Realignment and Development of a Naval Integrated Weapons and Armaments Research, Development, and Acquisition, Test and Evaluation Center at Naval Air Weapons Station China Lake, California

Final Environmental Assessment

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Executive Summary

ES1 Purpose and Need for the Proposed Action

This Environmental Assessment (EA) describes the potential environmental consequences resulting from construction and operations related to the proposed realignment of seven facilities to create a Naval Integrated Weapons and Armaments Research, Development, and Acquisition, Test and Evaluation (W&ARD&AT&E) Center at Naval Air Weapons Station (NAWS) China Lake, California. It has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] §§ 4321-4370d [1994]), as implemented by the Council on Environmental Quality (CEQ) Regulations (40 Code of Federal Regulations [CFR] §§ 1500-1508 [1997]), Department of the Navy (DON) regulations implementing NEPA (32 CFR 775), and DON Base Realignment and Closure (BRAC) Implementation Guidance.

ES1.1 Introduction

The Proposed Action is in response to the BRAC Commission of 2005 recommendations for the realignment of personnel and activities at seven facilities to NAWS China Lake to create a Naval Integrated W&ARD&AT&E Center. This recommendation would result in the realignment of the following activities to NAWS China Lake:

- Naval Weapons Station (NWS) Seal Beach, California, by relocating all W&ARD&AT&E functions, except underwater weapons and explosive materials;
- Naval Base (NB) Ventura County, Point Mugu, California, by relocating all W&ARD&AT&E functions;
- NB Ventura County, Port Hueneme, California, by relocating all W&ARD&AT&E functions, except weapon system integration;
- Naval Surface Warfare Center (NSWC) Crane, Indiana, by relocating all W&ARD&AT&E functions, except gun/ammo, combat system security, and explosive materials;

- NSWC Dahlgren, Virginia, by relocating all W&ARD&AT&E functions, except guns/ammo and weapon systems integration;

- NSWC Indian Head, Maryland, by relocating all W&ARD&AT&E functions, except gun/ammo, underwater weapons, and explosive materials; and

- Naval Air Station (NAS) Patuxent River, Maryland, by relocating all W&ARD&AT&E functions, except the Program Executive Office and Program Management Offices in Naval Air Systems Command (NAVAIR).

ES1.2 Proposed Action Location

NAWS China Lake is in the Upper Mojave Desert of California, approximately 242 kilometers (150 miles) northeast of Los Angeles. The NAWS, composed of the North Range and the South Range, covers approximately 4,402 square kilometers (1,700 square miles) and is located in three counties: Inyo, Kern, and San Bernardino.

ES1.3 Purpose of the Proposed Action

The movement of personnel, functions, and equipment to NAWS China Lake is required in order to comply with BRAC law. The BRAC Commission's Final Recommendations are not discretionary actions for the Navy and thus, are not subject to environmental impact analysis under NEPA. Therefore, this EA will not address the potential environmental impacts of realignment upon NWS Seal Beach, NB Ventura County, NSWC Crane, NSWC Dahlgren, NSWC Indian Head, and NAS Patuxent River and moving their personnel and relevant functions to NAWS China Lake.

Existing facility configurations at NAWS China Lake cannot accommodate the workforce transfer mandated by the 2005 BRAC Commission's Recommendation. The realignment of workload would require the construction of new, properly designed space and renovation of existing space to facilitate the move of functions from the above-mentioned locations to NAWS China Lake. The purpose of the Proposed Action is to provide appropriate facilities at NAWS China Lake to accommodate the workforce transfer and subsequent operations in support of BRAC.

ES1.4 Need for the Proposed Action

The Navy's internal planning process identified the need for a number of different actions that are needed now, in advance of personnel, function, and equipment movement to successfully implement the realignment of assets and functions from NWS Seal Beach; NB Ventura County (Point Mugu and Port Hueneme); NSWC Crane, NSWC Dahlgren, and NSWC Indian Head; and NAS Patuxent River to NAWS China Lake. By addressing the need for additional infrastructure and facilities upgrades at this time, the Navy can provide facilities necessary to support the incoming assets which would allow for little or no interruption to

operational readiness activities that are ongoing at the selected sites. These actions would encompass 14 BRAC Construction (BRACON) projects that would take place over a four-year period. These 14 BRACONs represent the maximum number of construction projects that could occur as a result of the Proposed Action. The 14 BRACONs involve the construction of the following facilities:

- Weapons and Armaments Technical Center;
- Weapons and Armaments Facility;
- Aircraft hangar;
- Special test facilities;
- Ordnance storage facilities;
- Hardware-in-the-loop facility;
- New warehouses; and
- General administrative and laboratory space.

These BRACONs also include the following projects:

- Rehabilitation of Michelson Laboratory;
- Rehabilitation of multiple NAWS China Lake facilities; and
- Reuse of existing NAWS China Lake facilities.

