Memorandum of Agreement
By and Between
The United States of America,
Acting By and Through the Department of Veterans Affairs
and
The City of Alameda

Parties:

The parties to this Memorandum of Agreement ("**Agreement**") are the United States of America, acting by and through the Department of Veterans Affairs ("**VA**") with respect to the proposed acquisition by the VA of approximately 624 acres of land, more or less, located at the former Naval Air Station Alameda ("**NAS Alameda**"), in Alameda, California, by means of a transfer from the U.S. Department of Defense, Department of the Navy ("**Navy**"), pursuant to Base Realignment and Closure ("**BRAC**") law and the City of Alameda ("**City**"), as the successor in interest to the Alameda Reuse and Redevelopment Authority with respect to the proposed acquisition of approximately 1,074 acres of land, more or less, also located at the Alameda Naval Air Station, by means of an Economic Development Conveyance from the Navy pursuant to BRAC. The VA and the City may be referred to individually as a **"Party"** and collectively as the **"Parties."**

Recitals/Background:

WHEREAS, on August 29, 2012, the United States Fish and Wildlife Service ("**Service**") issued the Biological Opinion on the Proposed Naval Air Station Alameda Disposal and Reuse Project ("**BO**"), attached hereto as Exhibit A. The BO contains both Terms and Conditions ("**TC**") and Avoidance and Minimization Measures ("**AMM**") that must be implemented to reduce the effects of the disposal and reuse of NAS Alameda on the endangered California least tern; and

WHEREAS, the City intends to develop lands conveyed to it consistent with the 1996 Community Reuse Plan; and

WHEREAS, the VA proposes to construct an Outpatient Clinic and National Cemetery Complex ("**VA Project**"); and

WHEREAS, the BO contains AMM 7, which applies to all property at NAS Alameda conveyed to the City or other non-federal entities to limit the effects of additional lighting on least terns, requires the City to perform design review and develop lighting requirements and provide them to all project applicants to ensure that the cumulative increase in ambient nighttime light levels from VA and City sources does not exceed 10 percent of the pre-conveyance levels from April 1 to August 15; in coordination with the VA to conduct studies to determine the existing, pre-conveyance ambient nighttime light levels and take corrective action in the event that nighttime light levels exceed 10 percent of the pre-conveyance levels from April 1 to August 15; and to perform lighting sampling annually in April and report the results of the annual April sampling; and

WHEREAS, the BO contains AMM 20 requiring the VA to conduct studies to determine the existing, pre-conveyance ambient nighttime light levels; in coordination with the City to measure nighttime light levels in April of each year and to take corrective action in the event that nighttime light levels exceed 10 percent of the pre-conveyance levels from April 1 to 15; and to report the results of the annual April sampling; and

WHEREAS, the BO contains AMM 21 requiring the VA to design lighting to minimize nuisance nighttime light levels for the proposed VA Project; and

WHEREAS, the BO contains TC 1.b requiring the VA and City to conduct a Service-approved nighttime lighting study to determine ambient nighttime light levels at and within 750 feet of the least tern colony and requiring certain measures to minimize lighting increases; and

WHEREAS, the BO contains TC 1.c regarding the number of new lights, the direction and screening of lights, and tinting of windows; and

WHEREAS, the Alameda Point California Least Tern Colony Existing Lighting Study, Zeiger Engineers, Inc., establishing the existing, pre-conveyance ambient nighttime light levels was submitted to the Service on March 14, 2013 and was approved by the Service on March 15, 2013 ("Baseline Lighting Study") (Exhibit B).

Agreement:

NOW, THEREFORE, the Parties agree as follows:

1. The Parties shall jointly select and the City shall retain a consultant to measure nighttime light levels in April of each year and to prepare the annual report required by AMMs 7 and 20 of the BO, consistent with the locations and conditions set forth in the Baseline Lighting Study.

    a. Each individual responsible for performing evaluation and testing and designing corrective actions pertaining to the impacts of facility lighting on the least tern colony shall be a licensed professional electrical engineer in the State of California and shall have a minimum of five (5) years of experience in lighting design and engineering.

    b. The consultant shall prepare a report suitable for the Parties to:

        i. Comply with the AMMs 7, 20 and 21, and TCs 1.b and 1.c, of the BO.

        ii. Take corrective action, as necessary, in the event that nighttime light levels exceed 10 percent of the pre-conveyance levels from April 1 to August 15, The report shall recommend corrective actions, as necessary to reduce nighttime light levels.

iii. Report the results of the annual April sampling in a form suitable for the annual least tern monitoring and management report submitted to the Service.

c. The cost of the consultant to perform the work stated in Section 1.b.i, 1.b.ii and 1.b.iii, above shall be paid jointly by the parties. Each party shall pay one-half of the costs of the consultant to perform the work stated in Sections 1.b.i, 1.b.ii and 1.b.iii, above. The VA shall pay its one-half of the consultant costs within 30 days of written request by the City accompanied by a copy of the consultant's invoice.

2. The Parties agree to implement the Lighting Mitigation Measures, attached hereto as Exhibit C, as follows in order to ensure that nighttime light levels do not exceed 10 percent of the pre-conveyance levels from April 1 to August 15.

a. The VA shall implement the Zone 1 Lighting Mitigation Measures in the VA Project.

b. The City shall implement the Lighting Mitigation Measures for Zones 2 through 9, as applicable, in all City projects that require lighting, or shall require all project applicants to implement the Lighting Mitigation Measures for Zones 2 through 9, as applicable, as a condition of project approval.

c. The Lighting Mitigation Measures may be revised from time to time, with the agreement of both Parties, if the revisions will not allow the cumulative increase in lighting to exceed 10%.

d. Exceptions from the requirement to implement the Lighting Mitigation Measures may be allowed only with the agreement of both Parties and only if it can be demonstrated that the cumulative increase in lighting would not exceed 10%.

Brian J. O'Neill, M.D., Director
VA Northern California Health Care System

John A. Russo
City Manager

Bradley G. Phillips
Executive Director (SES)
VA National Cemetery Administration
Memorial Service Network V

RECOMMENDED FOR APPROVAL:

Jennifer Ott
Chief Operating Officer – Alameda Point

APPROVED AS TO FORM:

~~Janet C. Kern~~ Farimah Faiz
Sr. Assist City Attorney

Exhibits:

Exhibit A: Biological Opinion on the Proposed Naval Air Station Alameda Disposal and Reuse Project (August 29, 2012)

Exhibit B: Alameda Point California Least Tern Colony Existing Lighting Study (March 14, 2013)

Exhibit C: Alameda Point Lighting Mitigation Measures, January 15, 2013

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

In Reply Refer To:
81420-2009-F-0952-4

AUG 2 9 2012

Ms. Laura Duchnak
Director, BRAC PMO West
Department of the Navy
Base Realignment and Closure
Program Management Office West
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VA Sierra Pacific Network (10N21)
Department of Veterans Affairs
VISN21 CAM Headquarters
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Mare Island, California 94592

Subject: Biological Opinion on the Proposed Naval Air Station Alameda Disposal and Reuse Project in the City of Alameda, Alameda County, California

Dear Ms. Duchnak and Ms. Cullen:

This is in response to the U.S. Department of the Navy's (Navy) and the U.S. Department of Veterans Affairs' (VA) May 21, 2012, request for formal section 7 consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Naval Air Station Alameda (NAS Alameda) Disposal and Reuse project in the City of Alameda, Alameda County, California. Your request for formal consultation was received by the Service on May 24, 2012. At issue are the potential effects of the proposed project to the endangered California least tern (*Sternula antillarum browni*) (least tern) and threatened Pacific coast population of the western snowy plover (*Charadrius alexandrinus nivosus*) (snowy plover). The Service concurs with your determination that the proposed project is likely to adversely affect the least tern. The Service also concurs with your determination that the proposed project may affect, but is not likely to adversely affect the snowy plover. This document is issued under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. § 1531 *et seq.*) (Act), and represents the Service's biological opinion on the effects of the proposed project to the least tern.

Exhibit A

The Service concurs with your determination that the proposed action may affect, but is not likely to adversely affect the snowy plover for the following reason: the snowy plover is rarely sighted within the action area, a single individual once every few years, and has not been documented nesting at the site for more than 20 years. Based on current habitat use of the action area by the snowy plover, the effects of the proposed action to this species would be insignificant and discountable.

The Service issued a biological opinion for the Navy's disposal and reuse of NAS Alameda in 1999 (1999 BO) (Service File Number 1-1-98-F-2). The 1999 BO provided incidental take authorization of the least tern and endangered California brown pelican (*Pelecanus occidentalis californicus*) (brown pelican) for the adverse effects to these species as a result of transferring a portion of NAS Alameda to the City of Alameda (City) for redevelopment. The brown pelican has since been removed from the list of threatened and endangered species due to recovery. The primary means by which the adverse effects of the base transfer and redevelopment to the least tern were minimized in the 1999 BO was through the conservation of 525 acres of land and 375 acres of submerged lands, including the least tern colony site, and the subsequent establishment of a unit of the Service's National Wildlife Refuge System (Proposed Refuge). In addition to the Proposed Refuge, the type and amount of development to the north, south, and west of the Proposed Refuge was limited to minimize the likely increase in human-associated predators of least terns, minimize conditions that increase predator success, and to provide the least tern colony with: (1) unobstructed access to foraging habitats; (2) an adequate buffer between the least tern colony and human development and disturbance, which minimizes predation pressures and perceived predation; and (3) an adequate area to conduct effective predator management at the site. Although the Service requested the conveyance of the Proposed Refuge from the Navy, the property was not transferred to the Service due to outstanding issues over site remediation. As a result, the primary means by which the effects of redevelopment to the least tern were minimized in the 1999 BO was never realized. Due to the impasse between the Service and the Navy, the VA requested the conveyance of the Proposed Refuge for the purpose of constructing and operating a VA Outpatient Clinic and National Cemetery Complex (VA Project).

The proposed VA Project requires significant changes to the project description and effects analysis of the 1999 BO; thus, the VA Project and the City's redevelopment of NAS Alameda are interdependent actions. Although more than 13 years have passed since the issuance of the 1999 BO, most of the property at NAS Alameda has not been transferred by the Navy to the City and an insignificant amount of the development authorized in the 1999 BO has occurred. Therefore, this biological opinion supersedes the 1999 BO.

This biological opinion is based on: (1) an informal section 7 consultation process in which the Service, Navy, VA, City, and East Bay Regional Parks District (EBRPD) worked collaboratively to draft a project description to minimize the adverse affects of the proposed project to the least tern; (2) numerous meetings, emails, and telephone conversations between the Service, Navy, VA, City, and EBRPD; (3) the *Final Proposed Action for Former Naval Air Station Alameda (Alameda Point), Alameda, California*, dated May 8, 2012; (4) the *Final Alameda Point Proposed Avoidance and Minimization Measures*, dated May 8, 2012; and (5) other information available to the Service.

Consultation History

December 15, 2005: The Service met with the VA and Navy to discuss the VA's interest in acquiring the Proposed Refuge via a Federal-to-Federal transfer.

June 5, 2006: The Service met with the VA to discuss the VA's proposed site layouts, issues regarding future control or ownership of submerged lands, and the VA's submittal of a property transfer request to the Navy for the Proposed Refuge.

January 9, 2007: At a meeting with the Service, the VA reported they had formally submitted a request to transfer 579 acres at NAS Alameda, from the Navy to the VA, including the Proposed Refuge. Other topics discussed were the proposed downlisting of the least tern, funding mechanisms for least tern colony management, ownership of the submerged lands, and a development setback from the least tern colony.

May 31, 2007: The Service met with the VA to discuss the possibility of the City taking ownership of the submerged lands, a three-party Memorandum of Understanding or Memorandum of Agreement to ensure adequate patrolling/protection of the brown pelican roost on Breakwater Island, and conceptual site plan options for the VA Project.

August 1, 2007: The Service met with the VA to discuss the future ownership of the submerged lands, a meeting with Golden Gate Audubon Society, a species list for the site, the compensation approach for the adverse affects of the proposed VA Project, and conceptual site plans.

October 3, 2007: The Service met with the VA to discuss the proposed development envelope along the northern edge of the site, the ownership of submerged lands, the potential for EBRPD to become manager of the least tern colony, long term funding for least tern management, compensation for the adverse affects to the least tern, lessons learned from the 1999 BO.

December 20, 2007: The Service, VA, Navy, and City met to discuss a potential approach for conveyance of the submerged lands to the City, subject to a conservation easement or other property encumbrance. The Service recommended the preparation and submittal of a Biological Assessment (BA) that addressed both the proposed VA development and any foreseeable changes to the 1999 BO; with the assumption a new biological opinion would supersede the 1999 BO.

June 10, 2009: The Service received a BA and request for formal section 7 consultation from the Navy for the VA Project and a revised project description for the City's proposed redevelopment.

June 23, 2009: The Service met with the Navy and VA to review the BA submitted on June 10, 2009.

July 10, 2009: The Service sent the Navy a letter (Service File Number 81420-2009-TA-0952-1) informing them that formal section 7 consultation could not be initiated, because all of the information necessary to complete a biological opinion had not been provided to the Service in the BA. The letter also outlined the information required to initiate formal section 7 consultation.

September 21, 2009: The Service attended a conference call with the Navy to discuss the section 7 consultation process, the need for additional minimization and avoidance measures, due to the increased effects to the least tern and brown pelican as a result of additional development, the biological basis for the proposed buffer outlined in the BA, the effects of noise on the least tern as a result of the proposed construction during the least tern breeding season, and the schedule for the completion of a revised BA.

November 20, 2009: The Service attended a conference call with the Navy and VA. The Navy indicated the next BA would have a revised buffer and a revised VA Project configuration, each with an effects analysis. The Service stated that the VA Project and the City's redevelopment of the site were interdependent actions, requiring the reinitiation of section 7 consultation for the 1999 BO. The Service expressed concern that the City's revised redevelopment plan included significant changes to the 1999 BO, including residential development adjacent to the least tern colony. The Service also expressed the need to protect the least tern colony in perpetuity through an endowment and conservation easement. The VA indicated it did not intend to place an easement on the undeveloped areas because in the event the least tern was delisted, the VA wanted to reserve the ability to develop the site.

February 3, 2010: The Service attended a conference call with the Navy. The Service expressed concern that the recently revised VA Project configuration included additional development without an adequate effects analysis or the incorporation of any additional avoidance and minimization measures. The Service reiterated the need to protect the least tern colony and undeveloped areas in perpetuity through an endowment and conservation easement.

May 20, 2010: The Service sent the City a comment letter (Service File Number 81420-2009-TA-0952-2) on the *Notice of Preparation of an Environmental Impact Report and Public Scoping Meeting for the Alameda Point Project* dated April 20, 2010, in which the Service outlined concerns regarding changes to the project description of the 1999 BO, likely increased effects to the least tern, and the need for the City, Navy, VA, and Service to work

together to minimize effects to the least tern.

October 14, 2010: The Service attended a conference call with the Navy to discuss the timeline for receiving a revised BA, the potential for EBRPD to hold a conservation easement over the undeveloped areas at NAS Alameda, and reconfiguring the VA Project to reduce effects to the least tern.

August 30, 2011: The Service received a BA and letter from the Navy and VA requesting formal incremental step section 7 consultation for the VA Project.

September 29, 2011: The Service sent the Navy and VA a letter (Service File Number 81420-2009-TA-0952-3) informing them the Service was unable to initiate an incremental step section 7 consultation as per guidance provided in the *Endangered Species Consultation Handbook Proceedings for Conducting Consultation and Conference Activities Under Section 7 of the Endangered Species Act* (U.S. Fish and Wildlife Service and National Marine Fisheries Service 1998). The letter further stated that the VA Project and the City's redevelopment activities were interdependent, requiring the VA and Navy to reinitiate consultation for the 1999 BO.

October 7, 2011: The Service attended a meeting with the Navy, VA, City, and EBRPD to discuss: (1) the recent news that the City would receive their portion of NAS Alameda from the Navy at no cost; (2) legal issues the Navy faced with regards to changing any of the parcel boundaries to be transferred to the City or VA; (3) an EBRPD conceptual alternative to the VA Project, which included moving a portion of the VA Project north, into the Northwest Territories (NWT) and onto land to be conveyed to the City; (4) working through the informal section 7 consultation process to develop a Service-supported project description for the VA Project and the City's redevelopment plans; and (5) the long-term protection of the least tern colony and surrounding lands via a conservation easement.

October 19, 2011: The Service sent the VA and Navy a letter (Service File Number 81420-2009-TA-0952-4) to memorialize the outcome of the meeting that took place at the October 7, 2011 meeting.

February 2, 2012: The Service received a Draft Project Description, Draft Avoidance and Minimization Measures, Draft Project Site Plans, and other supporting draft project related materials, from the Navy via email, for the VA Project and the City's proposed redevelopment at NAS Alameda.

February 23, 2012: The Service emailed comments to the Navy on the Draft Project Description, Draft Avoidance and Minimization Measures, Draft Project Site Plans, and other supporting draft project related materials to the Navy for revision.

April 4, 2012: The Service received a Revised Draft Project Description, Revised Draft Avoidance and Minimization Measures, Revised Draft Project Site Plans, and revisions to the other supporting draft project related materials, from the Navy via email, for the VA Project and the City's proposed redevelopment at NAS Alameda.

