • KAPOLEI, HAWAII 96707
Phone: (808) 692-5561 • FAX: 692-5131 • Internet: www.honolulu.gov

MUFI HANNEMANN
MAYOR

LESTER K.C. CHANG
DIRECTOR

DANA L. TAKAHARA-DIAS
DEPUTY DIRECTOR

August 26, 2005

Mr. Ronald A. Sato, AICP
SSFM International Inc.,
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Mr. Sato:

Subject: State Civil Defense Diamond Head Radio Site Improvements Project
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for the opportunity to review and comment on the Pre-Assessment Consultation relating to the State Civil Defense Diamond Head Radio Site Improvements Project.

The Department of Parks and Recreation has no comment and as this project will not impact any of our programs or facilities, you are invited to remove us as a consulted party to the balance of the EIS process.

Should you have any questions, please contact Mr. John Reid, at 692-5454.

Sincerely,

LESTER K. C. CHANG
Director

LKCC:ea
(116045)

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Council of Engineering Companies, Member

June 15, 2007

SSFM 2000_107.000

Mr. Lester K. C. Chang, Director
Department of Parks and Recreation
City and County of Honolulu
Kapolei Hale
1000 Uluohia Street, Suite 309
Kapolei, Hawai‘i 96707

Dear Mr. Chang:

Subject: State Civil Defense Diamond Head Radio Site Improvements
Pre-Assessment Comments, Draft Environmental Assessment
Diamond Head Crater, O‘ahu, Hawai‘i

Thank you for the letter dated August 26, 2005 providing pre-assessment consultation comments for the preparation of the Draft Environmental Assessment (Draft EA) for the subject project.

We note your department has no comments on the proposed project since it will not impact any of your facilities or programs. As requested, we will also remove you from the consulted party list for the balance of this EA process.

If you have any questions on this matter, please give me a call at 356-1242. Thank you.

Sincerely,

SSFM INTERNATIONAL, INC.

Jared K. Chang
Planner

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4432 • FAX: (808) 527-6743
DEPT. INTERNET: www.honoluludpp.org • INTERNET: www.honolulu.gov

MUFI HANNEMANN
MAYOR

HENRY ENG, FAICP
DIRECTOR

DAVID K. TANOUE
DEPUTY DIRECTOR

SSFM INTERNATIONAL, INC
RECEIVED
AUG 30 2005
KAS

FILE COPY

2005/ELOG-1881(LW)

August 29, 2005

Mr. Ronald A. Sato
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Mr. Sato:

Re: State Civil Defense Diamond Head Radio Site Improvements
Pre-Assessment Consultation for Draft Environmental Assessment (EA)

This responds to your request for comments (received by DPP August 10, 2005) on the above-referenced project to consolidate existing radio equipment within two former military batteries and radio antennas along the crater rim into a single building and centralized location within the Diamond Head Crater.

Pending review of detailed plans in the draft EA, the project site appears to be on land designated Conservation District in which permitted uses and development standards are not governed by the City's Land Use Ordinance (LUO). The draft EA should specify the location and the tax map key numbers of the project site to confirm the above. In addition, draft EA should include more details on the number and size of the existing and proposed antennas, including photographs of existing conditions and a visual analysis, to confirm if there would be any visual impact.

Also, the project is within the Special Management Area (SMA) and is subject to the regulations and requirements of Chapter 25, Revised Ordinances of Honolulu (ROH) relating to the SMA. Accordingly, pursuant to Section 25-1.3(1)(E), ROH, the proposal will require the approval of an SMA permit. Please be informed that your proposal may qualify for a minor SMP provided the estimated cost of the project is below $125,000. Should a major SMP be required, your draft EA should be expanded to include project's compliance with the SMA requirements as stated in Chapter 25 of the ROH.

If you have any questions, please do not hesitate to contact Lin Wong of our staff at 523-4485.

Very truly yours,

Barbara A. Moon
for HENRY ENG, FAICP
Director of Planning and Permitting

HE:nt

Doc393513

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Council of Engineering Companies, Member

June 15, 2007

SSFM 2000_107.000

Mr. Henry Eng, FAICP, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawai‘i 96813

Dear Mr. Eng:

Subject: State Civil Defense Diamond Head Radio Site Improvements
Pre-Assessment Comments, Draft Environmental Assessment
Diamond Head Crater, O‘ahu, Hawai‘i

Thank you for the letter dated August 29, 2005 providing pre-assessment consultation comments for the preparation of the Draft Environmental Assessment (Draft EA) for the subject project.

We confirm that the project site is located within lands designated Conservation District for which jurisdiction falls under the State Board of Land and Natural Resources. The Draft EA will include information and figures graphically showing the project area in relation to the Conservation District. Information associated with the number and size of existing and proposed relocated antennas will be included in the Draft EA along with an assessment of potential visual impacts from the relocation.

The project is confirmed to be within the Special Management Area (SMA) and subject to the regulations and requirements of Chapter 25, Revised Ordinances of Honolulu. A Special Management Area Use Permit application (Major) will be required for this project, and the Draft EA will be expanded to address the project’s compliance with SMA requirements along with pertinent policies.

If you have any questions on this matter, please give me a call at 356-1242. Thank you.

Sincerely,

SSFM INTERNATIONAL, INC.

Jared K. Chang
Planner

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813
TELEPHONE (808) 523-4529 • FAX (808) 523-4730 • INTERNET www.co.honolulu.hi.us

MUFI HANNEMANN
MAYOR

EDWARD Y. HIRATA
DIRECTOR

ALFRED A. TANAKA, P.E.
DEPUTY DIRECTOR

TP8/05-115748R

August 23, 2005

SSFM INTERNATIONAL, INC
RECEIVED
AUG 2 5 2005
ras

FILE COPY
FILE

Mr. Ronald A. Sato, AICP
Senior Project Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Mr. Sato:

Subject: State Civil Defense Diamond Head Radio Site Improvements Project

Thank you for your August 8, 2005 letter, requesting our comments related to the subject project. At this time, we have no comments to offer for your consideration as you prepare the draft environmental assessment.

Should you have any questions regarding this matter, please contact Faith Miyamoto of the Transportation Planning Division at 527-6976.

Sincerely,

EDWARD Y. HIRATA
Director

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Council of Engineering Companies, Member

June 15, 2007

SSFM 2000_107.000

Mr. Melvin N. Kaku, Director
Department of Transportation Services
City and County of Honolulu
650 South King Street
Honolulu, Hawai‘i 96813

Dear Mr. Kaku:

Subject: State Civil Defense Diamond Head Radio Site Improvements
Pre-Assessment Comments, Draft Environmental Assessment
Diamond Head Crater, O‘ahu, Hawai‘i

Thank you for your department’s letter dated August 23, 2005 providing pre-assessment consultation comments for the preparation of the Draft Environmental Assessment (Draft EA) for the subject project.

We note that your department has no comments at this time.

If you have any questions on this matter, please give me a call at 356-1242. Thank you.

Sincerely,

SSFM INTERNATIONAL, INC.

Jared K. Chang
Planner

Ronald Sato

From: Goo Janice A GS-11 15 CES/CERR [Janice.Goo@hickam.af.mil]

Sent: Friday, September 02, 2005 9:01 AM

To: Ronald Sato

Cc: Cort Carter TSgt 15 CS/SCMGR

Subject: State Civil Defense Diamond Head Radio Site Improvements Project Pre-Assessment Consultation for Draft Environmental Assessment

Reference: Your Letter, 8 Aug, SAB.

The Air Force has a land mobile radio (LMR) equipment located in the former FAA building on the Diamond Head Crater rim. There are several questions/concerns our Air Force communications technicians have regarding the consolidation of the radio equipment and antennas into the former FAA building.

Below are their comments:

1. The AF equipment is in the building to be renovated.
   Q1: Will the AF equipment need to be relocated during the renovations?
   Q2: If the AF equipment has to be moved who will be responsible? Civil Defense or AF?
   Q3. Will there be a temporary building during the renovation period?

2. On the preliminary floor plan there was no indication of a space for the AF equipment. AF equipment will require 1 ea 19" Rack floor space with 120VAC outlet.
   Q4. Will the AF paging system have a reserved spot on the floor plan?

3. The AF equipment transmits on 150.315MHz and Receives on 143.5125MHz at 25Kz bandwidth
   Q5. Will a frequency analysis be prepared to ensure the AF frequencies are not interfered with nor cause any interference once the antennas are collocated?

4. Before Jan 2008, the AF system will be converted to a Narrowband Compliant System (12.5KHz Bandwidth) which might involve the allocation of new frequencies.
   Q6. If the paging system needs to be retuned to another frequency who will the AF need to coordinate with outside of the AF Frequency Manager?

If you have any question, please contact me. My email address is janice.goo@hickam.af.mil and my phone number is 448-7835.

Janice Goo
Chief, Real Estate Element
15th Civil Engineer Squadron (15 CES/CERR)
Hickam AFB, HI

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Council of Engineering Companies, Member

June 15, 2007

SSFM 2000_107.000

Ms. Janice Goo, Chief
Real Estate Element
15th Civil Engineer Squadron (15 CES/CERR)
Hickam AFB, Hawai‘i 96853-5233

Dear Ms. Goo:

Subject: State Civil Defense Diamond Head Radio Site Improvements
Pre-Assessment Comments, Draft Environmental Assessment
Diamond Head Crater, O‘ahu, Hawai‘i

Thank you for the e-mail received September 2, 2005 providing pre-assessment consultation comments for the preparation of the Draft Environmental Assessment (Draft EA) for the subject project.

We offer the following responses which are numbered to correspond to your questions:

1. The Air Force equipment will not need to be relocated during the building renovations. It is already sited in an area within the building that is planned for.
2. Please refer to response above.
3. Please refer to response to question number one.
4. Thank you for the information on your equipment’s floor space and outlet. A new power outlet socket will be provided as part of the building renovations which will accommodate your equipment.
5. There should not be any problems with interference to your current frequencies under this project. However, a different antenna would be needed for the receiver multi-coupler system planned. The later design phase of this project will appropriately coordinate such equipment details and requirements with your agency.
6. The person to contact and coordinate with regarding design details such as frequency changes would be the State Civil Defense Assistant Telecommunications Officer which is currently Mr. Norman Ogasawara.

If you have any questions on this matter, please give me a call at 356-1242. Thank you.

Sincerely,

SSFM INTERNATIONAL, INC.

Jared K. Chang
Planner

Ronald Sato

From: Keolanui, Stanley R Jr COL NGHI [stanley.Keolanui@us.army.mil]

Sent: Thursday, September 08, 2005 3:40 PM

To: Ronald Sato

Subject: State Civil Defense Diamond Head Radio Site Improvement Project Pre-Assessment Consultation for Draft Environmental Assessment

Mr. Sato, we received your letter requesting comments to the proposed consolidation of existing radio equipment and antenna facilities located within Diamond Head Crater. Based on our review, we do not have any comments, concerns, or regulatory requirements that would impact the proposed changes.

V/R, Stan Keolanui

Stan Keolanui Jr.
Colonel, Hawaii Army National Guard
J3/Director of Operations & Military Support (DOMS)
(808) 733-4266/67
stanley.keolanui@hi.ngb.army.mil

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Council of Engineering Companies, Member

June 15, 2007

SSFM 2000_107.000

Colonel Stan Keolanui, Jr.
Hawai‘i Army National Guard
J3/Director of Operations & Military Support (DOMS)
3949 Diamond Head Road
Honolulu, Hawaii 96816

Dear Mr. Keolanui:

Subject: State Civil Defense Diamond Head Radio Site Improvements
Pre-Assessment Comments, Draft Environmental Assessment
Diamond Head Crater, O‘ahu, Hawai‘i

Thank you for the e-mail dated September 8, 2005 providing pre-assessment consultation comments for the preparation of the Draft Environmental Assessment (Draft EA) for the subject project.

We note your department has no specific comments, concerns, or regulatory requirements with the project at this time.

If you have any questions on this matter, please give me a call at 356-1242. Thank you.

Sincerely,

SSFM INTERNATIONAL, INC.

Jared K. Chang
Planner
.

HAWAII AIR NATIONAL GUARD
169th AIRCRAFT CONTROL AND WARNING SQUADRON
360 Mamala Bay Drive, Hickam AFB, Hawaii 96853-5517

12 Aug 05

MEMORANDUM FOR SSFM INTERNATIONAL INC
ATTN: MR RONALD SATO

FROM: 169 ACWS/SC

SUBJECT: State Civil Defense Diamond Head Radio Site Improvements Project
Pre-Assessment Consultation for Draft Environmental Assessment

We received your request for comments dated 8 Aug 05, same subject. Our unit consolidated it's Land Mobile Radio (LMR) requirements with the trunked-UHF system managed by the US Army. Earlier this year we removed the dedicated LMR repeater equipment and antenna located at the Diamond Head facility. Comments or concern regarding the proposed project siting and specifications will likely be addressed by our service provider. If you have additional questions on this matter, please contact me at (808) 655-7054 or via e-mail at joann.rapoza@hihick.ang.af.mil.

JO ANN T. RAPOZA, Maj, HIANG
OIC, HIRAOC Maintenance Section

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Council of Engineering Companies, Member

June 15, 2007

SSFM 2000_107.000

Ms. Jo Ann Rapoza, Major
Hawai‘i Air National Guard
169th Aircraft Control and Warning Squadron
360 Mamala Bay Drive
Hickam AFB, Hawai‘i 96853-5517

Dear Ms. Rapoza:

Subject: State Civil Defense Diamond Head Radio Site Improvements
Pre-Assessment Comments, Draft Environmental Assessment
Diamond Head Crater, O‘ahu, Hawai‘i

Thank you for your memo dated August 12, 2005 providing pre-assessment consultation comments for the preparation of the Draft Environmental Assessment (Draft EA) for the subject project.

We appreciate the notification of the consolidation of your land mobile radio requirements with the U.S. Army’s equipment along with the removal of equipment and antenna located at Diamond Head Crater. We will await any comments from your service provider associated with this project.

If you have any questions on this matter, please give me a call at 356-1242. Thank you.

Sincerely,

SSFM INTERNATIONAL, INC.

Jared K. Chang
Planner
.

WAIKIKI NEIGHBORHOOD BOARD NO. 9

c/o NEIGHBORHOOD COMMISSION • CITY HALL, ROOM 400 • HONOLULU, HAWAII 96813

SSFM INTERNATIONAL, INC.
RECEIVED
AUG 26 2005
ras

FILE COPY
FILE

August 25, 2005

SSFM INTERNATIONAL, INC.
501 Summer Street, Suite 620
Honolulu, Hawaii 96817

Aloha Mr. Sato

Reference: Your letter of August 8, 2005, State Civil Defense Diamond Head Radio Site Improvement Project.

Thank you for your letter and attachments of August 8th.

The project is not within the Waikiki Neighborhood Boards' area of responsibility so we can take no action on this issue.

Suggest you confer with the Diamond Head/Kapahulu/St. Louis Heights Neighborhood Board #5 on this issue.

Sincerely,

Robert J. Finley
Chairman

Copy to Neighborhood Board #5

SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348

Project Managers, Planners, & Engineers
American Council of Engineering Companies, Member

June 15, 2007

SSFM 2000_107.000

Mr. Lester Fukuda, Chairman
Waikiki Neighborhood Board, No. 9
C/O Neighborhood Commission
City Hall, Room 400
Honolulu, Hawai‘i 96813

Dear Mr. Fukuda,

Subject: State Civil Defense Diamond Head Radio Site Improvements Project
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for the Board’s letter dated August 25, 2005 providing comments on the Pre-Assessment Consultation for Draft Environmental Assessment for the subject project.

We note that the project is not within your Board’s area of responsibility, so no action will be taken on this issue. The Diamond Head/Kapahulu/St Louis Heights Neighborhood Board, No. 5 will be consulted on this project.

If you have any questions on this matter, please give me a call at 356-1242. Thank you.

Sincerely,

SSFM INTERNATIONAL, INC.

Jared K. Chang
Planner

APPENDIX B-2

DRAFT ENVIRONMENTAL ASSESSMENT COMMENTS & RESPONSE LETTERS

United States Department of Agriculture

NRCS

Natural Resources Conservation Service
P.O. Box 50004 Rm. 4-118
Honolulu, HI 96850
808-541-2600

September 17, 2007

Mr. Jared Chang; Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Subject: DEA for the proposed State Civil Defense Public Safety Radio Station Project.

Dear Mr. Chang,

We have reviewed the above mentioned document and have no comment at this time.

Thank you for the opportunity to comment.

Sincerely,

Carlos Suarez
Acting Director
Pacific Islands Area

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

BARBARA A. ANNIS
DEPUTY COMPTROLLER

(P)1201.8

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

JUL 11 2008

Mr. Carlos Suarez, Acting Director, Pacific Islands Area
United States Department of Agriculture
Natural Resources Conservation Service
P.O. Box 500004, Room 4-118
Honolulu, Hawaii 96850

Dear Mr. Suarez:

Subject: Draft Environmental Assessment for
State Civil Defense, Diamond Head Public Safety Radio Station
DAGS Job No. 12-14-7095

Thank you for reviewing the Draft Environmental Assessment for the subject project. We acknowledge that you had no comments.

If you have any questions, please have your staff call Mr. Lance Maja of the Planning Branch at 586-0483.