Implementation of these actions would facilitate the realignment and consolidation of the BRAC-designated facilities into one Naval Integrated W&ARD&AT&E Center at NAWS China Lake. Consolidating the Navy's air-to-air, air-to-ground, and surface launched missile research, development, and acquisition (RD&A) and test and evaluation (T&E) activities at China Lake also would create efficiencies in operations. With these modifications/additions, China Lake would be able to accommodate both mission and lifecycle/sustainment functions creating synergies between these traditionally independent warfare communities.

ES1.5 Environmental Scope of the Proposed Action

In accordance with the CEQ regulations for implementing NEPA, material relevant to a proposed action may be incorporated by reference with the intent of reducing the size of the document. Accordingly, the following documents are incorporated by reference in this EA because the actions addressed are applicable to the Proposed Action:

- *NAWS China Lake Comprehensive Land Use Management Plan (CLUMP), May 2005;*
- *NAWS China Lake Environmental Impact Statement (EIS), February 2004; and*
- *NAWS Integrated Natural Resources Management Plan (INRMP,) September 2000.*

This EA covers the full range of environmental issues potentially resulting from the realignment of assets and functions from NWS Seal Beach; NB Ventura County (Point Mugu and Port Hueneme); NSWC Crane, NSWC Dahlgren, and NSWC Indian Head; and NAS Patuxent River to NAWS China Lake. The primary issues of concern in evaluating the potential impacts of the Proposed Action are the effects it could have on biological resources, cultural resources, traffic and circulation, air quality, and public health and safety. Consequently, these issues have received the greatest emphasis in the evaluations presented in this document. Other issues are also addressed and evaluated in this EA, but to a lesser degree than the primary issues identified above. For each of the other issues, the level of evaluation and depth of discussion in this document are commensurate with the relative degree of importance attributed to each issue in the decision process.

ES1.6 Intergovernmental Coordination

As part of the NEPA compliance process, coordination and consultation with appropriate government agencies is initiated as appropriate to obtain regulatory input and guidance related to the Proposed Action. The purpose is to ensure that all applicable laws, rules, regulations, and policies have been identified and that the Proposed Action has been duly considered in light of these considerations.

Environmental compliance requirements for Navy activities are defined in Operational Navy Instruction (OPNAVINST) 5090.1B, as amended. Specific local environmental management policies and procedures are contained in the CLUMP (U.S. Navy 2005a), and the INRMP (U.S. Navy 2000). The Environmental Planning and Management Office have responsibility for the protection of sensitive resources and were consulted throughout the preparation of this EA and associated technical surveys and reports.

ES1.7 Decisions to be Made

The decision maker for the proposed action is Commander, Naval Installations Command (CNIC).

Based on this EA, a decision will be made whether a Finding of No Significant Impact (FONSI) or a Notice of Intent to prepare an EIS is appropriate for the Proposed Action. This decision will be based on a determination whether all potential impacts are either less than significant or can be reduced to less than significant levels through the implementation of mitigation measures. If it is determined that all potential impacts are either less than significant or can be mitigated to less than significant levels, then preparation of a FONSI would be appropriate. If any potential impacts would be considered significant and cannot be avoided or reduced to less than significant levels, then the preparation and processing of an EIS are required.

The Proposed Action may also require the following decisions and approvals from federal and state agencies.

Clean Air Act General Conformity Rule

The DON must prepare a Conformity Review (applicability analysis) prior to the finalization of this EA, in accordance with requirements and procedures described in the Clean Air Act General Conformity Guidance (U.S. Navy 2002).

Section 106 Compliance

The National Historic Preservation Act (NHPA) requires federal agencies to consider the preservation of historic and prehistoric resources. Under the NHPA, the Secretary of the Interior is authorized to expand and maintain the National Register of Historic Places (NRHP). Section 106 of the NHPA mandates that all federal agencies take into account the effects of their undertakings (actions) on historic/prehistoric resources and to afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to review and comment on any action that may affect properties that are listed, or are eligible for listing, on the NRHP. Under Section 101 of the NHPA, a State Historic Preservation Officer (SHPO) was established in each state and designated the responsibility of reviewing and commenting on any action affecting NRHP properties or properties eligible for listing on the NRHP.

The Navy has determined that of the 32 buildings, the following 13 structures are eligible for listing on the NRHP, either individually or as contributing elements to historic districts: Buildings 00001, 00005, 10520, 10690, 11050, 11570, 15560, 15790, 15800, 10170, 10173, 12170, and 12160 (JRP Historical Consulting Services 1997a, Mikesell 1999, Kaldenberg 2006a, Kaldenberg 2007). The Navy also has determined that Buildings 00008, 00466, 02602, 01025, 01028, 01040, 01041, 01042, 02624, 02477, 11510, 12042, 12143, 16079, 20210, 31562, 31567, 12140, and 91042 are ineligible for NRHP listing (JRP Historical Consulting Services 1997a, Mikesell 1999, Kaldenberg 2006a, Herbert 2007, Kaldenberg 2007).