April 16, 2012: The Service emailed comments to the Navy on the Revised Draft Project Description, Revised Draft Avoidance and Minimization Measures, Revised Draft Project Site Plans, and revisions to other supporting draft project related materials to the Navy.

April 17, 2012: The Service met with the Navy, VA, City, and EBRPD to discuss the ongoing revisions to the VA Project and City's redevelopment plans for NAS Alameda, including: (1) language for a Service-approved regional park management agency in the Northwest Territory; (2) language regarding future section 7 consultations for dredging; (3) the location and maintenance of the facilities supporting the least tern colony managers; (4) Service-approval of the agency that will enforce public access restrictions; (5) a proposed change to measures that minimize nighttime lighting; and (6) a potential term and condition to ensure the undeveloped area will remain undeveloped, in lieu of a conservation easement.

May 21, 2012: The Service received an email from the Navy with attachments that included a letter dated May 21, 2012, from the Navy and VA requesting formal section 7 consultation with the Service for the VA Project and the City's proposed redevelopment at NAS Alameda, the final versions of the Revised Draft Project Description, Revised Draft Avoidance and Minimization Measures, Revised Draft Project Site Plans, and revisions to the other supporting draft project related materials.

May 24, 2012: The Service received a letter from the Navy and VA requesting formal section 7 consultation with the Service for the VA Project and the City's proposed redevelopment at NAS Alameda.

BIOLOGICAL OPINION

Description of the Proposed Action

The purpose of the proposed action for the Navy is to dispose of property at NAS Alameda in accordance with the Defense Base Closure and Realignment Act of 1990. Disposal of the property at the former NAS Alameda would occur through a Federal-to-Federal transfer of approximately 624 acres to the VA and through an economic development conveyance of the remaining surplus property (approximately 1,704 acres) to the City. The purpose of the proposed action is for the VA to acquire the property and establish VA facilities to serve San Francisco Bay Area veterans and for the City to acquire property to develop consistent with the 1996 Reuse

Plan, as amended, with the exception of some limited changes to the proposed development of the NWT, as described in greater detail below.

The project action includes four components:

1. Property disposal by the Navy: The disposal action would consist of a Federal-to-Federal property transfer of approximately 624 acres of property at NAS Alameda from the Navy to the VA.

2. The VA's acquisition of the property from the Navy and development of the VA Project on approximately 112.4 acres of the 624-acre Federal transfer parcel and use of the property as follows:

   a. Construction and operation of a Veterans Health Administration (VHA) Outpatient Clinic (OPC), which will also include behavioral health services, a Veterans Benefits Administration Outreach office and National Cemetery Administration (NCA) Public Information Center and offices;

   b. Construction and operation of a NCA cemetery, including administrative and maintenance facilities located within the OPC;

   c. Construction of a Conservation Management Office (CMO) to support least tern management, education, and interpretive opportunities; and

   d. Use of existing bunkers for storage of emergency supplies, use of the undeveloped area within 624-acre transfer parcel for emergency training exercises during the least tern non-breeding season (August 16–March 31), and use of undeveloped area within 624-acre transfer parcel as a staging area during emergencies and natural disasters such as earthquakes.

3. Property Disposal by the Navy: The disposal action would consist of an Economic Development Conveyance for the remaining surplus property from the Navy to the City.

4. City acquisition of the property from the Navy and development of the remaining property by the City consistent with the 1996 Reuse Plan, as amended, with the exception of some limited changes to the proposed development of the NWT, as described in greater detail below.

Project Action for the VA Federal Transfer Parcel

The Navy will dispose of approximately 624 acres of property at Alameda Point to the VA as a result of a Federal-to-Federal property transfer. While the parcel proposed for transfer is 624 acres, the area that would be developed with VA facilities and access road is approximately 112.4 acres and is referred to as the VA Development Area (Figure 1).

The remaining 511.3 acres to be transferred from the Navy to the VA is referred to as the VA Undeveloped Area. To provide for the long-term conservation of the least tern, the VA's commitment to implement land use restrictions for long-term maintenance, management, and monitoring of the least terns in accordance with this biological opinion will be documented in the Federal-to-Federal property transfer documents: Department of Defense Form 1354 with an attached Memorandum of Understanding.

The VA Project Action also includes granting limited access to a trail planned to run along the western and southern edge of the VA Federal transfer parcel. The trail would be open during the least tern non-breeding season (August 16 – March 31), and would connect to planned trail segments and other recreational facilities north and east of the VA Federal transfer parcel. The trail would be funded, constructed, and maintained by a Service-approved entity. The VA will retain the right, in case of emergency or otherwise at the VA's discretion, to close or restrict access to the trail. East Bay Regional Park District law enforcement personnel (or another Service-approved law enforcement agency) would be located at Robert Crown Memorial State Beach or the CMO and would regularly patrol the VA Undeveloped Area. If the trail is not being appropriately maintained and trespassing during the least tern breeding season is determined to have adverse effects to the least tern, the VA will permanently close the trail and take corrective action to assure trespassing is no longer a management concern. Before a decision is made to close the trail, the Service would provide EBRPD (or another Service-approved law enforcement agency) and the VA an opportunity to alleviate problems with trespass before the trail is closed.

Beyond the 624-acre VA Federal transfer parcel is the 6.1-acre access road /utility corridor. This corridor includes approximately 1,425 feet of West Redline Avenue directly east of the VA transfer parcel to the entry road from the Alameda Point North Gate, and a 3,292-foot segment of Main Street that extends from the Alameda Point North Gate east to where utilities would tie into the main sewer and water utility.

VHA Outpatient Clinic

The VA OPC building would be approximately 158,000 square feet. The facility would include a pharmacy, lab area, radiology department, outpatient surgery, urgent care, specialty clinics, and support functions including a canteen, clinic management and education center, administrative space, housekeeping, storage and employee lockers, lounges and toilets. Behavioral health services would also be provided at the OPC. A portion of the Ambulatory Care space would accommodate an Ambulatory Surgery Clinic and other outpatient surgical functions staffed and operated by the U. S. Air Force. Furthermore, the U. S. Coast Guard has expressed interest in operating a jointly staffed Women's Health Clinic serving female veterans, active duty U.S. Coast Guard and the Tricare population of Alameda County. In addition to VHA uses, approximately 10,000 square feet of the first floor would be used by the NCA and Veterans Benefits Administration.

The OPC building would be primarily two stories, with at least 75 percent of the roof area at or below 40 feet in height. A penthouse for mechanical equipment would occupy approximately 15 percent of the roof area and would not exceed a height of 47 feet measured from the top-of-slab

to the highest point of the penthouse. In addition, the roof at the lobby entrance of the OPC, approximately 10 percent of the total roof area, would not exceed a height of 54 feet measured from the top-of-slab to the highest point of the lobby roof. A 6,400 square-foot mechanical room would be located adjacent to the service wing on the north side of the OPC building. A 45-foot-tall flagpole is proposed on the north side of the OPC. Probable exterior building materials could include concrete masonry units, glass fiber reinforced concrete, metal panels, metal panel systems, pre-cast concrete, and cement plaster.

A parking area with approximately 632 spaces would be located on the east side of the OPC, and would include a shuttle drop-off/pick-up area used by Veterans. The parking area would be lit during early morning and late afternoon hours, as needed for security. All lights in the parking area and along the access road would be directional and point downward using shielded valences/surrounds, and equipped with anti-perching devices.

Patient appointments are typically scheduled between the hours 8:00 a.m. and 5:00 p.m., Monday through Friday. In addition, some outpatient services, including behavioral health services, would also be offered on Saturday and Sunday from 8:00 a.m. 12:00 p.m. Some VA staff may remain in the OPC after operating hours. There would be no emergency care and no overnight stays at the OPC. The normal staffing levels at the OPC are anticipated to be approximately 250 (both full-time and part-time staff). Based on data from other OPCs in the region, it is estimated that approximately 543 Veterans would be seen at the clinic each week day. During the weekend, it is estimated that approximately 70 Veterans would be seen at the clinic.

NCA Cemetery

The NCA proposes the construction of a National Cemetery to provide cremation burial options (columbarium) to the San Francisco Bay Area veteran population. The National Cemetery at the site would be comprised of architecturally grouped columbaria courts. Each columbaria court would consist of inurnment columbarium niches housing cinerary urns containing cremated remains. The columbarium niches are typically aligned in rows, 5 rows high, in pre-cast-concrete columbaria wall units. The highest columbaria wall would be approximately 9 feet high, including the columbaria unit base and cap. Additional height may be needed to make the caps of the columbarium walls unperchable by avian predators, but in any case will not exceed 10 feet in height. In addition to columbarium walls, the cemetery would feature a Memorial Wall, which is very similar to a columbarium wall. The cemetery would cover a total area of approximately 80 acres located west of the OPC. All road work and site improvements (i.e. roads, grading, and utilities) for the development within the initial 27-acre cemetery sub-development area will be completed in Phase I.

The cemetery layout, structures, roadways and other features would be developed in accordance with VA design and construction standards and specifications for national cemeteries. The main features of the cemetery include the following:

Committal Service Shelters: Covered pavilion-like structures that provide shelter from the wind, rain and sun during inurnment services. These structures are typically about 900 square

feet (25 feet by 36 feet), which is large enough to provide seating for approximately 10 to 20 people, with an additional paved area to provide standing room for others attending the service. These structures are typically supported on one side by a wall with a storage closet, and two to six columns on the other sides that allow for a 10-foot minimum vertical clearance. Two committal shelters will be built in Phase I, and one additional committal shelter would be constructed during subsequent phases of the cemetery.

Building materials used for committal service shelters are to be durable and relatively maintenance-free, such as brick, stucco, building stone, or cut masonry block; and are selected for life-cycle performance characteristics at a given project location. The roof structure is recommended to be standing seam metal (gabled or hipped) with gutters, leaders, downspouts, splash blocks, or underground pipe connection to ensure positive drainage from the structure. Open trusses, open column tops, or perching areas are not permitted due to the maintenance and cleaning required. Architectural features that invite birds or insects to nest are to be avoided.

Committal Service Shelter Parking Areas: A small parking area is proposed adjacent to each committal service shelter to accommodate the funeral cortege (funeral procession). This area is typically wide enough for parking approximately 30 vehicles (two rows of approximately 15 vehicles), and an open center lane for moving traffic.

Assembly Area: The Assembly Area is where special holiday memorial services are held, such as those held on Memorial and Veterans Days. Based on memorial service events held at other VA cemeteries on these two days of the year, as many as 1,000 to 5,000 people may attend these memorial services; therefore, a public address system is sometimes used. These memorial events would be organized, staged and conducted in a manner that would direct noise away from the least tern colony. Other features of the assembly area include a memorial walkway, a flagpole with a maximum height of 80 feet, and a carillon (bell tower) with a maximum height of 35 feet that plays bells or tones. The carillon would be located and operated such that it would not increase the ambient noise level at the least tern colony by more than 10 percent.

NCA Public Information Center: The Public Information Center is a resource for visiting cemetery guests. As presented above in the OPC description, the Public Information Center would be located on the first level of the OPC building and would consist of offices, a reception area and dedicated restrooms.

NCA Service Area (Maintenance Garage): A small maintenance garage on the north side of the OPC building is proposed for NCA staff.

Cortege Assembly Area: The Cortege Assembly Area is a pre-staging area adjacent to the NCA wing of the OPC. This area would consist of three lanes for vehicles to line up before proceeding to the Committal Service Shelter.

Other Elements: Interior roadways, signage, landscaping, benches, trash receptacles and flower containers will also be part of the NCA Cemetery. Trash receptacles will be provided

primarily for refuse associated with floral remembrances brought to the committal shelters or niches. No picnicking is permitted within the cemetery area.

As part of military tradition, a military honors salute may be performed during internment ceremonies at the NCA Cemetery. The military honors salute is a ceremonial act performed at military funerals as part of the drill and ceremony of the Honor Guard. It consists of a rifle party firing blank cartridges in three volleys, and would take place at the committal service shelters. The military honors salute will occur at the proposed committal service shelters, all three of which are more than 1,766 feet from the least tern colony. During special memorial services held on Memorial Day and Veterans Day, the military honors salute may also occur at the Assembly Area. The rifle party will direct firing away from the least tern colony, and solid structures such as committal service shelters or columbarium walls will shield the firing locations from the least tern colony. In addition, landscape berms may be created within the cemetery as a way to provide an additional noise and visual barrier. Berms greater than a distance of 2,132.5 feet from the least tern colony may be up to 12 feet in height. To further reduce the possibility of tall perches for avian predators, berms within 2,132.5 feet of the least tern colony will not exceed 6 feet in height.

Operation of NCA Facilities

The cemetery would be open daily from sunrise to sunset, with possible expanded hours in the evening (until 8 p.m.) on Memorial and Veterans Days. No nighttime activities are proposed within the cemetery area; therefore, exterior lighting would be limited to the area adjacent to the VA building and parking area, and to illuminate the U.S. Flag near the assembly area. Only minimal lighting for monitoring the security of the site is proposed. It is anticipated that up to seven NCA staff would be working at the facility on a daily basis. An average of ten memorial or inurnment services per day would take place. The attendance at these services would typically be five to fifteen people, but may be greater for some services.

Conservation Management Office

In addition to the VA facilities, a CMO is proposed to support the management of the least tern colony, predator management efforts, and may include other uses, such as an interpretive center supporting volunteer and public education programs. This building would be a one-story structure with a maximum height of 25 feet and approximately 2,500 square feet of space. The CMO would be located east of the OPC building and would accommodate Service personnel (or other contracted staff/volunteers) involved with management of the least tern colony as well as the VA's biological monitoring staff. Educational programs for the public may also be conducted at this building. The exterior materials of the CMO are not specified at this time; however, it would be designed to be complimentary to the proposed VA building. A small parking area, consisting of eight to ten parking spaces, is proposed adjacent to the CMO. A wall or fence would separate this building and parking area from the adjacent OPC area. Use of a portion of the main VA parking area for volunteer training, special events and weekend activities may occur if arranged in advance with the VA. The existing buildings currently used by Service staff and volunteers will remain available in order to provide equipment storage, shelter, and restroom

facilities for least tern managers and volunteers during breeding season, when close proximity to the tern colony is essential. Minimal improvements to the existing structures (paint, flooring, and replacement of some fixtures) will be made to the extent possible.

Operation of CMO

The CMO would be in operation daily from sunrise to sunset, with possible expanded hours during the least tern nesting season if circumstances require monitoring or management activities beyond the normal hours of operation.

Management of the California Least Tern

The VA will continue the management of the least tern colony upon formal transfer of the property. Ongoing least tern management/predator management programs would be funded by the VA operating budget for property maintenance and management.

Other VA Uses

As part of their role to respond to regional emergency management, VHA intends to utilize the VA facility at Alameda Point as a staging area during emergencies and natural disasters such as earthquakes and for storage of emergency supplies. The facility may also be used as a location for emergency training exercises during least tern non-breeding season (August 16–March 31). The five bunkers located within Installation Restoration Site 2 (IR-2) and the cemetery area, north and east of IR-2, are proposed to be removed. Two of the existing bunkers previously used for the storage of ordnance by the Navy will be repurposed by the VHA for the storage of emergency supplies. These bunkers lie on the southern border of the VA Project Action Area, adjacent to the waters of San Francisco Bay, and outside of the VA Development Area. The bunkers have been present on site for decades and will not be significantly modified as part of the proposed VA action. The bunkers will be accessed using the existing paved runway surface, and provisioned and maintained outside of the least tern breeding season only.

Timing and Duration

It is currently estimated that construction of the OPC building and CMO would take approximately 18 months to complete, including the time for initial site preparation. The build-out of the NCA Cemetery will be phased based on actual demand. It is currently estimated that there will be a demand for approximately 2,500 niches per year. Phasing is typically based on 10-year increments. Therefore, it is envisioned that approximately five acres of the cemetery would be developed every ten years. The required acreage would vary according to layout and design. Demographic forecasts also suggest that demand will decrease in the years ahead as the veteran population declines. At NAS Alameda, it is expected that the first phase of construction would involve approximately 27 acres that would accommodate approximately 25,000 niches and support facilities, including two committal service shelters, internal roads, assembly area and landscaping. The remainder of the site would remain undeveloped until there is a need for additional columbarium niches. The first phase of cemetery construction is estimated to take 6 to

18 working months to complete.

Access, Staging, Construction Equipment and Techniques

Access to the VA development proposed within the action area will be from local streets to the east, including existing streets at NAS Alameda. All construction staging areas will be located within the VA Development Area. Contractor staging for construction and the offsite utility corridor will be in the cemetery area.

The area where buildings are proposed will be stripped of vegetation, organic soils, and any debris. In areas covered by runway concrete within the VA Development Area, the pavement and any base rock may be removed and reused as base materials. Construction equipment that will be used may include hydraulic breakers, scarifiers, dozers, dump trucks, front end loaders, graders, pile drivers, compactors, and rollers. It is anticipated that 6 months of mass grading will be necessary for initial project construction, including installation of infrastructure and roadways. A second construction season will be needed for completion of the buildings and the installation of landscaping. Grading will employ the use of scrapers, dump trucks, and bulldozers. Dewatering and a geotextile layer may be required for base stability where excavations extend to near the shallow water table.