Sincerely,

ERNEST Y. W. LAU
Public Works Administrator

LM:mo
Attachment
c: Mr. Jared Chang, SSFM International w/o attach
Mr. Norman Ogasawara, DOD State Civil Defense w/o attach

National Park Service
U.S. Department of the Interior

Pacific West
Regional Office
Honolulu

300 Ala Moana Blvd
Box 50165
Room 6-226
Honolulu HI 96850-0053

808-541-2693 phone
808-541-3696 fax

PACIFIC WEST REGIONAL OFFICE Memorandum

Date: 09-21-07

Fax To: Jared Chang, Planner

Fax No.: 808-521-7348

From: Melia Lane-Kawahole (x729)

No. of pages: 01

Subject: Draft EA for SOH Civil Defense Public Safety Radio Station Project.

- Comments for this report are forthcoming but will probably arrive after 09-24-07. NPS Pacific West Region's National Natural Landmark (NNL) Program Mgr. will be in HNL for a meeting at State Parks on afternoon of 9/24 and will address this issues with them at that time. Comments will be provided after his meeting. His name is Steve Gibbons - he can be reached at Steve_Gibbons@nps.gov or at 360-854-7203.

United States Department of the Interior
NATIONAL PARK SERVICE
PACIFIC WEST REGION
North Cascades National Park
810 State Route 20
Sedro Woolley, Washington 98284

N44 (PWR-NR)

October 2, 2007

SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
Contact: Mr. Jared Chang, Planner

Dear Mr. Chang:

Thank you for the opportunity to review the Draft Environmental Assessment (Draft EA) for the proposed State Civil Defense Public Safety Radio Station Project by the State of Hawaii, Department of Accounting and General Services.

Upon review of the Draft EA it is my opinion that the proposed project should not have a deleterious effect on Diamond Head National Natural Landmark (NNL). The proposed northeastern project site location within Diamond Head State Monument is outside of the NNL boundary and situated across the floor of the crater.

I also want to compliment SSFM for acknowledging Diamond Head as a designated National Natural Landmark.

Sincerely,

Stephen T. Gibbons

Stephen T. Gibbons
NNL Coordinator, Pacific West Region

cc:
State of Hawaii, Department of Accounting and General Services
MLane-Kamahele, NPS, PWRH

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

BARBARA A. ANNIS
DEPUTY COMPTROLLER

(P)1200.8

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

JUL 1 1 2008

Mr. Stephen T. Gibbons, Coordinator, Pacific West Region
United States Department of the Interior
National Park Service, Pacific West Region
North Cascades National Park
810 State Route 20
Sedro Woolley, Washington 98284

Dear Mr. Gibbons:

Subject: Draft Environmental Assessment for
State Civil Defense, Diamond Head Public Safety Radio Station
DAGS Job No. 12-14-7095

Thank you for reviewing and commenting on the Draft Environmental Assessment (DEA) for the subject project. In response to your October 2, 2007 letter, we appreciate your determination that the proposed project should not have a deleterious effect on Diamond Head National Natural Landmark (NNL), and acknowledge that the proposed project is located outside of the NNL boundary.

If you have any questions, please have your staff call Mr. Lance Maja of the Planning Branch at (808) 586-0483.

Sincerely,

ERNEST Y. W. LAU
Public Works Administrator

LM:mo
Attachment
c: Mr. Jared Chang, SSFM International w/o attach
Mr. Norman Ogasawara, DOD State Civil Defense w/o attach

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

SSFM INTERNATIONAL, INC.
RECEIVED
SEP 28 2007
JKC

FILE COPY

FILE

September 24, 2007

SSFM International, Inc.
501 Sumner Street Suite 620
Honolulu, Hawaii 96817

Attention: Mr. Jared Chang

Gentlemen:

Subject: Draft Environmental Assessment for Proposed State Civil Defense Public Safety Radio Station Project, Waikiki, Oahu, Tax Map Key; (1) 3-1-42:portion 16 and 6

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

Other than the comments from Engineering Division, Division of State Parks, Office of Conservation & Coastal Lands, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

Russell Y. Tsuji
Administrator

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

BARBARA A. ANNIS
DEPUTY COMPTROLLER

(P)1202.8

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

JUL 1 1 2008

MEMORANDUM

TO: Mr. Morris M. Atta, Administrator
Land Division
Department of Land and Natural Resources

FROM: Ernest Y.W. Lau
Public Works Administrator

SUBJECT: Draft Environmental Assessment for
State Civil Defense, Diamond Head Public Safety Radio Station
DAGS Job No. 12-14-7095

Thank you for reviewing the Draft Environmental Assessment (DEA) for the subject project, and for distributing the DEA to the various divisions within DLNR. We acknowledge that you had no comments on the DEA. We will be responding to each of the divisions individually.

If you have any questions, please have your staff call Mr. Lance Maja of the Planning Branch at 586-0483.

LM:mo
Attachment
c: Mr. Jared Chang, SSFM International w/o attach
Mr. Norman Ogasawara, DOD State Civil Defense w/o attach

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 28, 2007

MEMORANDUM

TO: **DLNR Agencies:**
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
_x_Engineering Division
__Div. of Forestry & Wildlife
_x_Div. of State Parks
__Commission on Water Resource Management
_x_Office of Conservation & Coastal Lands
_x_Land Division – Oahu District

FROM: Russell Y. Tsuji
SUBJECT: Draft Environmental Assessment for Proposed State Civil Defense Public Safety Radio Station Project
LOCATION: Waikiki, Oahu, Tax Map Key: (1) 3-1-42:portion 16 and 6
APPLICANT: SSFM International on behalf of Department of Accounting & General Services

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by September 20, 2007.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(X) Comments are attached.

Signed: [signature]
Date: 9/20/07

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/RYT

Ref.: DEAStateCivilDefenseRadioStation
Oahu.573

COMMENTS

(X) **We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone X. The Flood Insurance Program does not have any regulations for developments within Zone X.**

( ) Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone.

( ) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ___.

( ) Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

( ) Mr. Robert Sumitomo at (808) 768-8097 or Mr. Mario Siu Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.

( ) Mr. Kelly Gomes at (808) 961-8327 (Hilo) or Mr. Kiran Emler at (808) 327-3530 (Kona) of the County of Hawaii, Department of Public Works.

( ) Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.

( ) Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.

( ) The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.

( ) The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

( ) Additional Comments:_____

( ) Other: _____

Should you have any questions, please call Ms. Suzie Agraan of the Planning Branch at 587-0258.

Signed: _____
ERIC T. HIRANO, CHIEF ENGINEER

Date: 9/20/07

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

BARBARA A. ANNIS
DEPUTY COMPTROLLER

(P)1203.8

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

JUL 11 2008

MEMORANDUM

TO: Mr. Eric T. Hirano, Chief Engineer
Engineering Division
Department of Land and Natural Resources

FROM: Ernest Y. W. Lau
Public Works Administrator

SUBJECT: Draft Environmental Assessment for
State Civil Defense, Diamond Head Public Safety Radio Station
DAGS Job No. 12-14-7095

Thank you for reviewing and commenting on the Draft Environmental Assessment for the subject project. In response to your September 20, 2007 memorandum, we acknowledge your confirmation that the project site is located within the Flood Zone X in accordance with the Flood Insurance Rate Maps.

If you have any questions, please have your staff call Mr. Lance Maja of the Planning Branch at 586-0483.

LM:mo
Attachment
c: Mr. Jared Chang, SSFM International w/o attach
Mr. Norman Ogasawara, DOD State Civil Defense w/o attach

50563

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

RECEIVED
STATE PARKS DIV

'07 AUG 29 P3:38

DEPT OF LAND &
NATURAL RESOURCES

August 28, 2007

MEMORANDUM

TO: **DLNR Agencies:**
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
_x_Engineering Division
__Div. of Forestry & Wildlife
_x_Div. of State Parks
__Commission on Water Resource Management
_x_Office of Conservation & Coastal Lands
_x_Land Division – Oahu District

RECEIVED
LAND DIVISION
2007 SEP 13 A 10:3
DEPT OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

FROM: Russell Y. Tsuji
SUBJECT: Draft Environmental Assessment for Proposed State Civil Defense Public Safety Radio Station Project
LOCATION: Waikiki, Oahu, Tax Map Key: (1) 3-1-42:portion 16 and 6
APPLICANT: SSFM International on behalf of Department of Accounting & General Services

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by September 20, 2007.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

(✓) We have no objections.
(✓) We have no comments.
( ) Comments are attached.

Signed: Dan Metcalfe
Date: SEP 12 2007

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

BARBARA A. ANNIS
DEPUTY COMPTROLLER

(P)1204.8

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

JUL 1 1 2008

MEMORANDUM

TO: Mr. Daniel S. Quinn, Administrator
Division of State Parks
Department of Land and Natural Resources

FROM: Ernest Y.W. Lau
Public Works Administrator

SUBJECT: Draft Environmental Assessment for
State Civil Defense, Diamond Head Public Safety Radio Station
DAGS Job No. 12-14-7095

Thank you for reviewing the Draft Environmental Assessment for the subject project. We acknowledge that you had no comments.

If you have any questions, please have your staff call Mr. Lance Maja of the Planning Branch at 586-0483.

LM:mo
Attachment
c: Mr. Jared Chang, SSFM International w/o attach
Mr. Norman Ogasawara, DOD State Civil Defense w/o attach

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED
OFFICE OF CONSERVATION
& COASTAL LANDS

2007 AUG 29 P 3: 39

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

RECEIVED
LAND DIVISION
2007 AUG 30 A 10: 28
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

August 28, 2007

MEMORANDUM

TO: **DLNR Agencies:**
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
_x_Engineering Division
__Div. of Forestry & Wildlife
_x_ Div. of State Parks
~~Commission on Water Resource Management~~
_x_ Office of Conservation & Coastal Lands
~~_x_ Land Division~~ – Oahu District

FROM: Russell Y. Tsuji
SUBJECT: Draft Environmental Assessment for Proposed State Civil Defense Public Safety Radio Station Project
LOCATION: Waikiki, Oahu, Tax Map Key: (1) 3-1-42:portion 16 and 6
APPLICANT: SSFM International on behalf of Department of Accounting & General Services

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by September 20, 2007.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

( ) We have no objections.
(✓) We have no comments.
( ) Comments are attached.

Signed: _____
Date: 8/29/07

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

BARBARA A. ANNIS
DEPUTY COMPTROLLER

(P)1205.8

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

JUL 11 2008

MEMORANDUM

TO: Mr. Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands
Department of Land and Natural Resources

FROM: Ernest Y. W. Lau
Public Works Administrator

SUBJECT: Draft Environmental Assessment for
State Civil Defense, Diamond Head Public Safety Radio Station
DAGS Job No. 12-14-7095

Thank you for reviewing the Draft Environmental Assessment for the subject project. We acknowledge that you had no comments.

If you have any questions, please have your staff call Mr. Lance Maja of the Planning Branch at 586-0483.

LM:mo
Attachment
c: Mr. Jared Chang, SSFM International w/o attach
Mr. Norman Ogasawara, DOD State Civil Defense w/o attach

LINDA LINGLE
GOVERNOR

ANTHONY J.H. CHING
EXECUTIVE OFFICER

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
P.O. Box 2359
Honolulu, Hawaii 96804-2359
Telephone: 808-587-3822
Fax: 808-587-3827

September 5, 2007

Mr. Jared Chang
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Mr. Chang:

Subject: Draft Environmental Assessment (DEA) for the Diamond Head Safety Radio Station Master Plan
Diamond Head, Oahu, Hawaii
Tax Map Key: 3-1-42: por. 6 and 16

We have reviewed the subject DEA and confirm that the project site, as generally represented on Figure 1.2, is designated within the State Land Use Conservation District.

We have no further comments to offer at this time.

Thank you for the opportunity to comment on the subject DEA. Should you have any questions, please feel free to call me or Bert Saruwatari of our office at 587-3822.

Sincerely,

ANTHONY J. H. CHING
Executive Officer

c: Lance Maja, State Department of Accounting and General Services
Office of Environmental Quality Control

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

BARBARA A. ANNIS
DEPUTY COMPTROLLER

(P)1206.8

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

JUL 11 2008

MEMORANDUM

TO: Mr. Orlando Davidson, Executive Officer
Land Use Commission
Department of Business, Economic Development and Tourism

FROM: Ernest Y.W. Lau
Public Works Administrator

SUBJECT: Draft Environmental Assessment for
State Civil Defense, Diamond Head Public Safety Radio Station
DAGS Job No. 12-14-7095

Thank you for reviewing and commenting on the Draft Environmental Assessment for the subject project. In response to your September 5, 2007 letter, we acknowledge your determination that the project site is designated within the State Land Use Conservation District.

If you have any questions, please have your staff call Mr. Lance Maja of the Planning Branch at 586-0483.

LM:mo
Attachment
c: Mr. Jared Chang, SSFM International w/o attach
Mr. Norman Ogasawara, DOD State Civil Defense w/o attach

LINDA LINGLE
GOVERNOR

PATRICIA HAMAMOTO
SUPERINTENDENT

FILE COPY

SSFM INTERNATIONAL, INC.
RECEIVED
SEP 17 2007
jke
FILE

STATE OF HAWAI'I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI'I 96804

OFFICE OF THE SUPERINTENDENT

September 17, 2007

Mr. Jared Chang, Project Manager
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawai`i 96817

Dear Mr. Chang:

Subject: Draft Environmental Assessment for Civil Defense Radio Station, Diamond Head TMK: 3-1-042: 016 and por. 006

The Department of Education has no comment or concern.

Thank you for the opportunity to comment. If you have any questions, please call Heidi Meeker of the Facilities Development Branch at 733-4862.

Very truly yours,

Patricia Hamamoto
Superintendent

PH:ly

c: Randolph G. Moore, Assistant Superintendent, OBS
Duane Kashiwai, Public Works Administrator, FDB
Lance Maja, DAGS

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

BARBARA A. ANNIS
DEPUTY COMPTROLLER

(P)1197.8

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

JUL 14 2008

MEMORANDUM

TO: The Honorable Patricia Hamamoto, Superintendent
Department of Education

FROM: Russ K. Saito
State Comptroller

SUBJECT: Draft Environmental Assessment for the
State Civil Defense, Diamond Head Public Safety Radio Station
DAGS Job No. 12-14-7095

Thank you for reviewing the Draft Environmental Assessment for the subject project. We acknowledge that the Department of Education has no comments or concerns.

If you have any questions, please call me at 586-0400, or have your staff call Mr. Lance Maja of the Public Works Division at 586-0483.

Attachment
c: Mr. Jared Chang, SSFM International w/o attach
Mr. Norman Ogasawara, DOD State Civil Defense w/o attach

LINDA LINGLE
GOVERNOR

SSFM INTERNATIONAL, INC.
RECEIVED
SEP 07 2007
jKc
FILE

BARRY FUKUNAGA
DIRECTOR

Deputy Directors
MICHAEL D. FORMBY
FRANCIS PAUL KEENO
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

IN REPLY REFER TO:

STP 8.2604

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

August 31, 2007

FILE COPY

Mr. Jared Chang, Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Mr. Chang:

Subject: Oahu/State Civil Defense Public Safety Radio Station Project
Draft Environmental Assessment (DEA)
TMK: 3-1-042: 016 & portion of 006

Thank you for your transmittal requesting our review of the subject project.

The proposed project is not anticipated to significantly impact any State transportation facilities.

We appreciate the opportunity to provide comments.

Very truly yours,

BARRY FUKUNAGA
Director of Transportation

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

BARBARA A. ANNIS
DEPUTY COMPTROLLER

(P)1198.8

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

JUL 14 2008

MEMORANDUM

TO: The Honorable Brennon Morioka, Director
Department of Transportation

FROM: Russ K. Saito
State Comptroller

SUBJECT: Draft Environmental Assessment for the
State Civil Defense, Diamond Head Public Safety Radio Station
DAGS Job No. 12-14-7095

Thank you for your August 31, 2007 letter commenting on the Draft Environmental Assessment for the subject project. We acknowledge and appreciate your determination that the proposed project is not anticipated to significantly impact State transportation facilities.

If you have any questions, please call me at 586-0400, or have your staff call Mr. Lance Maja of the Public Works Division at 586-0483.

Attachment
c: Mr. Jared Chang, SSFM International w/o attach
Mr. Norman Ogasawara, DOD State Civil Defense w/o attach

LINDA LINGLE
GOVERNOR OF HAWAII

CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

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

In reply, please refer to:
EPO-07-173

September 20, 2007

Mr. Jared Chang
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Mr. Chang:

SUBJECT: Draft Environmental Assessment for the Proposed State Civil Defense Public Safety Radio Station Project
Diamond Head, Oahu, Hawaii
TMK: (1) 3-1-042: 016 and 006 (portion)

Thank you for allowing us to review and comment on the subject application. The document was routed to the various branches of the Department of Health (DOH) Environmental Health Administration. We have the following Clean Water Branch and General comments.

Clean Water Branch

The Department of Health, Clean Water Branch (CWB), has reviewed the subject document and offers these comments on your project. Please note that our review is based solely on the information provided in the subject document and its compliance with Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at http://www.hawaii.gov/health/environmental/env-planning/landuse/CWB-standardcomment.pdf.

1. Any project and its potential impacts to State waters must meet the following criteria:

   a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.

   b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.

   c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

2. You are required to obtain a National Pollutant Discharge Elimination System (NPDES) individual permit for the following types of discharges into State surface waters within the Diamond Head State Monument:

   a. Storm water associated with construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. An NPDES permit is required before the start of the construction activities.

   b. Hydrotesting water.

   c. Construction dewatering effluent.

   d. Circulation water from decorative ponds or tanks.

   You must submit an NPDES individual permit application at least 180 calendar days prior to the start of the discharge activity, except when applying for coverage for discharges of storm water associated with construction activity. For this type of discharge, the application must be submitted 180 calendar days before the start of construction activities. The NPDES application forms may be picked up at our office or downloaded from our website at: http://www.hawaii.gov/health/environmental/water/cleanwater/forms/genl-index.html.

3. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 Water Quality Certification are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of $25,000 per day per violation.

If you have any questions, please visit our website at http://www.hawaii.gov/health/environmental/water/cleanwater/index.html, or contact the Engineering Section, CWB, at 586-4309.

General

We strongly recommend that you review all of the Standard Comments on our website: www.state.hi.us/health/environmental/env-planning/landuse/landuse.html. Any comments specifically applicable to this project should be adhered to.

If there are any questions about these comments please contact Jiacai Liu with the Environmental Planning Office at 586-4346.

Sincerely,

KELVIN H. SUNADA, MANAGER
Environmental Planning Office

c: EPO
CWB

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

BARBARA A. ANNIS
DEPUTY COMPTROLLER

(P)1207.8

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

JUL 1 1 2008

MEMORANDUM

TO: Mr. Kelvin H. Sunada, Manager
Environmental Planning Office
Department of Health

FROM: Ernest Y.W. Lau
Public Works Administrator

SUBJECT: Draft Environmental Assessment for the
State Civil Defense, Diamond Head Public Safety Radio Station
DAGS Job No. 12-14-7095

Thank you for consolidating the comments from the various branches of the Environmental Health Administration on the Draft Environmental Assessment (DEA) for the subject project. In response to these comments in your September 20, 2007, letter, we offer the following:

Clean Water Branch:

1. Potential impacts to State receiving waters were addressed in Section 3.11 of the DEA.

   a. This project will be consistent with the State's anti-degradation policy and all applicable measures will be incorporated to maintain the water quality necessary to protect the existing uses of the receiving State waters.

   b. This project is consistent with the uses identified in HAR, Section 11-54-3. Coastal waters in the vicinity of Diamond Head Crater are designated as "Class A." The objective of Class A water use is for recreational purposes and aesthetic enjoyment. As discussed in section 3.11, this project is not expected to have a significant impact on coastal waters.

2. We note that the proposed radio station will require a National Pollutant Discharge Elimination System (NPDES) individual permit for discharges into State surface waters within Diamond Head State Monument. This information will be included in the Final EA. The applicability of the specific NPDES coverage needed will be determined during the project's design phase and obtained prior to construction.

3. Discharges associated with the project will comply with the applicable State Water Quality Standards under your Administrative Rules and requirements contained in Chapters 11-54 and 11-55.

Regarding the standard comments from your website referred to in your letter, we provided the following responses:

Clean Water Branch:

1. The Army Corps of Engineers has been consulted to identify project impacts to waters under their jurisdiction. The results were included in the DEA. A Section 401 Water Quality Certification will not be required for this project.

Clean Air Branch:

1. The project may require renovation activities involving asbestos. Should this be the case, the contractor would be instructed to contact the Asbestos Abatement Office in the Noise, Radiation and Indoor Air Quality Branch.

    a. Construction activities would comply with the regulations found in the Hawaii Administrative Rules, Section 11-60 on fugitive dust. These impacts are discussed in Section 3.4 of the DEA.

Environmental Planning Office:

1. There are no known water bodies affected by the project which appear on the current List of Impaired Waters in Hawaii. The Final EA has been revised to address this information.

2. The project would not affect water bodies on the list of impaired waters, therefore, information on the site and watershed conditions and characteristics are not applicable.

3. The DEA addressed project impacts on hydrology, water quality, and aquatic and riparian ecosystems on a practical and reasonable scale.

4. The DEA included alternative design concepts for the project and was discussed in section 2.6.

Hazard Evaluation & Emergency Response Office:

1. A Phase 1 Environmental Site Assessment is not warranted for this project since there is no known history of pollutants occurring at the project site.

2. The project site is not expected to contain arsenic contamination.

3. The project site is not known to have a history of previous releases of petroleum, hazardous substances, pollutants, or contaminants.

Noise, Radiation, and Indoor Air Quality Branch:

1. The project will comply with the pertinent Administrative Rules identified.

Safe Drinking Water Branch:

1. There will be no demand generated for potable water to service the radio station building and no new water lines for the building will be constructed.

2. New potable water sources are not included as part of this project, thus the engineering report and other requirements identified would not be applicable.

3. Injection wells for wastewater disposal or surface runoff will not be needed for this project.

4. This project does not involve a golf course, thus, the groundwater guidelines identified are not applicable.

Solid and Hazardous Waste Branch:

1. A solid waste management plan will be developed during the project's design phase.

2. Solid waste generated during the project construction and after completion will be directed to a permitted solid waste or recycling facility.

3. Minimal solid waste is expected to be generated from the operations of the radio station since it will primarily consist of communication equipment. Section 5.4 of the DEA discusses project impacts in regards to solid waste encompassing all project phases from construction to operation of the project.

4. This project will not involve any improvements or construction of State or County roadways. Accordingly, utilization of the crushed glass aggregate is not applicable.

Wastewater Branch:

1. No potable water will be required for the public safety radio station building, and no staff will be working within this building. Therefore, there will be no new wastewater generated by this project or its operations. This is discussed in section 5.2 of the DEA.

We appreciate your effort to review our DEA and send comments.

If you have any questions, please have your staff call Mr. Lance Maja of the Planning Branch at 586-0483.

LM:mo
Attachment
c: Mr. Jared Chang, SSFM International w/o attach
Mr. Norman Ogasawara, DOD State Civil Defense w/o attach

PHONE (808) 594-1888

FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

HRD07/1985B

September 12, 2007

Jared Chang
Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, HI 96817

RE: Request for comments on the Draft Environmental Assessment for the proposed State Civil Defense Public Safety Radio Station Project, located within the Diamond Head State Monument, TMK: 3-1-042:016, por. 006

Dear Jared Chang,

The Office of Hawaiian Affairs (OHA) is in receipt of your August 23, 2007, request for comments on the above project, proposed by the State of Hawai'i, Department of Accounting and General Services. The project calls for the consolidation of radio equipment and antennas currently located within the Diamond Head State Monument to a single site, with additional associated improvements. OHA offers the following comments.

OHA understands and respects the concept of the project, which will not only improve the State Civil Defense's ability to prepare for and respond to emergencies and disasters, but also enhance the views of one of Hawai'i's most notable natural landmarks, Diamond Head. OHA also appreciates the level of detail and thoroughness seen throughout the work that SSFM International, Inc. has done on this Draft Environmental Assessment.

OHA commends the applicant for considering using native vegetation in the project's landscaping. Landscaping with native vegetation will further the traditional Hawaiian concept of mālama 'āina and create a more Hawaiian sense of place.

OHA will rely on the applicant's assurances that in the case that cultural artifacts, subsurface human remains or other indication of human activity older than 50 years are found during construction activities, all work will stop immediately and the State Historical Preservation Division will be notified. OHA will also rely on the assurances that during the project's design phase, SHPD will review and comment on construction plans.

OHA appreciates the applicant acknowledging that the Diamond Head State Monument area has a high number of native species compared with most lowland locations on O'ahu. OHA asks the applicant to follow through on the recommendation that another survey be conducted – this one during the wet season – to establish the location of all endangered and rare native plant species. This survey should also cover the areas slated for trenching to place existing electrical conduits underground. In addition, OHA requests that consideration be given during the design phase of the project to the effect converting Battery Dodge and Battery Hulings into visitor attractions and opening a crater rim trail will have on endangered and rare native species and their habitats.

Thank you for the opportunity to comment. If you have further questions, please contact Sterling Wong (808) 594-0248 or e-mail him at sterlingw@oha.org.

Sincerely,

Clyde W. Nāmu'o
Administrator

C: Lance Maja
State of Hawai'i
Department of Accounting and General Services
P.O. Box 119
Honolulu, HI 96810

Office of Environmental Quality Control
235 South Beretania St.
Suite 702
Honolulu, HI 96813

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

BARBARA A. ANNIS
DEPUTY COMPTROLLER

(P)1199.8

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

JUL 15 2008

MEMORANDUM

TO: The Honorable Clyde W. Namuo, Administrator
Office of Hawaiian Affairs

FROM: Russ K. Saito
State Comptroller

SUBJECT: Draft Environmental Assessment for the
State Civil Defense, Diamond Head Public Safety Radio Station
DAGS Job No. 12-14-7095

Thank you for reviewing and commenting on the Draft Environmental Assessment for the subject project. In response to your September 12, 2007 letter, we offer the following:

1. In accordance with Section 6E-46.6, HRS, we will stop all construction work in the immediate vicinity if any significant cultural deposits or human skeletal remains are encountered, and will contact the State Historic Preservation Division.

2. We will take all precaution so as not to disturb any endangered native species of plant and wildlife which may be in the area. As the project progresses through the design and construction phases, we will conduct an additional botanical survey to establish and locate areas of sensitive botanical resources. If practical, we will conduct the survey during the rainy season.

3. We will evaluate impacts to endangered and rare native species due to the use of Batteries Dodge and Hulings as visitor attractions, and will include this information in the Final EA.

If you have any questions, please call me at 586-0400 or have your staff call Mr. Lance Maja of the Public Works Division at 586-0483.

Attachment
c: Mr. Jared Chang, SSFM International w/o attach
Mr. Norman Ogasawara, DOD State Civil Defense w/o attach

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

BARBARA A. ANNIS
DEPUTY COMPTROLLER

(P)1208.8

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

JUL 1 1 2008

MEMORANDUM

TO: The Diamond Head Citizens' Advisory Committee

THROUGH: Yara Lamadrid-Rose
Division of State Parks
Department of Land and Natural Resources

FROM: Ernest Y.W. Lau
Public Works Administrator

SUBJECT: Draft Environmental Assessment for the
State Civil Defense, Diamond Head Public Safety Radio Station
DAGS Job No. 12-14-7095

Thank you for your April 28, 2008, letter providing comments on the Draft Environmental Assessment (DEA) for the subject project. In response to the Committee's summary recommendations, we provide the following:

1. Compliance with Chapter 6E-32(d) and Chapter 344, Hawai'i Revised Statutes, and the Diamond Head State Monument (DHSM) Master Plan.
   - The project is consistent with HRS Chapter 6E-32 and Chapter 344. A discussion of the project's consistency is included in Chapter 7.7 and 7.2 of the DEA, respectively.
   - The proposed project would be consistent with the DHSM Master Plan objectives. However, the former FAA Link Site would be utilized by the State Civil Defense (SCD) rather than being demolished.
   - With respect to Policy No. 5[1] of the DHSM Master Plan, this is superseded by Executive Order No. 4055 which conveyed the site from the FAA to the State Department of Defense on June 28, 2004.

[1] DHSM Master Plan Policy No. 5. That DLNR acquire all available unused or unrequired Federal lands adjoining or with Diamond Head and secure the phase-out of State DOD and FAA structures within the Monument as feasible.

2. Disclosure of alternative sites outside of the National Natural Landmark and State Monument.
   - This issue is discussed in a subsequent section of this letter. A summary of all alternatives considered for this project is included in Chapter 2.6 of the DEA.

3. Disclosure of public health hazards associated with consolidated transmission antennas.
   - The Federal Communications Commission (FCC) has recognized that public health hazards associated with transmitting antennas are due to their proximity to the ground. Accordingly, public safety requirements enforced by the FCC impose minimum height requirements for the bases of these facilities.

4. Disclosure of the larger cumulative development.
   - The two developments in question are not cumulative parts of a larger development. The proposed new Emergency Operation Center (EOC) is unrelated to this project. This issue is discussed in a subsequent section of this letter.

5. Necessity for a full Environmental Impact Statement.
   - A negative declaration is warranted for this project. This issue is further explained in a subsequent section of this letter.

Our responses to the Committee's detailed comments are provided below:

Background:

Thank you for the background information. All of the relevant, new background information you have provided will be included in the Final EA.

Significant adverse impacts to interior and exterior scenic views of the resource:

The committee's comments on scenic views are welcomed. As noted, a significant need for this project is to reduce the viewing impact of the northeast portion of the crater and to bring existing facilities into compliance with FCC regulations associated with height requirements for transmitting antennas.

With the project, potential visual benefits arise from consolidating the existing antennas: (1) the number of large antenna bases will be reduced from ten to four or less; (2) new steel antenna bases will be stronger and thinner because they can be tapered; (3) existing views towards the northeastern crater rim would improve by removing utility poles and wires and placing currently above ground electrical conduits underground. As a mitigation measure, new antenna bases can be painted to any appropriate color. The DHCAC will be consulted on the color of the new antenna bases as the project progresses through the design phase.

This action is consistent with the two master plan objectives[2] because improvements would open up Batteries Dodge and Hulings for public use and reduce the visibility of non-natural elements within and around the crater's rim. In this project, large wooden utility poles carrying overhead utility lines between Battery Birkhimer and the crater rim will be removed. Existing above ground conduits leading to the Radio Station site are proposed to be relocated underground, resulting in improved views towards the crater and restoration of vegetation in those areas. There are no new roadways proposed since there is an existing road leading to the project site. No new fencing is proposed for this project. Other improvements such as a security gate and landscaping are discussed in Chapter 2.4, Description of Project.

A maximum of four antenna bases are being considered for the new radio station site. These new bases will hold multiple antennas, thereby reducing the current amount of bases. The crossbar widths would be approximately 3-inches or less and on these crossbars, most of the antennas mounted on the top cross bars measure 1-inch or less in diameter while the antennas on the lower cross bars will be 4 inches or less in diameter. The base structure would be tapered from about 12-inches at ground level to 8-inches (top) making them more slender than most of the present wooden poles.

The Final EA will acknowledge exterior views from surrounding areas such as the University of Hawai'i campus, Waialae Iki, Waialae Nui, and Hawai'i Loa Ridge. Viewing distances from these exterior areas can average between 2 to 4 miles away from the project site. The combined improvements (reduction of wooden utility poles and thinner antenna structures) are expected to improve views of Diamond Head from these areas. The new antenna base structures would be thinner at the top making them less visible than existing wooden utility poles. Views of the antenna base structures at ground level (widest part) would likely be blocked by the site's surrounding topography. From these distances, the antenna poles and crossbars measuring less than 3-inches in diameter would be less visible.

The Primary Urban Center Development Plan also identifies significant panoramic east-west views of Diamond Head from the "Magic Island" peninsula located within Ala Moana Beach Park. From this vantage point, the exterior southwestern slopes of Diamond Head serve as a well recognized and prominent backdrop to Waikiki Beach. However, the subject project site is not visible from the beach park because it is situated along the northeastern crater rim behind the greater heights of the southwestern crater rim, thus the project would not affect east-west views of Diamond Head from Ala Moana Beach Park.

---

[2] DHSM Master Plan. Objective No. 1: To preserve and protect, and to include restoration of, Diamond Head crater while providing public recreational opportunities. Objective No. 2: The establishment of a semi-wild interior park and the development of an exterior park for family picnic outings.

Intended removal of industrial facilities from the monument:

As mentioned, the proposed project would be consistent with the DHSM Master Plan objectives. The removal of unnecessary utility poles and utility lines addresses Policy No. 5, however, the former FAA Link Site would continue to be used rather than being demolished. On June 28, 2004, Governor Lingle signed Executive Order No. 4055 conveying approximately 1.179 acres from the FAA to the State Department of Defense. This area has been identified as a "Communication Facility Site," and designates control and management of this area to the State of Hawai'i, Department of Defense, Civil Defense Division. As stated in the DEA, the project will require a Conservation District Use Permit and Board of Land and Natural Resources (BLNR) approval for construction within the Diamond Head State Monument in accordance with Section 6E-32(d), HRS. The SCD has determined that this site is vital for their mission to provide emergency management services and homeland security. The radio station site will remain functional until such time as their mission becomes redundant.

The proposed project is not expected to compromise the crater trail system or the proposed Visitor's Interpretive Center. The project proposes to relocate existing antennas and will not be adding any new antennas. Batteries Dodge and Hulings could potentially be used to expand the crater trail system which is an enhancement. Additionally, the existing paved roadway leading to Battery Hulings could be incorporated into the pedestrian pathways as prescribed in the DHSM Master Plan. Without this project, Battery Hulings and its access road would continue to remain restricted from public access. Views of the crater rim from the visitor's center are expected to improve as a result from a decrease in total antenna base structures and the removal of wooden utility poles and utility lines.

Endangered species within or adjacent to the proposed project:

Discussions of the potential impacts to botanical resources are included in Chapter 3.8 of the DEA, and a copy of the Botanical Assessment was included as Appendix C. The DEA does recognize a potential for construction activities to adversely impact native plants, including listed species.

Because the botanical assessment was conducted during the dry season, the distribution of *S. hawaiiensis* in areas outside of the radio station site is not known at this time. As the project progress through the design and construction phases, a re-survey of biological species at the specific sites planned for construction activities will be made to develop mitigation controls. As much as practical, the re-survey will be conducted during the wet season to establish whether sensitive botanical resources are located relative to work areas. A plan to avoid or minimize impacts will then be developed, which may include botanical monitoring during construction work in sensitive areas. Consultation with the U.S. Fish and Wildlife Service and State DLNR would be conducted.

Furthermore, the landscaping provided around the radio station site for security and screening views of this site would also be coordinated with State DLNR in support of their efforts to remove and control alien plants.