Based on preliminary design recommendations, it is anticipated that the OPC building will have a concrete pile foundation. Structural concrete mats could be a viable alternative to driven piles. Conventional shallow spread footings could be considered for very lightly loaded structures founded on soils that are improved in situ. Construction of the columbarium is anticipated to have concrete pile foundations and will require the use of concrete mixer trucks, pavers, pick-up trucks, and mobile power generators.

Project Action for the City Property

The Navy will dispose of the remaining surplus Federal property at NAS Alameda, (i.e., the property west of Main Street), which is located within the boundaries of the City of Alameda, California. The Navy already transferred East Housing and the former Fleet Industrial Supply Center to the City, which were subject to the 1999 BO. No further consultation or Navy action is required for property east of Main Street. The surplus Federal property at NAS Alameda would be reused and redeveloped in accordance with the 1996 Reuse Plan prepared by the City. Five planning areas within the surplus Navy property that will be conveyed to the City are subject to this section 7 consultation: (1) Civic Core; (2) Main Street Neighborhoods; (3) Inner Harbor; (4) Marina; and (5) NWT. The NWT lies immediately north of the proposed VA Undeveloped Area and includes approximately 74 acres of the VA Development Area. The Civic Core and Marina areas lie immediately to the east. The current proposal for the NWT includes a 147-acre regional park and 25 acres of the proposed sports complex.

Regional Park

The Regional Park could include the following: (1) 20 acres of seasonal wetlands; (2) non-irrigated perennial and annual grasses over 45 percent of the park area; (3) irrigated "rough mowed" turf meadows covering 30 percent of the park area (no tree species capable of growing to greater than 20 feet in height shall be planted in the Regional Park, and the density of trees and shrubs in this area shall not exceed one tree or shrub per 10,000 square feet); (4) group and family picnic areas comprised of picnic tables, barbeques, and drinking fountains, located near meadow areas and pathways, covering approximately 50,000 square feet; (5) self-closing trash receptacles will be dispersed throughout the Regional Park and will be emptied regularly to prevent availability of garbage to nuisance/predatory wildlife species; (6) observation areas with interpretive signage, benches and restrooms; (7) a Veteran's memorial plaza with a footprint of approximately 25,000 square feet that will include structures no higher than 25 feet; (8) 3.0 miles of asphalt-paved Bay Trail, 12 feet wide; (9) 2.8 miles of asphalt-paved internal trails, 10 feet wide; (10) multiple asphalt-paved parking areas for approximately 800 cars, covering 5 acres; (11) 8,000 linear feet of raised and re-armored bayside levees; and (12) placement of approximately 400,000 cubic yards of fill material to create topography, that will not exceed 12 feet in height.

Sports Complex

The portion of the Sports Complex in the NWT would support eight soccer fields and associated facilities and parking areas. The Sports Complex fields shall not be lighted for nighttime play from April 1 through August 15, unless proposed lighting in these areas can be designed to ensure that lighting for the VA and City projects cumulatively will not exceed the light levels established in avoidance and minimization measure 7a. A maximum of 55 light poles, not to exceed 20 feet in height, would be installed and contain anti-perching devices within the soccer fields and parking areas. No artificial features greater than 20 feet in height shall be constructed. The cumulative square footage of buildings associated with the Sports Complex shall not exceed 7,500 square feet or be greater than 20 feet in height. Self-closing trash receptacles will be dispersed throughout the sports complex and will be emptied regularly to prevent availability of garbage to nuisance/predatory wildlife species.

Civic Core Area

The Civic Core Area would be developed as a mixed use development area with uses ranging from the reuse and redevelopment of existing facilities, replacement of existing buildings, and construction of new buildings for reuse and redevelopment. Development of the Civic Core Area would emphasize retention and reuse of the existing buildings and land use development patterns in this area. Building reuse would potentially include international business and commerce, institutional and educational facilities, research and development facilities, and supporting commercial uses. Civic uses would potentially include public recreation facilities, a museum, a library, a teen activity center, a civic auditorium, civic office space, a place of worship, and meeting places. A ferry terminal would be developed along the Oakland Inner Harbor on the northern boundary of the Civic Core area. The northern portion of the Civic Core Area may be

developed as a university campus. Building heights throughout the Civic Core area would not exceed current heights. The Civic Core Area would support softball fields, in addition to other indoor and outdoor facilities, and would have lighting for nighttime play. Light poles in the softball fields would not exceed 40 feet in height and would be equipped with anti-perching devices. No residential development will occur within any of the colored Building Development Zones, as defined in Figure 1.

Marina Area

The Marina Area would be developed as a commercial marina serving private and public boating, boating clubs, ferry service, deep-draft yacht facilities, boat repair, waterfront dry storage for boats, and sailing training facilities. Residential housing, retail, hotel/conference center, a civic plaza potentially with office space, a cultural arts center and theater, and recreation uses in the marina waterfront open space would be constructed in the Marina Area. No residential development will occur within any of the colored Building Development Zones, as defined in Figure 1.

Inner Harbor

The Inner Harbor would be redeveloped primarily for light industrial and research and development use with the potential for some residential uses. Supporting uses such as office space, restaurants, and service industries for local businesses would also be developed. A park would also be constructed in the Inner Harbor.

Main Street Neighborhood

The existing residential housing in the Main Street Neighborhood would be redeveloped primarily for residential housing use, including a combination of single-family and multi-family units. A substantial number of acres would be developed for a number of public facilities, including new schools, neighborhood parks or open space, and commercial/retail centers.

Proposed Avoidance and Minimization Measures

Prior to Transfer of Excess Property and Conveyance of Surplus Property

1. Until the excess property is transferred to the VA, the Navy shall continue managing the least tern colony and shall continue predator management in a manner consistent with current management practices.

2. Prior to conveyance of surplus property to the City, the Navy shall require the City to comply with the avoidance and minimization measures listed in this biological opinion during interim reuse through enforcement mechanisms provided by the Lease in Furtherance of Conveyance dated June 6, 2000, and subsequent Amendments 1 and 2 dated November 28, 2000, and March 30, 2009, respectively. Service-approved deed restrictions, with enforceable measures requiring the transferee to comply with the

applicable avoidance and minimization measures listed in this biological opinion, shall be developed for surplus Federal properties conveyed to the City or any other non-Federal entity. The deed restrictions shall be provided to the Service by the Navy for approval prior to property conveyance to the City. The deed restrictions shall be recorded prior to or upon property conveyance to the City.

3. Prior to transfer of excess property to the VA, the Navy shall continue to implement actions or measures to effectively notify property owners, lessees, and the general public of the necessity for controlling unauthorized public access. Until transfer of excess property to the VA, the Navy shall retain responsibility for enforcement and maintenance actions and shall ensure signs are maintained that identify the biological importance and values of the adjacent least tern colony and the prohibitions of access and use.

4. The Navy shall continue to prohibit feral cat feeding stations and colonies and the feeding of any native or non-native wildlife species that are potential predators of least terns, until the excess or surplus property has been transferred to the VA, or conveyed to the City, or any other non-Federal entity.

5. Prior to conveyance of submerged lands (as depicted on Figure 1) by the Navy to the City, a Service-approved conservation easement, for the benefit of an entity or organization qualified to hold a conservation easement under California Civil Code Section 815.3 or other enforceable property interest approved by the Service, will be granted or reserved by the Navy for the relevant portions of the submerged lands (as depicted on Figure 1). The conservation easement shall permit the City adequate ingress and egress for the purpose of access to and use of the City's property and shall not prohibit dredging. The conservation easement or other enforceable property interest shall specify the following prohibited uses: (1) no development (e.g., marinas or piers) will be allowed within the easement area, and (2) the City will not issue permits for any coordinated water-based activities, such as regattas or other activities that may concentrate boating activity within the easement area during the least tern breeding season (April 1 through August 15). The Service-approved conservation easement or other enforceable property interest shall be subject to review and approval by the Service prior to property conveyance and recorded within six months of acceptance of the relevant portions of the submerged lands (as depicted on Figure 1) at NAS Alameda from the Navy.

Lands Conveyed by the Navy to the City

6. The following shall apply to all surplus Federal lands conveyed by the Navy to the City:

   a. The City will assume responsibility for notification of deed restrictions to existing and future tenants and property owners.

   b. The City shall assume responsibility for developing and implementing a predator management plan for surplus Federal lands to be conveyed to the City or any other non-Federal entities by the Navy. The lands to be managed for predators shall be all lands west of Main Street, including the NWT, Civic Core Area, Marina Area,

Inner Harbor, and portions of the Main Street Neighborhood, as depicted on Figure 1. The plan shall integrate and coordinate predator management methods and activities within the property to be transferred to the VA by the Navy with those methods and activities employed in other portions of NAS Alameda. The plan shall ensure that an average of 20 hours per week of predator management is provided from March 25 through August 7 each year. The predator management activities provided in the plan shall include, but not be limited to: (1) management and removal of feral cats or other predators such as skunks, raccoons, and foxes, and (2) control of avian predators such as gulls, corvids, and raptors. The plan shall provide an adequate funding mechanism to ensure that an average of 20 hours per week of predator management activities are conducted from March 25 through August 7, of each year; such predator management will continue in perpetuity. The plan and funding mechanism shall be subject to review and approval by the Service prior to property transfer and implemented by the City upon acceptance of surplus Federal lands at NAS Alameda from the Navy.

c. In addition to the predator management activities described above, the following shall be conducted by the City upon acceptance of the surplus property from the Navy: (1) within 600 feet of the VA Federal transfer parcel, the tops of all buildings shall be inspected for avian predator nests once each week by U.S. Department of Agriculture, Wildlife Services (Wildlife Services) or other qualified Service-approved predator management personnel during the period from March 25 through August 7; and (2) the Regional Park of the NWT shall be monitored for corvids and other avian and mammalian predators by Wildlife Services or other qualified Service-approved predator management personnel during the period from March 25 through August 7. Any avian predator nests on the buildings or in the Regional Park shall be monitored to determine if nest removal is required to reduce predation pressure at the least tern colony site. If Wildlife Service personnel are not contracted for these activities, then the qualifications of other proposed personnel shall be reviewed and be subject to final approval by the Service. A funding mechanism for the specific activities described in this paragraph, in addition to the funding provided for the 20 hours of predator management plan activities required in the paragraph above, shall be established and maintained in perpetuity.

d. Upon Navy conveyance of property to the City, the City shall prohibit, in perpetuity, feral cat feeding stations and feral cat colonies on all lands conveyed from the Navy to the City. In addition, the City will notify property owners through educational signage and tenant notification that feral cat feeding stations and colonies and the feeding of any native and non-native wildlife species that are potential predators of least terns is prohibited and a violation of the deed restrictions. Management and removal of feral cats will be included as part of the City's predator management plan.

7. The following avoidance and minimization measures shall apply to all surplus Federal property conveyed to the City, or other non-Federal entity in the NWT and Civic Core and Marina areas, to limit the effects of additional lighting on least terns:

   a. Lighting associated with building security and other lighting needs or requirements throughout the NWT, Civic Core Area, and Marina Area shall be allowed as long as the cumulative increase in ambient nighttime light levels, from VA and City sources as defined in 7b, does not exceed 10 percent above the ambient nighttime light levels in these areas, prior to any VA or City development on transferred/conveyed lands, as defined in Silverman and Light (2011) or another Service-approved lighting study conducted prior to conveyance and between April 1 to August 15, with full development of the NWT, Civic Core Area, and Marina Area, including VA development.

   b. The VA conducted a study (Silverman and Light 2011) to determine the existing ambient nighttime light levels at several locations around the least tern colony site. In April of each year following the installation of any light sources that may increase the footcandle nighttime light level at the least tern colony, the City, in coordination with the VA, shall ensure the footcandle nighttime light levels are appropriately sampled and have not exceeded 10 percent of the pre-conveyance levels established by the VA in Silverman and Light (2011) or another Service-approved lighting study. In the event of an increase above 10 percent from the VA and City sources, corrective action will be taken within 2 months to reduce nighttime light levels to less than 10 percent of the pre-conveyance ambient nighttime light level. The results of the April nighttime light level sampling will be included as part of the annual least tern monitoring and management report.

   c. As a condition of approval for any project, the City shall perform design review to ensure the cumulative increase in ambient nighttime light levels within and near the least tern colony from VA and City sources does not exceed 10 percent of the pre-conveyance levels from April 1 to August 15, as described in avoidance and minimization measures 7a and 7b. The City shall develop lighting requirements and provide them to all project applicants.

8. The following avoidance and minimization measures apply specifically to the NWT:

   a. As detailed stormwater management and monitoring plans for the NWT are developed by the City, they shall be developed in coordination with the Service and implemented to protect open water foraging areas for least terns. The plans shall be reviewed and approved by the Service contemporaneously with the City environmental review process and prior to development of the project in this area.

   b. Prior to the construction of the Regional Park, a Service-approved park management agency will be chosen by the City.

c. No artificial features greater than 20 feet in height shall be constructed, with the exception of 25 feet in the Veteran's memorial plaza area. The cumulative square footage of buildings associated with the Regional Park in the NWT shall not exceed 4,500. No tree species capable of growing to greater than 20 feet in height shall be planted in the Regional Park. The density of trees and shrubs in this area shall not exceed one (1) tree or shrub per 10,000 square feet. The City shall prepare a palette of shrub and herbaceous vegetation species proposed for planting throughout the regional park area. The palette shall be reviewed and approved by the Service prior to the planting of any vegetation in this area. From April 1 through August 15, nighttime lighting in the Regional Park shall be limited to the minimum necessary for public safety. The final Regional Park design/configuration, herbicide/pesticide drift control plan, and landscaping and management plans shall be developed in coordination with the Service. The plans shall be reviewed and approved by the Service prior to any new development in this area.

d. The Sports Complex fields shall not be lighted for nighttime play from April 1 through August 15, unless proposed lighting in these areas can be designed to ensure that lighting for VA and City projects cumulatively will not exceed the light levels established in avoidance and minimization measure 7a.

e. No trees or landscape turf shall be planted within 100 feet from the southern boundary of the Sports Complex, other than the turf required for the Sports Complex field playing surfaces. Shrubs will be managed to remain 4 feet in height within 300 feet of the southern boundary of the Sports Complex. No tree species capable of growing to greater than 20 feet in height shall be planted within the Sports Complex area. Tree and shrub density shall not exceed one tree or shrub per 550 square feet. Trees species shall be light-limbed. No palm trees shall be allowed in this area. The City shall prepare a palette of shrub species proposed for planting in this area. The planting palette shall be reviewed and approved by the Service prior to the planting of any trees or shrubs in this area.

f. No artificial features greater than 20 feet in height shall be constructed. The cumulative square footage of buildings associated with the Sports Complex shall not exceed 7,500 square feet or be greater than 20 feet in height. All buildings associated with the Sports Complex area shall be located greater than 200 feet from the southern boundary of the east-west runway. The City shall ensure that all artificial structures and buildings associated with the Sports Complex are designed to prohibit avian perching or that all artificial structures are fitted with anti-perching devices that will be maintained in perpetuity.

9. The following avoidance and minimization measures reference Figure 1 and apply to the Civic Core Area:

a. *Zone 1 (Pink):* No new buildings, light posts, vegetation greater than 4 feet in height, landscape turf, or other structures greater than 4 feet in height shall be

constructed in this area without prior approval from the Service. The Service shall review all proposed plans to ensure compliance with this biological opinion.

b. *Zones 2 (Red) and 3 (Yellow):* Any new buildings constructed or extensions of existing buildings shall not exceed the height of the existing buildings. No palm trees shall be allowed in this zone. Within line-of-sight of the existing least tern colony, landscaping shall be restricted to vegetation less than 4 feet in height. In areas outside of the line-of-sight of the existing least tern colony, no tree species capable of growing to greater than 20 feet in height shall be planted and shrubs shall be managed as to not exceed 6 feet in height. The density of trees and shrubs in this area shall not exceed 1 tree or shrub per 550 square feet. The City shall prepare a palette of tree and shrub species proposed for planting in this area. The palette shall be reviewed and approved by the Service prior to the planting of any trees or shrubs in this area. Light posts in this area 20 feet or greater in height shall contain anti-perching devices, which will be maintained in perpetuity.

c. *Zone 4 (Purple):* If Building 19 or the fire house is replaced with a new building, the new building shall not exceed 20 feet in height, not extend further west and east than the western and eastern most point of the existing building, and not exceed the existing width of the building as measured from north to south. A new building, not to exceed 20 feet in height, may be constructed just east of Building 19 or may be added on to the fire house provided that the new building/extension is not in direct line-of-sight of any portion of the existing least tern colony. New buildings may have an additional 5 feet of height to accommodate heating/conditioning/ventilation units as long as these units are not within the line of sight of the least tern colony or the units are placed as far back and away from the side of the building facing the tern colony as possible and avian predator perch deterrents are installed and maintained on these units in perpetuity.

d. All sporting fields within the Civic Core Area shall not be lighted for nighttime play from April 1 through August 15, unless proposed lighting in these areas can be designed to ensure the cumulative increase in ambient nighttime light levels within and near the least tern colony, from VA and City sources, do not exceed 10 percent of the pre-conveyance levels from April 1 to August 15, as described in 7a. The City shall ensure that all anti-perching devices on light posts proposed for the sporting fields are maintained in perpetuity.