Proposed mitigation of significant adverse impacts:

The project construction schedule and estimates are conceptual at this point and will remain conceptual until funds are appropriated for design and construction. The removal of abandoned utility poles and overhead communication lines will be conducted at the earliest possible point in the project's construction. Please understand that the radio equipment must remain operational at all times. Accordingly, the new equipment must be installed and made operational before any of the old equipment can be decommissioned and removed.

We apologize for the confusion regarding Hawaiian Telcom use of the proposed facility. Neither Hawaiian Telcom nor any other private company will be allowed to use the proposed communications facility within the monument. We would like to emphasis that all of the radio equipment and antennas are for government agencies whose missions include emergency response, public safety and homeland security.

Potential adverse impacts to public safety, health, and welfare:

As previously discussed, one of the reasons for implementing this project is to make existing transmitting antennas compliant with FCC height requirements[3]. The following additional discussion will be included in the Final EA under Chapter 2.3 (Project Need and Objectives), "Compliance with FCC Regulations." A comprehensive hazard study is not required or warranted.

A map has been added in the Final EA showing the location of the Diamond Head Fault in relation to the Molokai Seismic Zone.

The committee's comments on terrorism have been noted. Consolidation of the radio antennas onto one site would allow the SCD to secure and monitor all of them 24-hours a day with a security camera system. The current situation with antennas located at various locations leaves them extremely vulnerable. As it is, anyone can simply walk up to the antenna poles, cut some wires and disable the radio system.

Failure to disclose alternative site locations outside Diamond Head Crater:

[3] Federal Communications Commission (FCC). 1997. "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields," OET Bulletin 65, Edition 97-01, August 1997. FCC, Office of Engineering and Technology, Washington, D.C.

Due to the southern topography of Oahu, the project site is situated in a unique location which allows for unobstructed communication corridors and has suitable height elevations for the transmission and receiving of signals. Maintaining this feature of the project site is vital to SCD and their efforts to support homeland security, public safety, and emergency management duties. This is consistent with the purpose and need for the project as discussed in Chapter 2 of the DEA.

The feasibility of using alternative sites both within and outside of Diamond Head was considered in Section 2.6 of the DEA. As discussed in the DEA, there is no other feasible site at this time.

Failure to disclose the larger cumulative development:

The proposed new State Department of Defense Emergency Operations Center (EOC) is to be located outside of the Diamond Head State Monument and is considered to be a separate project with no direct relation to the Public Safety Radio Station. The new EOC is not intended to replace the SCD's facilities in Birkhimer. The new EOC project will conduct its own environmental review process.

Our project has not been segmented and is not considered to be a part of a larger cumulative development for numerous reasons consistent with HAR Section 11-200-7. The Public Safety Radio Station component actions are not phases or increments of a larger total project. This project is not a precedent for the new EOC being proposed outside of the monument, nor does this project represent a commitment to a larger project.

Finding of significant effect and adverse impact on the resource:

In accordance with HAR Section 11-200-9 (9), the proposing agency is responsible to issue either a negative declaration, otherwise known as Finding of No Significant Impact (FONSI) determination or environmental impact statement preparation notice (EISPN) pursuant to the requirements of HAR Section 11-200-11.2.

Chapter 9 of the DEA discusses the results of the environmental assessment prepared for the proposed project in relation to the 13 Significance Criteria prescribed under HAR Section 11-200-12. Based upon these findings, a FONSI determination is warranted for the subject project.

You are correct in noting that the proposing agency and approving agency for the EA for the project is the Department of Accounting and General Services (DAGS). The Office of Environmental Quality Control, the agency that administers the environmental review process, has approved of this procedure. We do not see it as a conflict of interests. DAGS has

reviewed the data and evaluation presented in the DEA and determined that a FONSI is warranted.

We take note of your comment that the project is within the County's Special Management Area (SMA). Based upon a City and County of Honolulu, Department of Planning and Permitting letter received during the DEA consultation process, this project is not subject to the County's Land Use Ordinance. The County has defined this project as a "non-development" in accordance with Section 205A-22, HRS and this project is exempt from SMA permit requirements.

Closing Summary:

Based upon the environmental assessment conducted and review of the project's relations to the 13 Significance Criteria, we have determined that the project will have no significant impact. We believe that a FONSI is the correct determination and will not warrant an environmental impact statement for the following reasons:

1. This environmental assessment has adequately disclosed the proposed impacts from the development and has recommended proper mitigation measures in all instances deemed appropriate. No further impacts would be disclosed by conducting an environmental impact statement.

2. The project is not a part of a larger cumulative development, as previously discussed.

3. Construction time and project cost savings through delay is not a reasonable alternative as discussed in Section 2.6 of the DEA.

4. Specific alternative sites outside of Diamond Head are not available and thus cannot be included in the environmental assessment. However, a discussion of the potential impacts and conceptual costs associated with this alternative are discussed in Section 2.6 and were found to be unfeasible or inappropriate for the SCD and would not adequately meet their project needs, objectives, and equipment requirements.

5. The discussion of public health impacts has been revised in the Final EA and the benefits of raising the transmitting antennas to meet FCC requirements are explained in further detail. Meeting these requirements will assure that transmitting antennas are located at heights deemed safe for the public by Federal standards. This project will improve public safety in the vicinity of the crater rim trail.

If you have any questions, please have your staff call Mr. Lance Maja of the Planning Branch at 586-0483.

LM:mo
Attachment
c: Mr. Jared Chang, SSFM International w/o attach
Mr. Norman Ogasawara, DOD State Civil Defense w/o attach
Major Neal Mitsuyoshi, DOD w/o attach

DIAMOND HEAD CITIZENS ADVISORY COMMITTEE

State Department of Land and Natural Resources Division of State Parks

DATE: April 28, 2008

TO: SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
Att'n: Mr. Jared K. Chang

State Department of Accounting and General Services
Post Office Box 119
Honolulu, Hawaii 96810
Att'n: Mr. Lance Y. Maja

State Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

FROM: Diamond Head Citizens Advisory Committee

SUBJECT: State Civil Defense Public Safety Radio Station Project
Draft Environmental Assessment

The Diamond Head Citizens Advisory Committee attaches herewith our response to the State Civil Defense antenna consolidation project proposed to be developed on the crater rim of the Diamond Head National Natural Landmark and State Historic Monument. A summary of the DHCAC's recommendations is as follows:

- Compliance with Chapter 6E-32(d) and Chapter 344, HRS, and the DHSM Master Plan.
- Disclosure of alternative sites outside the National Natural Landmark and State Monument.
- Disclosure of public health hazards associated with consolidated transmission antenna towers.
- Disclosure of the larger cumulative development.
- Necessity for a full Environmental Impact Statement.

Because of the potential significant adverse visual impact of proposed development on the crater rim of the Diamond Head State Monument and National Natural Landmark, the DHCAC believes that an Environmental Impact Statement is necessary and warranted prior to further consideration of the proposed antenna consolidation project.

Ec: DLNR, att'n: Yara Lamadrid-Rose

DIAMOND HEAD CITIZENS ADVISORY COMMITTEE

State Department of Land and Natural Resources Division of State Parks

RESPONSE TO REQUEST FOR COMMENTS RELATING TO ANTENNAE CONSOLIDATION ON THE RIM OF DIAMOND HEAD (DOD SCD DRAFT ENVIRONMENTAL ASSESSMENT, AUGUST 2007)

BACKGROUND

Diamond Head was registered as a State Historic Monument in 1962 and a National Natural Landmark in 1968. The crater park was opened to the public for passive recreational use in 1975,[1] as administered through the Department of Land and Natural Resources. The Diamond Head State Monument Plan was adopted by the Board of Land and Natural Resources in 1979 and Chapter 6E, §6E-32(c), Hawaii Revised Statutes, provides for the following:

> "The Diamond Head State Monument Plan... shall serve as the official document setting forth the future direction of the Diamond Head State Monument. The board of land and natural resources may amend the monument plan from time to time with the review and recommendations of the Diamond Head Citizens Advisory Committee, organized in October of 1977." [2]

The Diamond Head State Monument Master Plan Update and EIS, approved and adopted by the State Department of Land and Natural Resources in 2000 and 2003, highlighted key objectives and planning policies for the Diamond Head State Monument.

> Objective #1 states: "To preserve and protect, and include restoration of, Diamond Head crater, while providing public recreational opportunities." [3]
>
> Policy #5 states: "That DLNR acquire all available, unused and surplus Federal lands adjoining or within the Diamond Head State Monument and secure the phase-out of State and Federal Department of Defense and Federal Aviation Administration operations and demolition of their structures within the Monument." [4]

The State Department of Defense has been a participating member of the Diamond Head Citizens Advisory Committee since its inception in 1976 to the present. The Diamond Head Citizens Advisory Committee received information from SSFM on the DOD SCD antenna consolidation project proposal on June 16 and August 11, 2005. The DHCAC expressed concerns from the outset about the adverse visual impacts of the project, and SSFM was reminded that any proposed development within the Monument must be consistent with the objectives of the DHSM Master Plan and Hawaii Revised Statutes Chapter 6E, which prohibits any construction inconsistent with the DHSM Master Plan: [5]

---

[1] Act 182, SLH 1975.
[2] Act 313, SLH 1992; Hawaii State Statutes §6E-32 (c); and Hawaii Administrative Rules Title 13, Chapter 5.
[3] Act 182, SLH 1975 and DEA, page 106.
[4] DEA, page 107.
[5] DHCAC Minutes for June 16, 2005 and August 11. 2005.

> "Notwithstanding any other law, including county ordinances, to the contrary, no expansion of buildings and other structures and no construction activity shall take place within the boundaries of the Diamond Head State Monument; provided that the board of land and natural resources may permit improvement projects that are consistent with the Diamond Head State Monument Plan of 1979 to take place."[6]

An updated presentation on the proposed project was provided to the DHCAC by SSFM on February 13, 2008, after which the DHCAC was asked to provide comments on the draft EA. The DHCAC's comments are as follows:

SIGNIFICANT ADVERSE IMPACTS TO INTERIOR AND EXTERIOR SCENIC VIEWS OF THE RESOURCE

Diamond Head is a world-renown symbol of Hawai'i and attracts nearly 800,000 visitors annually. The DHSM Master Plan specifically provides that any improvements within the Monument are to be directed toward passive recreational activities, and "crater view planes are to be given priority consideration." [7]

View points along the crater trail system and at *Lē'ahi* Summit encompass panoramic views of the crater that include the proposed DOD SCD antenna consolidation site on the northeastern crater rim. In turn, the subject site and adjacent Monument trail and lookout areas offer panoramic views of the crater floor, interior slopes and ridgeline to the summit, and of the Ko'olau Mountains and Oahu's southeast shoreline outside the crater.[8]

The draft EA mentions the significance of the prominent coastal land form of Diamond Head crater, and the State and City policies, guidelines, and regulations established to protect the scenic resources of Diamond Head that are of great public value and importance: [9]

- Protected Public Land Designations
  Conservation - State Land Use
  Preservation – Honolulu Primary Urban Center Development Plan
- Prominent Coastal Landform Recognition - 1987 Honolulu Coastal View Study
- Protective Special District – City and County of Honolulu Land Use Ordinance

However, the DOD SCD is now proposing to develop an antenna tower consolidation facility on the northeastern crater rim. [10] The draft EA discloses that ten (10) antenna towers approximately four (4) stories high are planned to be consolidated at this location, and each the would have three transmission antennas 6 to 8 feet high attached to crossbars 33 feet above crater rim, as well as receiving antennas attached to a second tier of crossbars 10 to 15 feet above the rim. [11]

---

[6] Hawaii State Statutes §6E-32 (d); Act 313, SLH 1992.
[7] DHSM Master Plan Update, DHSM Policy #1, pages 69 and 70.
[8] DHSM Master Plan Update, pages 46 and 51.
[9] DEA, page 10.
[10] DEA, page 29.
[11] DEA, pages 25, 28, 32, 33, 35, 36, 52 and Figure 2.8, attached.

By comparison, the draft EA confirms that the proposed antenna consolidation development will affect current views of the crater rim due to the height and size of the antennae towers.[12] For example, the draft EA properly acknowledges that existing single utility poles and antennas on the crater are "easily noticeable as encroaching features disrupting the harmonious and visual pattern and composition of the resource," [13] but does not take into account the proposed consolidation density and increased height of 4-story high antenna towers, including the width of the crossbars extending from the base structures. In addition, while acknowledging the visual impact of the existing antenna poles, the draft EA fails to disclose that they can be seen as far away as the upper campus of UH Manoa, and from the streets and neighborhoods of Waialae Iki, Waialae Nui and Hawaii Loa Ridge.[14] The draft EA also does not address the exterior visual impacts below the proposed site closer to the Monument than Kilauea Avenue on the northeast side of the crater.[15] Nor is there mention of new roadways, trenching or fencing and other security measures as lighting, etc., associated with the proposed project that that may alter or deface the current Monument landscape.

Further, the draft DEA claims that the consolidated 4-story antenna towers would be "more difficult to see" if painted,[16] and provides photographic simulations with a curious fog over three (3) superimposed 40-foot towers with crossbars. [17] Even if following the Hawaiian Electric Co. ruse for the failed Wa'ahila Ridge power transmission towers, i.e., to paint industrial towers on conservation land the "color of the sky," [18] the significant adverse visual impact of the antenna tower consolidation mass on the rim of the crater will far outweigh the present negative impact of scattered single antenna poles in the vicinity.

Thus the draft EA fails to properly address the true visual impact of the consolidated antennas within the prominent viewplanes of the Diamond Head National Natural Landmark and State Historic Monument because 1) the consolidation of 10 communications towers with crossbars and multiple antennas 40 feet high on the ridge of Diamond Head crater would be visibly more concentrated at the project site; and 2) the consolidation density of the 10 towers will clearly compound the significant adverse visual impact on the geological crater formation, and the significant views of Diamond Head from both the interior and exterior of the crater.

INTENDED REMOVAL OF INDUSTRIAL FACILITIES FROM THE MONUMENT

The draft EA notes that any improvement projects proposed for the Monument must be consistent with the objectives and policies of the DHSM Master Plan, the official State document guiding the Monument's future use.[19] It is important to note that the DHSM Master

[12] DEA, page 26.
[13] DEA, pages 57 and 58, Honolulu Coastal View Study criteria.
[14] Primary Urban Center Development Plan Significant Panoramic Views Map A.1 and "Hi'ilani," Honolulu Star Bulletin, March 19, 2008, attached.
[15] DEA, pages 56 and 57.
[16] DEA, page 58.
[17] DEA, Figure 3.4, page 59, and Figure 3 .5, page 60.
[18] DEA, pages 32, 58, and 64.
[19] DEA, page 106.

Plan provides for the phase-out of state and federal industrial facilities within the Monument, including demolition of their structures and restoration of the natural crater environment.[20]

For example, in 1961 the Federal Aviation Administration (FAA) constructed a large aircraft control facility [21] and proposed to expand this facility to 38,000 square feet in 1990. In response to this, in 1992 the State Legislature unanimously adopted Senate Bill 950 (Act 313) to preclude any development within the Monument other than for park use. In accordance with DHSM Policy #5,[22] the FAA CERAP facility was subsequently relocated out of the Monument to the airport and the FAA building was demolished in 2001.[23] The site was then restored to a natural state with native vegetation and returned to the State Department of Land and Natural Resources and Division of State Parks.

In addition to the intended phase-out of state and federal industrial facilities within the Monument, a key element of the DHSM Master Plan is the future Visitors Interpretive Center.[24] This important visitor educational and cultural facility is designated to be located on the crater interior just below the proposed antenna consolidation site in both the DHSM Plan of 1979 and the 2000 and 2003 DHSM Master Plan Update and EIS. [25] Thus the proposed consolidated antennas will permanently compromise both the visual character and integrity of the Monument's trail system and ridgeline lookouts and picnic areas where the antennas are planned to be clustered, as well as the environmentally-compatible presence of the planned Visitor's Interpretive Center below the subject site. Moreover, missing is a clear timeline on how long the antennas are anticipated to be in use, and their phase-out period in accordance with the Diamond Head State Monument Master Plan and §6E-32(c), HRS.

ENDANGERED SPECIES WITHIN OR ADJACENT TO THE PROPOSED PROJECT ACTIONS

The draft EA discloses that the only known population of *Schiedea adamantis*, an endangered plant species, is found adjacent to the project site, and that one of the poles to be removed on the crater rim is in the midst of this habitat. The draft EA additionally discloses that another endangered plant, *Spermolepis hawaiiensis*, is known to exist above the Kahala tunnel between Batteries Dodge and Hulings, and there have been reports of the Hawaiian owl or *pueo*, *Asio flammeus sandwichensi*, observed in the crater at dawn and dusk. [26] Because botanical reconnaissance was conducted during the dry season when the endangered plants were dormant, a more comprehensive protective study is required to be conducted in the winter season. To date this apparently has not been accomplished, and this must be completed before further consideration of the proposed project.

[20] DHSM Master Plan Update, page 4; Figure 2; Policy #5, pages 4 and 63; page 67.
[21] DEA, page 15.
[22] DHSM Master Plan Update, Policy #5, 1995.
[23] DHSM Master Plan Update, pages 14 and 49.
[24] DEA, page 11.
[25] DHSM Master Plan Update, Figures 2 and 21, attached.
[26] DEA, pages 75 to 79 and 81; Appendix C.