10. The following avoidance and minimization measures reference Figure 1 and apply to the Marina Area and submerged lands conveyed to the City:

a. *Zone 1 (Pink):* No new buildings, light posts, vegetation greater than 4 feet in height, landscape turf, or other structures greater than 4 feet in height shall be constructed. The Service shall review all proposed plans to ensure compliance with this biological opinion.

b. *Zone 5 (Green):* Building 25 may be reconstructed within the footprint of this zone. Any new building constructed in this zone cannot exceed the height of the existing building (55 feet). Landscaping shall be restricted to vegetation less than 4 feet in height (no palm trees) within the current line-of-sight portion of the northeast corner of this zone. Within line-of-sight of the existing least tern colony, landscaping shall be restricted to vegetation less than 4 feet in height. In areas outside of the line-of-sight of the existing least tern colony, no tree species capable of growing to greater than 20 feet in height shall be planted and shrubs shall be managed as to not exceed 6 feet in height. The density of trees and shrubs in this area shall not exceed 1 tree or shrub per 550 square feet. The City shall prepare a palette of tree and shrub species proposed for planting in this area. The palette shall be reviewed and approved by the Service prior to the planting of any trees or shrubs in this area. Newly constructed buildings and any artificial structures 20 feet or greater in height shall contain anti-perching devices which will be maintained in perpetuity.

c. *Zone 6 (Blue):* No new buildings greater than 20 feet in height shall be constructed in this zone. New buildings may have an additional 5 feet of height to accommodate heating/conditioning/ventilation units as long as these units are not within the line of sight of the least tern colony or the units are placed as far back and away from the side of the building facing the tern colony as possible and avian predator perch deterrents are installed and maintained on these units in perpetuity. No palm trees shall be allowed in this area. Within line-of-sight of the existing least tern colony landscaping shall be managed as to not exceed 4 feet in height. In areas outside of the line-of-sight of the existing least tern colony no tree species capable of growing to greater than 20 feet in height shall be planted and shrubs shall be managed as to not exceed 6 feet in height. The density of trees and shrubs in this area shall not exceed 1 tree or shrub per 550 square feet. The City shall prepare a palette of tree and shrub species proposed for planting in this area. The palette shall be reviewed and approved by the Service prior to the planting of any trees or shrubs in this area. Newly constructed buildings and any artificial structures 20 feet or greater in height shall contain anti-perching devices which will be maintained in perpetuity.

d. As detailed stormwater management and monitoring plans for the Marina Area are developed, they shall be developed in coordination with the Service and implemented in perpetuity to protect open water foraging areas for the least tern. The plans shall be reviewed and approved by the Service contemporaneously with the City environmental review process and prior to development of the project in this area.

e. "Watercraft Exclusion Zones" will be established and clearly demarcated on submerged lands south of the VA parcel and within 300 feet of the breakwater, as depicted in Figure 1. The only exception to this exclusion zone is the use of a gap in the breakwater by Water Emergency Transportation Authority ferries, which will restrict crossings through this gap to 6 per day (three ingress and three

egresses). The City will place floating signs/buoys along the established boundary with warnings prohibiting boaters from entering the area at anytime. The City will also require that signage and educational materials be provided in any marina that is developed within the Seaplane Lagoon to discourage boaters from entering the watercraft exclusion zone. Contracts or leases for boat owners using the Marina Area shall include notification of these restrictions. The contracts shall include conditions that provide for revocation of the contracts or leases if these restrictions are violated. The language within these contracts or leases shall be reviewed and approved by the Service prior to granting any leases or signing any contracts.

f. A "No-wake Zone" during the least tern breeding season (April 1 to August 15) will be established and clearly demarcated on all submerged lands that are conveyed to the City south of NAS Alameda and within the basin enclosed by the breakwater, as depicted on Figure 1. The City will place floating signs/buoys identifying the no wake zone to boaters traversing this area.

g. No dredging activities shall occur during the period from March 15 through August 15 each year to minimize open water turbidity just prior to and during the least tern breeding season. Potential adverse effects to least terns as a result of dredging during the least tern breeding season will not be analyzed in this biological opinion; therefore, dredging during the least tern breeding season will require separate section 7 consultation with the Service.

Lands Transferred by the Navy to the VA

The measures below pertain to the 624-acre Navy/VA Federal-to-Federal transfer and post-transfer VA development:

11. To provide for the long-term conservation of the least tern, the VA's commitment to implement land use restrictions for long-term maintenance, management and monitoring of the least terns in accordance with this biological opinion will be documented in the Federal-to-Federal property transfer documents: Department of Defense Form 1354 with an attached Memorandum of Understanding. To ensure the 511.3 acre VA Undeveloped Area, as defined in Figure 1, will remain undeveloped and will be managed for the long-term persistence and sustainability of the least tern colony, as defined in the project description of this biological opinion, the VA shall not convey any portion of the VA Undeveloped Area to any Federal agency or designate any portion of the VA Undeveloped Area as surplus Federal property; unless, informal section 7 consultation with the Service has been completed.

12. In the event the property is later determined to be surplus to the needs of any Federal agency, the VA will coordinate with the Service and U.S. General Service Administration (GSA) on the method of property disposition prior to GSA disposal action and seek to obtain GSA approval for disposal with terms and conditions that include requirements for

appropriate implementation of avoidance and minimization measures for conservation of the least tern by any subsequent owner.

13. Least tern management activities will continue at current levels or greater levels, as determined by the annual monitoring report, and will include: (1) maintenance of the fence surrounding the least tern colony; (2) maintenance of the fence surrounding the perimeter of the VA Undeveloped Area, to restrict public access; (3) placement of nesting substrate; (4) vegetation control; (5) predator control; (6) regular breeding season monitoring; and, (7) Service-approved adaptive management. Public access within the VA Undeveloped Area may include supervised least tern colony maintenance efforts by volunteer groups during the non-breeding season, as well as the continuation of volunteer least tern colony monitoring during the breeding season, both of which have occurred under the close supervision of Service staff for several years. Access to the site is also authorized to Federal, state, and local regulators, and VA environmental contractors in the performance of their official duties.

14. Activities associated with the VA's role in regional disaster preparedness and emergency response (training exercises, inventory and re-stocking of emergency supplies stored in existing bunkers, etc.) would occur during the non-breeding season (August 16 to March 31). In the event access to emergency supplies is required during the least tern breeding season (April 1 to August 15), the VA will access the emergency supplies via pre-positioned vehicles, by boat, or by helicopters that would maintain a 0.75 mile "no fly zone" from the least tern colony. Repair of underground utilities may also occur in the VA Undeveloped Area when conducted outside of the least tern breeding season.

15. Upon acceptance of Federal excess property, the VA shall be responsible for continuing to manage the least tern colony. The VA may consider coordinating with the Service to continue this work or hire another qualified Service-approved contractor. Least tern colony management activities shall include, but are not limited to the following:

    a. Vegetation control and weed removal within the VA Undeveloped Area.

    b. Maintenance of the fence surrounding the colony.

    c. Maintenance of the colony and preparation prior to the breeding season by placement of coarse sand, gravel, seashells, and other measures to enhance nesting habitat quality.

    d. Breeding season monitoring of the least tern colony.

    e. Management of feral cats and other terrestrial predators of least terns.

    f. Control of avian predators (e.g., gulls, corvids, and raptors)

16. The VA shall prepare a long-term monitoring and management plan for the least tern colony at NAS Alameda. The plan shall be provided to the Service for approval prior to

the transfer of property from the Navy to the VA. The plan shall include the following elements:

a. Outline the species-specific monitoring and management requirements.

b. A program that provides actions or measures to ensure continued controlled access and signage for the least tern colony;

c. Adaptive management to ensure least tern colony breeding success does not drop below the level defined in the incidental take statement of this biological opinion.

d. A requirement for an annual report summarizing the least tern colony monitoring and management activities conducted during the year. The reports shall be completed and submitted to the Service annually by January 31, of each year, or an alternative annual schedule if mutually agreed on by the Service and VA. The annual report shall include the following elements:

   i. Activities, frequency and duration, timing, location, survey methods, notifications, reporting (e.g., weekly summary reports during construction activities), data sheets, etc.

   ii. Disposition of sick, injured, or dead specimens (listed species).

   iii. Monitoring results and recommendations (such as the discontinuance of certain monitoring activities if no effects are being observed, continuance of monitoring activities if potential effects observed, modifications to existing measures or identification of new measures to prevent additional take).

e. The VA shall periodically update, in coordination with the Service, the long-term monitoring and management plan for the least tern in order to provide for the adaptive management of the colony. Updates to the long-term management plan shall be subject to Service-approval.

f. The VA will assume responsibility for notification of restrictions, enforcement, and maintenance of the management plan upon transfer of the property from the Navy to the VA. The VA shall notify adjoining property owners, lessees, and the public of the pertinent elements of the plan. The plan will be published and posted for public view at the CMO as well as other public areas.

g. The VA shall prepare a predator management plan to maintain protection from predator threats at current or lesser intensity. The predator management plan shall be provided to the Service for approval prior to the transfer of property from the Navy to the VA. The plan shall fully integrate and coordinate predator management methods and activities within the property to be transferred by the Navy to the VA with those methods and activities employed in other portions of NAS Alameda. The VA shall periodically update the predator management plan

in order to provide for the adaptive management of the colony. The VA shall coordinate with the Service regarding any updates to the predator management plan. Updates to the predator management plan shall be subject to Service-approval.

17. The VA may continue to use Wildlife Services for predator management, or may hire another qualified contractor. The qualifications of the predator management contractor will be subject to Service-approval. The VA shall contact the Service and Wildlife Services to determine current predator management activities and ensure that they are maintained. If predation pressure to least terns increases, the VA shall increase the level of predator management activities to compensate. Annual predator management reports shall be prepared by the implementing agent (e.g., Wildlife Services or other Service-approved entity) that describe the manner in which the predator management activities are being implemented. The VA has the option to consolidate annual least tern monitoring and management reports and predator management reports. The reports shall be completed and submitted to the Service annually by January 31 of each year, or an alternative annual schedule if mutually agreed on by the Service and VA.

18. From April 1 to August 15, the VA and Service-approved least tern management entity shall send weekly electronic status reports to the Service describing the current number of adult least tern pairs, nests, chicks, fledglings, least tern mortalities by life-stage, predation pressures, and predator management activities.

19. The VA shall conduct an education program for all newly-hired employees of the VA Alameda Point facility. The education program shall include, at a minimum, the life history of the least tern, reasons for its decline, and the measures in place to minimize effects to the species, including but not limited to prohibitions against feeding wildlife, establishing cat colonies, or releasing cats on site. The VA will post notices of the importance of predator control, in conspicuous places used by employees and the public, prohibitions against feeding wildlife, establishing feral cat colonies, or releasing feral cats on site, and post warnings of impending predator management activities.

20. The VA conducted studies to determine the existing ambient foot-lambert and footcandle nighttime light levels at several locations around the least tern colony site. In April of each year following the installation of any light sources that may increase the footcandle nighttime light level at the least tern colony, the VA, in coordination with the City, shall ensure the footcandle nighttime light levels are appropriately sampled and have not exceeded 10 percent of the pre-conveyance levels established by the VA. In the event of an increase above 10 percent from VA and City sources, corrective action will be taken within 2 months to reduce nighttime light levels to less than 10 percent of the pre-conveyance ambient nighttime light level. The results of the April nighttime light level sampling will be included as part of the annual least tern monitoring and management report.

21. Lighting, including that for roads, building security, and public safety shall be designed to minimize nuisance nighttime light levels. As part of the lighting plan for all facilities and

activities within the action area, the VA shall undertake appropriate measures (i.e., night lighting design) to ensure the cumulative increase in ambient nighttime light levels within and near the least tern colony do not exceed 10 percent of the pre-conveyance levels from April 1 to August 15, as described in avoidance and minimization measure 20, including City property. Measures to achieve this performance standard include, but are not limited to:

a. All exterior lights shall be directed away and/or shielded from the least tern colony.

b. Lights shall be directed toward their areas of intended illumination and shielded to prevent stray light from escaping either upward or outward.

c. Street light poles shall include anti-perching devices.

d. All windows facing the least tern colony with a direct line of sight shall be tinted to reduce the spillage of interior light. Windows shall also be non-reflective in order to minimize bird strikes.

22. The VA shall develop strategies to minimize erosion and the introduction of pollutants into stormwater runoff according to State and Regional Water Quality Control Board (RWQCB) guidelines.

a. The VA shall prepare a detailed Storm Water Pollution Prevention Plan for the construction of all facilities and activities within the VA Project area. An effective combination of erosion and pollutant control Best Management Practices shall be implemented during all phases of construction.

b. Vegetated swales (grassy ditch) and other landscaping techniques shall be used to treat stormwater runoff wherever possible.

c. Pollutant source controls (i.e., roofed trash enclosures) shall be implemented whenever possible.

d. Prior to start of construction activities, plans developed for VA facilities shall include a temporary 6-foot-high minimum barrier fence around the perimeter of the construction area to isolate the construction area from the VA Undeveloped Area. This fence shall be removed upon completion of all construction activities.

23. Ancillary structures (not including columbaria walls, committal shelters, NCA maintenance building, CMO, and OPC) with a height of 8 feet above finished grade or higher, such as light poles, aboveground storage tanks, flagpoles, carillon, and temporary construction fencing, shall be designed or fitted with anti-perching features or devices, such as bird spikes, post-and-wire systems, electrical bird deterrents, or other deterrence measures.

24. No utility poles or transmission towers, except the light poles mentioned in avoidance and minimization measure 23, shall be permitted within the VA Development Area, and electrical transmission lines shall be placed underground.

25. No fountains, bird baths, ponds, reflecting pools, or other permanent sources of open water shall be constructed which may attract or provide havens for potential predators of least terns. Stormwater detention basins that would temporarily store excess stormwater may be permitted on the northern portion of the VA Development Area.

26. Landscape planting within the VA Development Area should prioritize native shrub and herbaceous species over nonnative species, but in either case, species shall not be invasive. Landscaped areas shall predominantly consist of drought tolerant plant species and open hardscape areas. A limited amount of turf area may be provided in areas such as primary entrances and NCA assembly areas and other prominent areas.

27. In the portion of the VA Development Area within 2,132.5 feet of the existing 9.7-acre least tern colony, all landscaping shall be managed as to not exceed 4 feet in height. In areas more than 2,132.5 feet from and within the line of sight of the existing least tern colony, shrubs shall be maintained at a height not greater than 6 feet. In areas more than 2,132.5 feet from the existing least tern colony, tree species shall be maintained at a height not greater than 20 feet. Tree species shall be light-limbed. No palm trees shall be allowed in this area. The VA shall prepare a palette of trees that shall be reviewed and approved by the Service prior to the planting of any vegetation in this area. In all areas within the VA Development Area, tree density shall not exceed an average of 5 trees per 10,000 square feet of the actual VA developed/improved area. Future phases of development will be held to the same average density. To minimize potential effects of avian predators, all landscape trees shall be inspected regularly for nesting attempts by avian predators.

28. Landforms (landscape berms) within 2,132.5 feet of the least tern colony shall not exceed 6 feet in height. Beyond 2,132.5 feet of the least tern colony, landforms may be a maximum of 12 feet in height. On portions of berms within line of sight of the least tern colony, vegetation shall not exceed 6 inches in height and non-vegetative ground surfacing such as rounded river gravel may also be used. On portions of berms and out of the line of sight of the least tern colony, vegetation shall not exceed 30 inches in height nor rise above the berm.

29. A permanent barrier shall be constructed along the southern perimeter of the 112.4-acre VA Development Area in order to prevent trespassing into the adjacent VA Undeveloped Area. The barrier shall be a minimum of 8 feet and a maximum of 10 feet in height, and may be a combination of solid wall, vertical rail or chain link fencing as aesthetic and practical needs dictate. The barrier shall be designed to such a depth and type of material that will prevent all ground predators from burrowing under in order to gain access to the undeveloped areas. The barrier south of the cemetery entrance road shall be a minimum of 6 feet and a maximum of 10 feet in height, along the southern boundary between the CMO and the point where the boundary turns south. The construction of the barrier may

be phased in conjunction with VA Project, and shall incorporate anti-climbing measures to prevent trespassing and anti-perching measures to deter avian predators of least terns. The barrier may be architecturally treated.

30. The maximum heights of structures and buildings located within the 112.4-acre VA Development Area shall be limited to the following:

    a. The OPC building shall be primarily two stories, with at least 75 percent of the roof area at or below 40 feet in height (35-foot roof plus 5-foot parapet). Penthouses for mechanical equipment shall occupy no more than 15 percent of the roof area and shall not exceed a height of 47 feet measured from the top-of-slab to the highest point of the penthouse. The roof at the lobby entrance of the OPC shall not exceed 10 percent of the total roof area and shall not exceed a height of 54 feet measured from the top-of-slab to the highest point of the lobby roof.

    b. The CMO building shall not exceed a height of 25 feet.

    c. Committal service shelters within the cemetery shall not exceed a height of 25 feet.

    d. Niche walls within the cemetery shall not exceed a height of 10 feet.

31. Heating/air conditioning/ventilation units/solar panels may be placed on top of buildings as long as these units are not within the line-of-sight from the least tern colony and/or mechanical equipment screens/parapets are put in place around them.

32. The emergency generator required for the OPC shall not be visible from the least tern colony. Required testing of the emergency generator shall occur monthly for a minimum of 30 minutes.

33. The roof of the proposed VA OPC, committal service shelters, and columbarium walls shall be of a type and design that discourages perching by avian predators of least terns. Any flat areas on the surface of the OPC building, committal service shelters or columbarium walls that has a line-of-sight to the least tern colony shall be treated with anti-perching devices, such as bird spikes, post-and-wire systems, electrical bird deterrents, or other deterrence measures. Such anti-perching devices will be inspected in March of each year to ensure they are functioning appropriately and maintained in perpetuity.

34. Anti-perching devices may be architecturally treated and integrated into the design of the structure.

35. During the least tern breeding season (April 1 to August 15), a biological monitor under contract with the VA Architect Engineer and with experience observing and documenting disturbances to least terns or similar species shall be present during all construction activities associated with VA facilities to ensure that construction activities do not adversely affect least terns using the nesting site. The biological monitor shall:

a. Meet minimum qualifications, as already provided to the Service.

b. Provide a construction worker education program on the least tern at the start of construction activities, whenever new workers begin, and when new contracting firms are brought in. The program shall include, but not be limited to, topics on species identification, life history, habitat requirements, and the conservation measures being implemented to avoid and minimize effects to the least tern. Handouts, illustrations, photographs, and project mapping showing areas where minimization and avoidance measures are being implemented shall be included as part of this education program, as relevant. The program will increase the awareness of the contractors and construction workers about existing Federal laws regarding listed species.

c. Inspect the work area for proper disposal of all garbage in covered containers. If garbage is observed being left out, the monitor shall report to the contractor or VA Resident Engineer to have the situation corrected.

d. Before the initiation of work each day within areas with suitable habitat, the biological monitor shall thoroughly inspect the work area and adjacent habitat areas to determine if least terns are present.

e. Inspect integrity of temporary construction barrier fencing periodically as-needed throughout the work period. If repairs are needed, the monitor shall contact the VA Resident Engineer to fix the barrier fence to ensure its integrity. The biological monitor shall have the ability to make field adjustments to the location of the temporary construction barrier fencing, with approval from the Service, depending on site-specific habitat conditions. The contractor is to remove the barrier fencing upon completion of construction activities.

f. If a least tern is observed in the construction area, the biological monitor will have the authority to and will immediately stop work and notify the VA project manager. The VA shall contact the Service for guidance on how to proceed.

g. When necessary, telephone consultation shall occur between the VA, the Service, and the biological monitor(s) to determine the cause and to identify measures to prevent additional take. The biological monitor and VA Resident Engineer shall direct the contractor on how to proceed accordingly.

h. The biological monitor shall maintain a log that shall be included in the long-term monitoring and management plan's annual reports to the Service, as required in avoidance and minimization measure 16d above.

36. The VA's biological monitor shall designate an on-site environmental inspector during the non-breeding season for least terns (August 16 to March 31). The environmental inspector will be present on-site regularly throughout the non-breeding season. If

necessary, multiple environmental inspectors may be designated to ensure coverage throughout the non-breeding season. The environmental inspector(s) shall:

a. Participate in training provided by the biological monitor. Training shall cover identification of least terns, relevant predators, and issues related to the conservation of least terns, etc.

b. Inspect the work area daily for proper disposal of all garbage in covered containers. If garbage is observed being left out, the environmental inspector shall report to the VA Resident Engineer to have the situation corrected.

c. Inspect integrity of barrier fencing periodically throughout the work period. If repairs are needed, the inspector shall contact the VA Resident Engineer to fix the barrier fence to ensure its integrity.

d. Immediately contact the biological monitor if any listed species is observed in the construction area.

37. All construction vehicles and equipment for VA construction activities shall use designated site access points and remain on designated construction routes only. During the least tern breeding season (April 1 to August 15), access routes for VA construction vehicles and equipment shall be located outside the VA Undeveloped Area.

38. No pets shall be permitted on-site during construction.

39. Stockpiling of materials that may provide additional shelter for potential least tern predators at the construction site will be kept to a minimum and inspected on a regular basis by the biological monitor.

40. During the least tern breeding season (April 1 to August 15), no materials or equipment shall be brought on-site during evening or nighttime hours (dusk to dawn).

41. Pile driving and pavement demolition activities requiring the use of impact tools (i.e., hydraulic breakers, jack hammers, scarifiers, and compactors) for VA construction activities are prohibited during the least tern breeding season (April 1 to August 15) because these activities and equipment have the potential to increase the ambient noise level in and around the least tern colony on the site. The use of other types of construction equipment that would not increase the ambient noise level at the site, as measured at the north end of the fenced least tern colony, are permitted during the least tern breeding season. The existing daytime (7 a.m. to 7 p.m.) ambient noise level at the least tern colony ranges from 50 to 55 decibels, based on hourly noise measurements recorded at the site in March 2009.

42. The tops of buildings under construction, including on-site construction trailers, shall be inspected for avian predator nests once each week during the period from April 1 to August 15. If nests are found, they shall be monitored to determine if nest removal is required to reduce predation pressure on the least tern colony. All removal actions shall

be in accordance with the Migratory Bird Treaty Act. Inspections shall be conducted either by a biologist that meets the minimum qualifications as already provided to the Service, by Wildlife Services, or other qualified personnel contracted for predator management.

Measures that Apply to the Entire VA Development Area

43. The VA shall prohibit feeding stations or colonies for feral cats and any native and non-native wildlife species that are potential predators of least terns on its property.

44. Trained service animals shall be authorized, no pets shall be allowed.

45. All vents and ducts leading to the outside of buildings shall be screened and shall be maintained to prevent use by avian predators. Screened vents shall be inspected at least once a month from April 1 to August 15.

46. All landscape trees, the tops of all buildings, and all anti-perching devices in place throughout the VA Development Area shall be inspected for avian predator nests once each week during the period from April 1 to August 15. If nests are found, they shall be monitored to determine if nest removal is required to reduce predation pressure on the least tern colony. All removal actions shall be in accordance with the Migratory Bird Treaty Act. Inspections shall be conducted either by a biologist that meets the minimum qualifications already provided to the Service or by Wildlife Services or other qualified personnel contracted for predator management.

47. If avian predators defeat anti-perching devices that are maintained in good order, then these devices shall be reevaluated and either modified or replaced as necessary to prevent avian predators from perching within the VA Development Area.

48. The barrier along the southern perimeter of the VA Development Area and the fence on the eastern perimeter of the action area shall be inspected regularly and repairs made as soon as possible.

49. The VA shall conduct yearly vegetation control within the VA Undeveloped Area to discourage predators, provide least tern roosting habitat, and maintain unobstructed views needed for predator detection. Vegetation control options may include the application of herbicides, mechanical and hand removal, and/or the sealing of cracks in the deteriorating runway surface.

50. All green waste, recycling, and non-recyclable refuse shall be stored in secure, covered containers, and shall be emptied on a regular basis or as often as needed to avoid any overflow. Dumpsters and other large refuse bins shall have lids and be placed in roofed enclosures.

Additional Measure Applicable to NCA Cemetery

51. Military honors salutes shall be conducted at committal service shelters or the designated assembly area only, and shall be conducted in a manner that directs firing away from the least tern colony. The salutes shall be performed with rifles or other small arms only. No artillery or explosives salutes shall be permitted.

52. Based on ambient noise levels measured at the project site, the volume of the carillon output would be limited to ensure that the proposed project does not increase ambient noise levels at the least tern colony by more than 10 percent. Prior to the start of the least tern breeding season (April 1), the volume control of the carillon shall be checked and noise measurements shall be taken at the north end of the fenced least tern colony to ensure that sound output from the carillon does not increase the ambient noise level at the least tern colony by more than 10 percent. The existing daytime (7 a.m. to 7 p.m.) ambient noise level at the least tern colony ranges from 50 to 55 decibels, based on hourly noise measurements recorded at the site in March 2009. Ambient noise level monitoring results will be included as part of the annual least tern monitoring and management report.

53. During the least tern breeding season (April 1 to August 15), memorial events, such as those held on Memorial Day, shall be conducted at the designated assembly area or committal service shelters. Such events shall be organized, staged and conducted in a manner that directs noise away from the least tern colony. The use of amplifiers or public address systems shall be permitted only to the extent that they do not increase the ambient noise level at the site, as measured at the north end of the fenced least tern colony. Based on ambient noise levels measured at the project site, the volume of the public address output would be limited to ensure that the proposed project does not increase ambient noise levels at the least tern colony by more than 10 percent. A biological monitor with experience observing and documenting disturbance to least terns or similar species shall be present during special events held during the least tern breeding season (April 1 to August 15), to ensure that events do not adversely affect least terns using the nesting site. The biological monitor shall maintain a monitoring log during the special event that shall be included in annual reports to the Service, as required in avoidance and minimization measure 16d above.

Lands Transferred by the Navy to the VA and Lands Conveyed by the Navy to the City

54. The City or VA will not authorize or commission any aircraft to fly within 0.75 mile of the least tern colony, at any altitude, between April 1 and August 15.

55. Fireworks displays will not be authorized from April 1 to August 15 within any area conveyed by the Navy to the City or transferred to the VA.

56. The portion of the Bay Trail that surrounds the western, southern, and eastern sides of the VA parcel will be closed from April 1 to August 15. Public access will be restricted by a secure fence, at least 8 feet in height. Signage shall be placed at Bay Trail entrances

describing the purpose of the annual trail closure. Enforcement of the Bay Trail annual closure restrictions and access to the undeveloped area will be conducted by EBRPD or another Service-approved entity.

Analytical Framework for the Jeopardy Analysis

In accordance with policy and regulation, the jeopardy analysis in this biological opinion relies on three components: (1) the *Status of the Species*, which evaluates the species' range-wide condition, the factors responsible for that condition, and the survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the condition of the species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the listed species; (3) the *Effects of the Action*, which determines the direct and indirect effects of the proposed Federal action and the effects of any interrelated or interdependent activities on listed species; and (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on listed species.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the least tern's current status, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of this listed species in the wild.

The jeopardy analysis in this biological opinion places an emphasis on consideration of the range-wide survival and recovery needs of the listed species, and the role of the action area in the survival and recovery of the listed species as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

Action Area

The action area is defined in 50 CFR § 402.02, as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." For the purposes of the effects assessment of this biological opinion, the action area includes all lands west of Main and Hancock streets in the City of Alameda and all waters within 0.5 mile of the aforementioned lands and Breakwater Island.

Status of the Species

California Least Tern

Refer to the *California least tern (Sternula antillarum browni) 5-Year Review: Summary and Evaluation* (Service 2006) for the current Status of the Species.

Environmental Baseline

The action area was historically a combination of submerged, tidal, and dry lands. The first documented filling of the tidal and submerged lands began sometime in the 1850s. By the 1940s, most of the submerged and tidal lands, what later became NAS Alameda, had been filled, primarily with dredge materials from harbors throughout the East Bay. The Navy began constructing NAS Alameda in 1938. Naval Air Station Alameda included an airport with seven aircraft maintenance hangars, one of the largest deepwater naval ports in California, one of the two largest complexes of aircraft maintenance buildings on the West Coast, a seaplane lagoon, warehouse space, administrative offices, military residences, community support facilities, and open space. Until NAS Alameda was closed in 1997, the Navy had managed the action area as an active airfield with support facilities, and the open waters as secure transit areas for the passage of ships and other watercraft. Prior to base closure, all land and open water areas were closed to the public for military security purposes.

Least terns have nested between two of the runways at NAS Alameda since at least 1976. In 1981, the Navy built an electric fence around the 6-acre least tern colony and enhanced the nesting substrate within the fenced area with gravel, soil, sand, and oyster shells. The fence around the colony was later replaced and enhanced to prevent least tern chicks from wandering onto the active runways. As part of managing the active runways, the Navy repaired the runways, which resulted in limited vegetation surrounding the least tern colony. Since 1979, the Navy has conducted management activities for the benefit of the least tern, including site preparation, nest monitoring, and vegetation management. In the 1980s, the Navy began a predator control program. In 1997, NAS Alameda was closed, a fence was installed along the eastern boundary of the Proposed Refuge to restrict public access to the area, and the Navy began the property conversion process. In 2004, the colony site was expanded to 9.7 acres, and a new non-electric fence was installed and substrate enhancements were implemented. At this time, the Navy and the Service manage the least tern colony through the provisions outlined in the 1999 BO.

The least tern colony at NAS Alameda is the largest and most stable breeding colony in the San Francisco Bay Area and is considered the source population for the region. Because this colony consistently produces large numbers of fledglings each year, it is considered to be one of the most important source populations in California, serving to balance out losses at many sink locations throughout the state (Caffrey 2005). From 1977 to 2010, the number of breeding pairs at NAS Alameda has steadily increased from 10 to 302, respectively, with an all-time high of 424 pairs in 2005. Since 2005, the number of breeding pairs at NAS Alameda has declined, but now appears stable or increasing. Although the number of breeding pairs has recently declined, the timing and size of the decline directly correlates with the establishment of colonies at Hayward Regional Shoreline (53 pairs in 2010), Napa-Sonoma Marshes Wildlife Area (47 pairs in 2010), and Montezuma Wetlands (23 pairs in 2010), the only other active breeding colonies in the San Francisco Bay Area in 2010 (Marschalek 2011). From 2001 to 2010, the fledgling to pair ratio at NAS Alameda averaged 0.80, lower than the 1.00 fledgling to pair ratio recommended for recovery (Service 1985). However, a 0.80 fledgling to pair ratio is greater than the 0.70 fledgling to pair ratio determined by Francher (1992) to be the ratio required to maintain a stable least tern

breeding colony. According to Caffrey (1995), the least tern breeding site at NAS Alameda has played a significant role in increasing the number of least terns throughout California. Since 1990, the size of the least tern colony at NAS Alameda has been among the 10 highest in California, and fledgling success has exceeded that of almost all other colonies. For instance, in 1999, NAS Alameda produced over 50 percent of the statewide fledglings; in 2002, the site produced approximately 24 percent; and in 2011, it was again the most successful least tern breeding colony, producing 17 percent of the fledglings. If not for the management of the NAS Alameda least tern colony by the Navy early on, least terns may not have survived the range and degree of disturbance and disruption of breeding sites that occurred in the San Francisco Bay Area over the last three decades.

The most significant threats to the least tern within the action area include: (1) predation by native, non-native, and human-associated predators; (2) perceived predation and human disturbance; (3) degradation of foraging areas through the development of a marina in Seaplane Lagoon and increased boat traffic that will reduce foraging success, (4) obstruction of access to foraging areas as a result of development between the least tern colony and documented foraging areas; and (5) sea level rise associated with global climate change. The habitat attributes at NAS Alameda that have allowed it to be one of the most successful least tern breeding colonies in the world over the last 20 years are primarily attributed the large buffer zone surrounding the 9.7-acre nesting area (Caffrey 2005). This buffer zone is comprised of runway tarmac, except for sparse, low-growing vegetation, and a few small anthropogenic structures to the north, south, and west. As a result of a lack of vegetation and human structures, the large buffer zone provides little habitat for potential least tern predators, allows least terns to detect and react naturally to potential predators, and allows for a more effective predator control program. Because of these attributes, predation pressure at NAS Alameda has been documented to be less intense than at other sites with season-long predator-control programs (Caffrey 2005). Since the Navy no longer maintains the runways for aircraft use, the tarmac is cracking, corroding, and collapsing in some areas, increasing the amount of weedy vegetation capable of establishing at the site. The establishment of weedy vegetation, if not adequately controlled, will provide habitat for potential predators.

The relative lack of human structures in three of the cardinal directions also provides least terns with unobstructed access to documented foraging areas in those directions. During the breeding season, least terns forage for fish in the open waters offshore of the western end of the island, which contains extensive and productive foraging areas (Caffrey 2005). Because of its northern location, NAS Alameda is relatively unaffected during El Niño years, when many southern California sites experience pronounced breeding failure resulting from limited food availability (Caffrey 1995). As global climate change increases ocean surface temperatures, the frequency of El Niño-like conditions in southern California may increase, increasing the importance of the colony at NAS Alameda to the species as a whole (Caffrey 2005).

Routine dredging of the Oakland Inner and Outer Harbors by the U.S. Army Corps of Engineers occurs during the least tern breeding season. Dredging these documented foraging areas during the least tern breeding season temporarily adversely affects the least tern by reducing the quality of approximately 452 acres of open water foraging habitat, reducing least tern foraging success,

and the quality of habitat for several species of fish least terns prey on. To compensate for these effects, each year the Army Corps of Engineers funds predator management at the least tern colony.