PROPOSED MITIGATION OF SIGNIFICANT ADVERSE IMPACTS

As a trade-off for amending the long-standing and carefully crafted DHSM Master Plan to allow development of an industrial high-density antenna tower consolidation site[27] served by a 20-foot wide access easement, [28] the DOD SCD is offering to remove existing unsightly utility lines and poles, communications antennas, and exposed electrical conduit pathways scattered about the northeastern crater slope and ridgeline trail of the Monument. [29] Notably, the several of the intents and purposes of the DHSM Master Plan are also to ensure a) opening of the Monument trail to the retractable searchlight feature and utilizing Battery Dodge and Hulings as points of historic interest, b) integrating gun emplacement sites as view vantage points and picnic areas, and d) restoring the crater to its natural environment by removing unsightly utility poles and surface conduits.[30] However, while the objectives and policies of the DHSM Master Plan demonstrate a clear intent to remove the blight of industrial facilities from the crater Monument, such removal was also clearly intended to be accomplished without construction of additional industrial facilities and sites within and upon the resource.[31] Although it is beneficial to remove excess industrial equipment to greatly improve the visual quality of the Monument, there are questions of how much of this trade-off is already former FAA or other abandoned communication lines and structures, and why this would be done last and as late as years 11 to 15 into the proposed project.[32]

In addition, the DEA discloses that the proposed project will take 15 years to complete at a minimal cost of $1 million.[33] However, during this time costly adjustments and upgrades may be made to allow for a reduction in the number of antenna towers as technology improves, [34] as well as additional shared government uses and other undefined user requirements such as those of Hawaiian Telecom, a private company.[35] However, the draft EA states that "No private companies, such as cellular telephone companies, are permitted to have radio equipment or antennas within the crater."[36] Therefore, there is confusion in the draft EA concerning both the future reduction of visual impacts and increased impacts of expansion with future public and private uses yet to be defined, which the draft EA cannot presently address as required.

POTENTIAL ADVERSE IMPACTS TO PUBLIC SAFETY, HEALTH AND WELFARE

There is serious concern regarding carcinogenic electro-magnetic frequency (EMF) emissions from the transmission antennas, especially with the consolidation of 10 towers with multiple transmission antennas on each tower. The consolidation site is adjacent to a Monument visitor trail leading to historic points of interest and significant viewplanes in this area of the National

---

[27] DEA, page 27.
[28] DEA, page 23 and Figure 2.6, page 24.
[29] DEA, pages 28 to 31.
[30] DEA, page 27 and 29.
[31] Hawaii State Statutes §6E-32 (d); Act 313, 1992.
[32] DEA, page 36
[33] DEA, pages 25 and 35.
[34] DEA, pages 26, 28, 35 and 36.
[35] DEA, page 30.
[36] DEA, page 16.

Natural Landmark resource and State Historic Monument crater park. The draft EA is silent on the public safety hazard of EMF transmissions with the potential to jeopardize the health and welfare of hundreds of thousands of annual visitors to the Monument, tourists and residents alike. A comprehensive hazard study is needed given public access to the trail and lookouts, when visitors may be in the exposure area for unstipulated periods of time.

While the draft EA discusses the Diamond Head Earthquake Fault, [37] no chart illustrating this alignment and the Molokai Seismic Zone is provided. A geographic chart of volcanic and tectonic delineations should be provided similar to Hurricane record chart, Figure 3.2.

The draft EA notes that the SCD functions as Hawai'i's Emergency Management and Homeland Security Agency, and administers U.S. Homeland Security Grants funds to help the State, counties and private agencies deal with a constant threat of terrorism.[38] However, while the proposed antenna consolidation project is intended to facilitate public protection during natural or other disasters, ironically, by virtue of the consolidation and permanent concentration of the elevated communications towers at this prominent location on the rim of a world-renown visitor attraction, such consolidation at this location would be an easily-identifiable prime target for either close-range or remote terroristic activities. Therefore, this does no appear to be the wisest choice of locations for this purpose.

FAILURE TO DISCLOSE ALTERNATIVE SITE LOCATIONS OUTSIDE DIAMOND HEAD CRATER

The draft EA fails to disclose alternative site locations outside Diamond Head crater, and instead focuses on sites within the crater as an attempt to address available alternatives in order to meet federal and state environmental review requirements. [39] The draft EA simply dismisses outside site alternatives as being infeasible, inappropriate, or inadequate; sites which "may" require relocation of occupants, renovation or reconstruction, or are "possibly" adjacent to urban uses. Additional presupposed preclusions are defined in the draft EA as cost and visual impacts.[40] However, while it has been confirmed that sites outside the crater were not investigated as alternatives, feasible alternative sites can be located on the island of O'ahu which are not within National Natural Landmarks, State Historic Monuments or high-profile recreational and visitor attractions.

FAILURE TO DISCLOSE THE LARGER CUMULATIVE DEVELOPMENT

The draft EA fails to disclose that the proposed antenna consolidation project at the subject site is part of a larger contemplated project, thus rendering this a cumulative development. The Hawaii Supreme Court has ruled that the larger project must be considered and addressed in the environmental review process,[41] and disclosure of the cumulative impacts of the larger development is required Title 11-200, HAR. [42]

---

[37] DEA, pages 45 and 46.
[38] DEA, page 4.
[39] Chapter 343, §343-2 and 5(1), HRS, and Title 11-200, HAR.
[40] DEA, page 38.
[41] Hawaii's Thousand Friends vs. City and County of Honolulu, Hawaii Supreme Court No. 15923, 1993
[42] Hawaii Administrative Rules Title 11, Chapter 200, §11-200-12.B.8.

Upon further inquiry the DHCAC finds that the State DOD anticipates developing a new emergency operations center on State property in the vicinity of Diamond Head within approximately three (3) years, and the DOD SCD antenna configurations will need to be consolidated and redirected accordingly for the new facility, which is planned to be partially underground. Both State and Federal funding is anticipated to be forthcoming for the $50 million facility, reduced from a cost of $90 million with the proposed retention of the present DOD SCD facility at Birkhimer Tunnel within the crater, into which the DOD SCD previously moved from buildings on the exterior of the crater.[43]

FINDING OF SIGNIFICANT EFFECT AND ADVERSE IMPACT ON THE RESOURCE

The draft EA predicts the following development phases for the subject proposal in order to attain use and permitting entitlements for the proposed development project: [44]

- EA/EIS Environmental Review Process[45]
- DHCAC/BLNR Recommendations and Approval[46]
- Amendment of the DHSM Master Plan[47]
- Conservation District Use (CDUA) Permit[48]
- Special Management Area (SMA) Permit[49]

Policy #2 of the DHSM Master Plan Update provides that "any proposed deviation from the adopted Plan for areas within Diamond Head State Monument will require an approved Environmental Assessment and Negative Declaration of Significant Impact or a full Environmental Impact Statement in Accordance with Chapter 343, HRS." The draft EA discloses that a Finding of No Significant Impact (FONSI) is anticipated by the DOD SCD. The proposing agency for the subject project and FONSI is the State Department of Accounting and General Services (DAGS), and the approving agency of the subject project and FONSI is also DAGS.[50] However, the dual role of DAGS approving its own proposals raises some questions of objective administrative oversight.

In accordance with the State's environmental review rules, an applicant or agency must evaluate the cumulative effects of an action and determine whether an action may have a significant impact on the environment. In making such a determination, defined significance criteria are used as a basis for identifying whether significant physical and/or human environmental impacts will occur, and an action shall be determined to have a significant impact on the environment if it meets any one of the specific criteria. [51]

---

[43] DHSM Master Plan Update, page 49.
[44] DEA, pages 11 and 35.
[45] Hawaii Revised Statutes, Chapter 6-E, §6-E-32(c).
[46] Chapter 6E, §6E-32(c), Hawaii Revised Statutes.
[47] DEA, page 27.
[48] DEA, page 36.
[49] DEA. pages 11 and 36; Revised Ordinances of Honolulu, Chapter 25.
[50] DEA, page 4.
[51] Hawaii Administrative Rules Title 11, Chapter 200, §11-200-12.

The draft EA lists the applicable criteria in an attempt to support the applicant's anticipated Finding of No Significant Impact, [52] which would thereby relieve the applicant from conducting a full Environmental Impact Statement. However, in view of the studied discussion above, these criteria actually indentify the potential significant adverse effects of the proposed development on the environmental qualities and recreational uses of the National Natural Landmark and State Historic Monument resource, as follows:

(1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resources;
(2) Curtails the range of beneficial uses of the environment;
(3) Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS;[53]
(4) Substantially affects the public health;
(6) Involves substantial secondary impacts, such as... effects on public facilities;
(7) Involves a substantial degradation of environmental quality;
(8) Is individually limited but cumulatively has considerable effect on the environment, or involves a commitment for larger actions;
(11) Affects or is likely to suffer damage by being located in an environmentally sensitive area, such as... erosion-prone area, geologically hazardous land...
(12) Substantially affects scenic vistas and view planes identified in county or state plans or studies.[54]

In addition, the proposed project site is located within the Special Management Area, [55] which is guided by the same objectives and policies of the State's Coastal Zone Management Program, [56] as follows:

- Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by: (i) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas; (iii) Providing and managing adequate public access, consistent with conservation of natural resources... along shorelines with recreational value; (v) Ensuring public recreational uses of... state.. owned or controlled shoreline lands... having recreational value consistent with public safety standards and conservation of natural resources.
- Protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

---

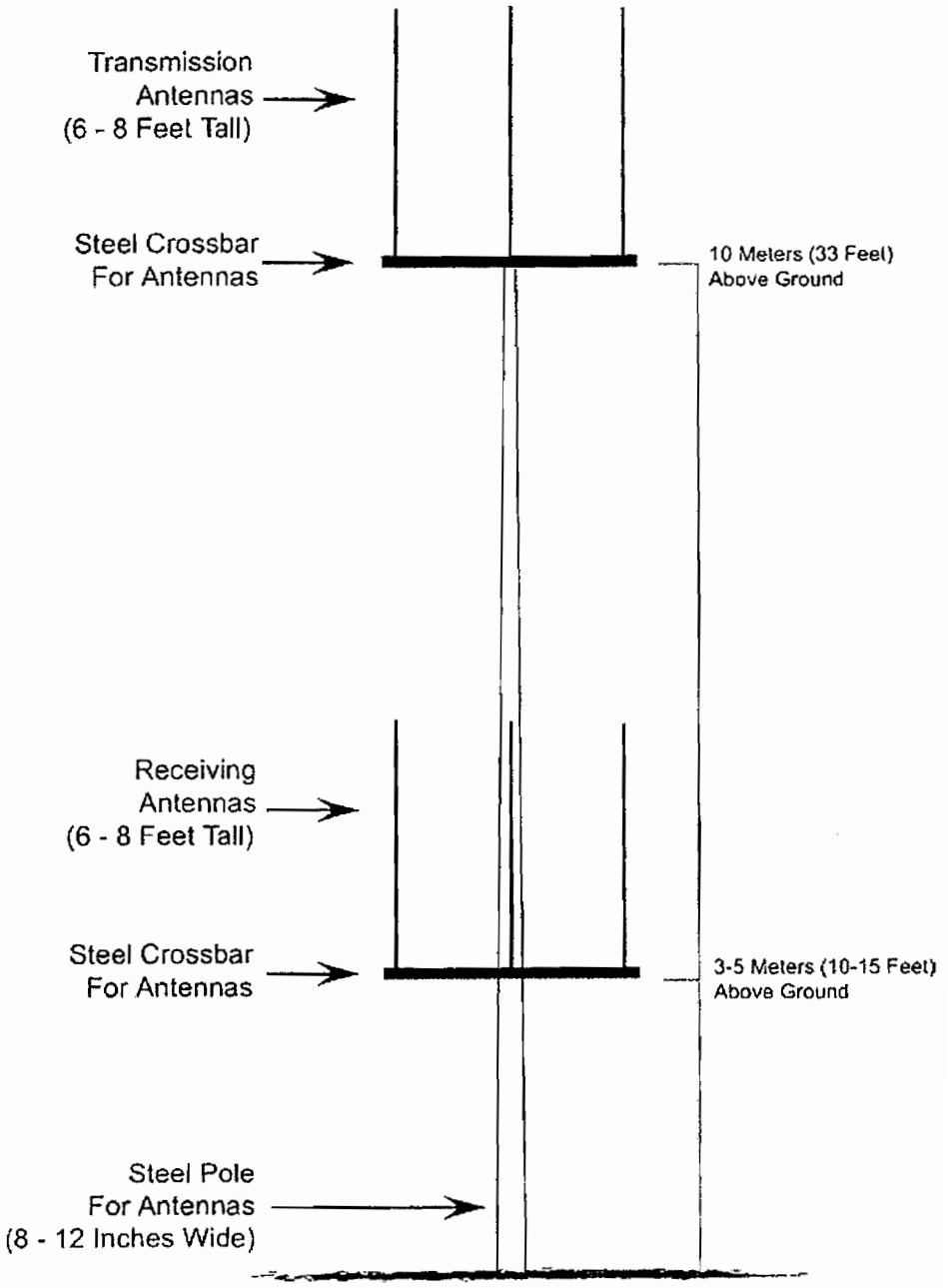
[52] DEA, pages 111 to 114.
[53] Chapter 344, HRS, §344-1, §344-2, §344-3 (1; 2c and 2d), and §344-4 (2a and 2d; 4a and 4c; 8e; and 10a)
[54] Hawaii State Plan (HRS §226-1; 4a.2.; 11a.1 and 2, b.1, 3, 4, 7, 8 and 9; 12.a and b.1 - 5; 13.a.1 and 2, and b.2 and 8; 23.a and b.4, 5 and 6; 59; and 104b.9, 10, 12 and 13)
Honolulu General Plan (III. Natural Environment, Objective A, Policies 1, 4, and 10; Objective B, Policies 1, 2 4);
Honolulu Primary Urban Center Development Plan (Section 2.1 and Map A.1); and
Diamond Head Special District (ROH §21-9.40; 9.40-1a and b; 9.40-3a and b; and 9.40-4.b.2a);
[55] Chapter 25, ROH, §25-3.1.
[56] Chapter 205A, HRS, §205-A-2.

- Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources.
- Protect valuable coastal ecosystems… from disruption and minimize adverse impacts on all coastal ecosystems.

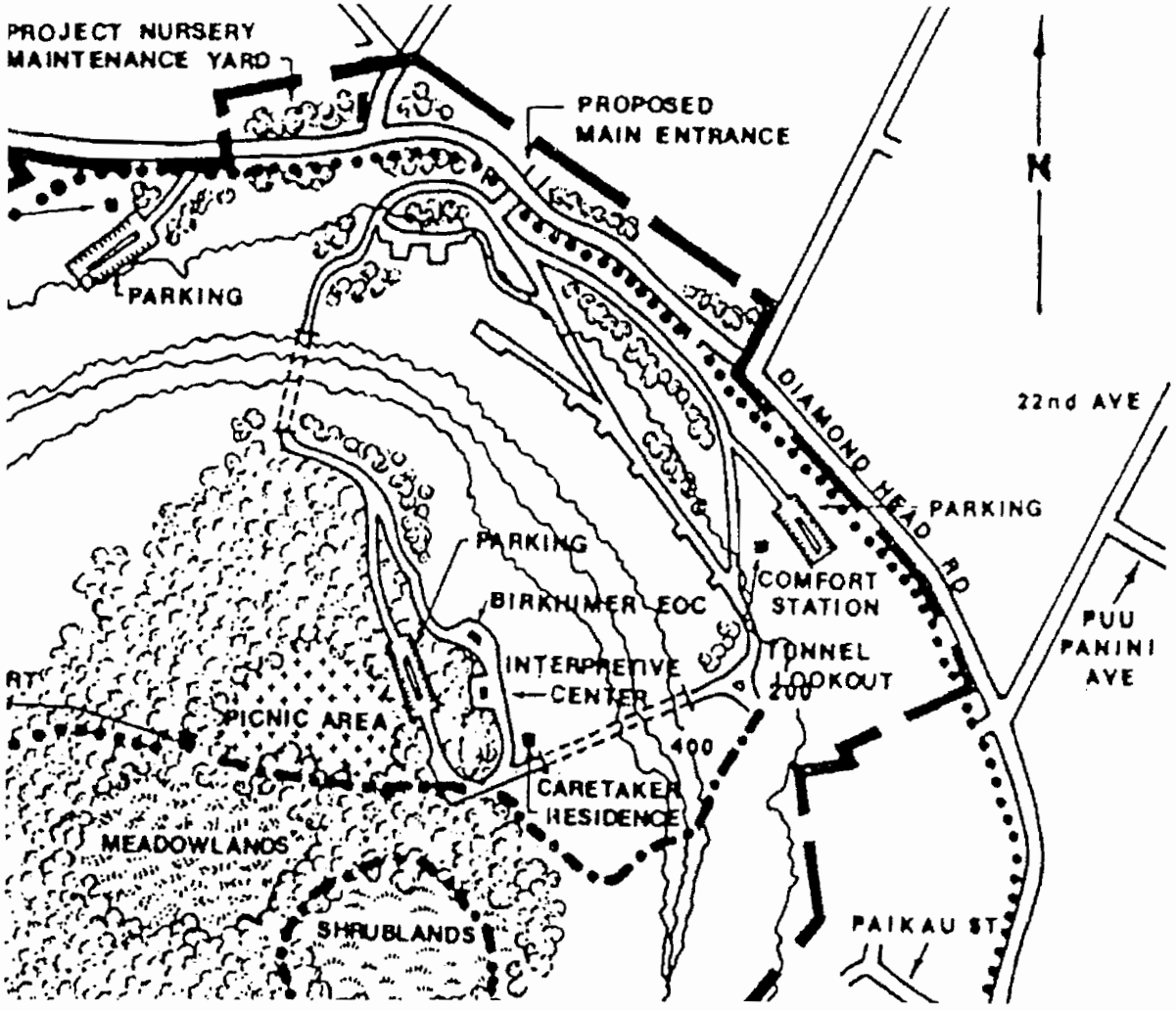
CONCLUSION

Given applicable federal and state public funding of the proposed project, the representations in the draft EA, and the resulting documented concerns, the Advisory Committee believes that the proposed project will have a Significant Adverse Effect on the Diamond Head National Natural Landmark and State Historic Monument, and that a full Environmental Impact Statement is warranted and necessary, including the following additions:

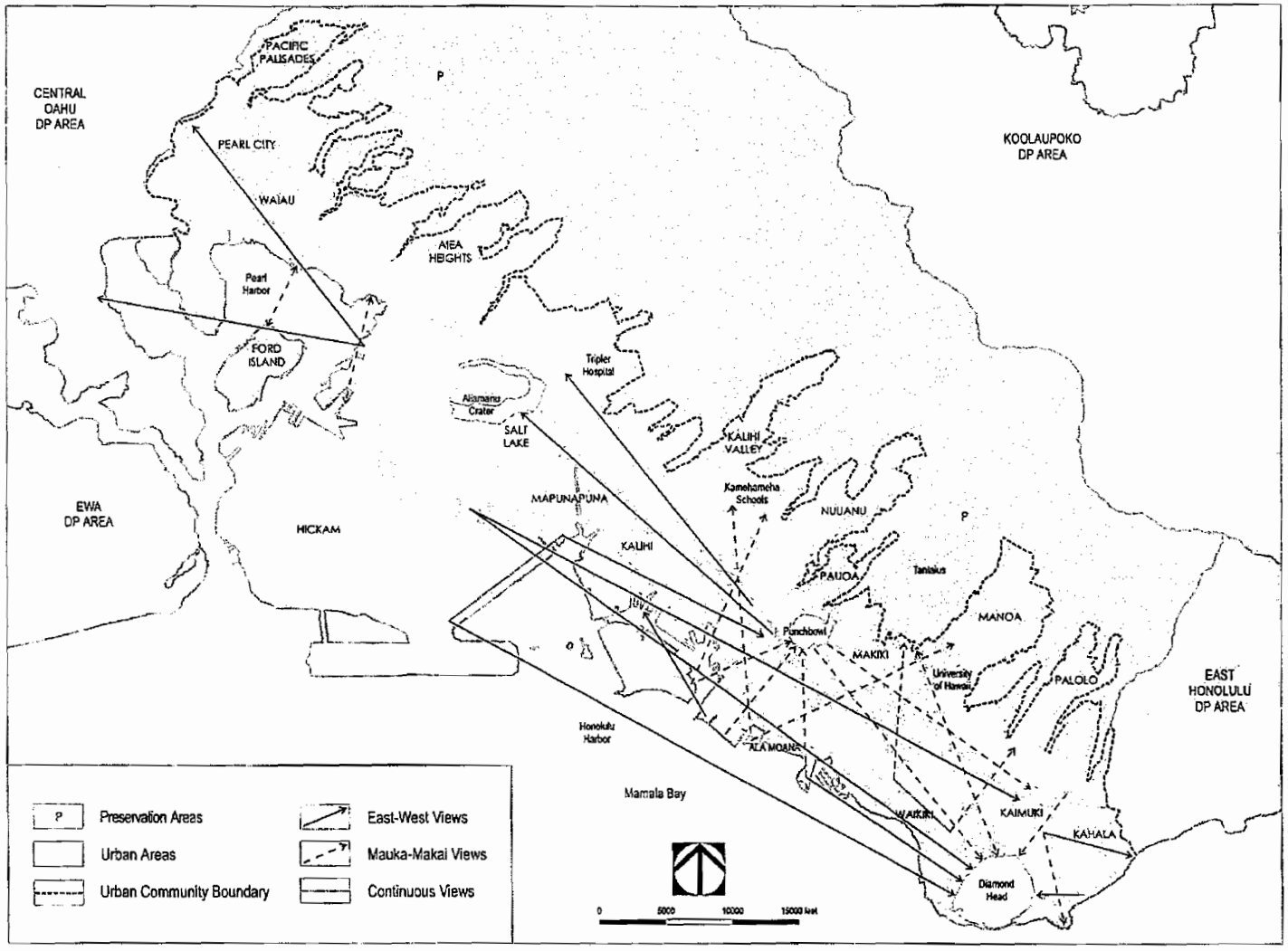
- Disclosure of the Cumulative Impacts of the Larger Development;
- Construction time and project cost savings by delaying the proposed project until improved technology is available to reduce significant visual impacts;
- Disclosure of more appropriate and potentially viable alternative sites outside the Monument crater in conformance with the Diamond Head State Monument Plan and §6E-32, Hawaii Revised Statutes;
- Public health impacts from radiation exposure, and other hazards not listed, around the Crater rim trail and public points of interest beneath and in the vicinity of the clustered transmission antennas.



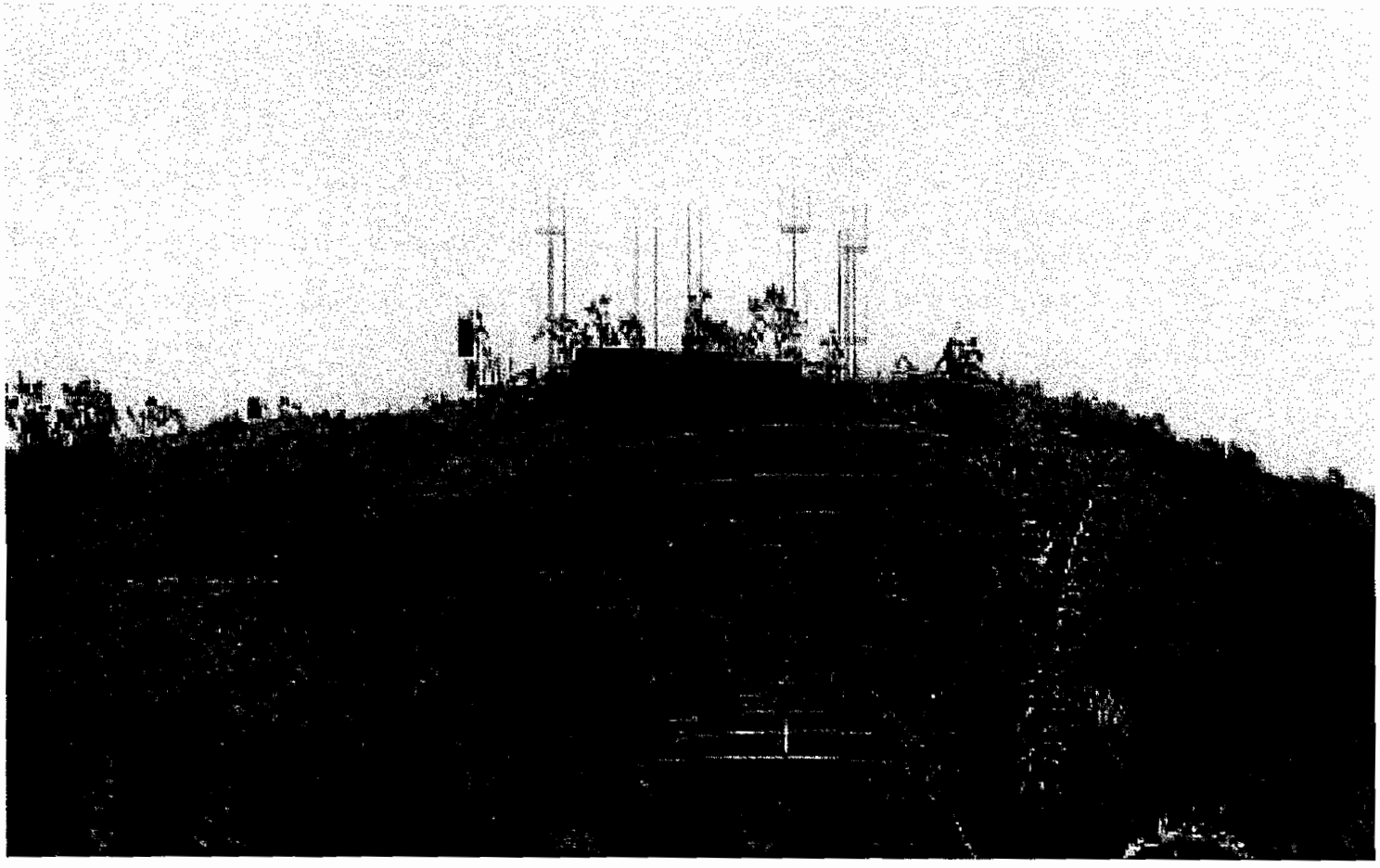
Metal Antenna Pole and Crossbars
33' + 8' = 41' x 10 Towers



DHSM 1979 Plan and 2003 Update
Figure 2 (por.)



Map A.1: Significant Panoramic Views



SUPERIMPOSED ANTENNA TOWERS

View from "Hi'ilani" on Hawai'I Loa Ridge

DEPARTMENT OF COMMUNITY SERVICES
CITY AND COUNTY OF HONOLULU
715 SOUTH KING STREET, SUITE 311 ● HONOLULU, HAWAII 96813 ● AREA CODE 808 ● PHONE: 768-7762 ● FAX: 768-7792

MUFI HANNEMANN
MAYOR

DEBORAH KIM MORIKAWA
DIRECTOR

MARK K. OTO
SENIOR ADVISOR

SSFM INTERNATIONAL, INC.
RECEIVED
AUG 30 2007
JKC
FILE

FILE COPY

August 28, 2007

Mr. Jared Chang, Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Mr. Chang:

Subject: State Civil Defense Public Safety Radio Station Project
Draft Environmental Assessment

Thank you for providing us with the opportunity to review and comment on the State Civil Defense Public Safety Radio Station Project Draft Environmental Assessment. At this time, we have determined that the subject project will have no impact on the projects and programs of the Department of Community Services.

We appreciate the opportunity to provide comments and look forward to reviewing your final Environmental Assessment when it becomes available. Questions regarding this matter may be directed to Mr. Randall S.J. Wong at 768-7747.

Sincerely,

for Deborah Kim Morikawa
Director

DKM:rg

cc: Mr. Lance Maja, DAGS

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

BARBARA A. ANNIS
DEPUTY COMPTROLLER

(P)1216.8

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

JUL 1 1 2008

Ms. Deborah K. Morikawa, Director
Department of Community Services
City and County of Honolulu
715 South King Street, Suite 311
Honolulu, Hawaii 96813

Dear Ms. Morikawa:

Subject: Draft Environmental Assessment for the
State Civil Defense, Diamond Head Public Safety Radio Station
DAGS Job No. 12-14-7095

Thank you for reviewing the Draft Environmental Assessment for the subject project. We acknowledge and appreciate your determination that our proposed project will not have any impact on the projects and programs provided by your department.

If you have any questions, please have your staff call Mr. Lance Maja of the Planning Branch at 586-0483.

Sincerely,

ERNEST Y. W. LAU
Public Works Administrator

LM:mo
Attachment
c: Mr. Jared Chang, SSFM International w/o attach
Mr. Norman Ogasawara, State Civil Defense w/o attach

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU

KAPOLEI HALE • 1000 ULUOHIA STREET, SUITE 309 • KAPOLEI, HAWAII 96707
TELEPHONE: (808) [redacted] • FAX: (808) [redacted] • INTERNET: www.honolulu.gov
768-3003 768-3053

MUFI HANNEMANN
MAYOR

LESTER K.C. CHANG
DIRECTOR

DANA TAKAHARA-DIAS
DEPUTY DIRECTOR

FILE COPY

September 4, 2007

Mr. Jared Chang, Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Mr. Chang:

Subject: Draft Environmental Assessment
State Civil Defense Public Safety Radio Station Master Plan

Thank you for the opportunity to review and comment on the Draft Environmental Assessment relating to the Diamond Head Public Safety Radio Station Master Plan.

The Department of Parks and Recreation has no comment and as the proposed project will not impact any program or facility of the department, you are invited to remove us as a consulted party to the balance of the EIS process.

Should you have any questions, please contact Mr. John Reid, Planner at 768-3017.

Sincerely,

LESTER K. C. CHANG
Director

LKCC:mk
(224271)

cc: Mr. Lance Maja, State of Hawaii
Department of Accounting and General Services

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

BARBARA A. ANNIS
DEPUTY COMPTROLLER

(P)1209.8

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

JUL 11 2008

Mr. Lester K. C. Chang, Director
Department of Parks and Recreation
City and County of Honolulu
1000 Uluohia Street, Suite 309
Kapolei, Hawaii 96707

Dear Mr. Chang:

Subject: Draft Environmental Assessment for the
State Civil Defense, Diamond Head Public Safety Radio Station
DAGS Job No. 12-14-7095

Thank you for reviewing the Draft Environmental Assessment for the subject project. We acknowledge that you had no comments and as requested, your department will be removed from the list of consulted parties for the remainder of the environmental review process.

If you have any questions, please have your staff call Mr. Lance Maja of the Planning Branch at 586-0483.

Sincerely,

ERNEST Y. W. LAU
Public Works Administrator

LM:mo
Attachment
c: Mr. Jared Chang, SSFM International w/o attach
Mr. Norman Ogasawara, State Civil Defense w/o attach

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 768-8000 • FAX: (808) 527-6743
INTERNET: www.honolulu.gov • DEPT. WEB SITE: www.honoluludpp.org

MUFI HANNEMANN
MAYOR

HENRY ENG, FAICP
DIRECTOR

DAVID K. TANOUE
DEPUTY DIRECTOR

2007/ELOG-2376(LW)

September 24, 2007

Mr. Jared Chang
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Mr. Chang:

Subject: Draft Environmental Assessment
State Civil Defense Radio Site Improvements
Diamond Head Crater
Tax Map Key 3-1-42: 16 and Portion of 6

This responds to your request for comments on the Draft Environmental Assessment (received by DPP on August 27, 2007) for the above-referenced project. The proposal is to consolidate existing radio equipment antennas into a single building (formerly the Federal Aviation Administration Link Site Building) and to make other improvements related to the proposed consolidation. Our comments are:

1. The site is within the P-1 Restricted Preservation District and State Conservation District, and falls under the jurisdiction of the State Board of Land and Natural Resources. It is not subject to the rules and regulations of the City's Land Use Ordinance (LUO), including the Diamond Head Special District in which the site is located. Also, since the LUO does not prescribe development standards for P-1 Restricted Preservation District, the last sentence in Section 7.5 stating that "project construction will be consistent with the development standards for this P-1 Restricted Preservation District" should be revised to clarify that it is not subject to the LUO.

2. In our letter of August 29, 2005, we commented that a Special Management Area (SMA) permit was required for the project, based on the one-page summary project description submitted with your request for comments. However, based on the more detailed information provided in the Draft EA, we have determined that the project is exempt from the definition of "development" in Section 205A-22, Hawaii Revised Statutes, as amended by Act 76 effective May 17, 2004, and hence exempt from SMA requirements. Please revise the sections that include

discussions on the SMA, including but not limited to Sections 1.3.5, 2.5.2, and 7.6, accordingly.

3. A grading permit is not required for minor site alterations which do not change the drainage pattern with respects to abutting properties, or exceed 50 cubic yards of cut or fill or 3 feet in vertical height at its deepest point. Clarify why, or revise accordingly, a grading permit is required under Section 2.5.2 when it is stated under Section 3.2.3 that "no grading or other significant site work should be necessary" and "no mass grading or excavation would be required at the site."

4. Revise Section 2.5.2 to delete a waiver from the list of required permits. A waiver from off-street parking requirements is not required as the project is not subject to the LUO.

5. Provide a brief definition of "Preservation area" in Section 7.4 including the definition found in section 3.2.3 and Appendix A of the Primary Urban Center (PUC) Development Plan (DP). A copy of the PUC DP is available for review online at www.honoluludpp.org

6. To minimize visual impact, all new work, including relocated poles, new equipment, renovated building, should be painted a subdued, earth-tone color with a non-reflective finish to blend in with the landscape.

If you have any questions, please contact Lin Wong of our staff at 768-8033.

Very truly yours,

Robert M Bannister

for Henry Eng, FAICP
Director of Planning and Permitting

HE:fm

Doc568166

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

BARBARA A. ANNIS
DEPUTY COMPTROLLER

(P)1210.8

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

JUL 1 1 2008

Mr. Henry Eng, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street, Seventh Floor
Honolulu, Hawaii 96813

Dear Mr. Eng:

Subject: Draft Environmental Assessment for
State Civil Defense, Diamond Head Public Safety Radio Station
DAGS Job No. 12-14-7095

Thank you for reviewing and commenting on the Draft Environmental Assessment (DEA) for the subject project. In response to your September 24, 2007 letter, we offer the following:

1. Our consultant confirms that the project falls under the jurisdiction of the State Board of Land and Natural Resources and is not subject to the City's Land Use Ordinances (LUO), including requirements pertaining to the Diamond Head Special District. The Final EA will reflect this change.

2. Your department's determination that the proposed project is exempt from Special Management Area (SMA) requirements and that the project does not require a SMA permit will be incorporated into the Final EA.

3. The project will not require mass grading or excavation. Accordingly, the Final EA will exclude the need to obtain a grading permit.

4. Because the project is not subject to the City and County's LUO, Section 2.5.2 of the Final EA will be revised to exclude a waiver for off-street parking.