The removal of contaminated sediments from Seaplane Lagoon, a documented least tern foraging area, occurred in 2011 and 2012 and during the least tern breeding season, under the authority of the Navy and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). This action temporarily reduced the amount and quality of foraging habitat within Seaplane Lagoon. In addition to the temporarily loss of foraging habitat, these activities disturbed sediments known to be contaminated with numerous chemicals, including heavy metals, solvents, paints, detergents, acids, caustics, mercury, oil and grease, PCBs, DDT, and Radium 226, hazardous substances known to be chemical stressors to wildlife. Once these sediments are suspended in the water, they may have caused fish to leave the area and/or disrupt the reproductive success of fish species the least terns prey on, thereby reducing forage availability. In addition, the release of these hazardous substances may have affected least tern reproductive abilities, as many of these chemicals are known to bioaccumulate as they move up the food chain. The Navy did not provide the Service with a biological assessment and did not initiate section 7 consultation with the Service; therefore, the effects of this Federal action to the least tern have not been analyzed and are not fully known.

Recently, the U.S. Department of Transportation initiated section 7 consultation with the Service for the construction of a ferry berthing and maintenance facility on waters east of the U.S.S. Hornet and within the action area. This facility will result in the loss of 0.46 acres of documented least tern foraging habitat from the footprint of the facility, in addition to the loss of foraging habitat as a result of maintaining and berthing 11 large commuter ferries at the site. The establishment of this facility will also increase ferry traffic within many of the documented foraging areas surrounding NAS Alameda, further reducing the quality and quantity of foraging habitat and resulting in the perpetual harassment of least terns foraging within the areas subject to ferry traffic to and from the facility.

Significant differences between the description of the proposed action outlined in the 1999 BO and the description of the proposed action outlined in this biological opinion, and thus the environmental baseline, are: (1) the inclusion of the VA Project; (2) the removal of a golf course and associated 120-unit lodging facility and parking lot for 200 vehicles totaling six acres in the NWT; (3) the removal of the 58-acre light industrial area in the NWT; and (4) the Proposed Refuge will no longer be conveyed by the Navy to the Service.

Effects of the Proposed Action

The proposed VA Project and City's redevelopment at NAS Alameda would not directly eliminate any least tern nesting habitat at the site. However, the proposed action would result in about a 35 percent loss of the buffer zone habitat, including about 14 acres of the 525-acre Proposed Refuge and the majority of the 274.4-acre NWT, which will have the effect of increasing predation, perceived predation and human disturbance, and reduce the ability to conduct effective predator management at the site. In addition, the proposed action will decrease

access to and reduce the quality and quantity of the documented foraging areas surrounding NAS Alameda.

Increased Predation, Perceived Predation, and Human Related Disturbances

The vast majority of species identified as potential predators of least terns are native. However, many are species whose population levels and distributions have substantially expanded in response to anthropogenic changes in habitats and ecological communities. For example, important native human-associated predators of least tern adults, chicks, fledglings, and eggs at NAS Alameda include common raven, raccoon, Norway rat, and numerous species of gull; species that tend to thrive in urban environments. In addition to native human-associated predators, the non-native feral cat is a human-associated predator that often predates on least terns. Human-associated predators benefit from human activities that eliminate competition and predation, create new foraging opportunities such as garbage and dumps, or provide direct supplement through feeding. Increased food availability from waste materials and garbage associated with the VA Project, Sports Complex, Regional Park, Civic Core Area, and Marina Area will attract and support greater densities of mammalian predators, including rats, cats, and raccoons; and avian predators such as Corvids and gulls. As populations of these predators increase in areas surrounding the VA Undeveloped Area, individuals will be forced to disperse as a result of density-dependent factors. Dispersing individuals will likely attempt to infiltrate the VA Undeveloped Area and prey on least terns.

The effects of predators on their prey are not solely ascribed to direct killing. Perceived predation, as a result of increased predator activities or anthropogenic activities that elicit antipredator responses in least terns, can have significant negative effects on reproductive output and amplify effects from other stressors. Antipredator responses to potential predators and anthropogenic activities that elicit such responses include changes in habitat use, vigilance, and foraging behavior, or physiological changes, any or all of which may affect prey demography (Zanette et al. 2011). Although the effects of perceived predation has not been quantified for the least tern, Zanette et al. (2011), in the first study of its kind, documented a 40 percent reduction in the number of offspring produced per year by wild free-living song sparrows, in response to a field experiment in which direct predation was eliminated and perceived predation was manipulated by broadcasting predator playback calls. In addition, they found that perceived predation alone resulted in females laying fewer but heavier eggs, of which a greater proportion failed to hatch; broods weighed less and were more susceptible to thermoregulatory stress; and a greater proportion of nestlings expired. Behaviorally, song sparrows subject to predator playback calls, without any direct predation, were more skittish, spent shorter times on and longer times off the nest during incubation, and made fewer feeding visits per hour during brood rearing.

Direct predation and the perception of predation have substantial negative effects on least tern reproductive output. Even small increases in predation can have devastating effects on least terns, such as causing complete reproductive failure and colony abandonment (Burger 1984). For example, between May 25 and June 6, 2006, the year with the lowest fledgling to pair ratio at NAS Alameda since 1982, a pair of burrowing owls killed at least 26 adults and 15 chicks, and least tern anxiety and stress levels were noted as being clearly elevated by colony monitors

(Euing 2007). As a result of predation pressure by a single pair of burrowing owls, a portion of the least terns at NAS Alameda abandoned the site and began nesting at Hayward Regional Shoreline.

The ability to effectively manage predation and perceived predation at NAS Alameda has been attributed to the large buffer zone surrounding the nesting area. The proposed VA Project and City's redevelopment at NAS Alameda will decrease the homogeneity of the buffer zone and increase human presence and human activities within the action area, thereby increasing habitat for human-associated predators. According to D. Pomeroy, Group Leader, Base Conservation/Biology Section, Navy, 1986 to 1999 (Pers. Comm. 2010), development in the NWT will make it more difficult to effectively manage predators at the site. With a greater public presence and development along the northern edge of the VA Undeveloped Area, the amount of room available to safely conduct predator management will decrease. A decrease in the amount of room to conduct effective predator management and increased human presence will likely result in an inability to use rifles in some areas; restricting firearm control of predators to air rifles and shotguns. Also, buildings and landscaping provide nesting and perching habitat for avian predators and hiding places for mammalian predators, making it more difficult to detect and remove potential predators. Managing predators on the eastern side of the Proposed Refuge, where substantial human structures currently exist, is more difficult than on the western side of the site, where there are no buildings (D. Pomeroy, pers. comm. 2010).

Another advantage of a large buffer zone and limited development is the relatively low level of ambient nighttime light near the least tern colony. The VA lighting study conducted by Silverman and Light (2011) measured footcandle light levels at the least tern colony and the foot-lambert light levels within 750 feet of the least tern colony. A footcandle is a unit of illumination that measures the amount of light falling on a given surface (Silverman and Light 2011). A foot-lambert is a unit of luminance that measures the amount of light emitted in a particular direction (i.e., light emitted from a source toward the least tern colony, as perceived by the least terns) (Silverman and Light 2011). Ambient nighttime light influences the ability of nocturnal predators to detect and capture prey, and alters the risk environment for prey. Due to the inevitable increase in ambient nighttime light levels at NAS Alameda as a result of the VA Project and the City's redevelopment, the ability of nocturnal predators (i.e., raccoons, skunks, and owls) to successfully prey on least terns may be enhanced. Increased nighttime lighting may also affect the least tern by increasing the perception by the least tern that the risk of predation has increased as a result of increased light intensity within view of the colony, which would decrease breeding success. The VA and City propose to ensure the footcandle nighttime light level does not increase by more than 10 percent above current levels at the least tern colony, which would minimize the effect of increasing the ability of nocturnal predators to detect and capture least terns; however, the City and VA do not propose to limit an increase in the amount of nighttime light perceived by the least terns, which would reduce stress associated with the perception by the least tern that the risk of predation has increased.

Traffic from employee commuters (approximately 250), VA patients (approximately 543 per day), and recreationist traveling to the regional park will increase traffic noise. The effects of traffic noise on the least tern may result in behavioral changes, such as avoiding flying over

trafficked areas, impairing the ability of least terns to effectively hear and detect predators and conspecifics, and/or increasing stress and alter reproductive and other hormone levels. However, according to a literature review on the effects of highway noise on birds (Dooling and Popper 2007), there are no studies definitively identifying traffic noise as having adverse behavioral or physiological effects on birds and highway noise below a bird's masked auditory threshold has no effect on the bird. Thus, the most probable effect of noise from road traffic to least terns would be a reduction in their ability to hear conspecifics and potential predators. The potential effects of increased traffic noise, from several cars per minute (significantly less than highway traffic levels), on the ability of least terns to hear conspecifics or predators will be minimized by maintaining the large buffer zone. The large buffer zone will attenuate noise from road traffic more than 0.4 mile away, significantly minimizing the effects on least terns at the nesting colony.

The VA Project and the City's redevelopment activities will likely increase direct predation and perceived predation on the least tern by increasing the carrying capacity of potential predators, increasing their success rate, and reducing the ability to conduct effective predator management at the site; regardless of the implementation of the proposed avoidance and minimization measures. Nevertheless, the VA Project has been located as far away from the least tern colony as the property configuration allowed for, providing for an adequate buffer of the adverse effects of the development to the species, and the VA Project and City's redevelopment include building height specifications and configurations to reduce habitat for potential predators and to reduce obstruction to least tern foraging areas to the north. In addition to development configurations that were specifically designed to reduce the effects of the proposed project to the least tern and maintaining a large buffer zone, the proposed action includes: (1) maintaining predator control efforts at current or greater levels so that predator managers can increase and adapt as predation pressures increase or change; (2) monitoring the least tern colony to determine breeding success and predation pressure; (3) limiting the amount of and type of vegetation planted in areas adjacent to the VA Undeveloped Area to reduce habitat for avian and mammalian predators; (4) installing perch deterrents on artificial structures that may provide habitat for avian predators; (5) minimizing increases in footcandle nighttime lighting to reduce increases in directed predation at night; (6) prohibiting feral cat feeding stations and colonies to reduce direct predation; (7) educating the public as to the activities being conducted to manage the least tern colony to minimize human aid of predators; (8) restricting public access and maintaining a fence around the VA Undeveloped Area to minimize antipredator responses and harassment of the least tern from human presence and to minimize the potential for vandalism; (9) managing vegetation to reduce hiding places for potential predators; (10) providing annual funding for predator management and least tern colony management; and (11) reducing aircraft disturbance near the site to reduce perceived predation and harassment.

Loss of Foraging Habitat

As part of the City's redevelopment of NAS Alameda, Seaplane Lagoon (Marina Area) will be developed as a marina. The Marina Area has been consistently documented as being used by least terns for foraging. According to Susan Euing (National Wildlife Refuge Biologist at NAS Alameda, Pers. Comm. 2011), due to the presence of Breakwater Island, the waters of the Marina Area are calmer than the San Francisco Bay, and least terns tend to forage in the Marina Area on

windier days due to relative calmness of the water. The development of the Marina Area will result in the direct loss of a portion of this foraging habitat as a result of constructing the marina and berthing boats at the site and it will reduce the quality foraging habitat as a result of increased boat traffic. In addition, the development of the NWT will obstruct access to documented foraging areas in the Oakland Inner Harbor. It is not clear if least terns will choose to fly around the development in the NWT, rather than fly over it. Flying around the NWT increases the round-trip flight distance to the Oakland Inner Harbor by approximately 2 miles. Both the development of the Marina Area and NWT may force least terns to travel farther to forage and spend less time with chicks. Increased travel time to forage and spending less time with chicks would result in increased chick mortality due to malnutrition and temperature related stress. The development of the Marina Area would also decrease the quality of foraging habitat throughout the Marina Area and other waters within the action area due to increased boat traffic and potential oil and gas leaks from the boats. A conservation easement or other enforceable property interest and the implementation of a "No Wake Zone" and a "Water Craft Exclusion Zone" on other waters with documented least tern foraging to be transferred to the City have been proposed to minimize these effects.

Construction Related Effects

In addition to the effects of the completed project to the least tern, construction related activities would primarily consist of increased noise and vibration, construction traffic, and the operation of construction equipment, which could increase stress, harassment, and perceived predation that would result in decreased breeding success. In addition, increased human activities associated with the construction of the VA Project and the City's redevelopment may increase habitat for predators of least terns. However, the effects of construction related activities will be avoided and minimized by not conducting activities that will increase ambient noise levels and vibration at the least tern colony nesting site during the least tern breeding season, routinely checking stockpiled construction materials for potential predators, properly disposing of garbage, and the installation and maintenance of a construction barrier fence to ensure construction activities are limited to the construction area footprint.

Summary

While the VA and City have proposed numerous measures to minimize the short and long term effects of the redevelopment of NAS Alameda on the least tern, we expect the effects of implementation of the proposed project to permanently decrease, by a small but measureable extent, the future reproductive potential and long term average size of the least tern colony at NAS Alameda. We base this conclusion on the loss of buffer zone habitat and these associated additive effects: (1) an incremental decrease in the effectiveness of predator control; (2) an incremental increase in actual and perceived predation and increased human disturbance from increased human presence; (3) a reduction in the quality and quantity of foraging habitat; and (4) the potential increase in foraging time due to the development of the NWT.

Cumulative Effects

Cumulative effects include the effects of future State, Tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

CERCLA Activities

At the southwestern corner of NAS Alameda is IR-2, an approximately 100-acre site that includes an approximately 60-acre former landfill, approximately 2,200 feet west of the least tern colony. Installation Restoration Site 2 was used by the Navy to dispose of waste, including chemical drums (contents unknown), solvents, oily waste and sludge, paint, plating waste, industrial strippers and cleaners, acids, mercury, PCB-containing liquids, batteries, low-level radioactive waste, inert ordinance, asbestos, pesticides, tear gas agent, biological waste from the Oak Knoll Naval Hospital, creosote, dredge spoils, and waste medicines and reagents. The Navy plans to conduct remediation activities at IR-2 over the next several years, beginning in the spring of 2012. Because the remediation activities at IR-2 are being performed under CERCLA, no permits are specifically required for the on-site elements of the project, including, based on the Navy's interpretation of CERCLA, section 7 consultation with the Service. Therefore, this activity is being included in the cumulative effects section of this biological opinion. The specific effects of this action to the least tern are unclear, because the Navy has not provided the Service with a BA describing the action in sufficient detail to discern the potential effects to the species. However, based on the information the Navy has provided the Service, remediation activities at IR-2 include establishing large staging areas within the Proposed Refuge, conducting activities during the least tern breading season, removing contaminated materials from the landfill, and covering the landfill. From this, it is clear that remediation activities at IR-2 will temporarily and significantly increase human disturbance to the west of the least tern colony. The long-term, but temporary, loss of buffer zone habitat to the west of the least tern colony as a result of the remediation of IR-2, combined with the loss of buffer zone habitat to the north from the construction and development of the VA Project and City's redevelopment activities, will temporarily reduce unobstructed access to foraging habitat by more than 60 percent and increase anthropogenic disturbance within the buffer zone, which will harm the least tern by stressing it to such an extent that breeding success will be reduced.

Climate Change and Sea Level Rise

Sea level rise associated with global climate change is a significant threat to the long-term persistence of the least tern colony within the action area. According to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC 2007), the global sea level rose by about 400 feet during the several millennia that followed the end of the last ice age (approximately 21,000 years ago), and stabilized between 3,000 and 2,000 years ago. Sea level indicators suggest that global sea level did not change significantly from then until the late 19th century. The instrumental record of modern sea level change provides evidence of the onset of sea level rise again during the 19th century. Estimates show that during the 20th century global

average sea level rose at a rate of about 0.07 inch per year.

Satellite observations available since the early 1990s provide more accurate sea level data with nearly global coverage. This satellite altimetry data set shows that since 1993, sea level has been rising at a rate of approximately 0.12 inch per year, significantly higher than the average during the previous half century (IPCC 2007). It has been suggested that the climate system, particularly sea levels, may be responding to climate changes more quickly than the models predict (Heberger *et al.* 2009). Additionally, most climate models fail to include ice-melt contributions from the Greenland and Antarctic ice sheets and may underestimate the change in volume of the world's oceans.

According to a 2009 study conducted by Pacific Institute, under medium to medium-high emissions scenarios, mean sea level along the California coast will rise from 3.3 to 4.6 feet by the year 2100 (Heberger et al. 2009). Other key findings of the study report that a 4.6 foot sea level rise would flood approximately 150 square miles of land and would result in accelerated erosion resulting in a loss of an additional 41 square miles of California's coast by 2100. The Service has chosen to adopt this medium to medium-high emissions scenario for planning purposes, as have most other government regulatory and land and resource management entities. Based on the model of sea level rise by Herberger et al. (2009), without constructing levees or implementing other preventative measures, the majority of the action area will be inundated by 2100 under the medium-high emissions scenario, except for a small island of land that includes a small portion of the least tern nesting area.

Conclusion

After reviewing the current status of the least tern, the environmental baseline for the species in the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the NAS Alameda Disposal and Reuse project, as proposed, is not likely to jeopardize the continued existence of the least tern. While we expect that the incremental effects of the proposed development will reduce the ability of the least tern colony to achieve the high numbers of breeding pairs and fledglings, we expect it to continue to remain a productive breeding colony. We base our determination on the following: (1) the VA will continue to fund predator management and least tern colony monitoring and other management activities at current or greater levels; (2) predator management activities will adapt to predation pressures; (3) the proposed project maintains a buffer zone size of 511.3 acres, which, due to the size, location, and configuration of the VA Development Area, does not result in a significant decrease in the buffer zone size of 525 acres, which the Service determined to be the minimum area necessary to conserve the least tern colony at NAS Alameda in the 1999 BO; and (4) the proposed project includes design features and standards that have been specifically included to minimize the effects of the proposed project to the species.