5. A definition of "Preservation area", as outlined by the City and County of Honolulu, Department of Planning and Permitting, will be added to Section 7.4 of the Final EA, and it will also include the definitions found in Section 3.2.3 and Appendix A of the Primary Urban Center (PUC) Development Plan.

6. The project will minimize the visual impact of the radio site by removing obtrusive, redundant utility poles and painting new and existing antennas to blend in with the background environment (referenced in Section 3.6.3). Your recommendation to paint the FAA Link Site building and new antenna structures to blend in with the surrounding landscape is included in the Final EA.

If you have any questions, please have your staff call Mr. Lance Maja of the Planning Branch at 586-0483.

Sincerely,

ERNEST Y. W. LAU
Public Works Administrator

LM:mo
Attachment
c: Mr. Jared Chang, SSFM International w/o attach
Mr. Norman Ogasawara, State Civil Defense w/o attach

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8305 • Fax: (808) 523-4730 • Internet: www.honolulu.gov

MUFI HANNEMANN
MAYOR

MELVIN N. KAKU
DIRECTOR

RICHARD F. TORRES
DEPUTY DIRECTOR

SSFM INTERNATIONAL, INC.
RECEIVED
SEP 28 2007
jkc

TP8/07-224173R

September 26, 2007

FILE COPY

FILE

Mr. Jared Chang, Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Mr. Chang:

Subject: State Civil Defense Public Safety Radio Station Project

Thank you for the August 23, 2007 letter from SSFM International, Inc., requesting our review of and comments on the draft environmental assessment for the subject project.

We have no comments on the document.

Should you have any questions regarding this matter, please contact Ms. Faith Miyamoto of the Transportation Planning Division at 768-8350.

Sincerely,

MELVIN N. KAKU
Director

cc: Mr. Lance Maja
Department of Accounting
and General Services

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

BARBARA A. ANNIS
DEPUTY COMPTROLLER

(P)1211.8

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

JUL 1 1 2008

Mr. Melvin N. Kaku, Director
Department of Transportation Services
City and County of Honolulu
650 South King Street, Third Floor
Honolulu, Hawaii 96813

Dear Mr. Kaku:

Subject: Draft Environmental Assessment for
State Civil Defense, Diamond Head Public Safety Radio Station
DAGS Job No. 12-14-7095

Thank you for reviewing the Draft Environmental Assessment for the subject project. We acknowledge that your department does not have any comments.

If you have any questions, please have your staff call Mr. Lance Maja of the Planning Branch at 586-0483.

Sincerely,

ERNEST Y. W. LAU
Public Works Administrator

LM:mo
Attachment
c: Mr. Jared Chang, SSFM International w/o attach
Mr. Norman Ogasawara, State Civil Defense w/o attach

DEPARTMENT OF FACILITY MAINTENANCE

CITY AND COUNTY OF HONOLULU

1000 Uluohia Street, Suite 215, Kapolei, Hawaii 96707
Phone: (808) 692-5054 • Fax: (808) 692-5857
Website: www.honolulu.gov

MUFI HANNEMANN
MAYOR

LAVERNE HIGA, P.E.
DIRECTOR AND CHIEF ENGINEER

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

SSFM INTERNATIONAL, INC.
RECEIVED
SEP 12 2007
JKC
FILE

IN REPLY REFER TO:
DRM 07-792

September 7, 2007

FILE COPY

Mr. Jared Chang
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Mr. Chang:

Subject: Draft Environmental Assessment for the proposed State Civil Defense Public Safety Radio Station Project

Thank you for giving us the opportunity to review the subject Draft Environmental Assessment, we have no comments to offer at this time.

If you have any questions, please contact Larry Leopardi, Chief of the Division of Road Maintenance, at 768-3600.

Sincerely,

Laverne Higa

Laverne Higa, P.E.
Director and Chief Engineer

LH:sm

c: State of Hawaii-Department of Accounting and General Services/Lawrence Maja

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

BARBARA A. ANNIS
DEPUTY COMPTROLLER

(P)1212.8

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

JUL 1 1 2008

Mr. Craig Nishimura, Director and Chief Engineer
Department of Facility Maintenance
City and County of Honolulu
1000 Uluohia Street, Suite 215
Kapolei, Hawaii 96707

Dear Mr. Nishimura:

Subject: Draft Environmental Assessment for
State Civil Defense, Diamond Head Public Safety Radio Station
DAGS Job No. 12-14-7095

Thank you for reviewing Draft Environmental Assessment for the subject project. We acknowledge that your department had no comments.

If you have any questions, please have your staff call Mr. Lance Maja of the Planning Branch at 586-0483.

Sincerely,

ERNEST Y. W. LAU
Public Works Administrator

LM:mo
Attachment
c: Mr. Jared Chang, SSFM International w/o attach
Mr. Norman Ogasawara, State Civil Defense w/o attach

HONOLULU FIRE DEPARTMENT

CITY AND COUNTY OF HONOLULU

636 South Street
Honolulu, Hawaii 96813-5007
Phone: 808-723-7139 Fax: 808-723-7111 Internet: www.honolulu.gov/hfd

MUFI HANNEMANN
MAYOR

KENNETH G. SILVA
FIRE CHIEF

ALVIN K. TOMITA
DEPUTY FIRE CHIEF

SSFM INTERNATIONAL, INC.
RECEIVED
SEP 14 2007
jkc
FILE

FILE COPY

September 11, 2007

Mr. Jared Chang, Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Mr. Chang:

Subject: Draft Environmental Assessment
State Civil Defense Public Safety Radio Station Project
Tax Map Key: 3-1-042: 016 and portion of 006

In response to your letter dated August 23, 2007, regarding the above-mentioned subject, the Honolulu Fire Department reviewed the material provided and has no additional comments. Please refer to Appendix B in our letter dated August 24, 2005.

Should you have any questions, please call Battalion Chief Lloyd Rogers of our Fire Prevention Bureau at 723-7151.

Sincerely,

KENNETH G. SILVA
Fire Chief

KGS/SK:bh

cc: Lance Maja, State Department of Accounting and General Services

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

BARBARA A. ANNIS
DEPUTY COMPTROLLER

(P)1214.8

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

JUL 1 1 2003

Mr. Kenneth G. Silva, Fire Chief
Fire Department
City and County of Honolulu
636 South Street
Honolulu, Hawaii 96813-5007

Dear Mr. Silva:

Subject: Draft Environmental Assessment for
State Civil Defense, Diamond Head Public Safety Radio Station
DAGS Job No. 12-14-7095

Thank you for reviewing Draft Environmental Assessment for the subject project. We acknowledge that Fire Department had no additional comments.

If you have any questions, please have your staff call Mr. Lance Maja of the Planning Branch at 586-0483.

Sincerely,

ERNEST Y. W. LAU
Public Works Administrator

LM:mo
Attachment
c: Mr. Jared Chang, SSFM International w/o attach
Mr. Norman Ogasawara, State Civil Defense w/o attach

POLICE DEPARTMENT

CITY AND COUNTY OF HONOLULU

801 SOUTH BERETANIA STREET · HONOLULU, HAWAII 96813
TELEPHONE: (808) 529-3111 · INTERNET: www.honolulupd.org

MUFI HANNEMANN
MAYOR

BOISSE P. CORREA
CHIEF

PAUL D. PUTZULU
MICHAEL D. TUCKER
DEPUTY CHIEFS

OUR REFERENCE BS-VYH

SSFM INTERNATIONAL, INC.
RECEIVED
SEP 20 2007
JKC
FILE

September 18, 2007

FILE COPY

Mr. Jared K. Chang
Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Mr. Chang:

This is in response to your letter of August 23, 2007, requesting comments on a Draft Environmental Assessment, for the proposed State Civil Defense Public Safety Radio Station Project by the State of Hawaii, Department of Accounting and General Services.

The Honolulu Police Department supports this project.

If there are any questions, please call Acting Major Robert Green of District 7 at 529-3362 or Mr. Brandon Stone of the Executive Office at 529-3644.

Sincerely,

BOISSE P. CORREA
Chief of Police

By
JOHN P. KERR
Assistant Chief of Police
Support Services Bureau

cc: Mr. Lance Maja
Department of Accounting and General Services

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

BARBARA A. ANNIS
DEPUTY COMPTROLLER

(P)1213.8

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

JUL 1 1 2008

Mr. Boisse P. Correa, Chief of Police
Police Department
City and County of Honolulu
801 South Beretania Street
Honolulu, Hawaii 96813

Dear Mr. Correa:

Subject: Draft Environmental Assessment for
State Civil Defense, Diamond Head Public Safety Radio Station
DAGS Job No. 12-14-7095

Thank you for reviewing the Draft Environmental Assessment (DEA) for the subject project. We greatly appreciate the Police Department's support of this project and acknowledge that you did not have any comments on the DEA.

If you have any questions, please have your staff call Mr. Lance Maja of the Planning Branch at 586-0483.

Sincerely,

ERNEST Y. W. LAU
Public Works Administrator

LM:mo
Attachment
c: Mr. Jared Chang, SSFM International w/o attach
Mr. Norman Ogasawara, State Civil Defense w/o attach

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

Western-Pacific Region
Real Estate and Utilities Section, AHNL-54B

P. O. Box 50109
Honolulu, Hawaii 96850-5000

FILE COPY

September 20, 2007

Mr. Jared Chang, Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, HI 96817

Dear Mr. Chang:

Your letter SSFM 2000_107.000 of August 23,2007, requested our review and comment of the Draft Environmental Assessment of the proposed State Civil Defense Public Safety Radio Station Project for the State of Hawaii, Department of Accounting and General Services.

The following are the Federal Aviation Administration's suggested revisions (stated in bold print):

a. Page 4, 1.2 Background: Former FAA Link Site: "…The FAA constructed the building in **1958 for the critical National Air Space equipment needed** for air traffic control. The FAA **relocated most of its equipment in 2001** when it relocated its air traffic control facilities to **Hickam Air Force Base** on the island of O'ahu. **In the agreement transferring this building from the FAA to the State of Hawaii, the FAA reserved space in this building for use by the FAA and other Federal agencies for their communications equipment and antennas."**

b. Page 21, 2.2.1 State Civil Defense Background: Radio Equipment and Antennas: Replace 4th and 5th paragraphs with the following:

"The former FAA Link Site building is shared with other Federal, State, and County agencies for their critical equipment. Any interruption to this equipment will affect air traffic control, emergency management and Homeland Security operations. Access to the site must be available on a 24 hour, 7 day a week basis for equipment maintenance and restoration. Any added security measures will need to be coordinated with all of the affected government agencies.

Existing utilities serving SCD controlled facilities include overhead electrical lines on several wooden utility poles present along the crater rim and wall. There are also above ground electrical conduits serving facilities located along the access road leading up to the link site. **Emergency or backup power is to be provided by engine generator for all Link Site building equipment.**"

c. Page 22, 2.2.2 Existing Link Site Facility and Background: Existing Link Site facility: "…Although the FAA for the most part has vacated **its** use of the building, **it is still being used for certain equipment critical to the National Air Space and by various Federal, State, and County agencies for their emergency management and Homeland Security operations.**"

We appreciate this opportunity to comment. Please contact me at 541-1236, if there are any questions.

Sincerely,

Darice B. N. Young
Realty Contracting Officer

cc:
State of Hawaii
Department of Accounting and General Services
Attn: Mr. Lance Maja
P. O. Box 119
Honolulu, Hawaii 96810

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

BARBARA A. ANNIS
DEPUTY COMPTROLLER

(P)1217.8

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

JUL 11 2008

Ms. Darice B. N. Young, Realty Contracting Officer
U. S. Department of Transportation
Federal Aviation Administration, Western Pacific Region
Real Estate and Utilities Section, AHNL-54B
P. O. Box 50109
Honolulu, Hawaii 96850-5000

Dear Ms. Young:

Subject: Draft Environmental Assessment for the
State Civil Defense, Diamond Head Public Safety Radio Station
DAGS Job No. 12-14-7095

Thank you for reviewing and commenting on the Draft Environmental Assessment (EA) for the subject project. In response to your September 20, 2007 letter, we offer the following:

1. Your suggested revisions on the former Federal Aviation Administration (FAA) Link Site are appreciated and will be included in the Final EA.

2. Your suggested revisions on radio equipment and antennas will replace the fourth and fifth paragraphs in Section 2.2.1 of the Final EA.

3. Your suggested revisions on the former FAA Link Site background information will be included in the Final EA.

If you have any questions, please have your staff call Mr. Lance Maja of the Planning Branch at 586-0483.

Sincerely,

ERNEST Y. W. LAU
Public Works Administrator

LM:mo
Attachment
c: Mr. Jared Chang, SSFM International w/o attach
Mr. Norman Ogasawara, DOD State Civil Defense w/o attach

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

September 11, 2007

Mr. Jared Chang, Planner
SSFM International, Incorporated
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

FILE COPY

Dear Mr. Chang:

Subject: Your Letter Dated August 23, 2007 Regarding Draft Environmental Assessment for the Civil Defense Public Safety Radio Station

Thank you for the opportunity to comment on the proposed project.

The existing water system is presently adequate to accommodate the proposed development. However, please be advised that this information is based upon current data and, therefore, the Board of Water Supply reserves the right to change any position or information stated herein up until the final approval of your building permit application. The final decision on the availability of water will be confirmed when the building permit application is submitted for approval.

When water is made available, the applicant will be required to pay our Water System Facilities Charges for resource development, transmission and daily storage.

The on-site fire protection requirement should be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.

The project is subject to Board of Water Supply Cross-Connection Control and Backflow Prevention requirements prior to the issuance of the building permit.

If you have any questions, please contact Robert Chun at 748-5440.

Very truly yours,

K. Shida

KEITH S. SHIDA
Principal Executive
Customer Care Division

cc: Mr. Lance Maja, State of Hawaii Department of Accounting and General Services

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

BARBARA A. ANNIS
DEPUTY COMPTROLLER

(P)1215.8

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

JUL 11 2008

Mr. Keith S. Shida, Principal Executive
Customer Care Division
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Shida:

Subject: Draft Environmental Assessment for the
State Civil Defense, Diamond Head Public Safety Radio Station
DAGS Job No. 12-14-7095

Thank you for reviewing Draft Environmental Assessment for the subject project. In response the comments in your September 11, 2007 letter, we offer the following:

1. The site currently does not have any water service and we do not anticipate any future need. No new water lines are planned for the proposed consolidation of the radio equipment and the project will not remove or add any water fixtures.

2. The on-site fire protection requirements will be coordinated with the Fire Prevention Bureau for the Honolulu Fire Department.

If you have any questions, please have your staff call Mr. Lance Maja of the Planning Branch at 586-0483.

Sincerely,

ERNEST Y. W. LAU
Public Works Administrator

LM:mo
Attachment
c: Mr. Jared Chang, SSFM International a/o attach
Mr. Norman Ogasawara, State Civil Defense w/o attach

APPENDIX C

AECOS, INC.

BOTANICAL SURVEYING SUPPORT OF CONSOLIDATION OF RADIO TOWERS AND REMOVAL OF POLES ALONG THE NORTH RIM OF DIAMOND HEAD

Botanical survey in support of consolidation of radio towers and removal of poles along the north rim of Diamond Head, Oahu, Hawaii[1]

February 17, 2006 *AECOS* No. 1100

AECOS, Inc.
45-939 Kamehameha Highway, No. 104
Kane`ohe, Hawai`i 96744
Phone: (808) 234-7770 Fax: (808) 234-7775 Email: aecos@aecos.com

Introduction

A field survey of the north rim of Diamond Head (Leahi)—located on the south shore of Oahu immediately east of Waikiki (Figure 1)—was undertaken in late August 2005. The purpose of the survey was to assess botanical resources in relation to a project involving consolidation of radio equipment from batteries on or near the rim into a building formerly used by FAA as a link site for radio equipment. The project will reduce man-made clutter along and just below the rim by removing some existing antenna poles and electrical transmission poles. The actual work would occur in an area (Figure 2) accessible by narrow paved roads, although some poles are located at short distances off the road system. A primary environmental concern is destruction of certain rare and endangered plants previously reported from the general area (Char, 1998) during the "construction."

Survey Methods

The survey on August 26, 2005 involved visiting a known planting site for the endangered *Schiedea adamantis* and a wandering survey that traversed the roads, trails, and external areas of facilities on and just below the rim between Battery Dodge and the rim above the Kapahulu Tunnel. Yara Lamadrid-Rose (DLNR) provided guidance in locating a *Schiedea* planting site. Unfortunately, August was a very dry month and well into the dry season for leeward Oahu. Many plants that are annuals or summer deciduous were not identifiable in the field. Some identifications were achieved by microscopic examination of dried flower or fruit in the laboratory, but other collected plant remains could not be identified. A previous survey of much of the crater area (Char, 1998) for the Diamond Head Monument Master Plan Update was undertaken in the October-November period of

[1] Report prepared for SSFM, Inc.

that year. Char had this to say about conditions at the "end" of the 1998 dry season: "Only limited field studies were conducted since the environmental conditions were extremely dry….many of the plants were in poor condition, many leafless, and identification was difficult."

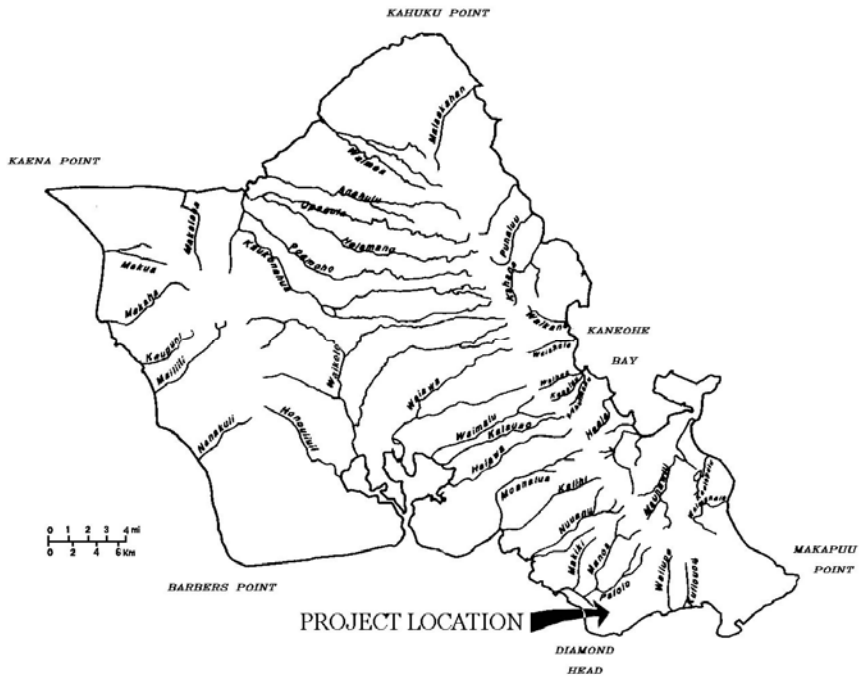


Figure 1. General project location on the Island of Oahu.

During the present survey by Eric Guinther, the plant species and vegetation types present were recorded and estimates of abundance of each species made. A plant checklist (Table 1) was compiled from all of the observations made by traversing the site as completely as possible given the steepness of parts of the area north of the rim. Entries in Table 1 are arranged alphabetically under family names; included are the scientific name, the common name, and status (whether native or not), and relative abundance of each species. Also included in this table are all of the plant species described by Char (1998) as being associated with the vegetation type for the project area. The nomenclature of the higher plants follows that of Wagner, Herbst, and Sohmer (1990) and Wagner and Herbst (1999) for both the native and naturalized plants; and Staples and Herbst (2005) for ornamentals.

Results

General Description and Vegetation ~ Diamond Head is an old tuff cone, the result of an ancient violent eruption of mostly volcanic ash at or just off the shoreline. Over time, the ash consolidated into a solid rock form known as tuff in the characteristic shape of a volcanic cone. Diamond Head is located on the

leeward coast in a relatively low-rainfall zone; annual rainfall is typically around 20-30 inches, most falling in the period from November through April.

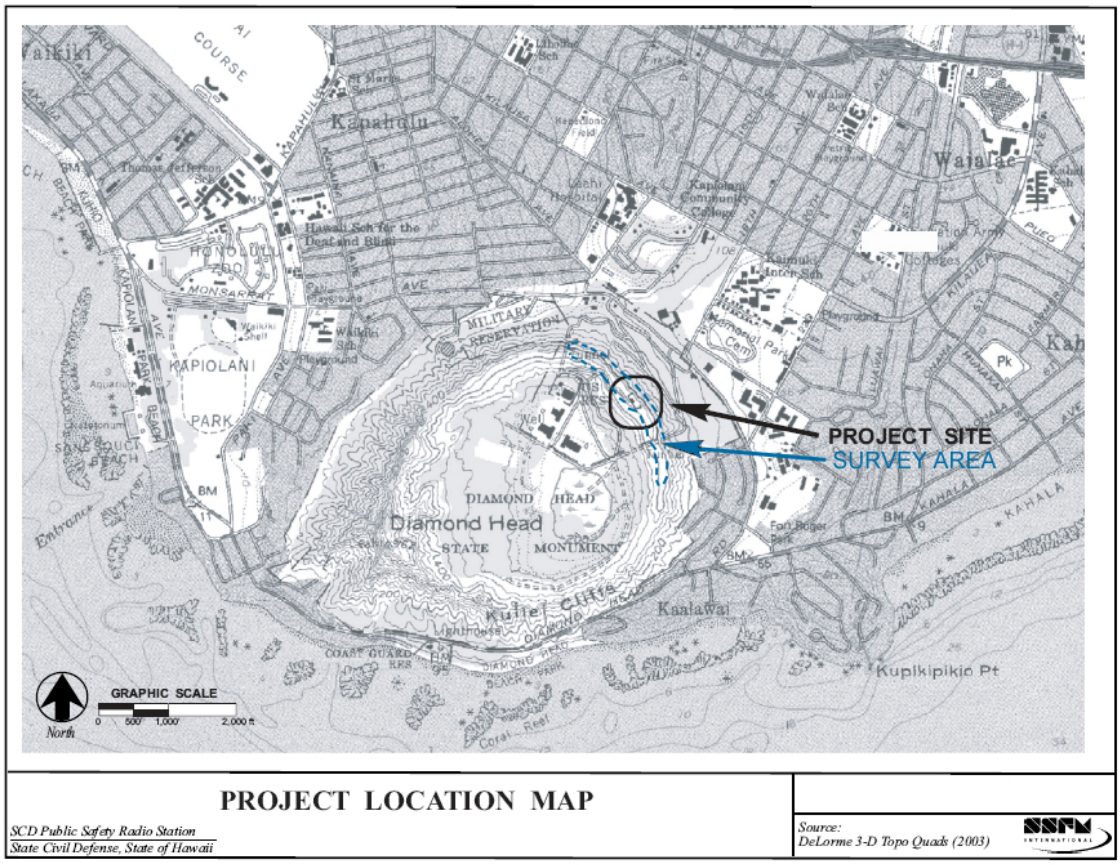


Figure 2. Diamond Head and surrounding urban neighborhoods showing project area and approximate area of plant survey.

The survey assessment area is also shown in Figure 2, extending both northwest and southeast of the project area (the latter shown generally; the actual project area more closely matches the middle 50% of the indicated survey area). The vegetation of this part of Diamond Head crater is a Koa-haole Shrubland, dominated by grasses (dry in the summer) and a short, scrubby growth of koa-haole (*Leucaena leucocephala*; Figure 3). This vegetation type is mapped around the entire crater rim, with the lower outer and inner lower slopes and crater bottom representing a Kiawe/koa-haole Forest vegetation type (PBR Hawaii, 1998). Although a majority of the constituents of the Koa-haole Shrubland vegetation type are naturalized, non-native species, the association includes remnants of the native vegetation.

Flora — A total of 38 species of plants are listed in Table 1 representing species known from the project area. Only 29 of these species were observed during the August survey, the remaining 9 being species reported by Char as associated with the Koa-haole Shrubland and therefore possibly occurring in or near the project

area. Of the listed species, 12 (31.5%) are species native to the Hawaiian Islands, and 8 (21% of the total) are endemics—species found naturally only in the Hawaiian Islands. Endemics are usually of greatest environmental concern because their habitat range is rather restricted and once they become uncommon or rare in Hawaii they are subject to listing as threatened or endangered species.

Figure 3. Summer aspect (typical) of koa-haole shrubland, here on the northern inner slope of the crater just below the rim.

Although the majority of species (and certainly the plant biomass) are alien plants that have become naturalized in this dry, lowland surrounded by urban Honolulu, the number of natives is quite high in comparison with most lowland locations on Oahu. Thus, these native plants represent a special and important resource under the care of DLNR as part of the Diamond Head Monument.

Listed Species — Near the project site are two species of endangered plants: *Shiedea adamantis* and *Spermolepis hawaiiensis.* Another species, the nehe, (*Lipochaeta lobata* var *lobata*) is considered rare by the Hawaii Natural Heritage Program (HNHP) but was last reported from the outer southwest slope of the crater (Char, 1998), distant from the project site.

Table 1. Listing of plants (flora) in the project area, north rim, Diamond Head State Monument, Honolulu, O`ahu, Hawai`i.

Species listed by family	Common name	Status	Abundance	Notes
	FLOWERING PLANTS			
	DICOTYLEDONES			
ANACARDIACEAE				
Schinus terebinthefolius Raddi	Christmasberry	Nat.	R	
APIACEAE				
Spermolepis hawaiiensis Wolff	---	**End.**	--	(2)
ASCLEPIADACEAE				
Stapelia gigantea N.E. Brown	carion flower	Nat.	O	
ASTERACEAE (COMPOSITAE)				
Bidens cynapiifolia Kunth	---	Nat.	C	(1)
Emilia fosbergii Nicolson	*pualele*	Nat.	U	
Lipochaeta lobata var. *lobata* (Gaud.) A. Gray	*nehe*	**End.**	--	(2)
Pluchia carolinensis (Jacq.) G. Don	sourbush	Nat.	--	(2)
Reichardia picroides (L.) Roth	---	Nat.	O	(1)
Tridax procumbens L.	coat buttons	Nat.	O	
CARYOPHYLLACEAE				
Schiedea adamantis St. John	---	**End.**	--	(2)
CONVOLVULACEAE				
Jacquemontia ovalifolia (Choisy) H. Hallier	*pa'u-o-hi'iaka*	**Ind.**	U	
CUCURBITACEAE				
Coccinea grandis (L.) Voigt	scarlet-fruited gourd	Nat.	R	
EUPHORBIACEAE				
Chamaesyce hirta (L.) Millsp.	garden spurge	Nat.	U	
FABACEAE				
Acacia farnesiana (L.) Willd.	*klu*	Nat.	U	
Leucaena leucocephala (Lam.) deWit	*koa haole*	Nat.	AA	
Macroptilium lathyroides (L.) Urb.	cow pea	Nat.	U	
Prosopis pallida (Humb. & Bonpl. ex Willd.) Kunth	*kiawe*	Nat.	C	
LAMIACEAE				
Hyptis pectinata (L.) Poit.	comb hyptis	Nat.	U	(1)
Leonotis nepetifolia (L.) R. Br.	lion's ear	Nat.	C	(1)
MALVACEAE				
Gossypium tomentosum Nutt. ex Seem.	*ma'o*	**End.**	--	(2)
Sida fallax Walp.	*`ilima*	**Ind.**	A	
NYCTAGINACEAE				
Boerhavia acutifolia (Choisy) J.W. Moore	---	**Ind.**	A	
SANTALACEAE				
Santalum ellipticum Gaud.	coast sandalwood	**End.**	R	

Table 1 (continued).

PAPAVERACEAE				
Argemone glauca (Nutt. ex Prain) Pope	*pua kala*	**End.**	U	
PASSIFLORACEAE				
Passiflora foetida L.	running pop	Nat.	O	
PORTULACACEAE				
Portulaca pilosa L.	---	Nat.	R	
SOLANACEAE				
Nicotiana glauca R.C. Graham	tree tobacco	Nat.	R	
STERCULIACEAE				
Waltheria indica L.	*`uhaloa*	Nat..	AA	
FLOWERING PLANTS				
MONOCOTYLEDONES				
ALOEACEAE				
Aloë vera (L.) N.L. Burman	aloe vera	Orn.	R	
POACEAE				
Cenchrus ciliaris L.	buffelgrass	Nat.	A	
Chloris radiata (L.) Sw.	radiate fingergrass	Nat.	U	
Digitaria insularis (L.) Mez ex Ekman	sourgrass	Nat.	--	(2)
Eragrostis variabilis (Gaud.) Steud.	*kāwelu*	**End.**	O	(1)
Heteropogon contortus (L.) P. Beauv. ex Roem & Schult.	*pili*	**Ind.**	--	(2)
Melinus repens (Willd.) Zizka	Natal redtop	Nat.	U	
Muhlenbergia microsperma (DC) Kunth	littleseed muhly	Nat.	O	(1)
Panicum maximum Jacq.	Guinea grass	Nat.	--	(2)
Panicum torridum Gaud.	*kakonakona*	**End.**	--	(2)

Legend to Table 1

Status = distributional status
- **end.** = endemic; native to Hawaii and found naturally nowhere else.
- **ind.** = indigenous; native to Hawaii, but not unique to the Hawaiian Islands.
- nat. = naturalized, exotic, plant introduced to the Hawaiian Islands since the arrival of Cook Expedition in 1778, and well-established outside of cultivation.
- orn. = exotic, ornamental or cultivated; plant not naturalized (not well-established outside of cultivation).
- **pol.** = Polynesian introduction before 1778.

Abundance = occurrence ratings for plants by area:
- R – Rare - only one or two plants seen.
- U - Uncommon - several to a dozen plants observed.
- O - Occasional - found regularly, but not abundant anywhere.
- C - Common - considered an important part of the vegetation and observed numerous times.
- A - Abundant - found in large numbers; may be locally dominant.
- AA - Abundant - abundant and dominant; defining vegetation type.

Notes:
(1) Identified from dried, dead material (August 2005).
(2) Not observed, but reported by Char (1998).

Shiedea adamantis (Caryophyllaceae) is a shrub that grows one to three feet in height and is known only from the northwestern rim of Diamond Head crater (Wagner, et al, 1990; Char 1998). This area is distant from the project site. However, in recent years there have been attempts to establish populations of the

species in other areas, at least one such on the north outer slope just west of the project area. This area was searched carefully in August and no *S. adamantis* plants could be found, although a seed bank (viable seeds in the soil) might still exist in the area. The planting site is marked by black plastic drip lines and round metal tags (Figure 4), the latter presumably marking individual (numbered) plants that once grew here. However, no remains that could be identified with *S. adamantis* could be found.

Figure 4. Rocky slope area just below the Diamond Head north crater rim: a former *Schiedea* planting site. Note round metal number tags (one near center of picture) nailed to substratum.

Spermolepis hawaiiensis (Apiaceae) is a slender annual herb that grows from 2 to 8 inches tall and is characterized by finely dissected leaves. This listed species is apparently extremely variable in population size at this location, with from a few to many hundreds of plants appearing after suitable rainfall conditions on the north rim of the crater (Char, 1998). The species is distributed on all of the major islands, although numbers are generally small (USFWS, 1998). Only two populations are known from Oahu: the one at Diamond Head and one at Makua on the Waianae side of the island. Although the project area was searched for this plant, none was seen and its presence would not be expected until sometime after rains of the wet season begin (typically in November). However, the *S. hawaiiensis* population location is described as "on the east rim on a buttress ridge above the main [Kahala] entrance

tunnel" (HNHP Database cited in Char, 1998). This location is perhaps a bit down the outside slope from the project site, but is between Battery Dodge and Battery Huling and therefore in the general project area.

Lipochaeta lobata var *lobata* (Asteraceae) is a daisy-like forb with somewhat prostrate or arching stems 20 to 60 inches long. It is not listed as threatened or endangered, but is considered quite rare (HNHP Database cited in Char, 1998). It is reported as occurring in various locations at Diamond Head, including the north rim of the crater (Char, 1998). This plant was not seen in the August survey.

Discussion

A majority of the work proposed would take place at and immediately surrounding the former FAA Link Site building, located directly upslope from the Birkheimer Battery. It is unlikely—because the ground is paved all around the FAA building—that any environmental harm to rare or listed plant species will occur as a result of the work at the FAA Link Site. However, moving out from there, especially along the rim, there exists the potential for construction activities to adversely impact native plants, including listed species. The distribution of *S. hawaiiensis*, in particular, is simply not known with confidence relative to specific areas of proposed work activities. It is therefore recommended that a resurvey of the specific sites of construction (particularly pole removal) be conducted during the wet season to establish if and where sensitive botanical resources are located relative to these work areas. Populations or individuals of endangered or rare plants should be marked with plant flags or flagging tape until the construction phase is completed If it is not possible for construction activities to avoid the marked areas, consultation with USFWS (as prescribed under Section 7 of the Endangered Species Act) and DLNR will be required. A plan to avoid or minimize impacts would then need to be developed. Botanical monitoring during work in "sensitive" areas may be required, although at present all areas supporting "natural" vegetation close to the rim of the crater must be considered potentially sensitive in the absence of a clear demarcation of the distribution of *S. hawaiiensis* in particular.

The long-term (post-construction) impacts on botanical resources at Diamond Head of consolidation of communication facilities at the FAA Link Site and removal of unused or abandoned antennae and poles is expected to have a generally beneficial impact on botanical resources and the overall resource value of the Diamond Head State Monument.

References

Char, W. 1998. Botanical study, Diamond Head State Monument Master Plan Update, East Honolulu, O'ahu. In: *Diamond Head State Monument Master Plan Update.* Prep. for PBR Hawaii. 24 pp.

PBR Hawaii. 1998. Diamond Head State Monument, Master Plan Update. Prep. for the State Department of Land and Natural Resources.

Staples, G. W., and D. R. Herbst. 2005. *A Tropical Gareden Flora. Plamnts cuiltivated in the Hawaiian Islands and other tropical places.* Bishop Museum Press, Honolulu. 908 pp.

USFWS. 1998. Draft recovery plan for multiple-island plants. U.S. Fish and Wildlife Service, Portland, Oregon.

Wagner, W. L., and D. R Herbst. 1999. *Supplement to the Manual of the flowering plants of Hawai'i*, pp. 1855-1918. *In:* Wagner, W.L., D.R. Herbst, and S.H. Sohmer, Manual of the flowering plants of Hawai'i. Revised edition. 2 vols. University of Hawaii Press and Bishop Museum Press, Honolulu.

_____, _____, and S. H. Sohmer 1990. *Manual of the Flowering Plants of Hawai'i.* University of Hawaii Press, Honolulu, Hawaii 1854 pp.