INCIDENTAL TAKE STATEMENT

Section 9(a)(1) of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species without special exemption. Take is defined as harass,

harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as actions that create the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this Incidental Take Statement.

The measures described below are nondiscretionary, and must be implemented by the Navy and VA so that they become binding conditions of the conveyance of surplus Federal properties to the City and the transfer of Federal properties to the VA, as appropriate, for the exemption under section 7(o)(2) to apply. The Navy and VA have a continuing duty to regulate the activity that is covered by this incidental take statement, therefore, if: (1) the Navy fails to require the City or any of its contractors to adhere to the terms and conditions of the incidental take statement through enforceable terms; (2) the VA or its contractors fail to adhere to the terms and conditions of the incidental take statement; or (3) if the Navy and VA fail to retain oversight of the proposed action to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

Amount or Extent of Take

The proposed project will increase predation pressure, increase the perception of predation, and reduce the quantity and quality of foraging habitat, adversely affecting all life-stages of the least tern at NAS Alameda; thereby resulting in take of the least tern in the form of harm, through habitat modification and disruptions in breeding success, and harassment. It will be difficult to quantify incremental increases in take to the least tern due to natural population fluctuations. However, these effects will ultimately result in decreased breeding success and an overall decline in the number of breeding pairs at NAS Alameda. Despite these effects, we anticipate that the breeding success of the least tern colony at NAS Alameda will not drop below an average annual fledgling per pair ratio of 0.79, over any consecutive five year period; and the overall number of breeding pairs will not drop below 300 in any given year.

Effect of the Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the least tern.

Reasonable and Prudent Measures

The following reasonable and prudent measures are necessary and appropriate to minimize the effects of take on the least tern:

1. The Navy and VA shall minimize the effect of the take to the least tern.

2. The VA shall assure the long-term persistence and viability of the least tern colony at NAS Alameda.

Terms and Conditions

To be exempt from the prohibitions of section 9 of the Act, the Navy and VA shall comply with, and the Navy shall ensure that the City complies with, the following terms and conditions, which implement the *Reasonable and Prudent Measure*. These Terms and Conditions are non-discretionary.

1. The following terms and conditions implement reasonable and prudent measure one (1):

   a. The Navy, VA, and City shall minimize the potential for harm and harassment of the least tern resulting from the project related activities by implementing the project and the avoidance and minimization measures, as described in the *Description of the Proposed Action* section of this biological opinion.

   b. Prior to the conveyance of property from the Navy to the City and prior to the transfer of property from the Navy to the VA, the VA and City shall conduct a Service-approved nighttime lighting study to determine the ambient nighttime light levels, including lumens (perceived brightness of light) and footcandles, at the least tern colony and within 750 feet of the least tern colony. The results of this Service-approved nighttime lighting study will establish the baseline ambient nighttime light levels at the least tern colony and within 750 feet of the least tern colony. From April 1 through August 15 of each year, the City and VA shall ensure that the level of ambient nighttime light at the least tern colony and within 750 feet of the least tern colony, including lumens and footcanldles, as a result of City and VA lighting sources, does not increase by more than 10 percent above the baseline levels established in the Service-approved nighttime lighting study.

   c. As part of the deed restriction to be placed on properties conveyed by the Navy to the City (as defined in Proposed Avoidance and Minimization Measure 2), within the line of site of the VA Undeveloped Area and in the Building Development Zones or NWT: (1) the number of new lights shall be limited to the minimum number required for building security, (2) all lights shall be directed away and/or screened from the VA Undeveloped Area, and (3) tinting of windows, with non-reflective tinting material, within the line of site of the VA Undeveloped Area shall be required.

   d. The Navy shall ensure the City implements the relevant portions of the project description and avoidance and minimization measures, as described in the *Description of the Proposed Action* section of this biological opinion.

2. The following term and condition implements reasonable and prudent measure two (2):

   To ensure the 511.3 acre VA Undeveloped Area, as defined in Figure 1, will remain undeveloped, provide an adequate buffer from human related activities, and will be managed in perpetuity for the long-term persistence and sustainability of the least tern colony, the VA shall not convey any portion of the VA Undeveloped Area to any Federal agency or designate any portion of the VA Undeveloped Area as surplus Federal property; unless: (1) through informal section 7 consultation with the Service, it is determined that such an action is not likely to adversely affect the least tern; or (2) it is determined by the Service that such an action would be beneficial to the recovery of the least tern.

Reporting Requirements

The VA shall submit to the Service an annual report and a weekly status report during the least tern breeding season (April 1 to August 15), as described in the *Description of the Proposed Action* section of this biological opinion.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities that can be implemented to further the purposes of the Act, such as preservation of endangered species habitat, implementation of recovery actions, or development of information and data bases.

1. The Navy should provide the Service with biological assessments for CERCLA activities that may affect the least tern and implement actions that compensate for the effects to the species.

2. The VA should work with the Service and other relevant agencies to implement least tern recovery efforts throughout the San Francisco Bay Area.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION—CLOSING STATEMENT

This concludes formal consultation on the proposed Naval Air Station Alameda Disposal and Reuse project in the City Alameda, California. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed

species or critical habitat that was not considered in this biological opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must immediately cease, pending reinitiation.

If you have any questions regarding this biological opinion on the proposed Naval Air Station Alameda/Fleet and Industrial Supply Center Alameda Disposal and Reuse project, please contact Ben Solvesky (Ben_Solvesky@fws.gov) or Ryan Olah, Coast Bay/Forest Foothills Division Chief, (Ryan_Olah@fws.gov) at (916) 414-6600.

Sincerely,

Susan K. Moore
Field Supervisor

Enclosure:

cc:
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Robert Doyle, East Bay Regional Parks District, Oakland, California
Larry Janes, Department of Veterans Affairs, Mare Island, California
Anthony Megliola and Sarah Ann Moore, Department of the Navy, San Diego, California
Jennifer Ott, City of Alameda, Alameda, California

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Personnel Communications

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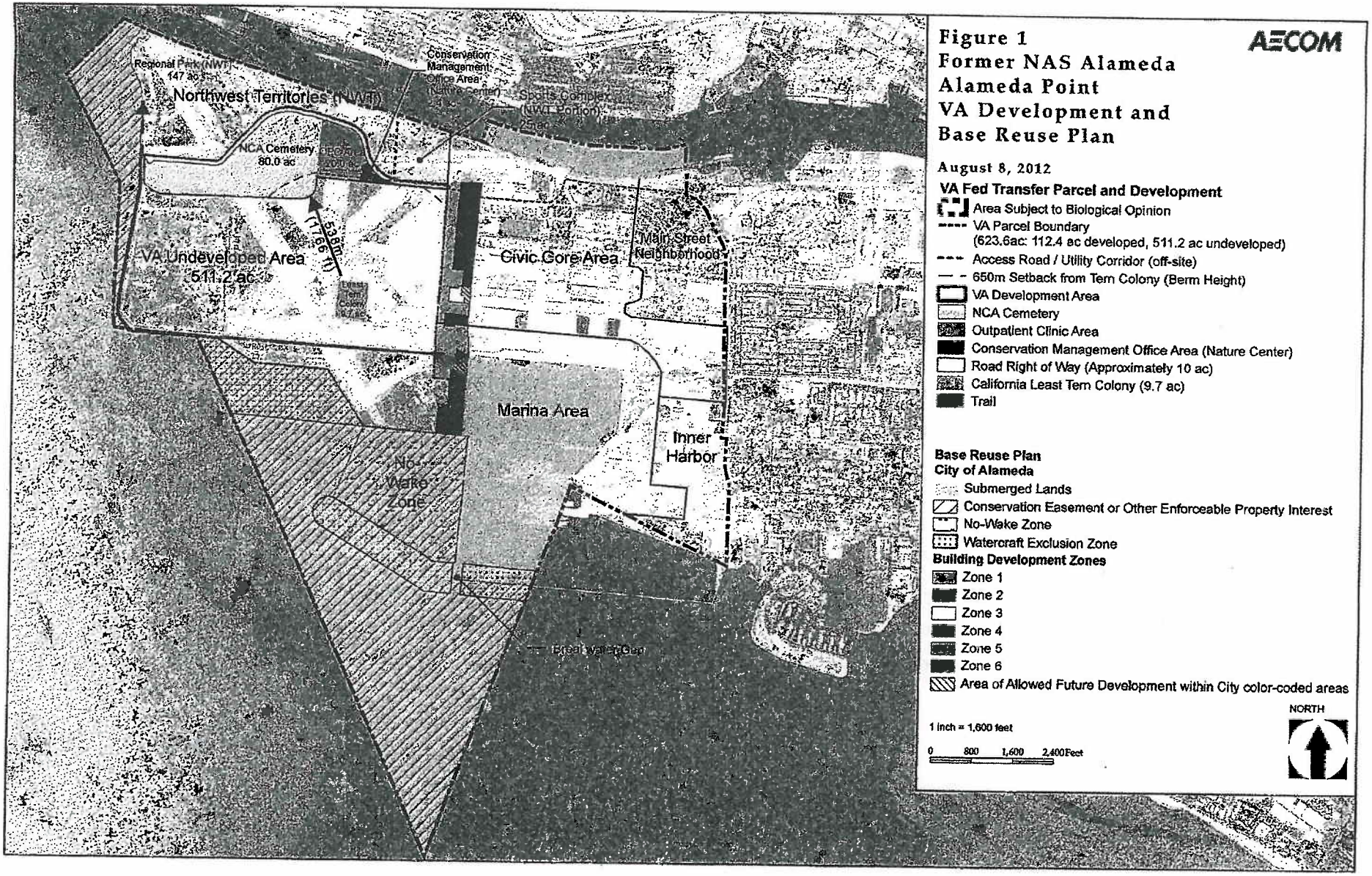
Doug Pomeroy. 2010. Group Leader, Base Conservation/Biology Section, U.S. Department of the Navy, 1986 to 1999.


Regional Park (NWT)
147 ac
Northwest Territories (NWT)
Conservation Management Office Area (Nature Center)
Sports Complex (NWT Portion)
25 ac
NCA Cemetery
80.0 ac
650m (1,066 ft)
VA Undeveloped Area
511.2 ac
Civic Core Area
Main Street Neighborhood
Marina Area
Inner Harbor
No-Wake Zone
Great Mariner
Figure 1
Former NAS Alameda
Alameda Point
VA Development and
Base Reuse Plan
AECOM
August 8, 2012
VA Fed Transfer Parcel and Development
Area Subject to Biological Opinion
VA Parcel Boundary
(623.6ac: 112.4 ac developed, 511.2 ac undeveloped)
Access Road / Utility Corridor (off-site)
650m Setback from Tern Colony (Berm Height)
VA Development Area
NCA Cemetery
Outpatient Clinic Area
Conservation Management Office Area (Nature Center)
Road Right of Way (Approximately 10 ac)
California Least Tern Colony (9.7 ac)
Trail
Base Reuse Plan
City of Alameda
Submerged Lands
Conservation Easement or Other Enforceable Property Interest
No-Wake Zone
Watercraft Exclusion Zone
Building Development Zones
Zone 1
Zone 2
Zone 3
Zone 4
Zone 5
Zone 6
Area of Allowed Future Development within City color-coded areas
NORTH
1 inch = 1,600 feet
0 800 1,600 2,400 Feet

ALAMEDA POINT
CALIFORNIA LEAST TERN COLONY
EXISTING LIGHTING STUDY

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14 March 2013

Exhibit B

INTRODUCTION

The U.S. Navy intends to transfer some lands on the former Naval Air Station Alameda to the Department of Veterans Affairs (VA) and to convey other lands to the City of Alameda (City). Due to the presence of a colony of the federally endangered California least tern (*Sternula antillarum browni*) on the lands to be transferred to the VA, the Navy consulted with the U.S. Fish and Wildlife Service (USFWS) pursuant to the Federal Endangered Species Act regarding potential effects of future reuse activities by the VA and the City on the least tern. The USFWS issued a Biological Opinion (BO) on 29 August 2012 describing the terms and conditions of reuse of these lands in order to protect the nesting terns.

The BO contains restrictions on an increase in lighting associated with new VA and City development in and around the least tern colony. Specifically, the BO states that ambient nighttime light levels during the period April 1 to August 15 cannot increase by more than 10 percent above ambient conditions as a result of VA and City development. To establish the baseline lighting conditions against which a future increase might be measured, the BO contained a condition requiring the VA and the City to conduct a study of baseline lighting levels. Specifically, Condition 1.b of the BO contains the following:

> *Prior to the conveyance of property from the Navy to the City and prior to the transfer of property from the Navy to the VA, the VA and City shall conduct a Service-approved nighttime lighting study to determine the ambient nighttime light levels, including lumens (perceived brightness of light) and footcandles, at the least tern colony and within 750 feet of the least tern colony. The results of this Service-approved nighttime lighting study will establish the baseline ambient nighttime light levels at the least tern colony and within 750 feet of the least tern colony.*

This report was prepared to document the results of such a baseline study performed by the City of Alameda.

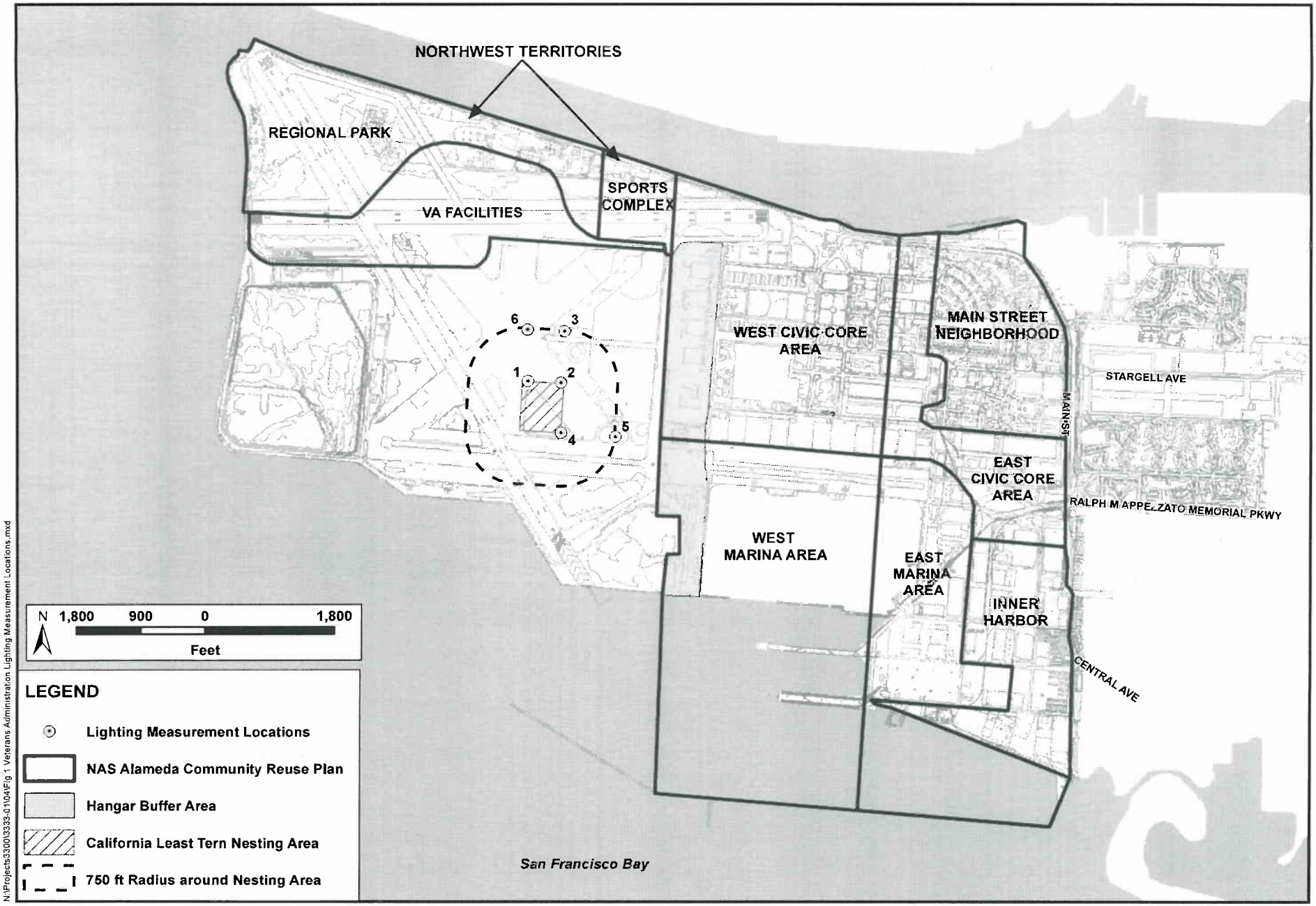
METHODS

On the evening of 7 March 2013, Ronald Zeiger, P.E. of Zeiger Engineers, and Kevin Maxson of the Department of Veterans Affairs (VA) each independently took measurements of existing light conditions at and near the least tern colony from 8:30 to 9:30 PM. The lunar phase was waning crescent, the temperature was approximately 46 degrees Fahrenheit, and conditions were overcast sky with rain beginning at 9:30 PM. Lights on the Oakland Bay Bridge were on; stadium lights at AT&T Park were off. Moon light did not influence light readings because of overcast conditions. The maximum illumination effect of the moon's light would be predicted to be approximately 0.01 footcandles under clear skies.

Illumination readings to establish baseline conditions at the colony were taken at five locations on 7 March (Figure 1); three were 10 - 20 feet outside the perimeter fence around the least tern nesting area and two were 750 feet from the fence. Locations No. 1 and No. 2 were both on the northern edge of the nesting area, No. 1 being near the northwest corner and No. 2 near the northeast corner. Location No. 6 was 750 feet north of No. 1. Location No. 4 was at the southeast corner of the fence around the tern colony. Location No. 5 was 750 feet east of No. 4.

Illumination measurements were made using an Extech model 401036 handheld data logging light meter. Vertical measurements were taken with the light meter's receptor held in a perpendicular position, 36 inches above the ground. The receptor was aimed in multiple directions at each test point to obtain readings from the perspective of terns at the colony looking outward. Mr. Zeiger collected measurements facing west, northwest, north, northeast, east, southeast, and south; Mr. Maxson collected readings facing northwest, north, northeast, east, and southwest. Previously, on 29 January 2031, Mr. Zeiger had also recorded measurements under similar conditions and using the same methodology at Location No. 3, which was 750 feet north of No. 2 (Figure 1).

Condition 1.b of the BO states that the lighting study must measure baseline light levels "including lumens (perceived brightness of light) and footcandles". However, lumens are not measured with our instruments. Also, perceived brightness is an out-of-date term for what is now called luminance. In our opinion, it is illuminance and not luminance that should be of concern with respect to the tern colony. Illuminance is the amount of light coming from a light source that lands on a surface (i.e., a bird at the colony) and is measured in footcandles (or Lux in the metric system). Luminance describes the amount of light leaving a surface in a particular direction, and can be thought of as the measured brightness of a surface as seen by the eye. Luminance is expressed in candelas per square meter. As a result, we did not measure or attempt to determine luminance values.



N:\Projects3300\3333-01\04\Fig 1 Veterans Administration Lighting Measurement Locations.mxd

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Figure 1: Lighting Measurement Locations
Existing Lighting Study
March 2013

RESULTS

Lighting measurements (in footcandles) recorded at the six points indicated on Figure 1 are provided in Table 1 below. For measurements facing northwest, north, northeast, and east on 7 March, two measurements are provided for each point, the first being the measurement taken by Mr. Zeiger and the second being the measurement taken by Mr. Maxson. Only Mr. Zeiger collected data facing west, southeast, and south, and only Mr. Maxson collected data facing southwest.

Table 1. Light Level Measurements

Direction*	Point 1 (Vertical fc)	Point 2 (Vertical fc)	Point 3 (Vertical fc)	Point 4 (Vertical fc)	Point 5 (Vertical fc)	Point 6 (Vertical fc)
West	0.02 / --	0.02 /	0.05 / --	0.02 / --	0.04 / --	0.03 / --
Northwest	0.05 / 0.05	0.05 / 0.05	0.08 / --	0.06 / 0.06	0.04 / 0.05	0.07 / 0.07
North	0.06 / 0.04	0.06 / 0.07	0.09 / --	0.06 / 0.07	0.06 / 0.08	0.08 / 0.08
Northeast	0.06 / 0.06	0.05 / 0.07	0.07 / --	0.06 / 0.05	0.03 / 0.07	0.05 / 0.07
East	0.04 / 0.05	0.03 / 0.06	0.02 / --	0.03 / 0.03	0.01 / 0.05	0.03 / 0.05
Southeast	0.00 / --	0.00 / --	0.00 / --	0.01 / --	0.01 / --	0.02 / --
South	0.00 / --	0.00 / --	0.00 / --	0.00 / --	0.00 / --	0.01 / --
Southwest	-- / 0.02	-- / 0.02	-- / --	-- / 0.02	-- / 0.02	-- / 0.02

* "Direction" indicates the direction in which the light meter's receptor was facing when the readings were taken.

These measurements represent the baseline lighting conditions at the edge of the California least tern colony and at two points 750 feet from the colony. Future measurements can be taken at these five points, and compared with these baseline data, to determine whether lighting levels at the edge of the colony have changed. Measurements collected independently by Mr. Zeiger and Mr. Maxson were generally very similar, but there were some differences in measurements at some points/directions. Because measurements were taken simultaneously at each point, these differences do not result from differences in actual lighting conditions, but instead they likely result from differences in the instruments used. Such variability is not unexpected when attempting to measure such low light levels, and this variability should be considered when assessing whether lighting levels have changed based on future measurements.

EXHIBIT C

Alameda Point Lighting Mitigation Measures

January 15, 2013

Measures will prevent the sum total of any and all future lighting sources that are installed as part of new building projects, streetscape improvements, & etc. from measurably increasing the light levels at the tern colony.

Measures pertain to multiple zones at Alameda Point that are designated on the NAS Alameda Community Reuse Plan Area – Alameda Point Predator Management Plan, namely:

Zone 1: Veterans Affairs Facility and National Cemetery Administration Columbarium

Zone 2: Regional Park and Sports Complex

Zone 3: Hangar Buffer Area

Zone 4: West Marina Area

Zone 5: East Marina Area

Zone 6: West Civic Core Area

Zone 7: East Civic Core Area

Zone 8: Main Street Neighborhood

Zone 9: Inner Harbor

Mitigation Measures:

Zone 1: VA Facility: Lighting in this area has potential for impacting the nighttime ambient lighting at the tern colony. Strict control measures are therefore mandatory.

A. Building Lights:

1. Wall Mounted Security Lights: Maximum light output per fixture shall not exceed an initial value of 5,000 - 7,000 lumens, with IESNA full cutoff distribution. Preferred light source shall be LED due to its controllability. Maximum mounting height shall be 20 feet above grade. Back-light shields will be required on wall mounted fixtures to prevent glare from reflected light off wall surface.

2. Architectural Exterior Wall Lights: Maximum initial value of 1,200 lumens, fully shielded. Preferred light source shall be LED. Mounting height shall be 6 – 10 feet above grade.

3. Stairs that have windows facing toward the tern colony shall have their light fixtures controlled by a motion sensor. Continuously ON lights shall not be used. Light fixtures in stairwells shall be positioned so that they are not visible from exterior.

4. Windows that face in the direction of the tern colony shall be given special design attention to prevent nighttime visibility of interior lighting that may become a source of glare and light pollution. Lamps shall be fully shielded.

B. Streetlights, Walkway Lights and Parking Lot Lights: Maximum mounting height to be 20 feet. Maximum illumination of 0.50 footcandle (5.5 lux) on grade measured at 60 feet from pole, and maximum of 5 footcandles (50.5 lux) directly below fixture. Luminaires to have IESNA full cutoff

distribution. Preferred light source is LED due to its inherent controllability. Fixtures shall be oriented so that their primary beams point away from the tern colony, and shall be equipped with back-light or house-side shields.

C. Building Mounted Wall Packs or Pole Mounted Floodlights: Exclusion zone, use not allowed.

D. Landscape Lights (bollards, up lights): Maximum initial output of 1,200 lumens, fully shielded. Integral glare shields to be used where bollards have a direct line of sight toward tern colony.

E. Flag Pole Lights: Illumination on the flag to be limited to a maximum value of 12.0 footcandles (vertical). Photometric study shall be submitted demonstrating compliance. Flag pole lights shall use narrow spot LED fixtures, or other efficient and highly controllable sources, capable of illuminating the flag, and reducing unwanted light on pole. Fixtures shall be mounted at or near ground level, recessed, on a raised pedestal, or any another method to shield the light source from direct line of sight to the LTC. No use of flag pole-mounted spot lights allowed.

Zone 2: Regional Park and Sports Complex: Lighting in this area has potential for impacting the nighttime ambient lighting at the tern colony. Strict control measures are therefore mandatory. Also refer to measures Fish and Wildlife Report regarding mounting heights and anti-predator perching features.

A. Streetlights, Walkway Lights and Parking Lot Lights: Maximum mounting height to be 30 feet. Maximum illumination of 0.50 footcandle (5.5 lux) on grade measured at 60 feet from pole, and maximum of 5 footcandles (50.5 lux) directly below fixture. Luminaires to have IESNA full cutoff distribution. Preferred light source is LED due to its inherent controllability.

B. Sports Lights: Operation of sports field or court lights shall be limited to non-nesting period of year as described in BO Report.

C. Flag Pole Lights: Illumination on the flag to be limited to a maximum value of 12.0 footcandles (vertical). Photometric study shall be submitted demonstrating compliance. Flag pole lights shall use narrow spot LED fixtures, or other efficient and highly controllable sources, capable of illuminating the flag, and reducing unwanted light on pole. Fixtures shall be mounted at or near ground level, recessed, on a raised pedestal, or any another method to shield the light source from direct line of sight to the LTC. No use of flag pole-mounted spot lights allowed.

Zone 3: Hangar Buffer Zone: Lighting in this area has potential for impacting the nighttime ambient lighting at the tern colony. Strict control measures are therefore mandatory.

A. Building Lights:

1. Small Wall Security Lights or Sconces: (Fully enclosed solid top fixtures with total down light output) Maximum light output per fixture shall not exceed an initial value of 5,000 - 7,000 lumens, with IESNA full cutoff distribution. Preferred light source shall be LED due to its controllability. Maximum mounting height shall be 20 feet above grade. Back-light controls and/or shields will be required on wall mounted fixtures to prevent excessive glare from being reflected light off wall surface.

2. Large Wall Area Lights: West and South Sides exclusion zone: use not allowed. Used allowed on the north and east sides of hangar buildings without restrictions.

3. Exterior Facade Lights: (Typically used at building entries for decorative affect) Maximum initial value of 1,200 lumens, fully shielded. Preferred light source shall be LED. Mounting height shall be 6 – 12 feet above grade.

4. Stairs that have windows that face the tern colony shall have their light fixtures controlled by a motion sensor. Continuously ON lights shall not be used.

5. Windows that face west in the direction of the tern colony shall be given special design attention to prevent nighttime visibility of interior lighting that may become a source of glare and light pollution. Lamps shall be fully shielded.

B. Streetlights, Walkway Lights and Parking Lot Lights: (Architectural style solid top fixtures) Maximum mounting height to be 30 feet. Maximum illumination of 0.50 footcandle (5.5 lux) on grade measured at 60 feet from pole, and maximum of 5 footcandles (50.5 lux) directly below fixture. Luminaires to have IESNA full cutoff distribution. Preferred light source is LED due to its inherent controllability. Fixtures shall be oriented so that their primary beams point away from the tern colony, and shall be equipped with back-light or house-side shields.

D. Pole Mounted Flood and Spot Lights: West and South Sides exclusion zone: use not allowed. May be used on north and east sides of hangar buildings as long as their beams are directed away from western direction.

D. Landscape Lights (bollards, up lights, flag pole lights): Maximum initial output of 1,200 lumens, fully shielded. Integral glare shields to be used where bollards have a direct line of sight toward tern colony.

Zone 4: West Marina Area: Lighting in this area has some potential for impacting the nighttime ambient lighting at the colony. Strict control measures are therefore mandatory.

A. Streetlights, Walkway Lights and Parking Lot Lights: Maximum mounting height to be 30 feet. Maximum illumination of 1.0 footcandle (10.1 lux) on grade measured at 60 feet from pole, and maximum of 5 footcandles (50.5 lux) directly below fixture. Luminaires to have IESNA full cutoff distribution.

B. Building Mounted Wall Lights: Use allowed. Use only fixtures having cutoff optics.

C. Floodlights: Use allowed but only with fixtures having cutoff optics. Floodlights shall not be aimed toward the west.

Zone 5: East Marina Area: Lighting in this area has no potential for impacting the nighttime ambient lighting at the colony. Control measures are therefore not applicable.

Zone 6: West Civic Core Area: Lighting in this area has some potential for impacting the nighttime at the tern colony. Some control measures are therefore mandatory

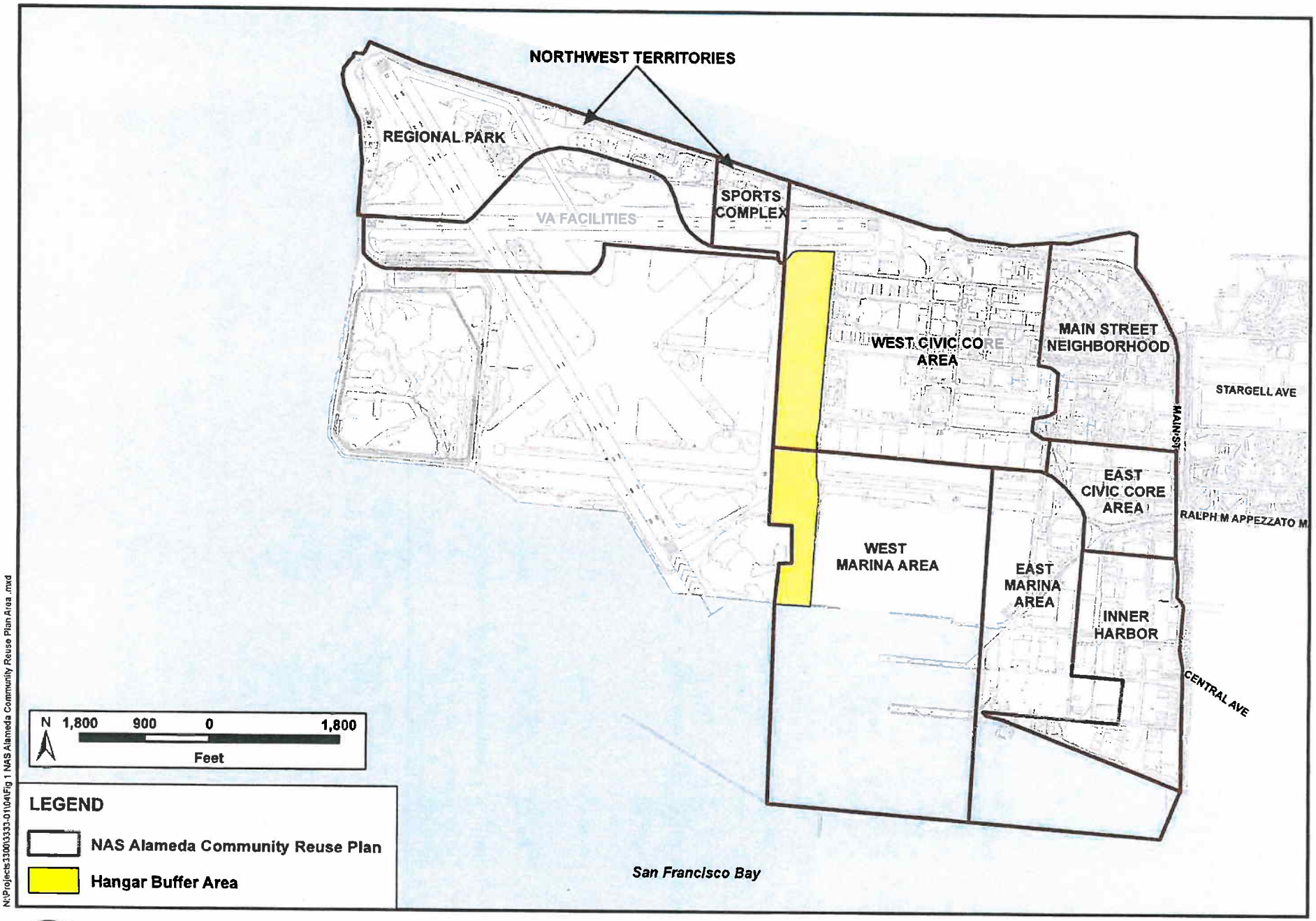
A. Streetlights, Walkway Lights and Parking Lot Lights: Maximum mounting height to be 30 feet. Maximum illumination of 1.0 footcandle (10.1 lux) on grade measured at 60 feet from pole, and maximum of 7 footcandles (70.7 lux) directly below fixture. Luminaires to have IESNA full cutoff distribution.

B. Building Mounted Wall Lights and Pole Mounted Floodlights: Use allowed. Use only fixtures having cutoff optics.

Zone 7: East Civic Core Area: Lighting in this area has no potential for impacting the nighttime ambient lighting at the colony. Control measures are therefore not applicable.

Zone 8: Main Street Neighborhood: Lighting in this area has no potential for impacting the nighttime ambient lighting at the colony. Control measures are therefore not applicable.

Zone 9: Inner Harbor: Lighting in this area has no potential for impacting the nighttime ambient lighting at the tern colony. Control measures are therefore not applicable.



N:\Projects3300\3333-01\04\Fig 1 NAS Alameda Community Reuse Plan Area .mxd

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Figure 1: NAS Alameda Community Reuse Plan Area

Alameda Point (3333-04)
November 2012