In compliance with Section 106, the Navy initiated a series of consultations with the Office of Historic Preservation of the California Department of Parks and Recreation (Appendix B). In a letter dated 19 March 2007, the SHPO stated that it would agree to the finding of No Adverse Effects with Conditions for Buildings 00005 and 11050. These conditions would include the submittal to the SHPO of the design plans and specifications once they have been completed (Donaldson 2006b).

Subsequent to the initial SHPO consultation, the scope of the EA was further defined. Additional consultation was determined to be needed for additional historic-era buildings and resources that could be affected. In a letter dated 19 March 2007, the SHPO stated that it concurred with the Navy's determination of "ineligible for inclusion on the National Register" for the 17 buildings and two archaeological sites in the 15 February 2007 letter. The SHPO also stated that it would agree to a "No Historic Properties Affected" determination in lieu of a "no

effect" determination for proposed interior renovations to four historic district buildings (10170, 10173, 12160, and 12170).

Endangered Species Act, Section 7 Consultation

Informal consultation with the U.S. Fish and Wildlife Service (USFWS) is required under the Endangered Species Act (ESA) if the Proposed Action would occur at locations likely to be inhabited by threatened or endangered plant and animal species. Federally listed species potentially present in the Proposed Action area include:

- Desert tortoise (*Gopherus agassizii*).

Two other federally listed species, the Mohave tui chub (*Gila bicolor mohavensis*) and Inyo California towhee (*Pipilo crissalis eremophilus*), are found on NAWS China Lake; however they are not found in proximity to any of the BRACON areas.

The only state-listed species that are known to be found or have the potential to be found in the Proposed Action area are the Mojave ground squirrel, Le Conte's thrasher, and the burrowing owl.

NAWS China Lake has a Biological Opinion (BO) on the desert tortoise from the USFWS which is included in this document as Appendix A. The BO was issued in 1995 and evaluates the impacts that the *NAWS China Lake's Desert Tortoise Habitat Management Plan* would have on desert tortoise critical habitat. It was the USFWS's opinion that the *NAWS China Lake's Desert Tortoise Management Plan* would not likely jeopardize the continued existence of the desert tortoise or adversely modify desert tortoise critical habitat. In this case, no consultation with the USFWS is required since: the Proposed Action area is not within the Desert Tortoise Management Area, is less than 20.2 hectares (50 acres) in total area, and biological surveys found no desert tortoise sign; therefore NAWS China Lake would only be required to notify the USFWS concerning the Proposed Action in its annual report (Paragraph 1.h of the Terms and Conditions of the BO).

ES2 Description of the Proposed Action and Alternatives

This section provides an in-depth discussion of the Proposed Action and its alternatives.

In September 2005, the BRAC Commission recommended the realignment of assets and functions from NWS Seal Beach; NB Ventura County (Point Mugu and Port Hueneme); NSWC Crane, NSWC Dahlgren, and NSWC Indian Head; and NAS Patuxent River to NAWS China Lake. On 27 October 2005, the BRAC Commission's recommendations were enacted into law.

Unlike the official BRAC Commission's Final Recommendations of 8 September 2005, the 14 Navy BRACON projects are discretionary actions proposed by the Navy and therefore, are subject to analysis under NEPA. Thus, this EA analyzes the potential environmental impacts that may be associated with the Proposed Action, which includes the 14 BRACONs and the operational activities that would occur after the realignment of assets and functions from the above-mentioned installations.

The 14 BRACON projects at NAWS China Lake that are required to support the Proposed Action would involve new construction as well as repair, renovation, and modification of existing facilities. The Proposed Action also would involve the movement of existing commands and their personnel among different buildings while the construction and renovation is ongoing.

ES2.1 Description of the Proposed Action

The Proposed Action is the implementation of the BRAC recommendations and will require the transfer and relocation of active duty and civilian Navy personnel (and equipment) and the construction of 14 BRACON projects. Currently, 956 active duty military and 3,077 civilian employees of the Navy are working at NAWS China Lake. Table ES-1 provides a count of the maximum number of active duty and civilian personnel by activity that would be affected by the proposed realignment to NAWS China Lake. These personnel are associated with the W&ARD&AT&E functions at NSWC Crane, NSWC Indian Head, NSWC Dahlgren, NAS Patuxent River, and NWS Seal Beach; and the W&ARD&AT&E functions at NB Port Hueneme and NB Point Mugu, both of which are part of NB Ventura County.

Table ES-1 Personnel Movement

Location	Active Duty	Civilian
NWS Seal Beach		20
NB Ventura County (Point Mugu)	182	1,066
NB Ventura County (Port Hueneme)	5	368
NSWC Crane		193
NSWC Dahlgren		147
NSWC Indian Head		80
NAS Patuxent River		39
Total	**187**	**1,913**

All the BRACON design drawings contained in this document are conceptual and subject to change. The drawings address the site and scope of the projects. The 14 BRACONs would be constructed in a phased manner over a four-year period staring in Fiscal Year (FY) 2007 and continuing through FY 2010. Each of these 14 BRACONs are discussed below in the order (by FY) they would be implemented.

ES2.1.1 FY 2007

P-745V
This BRACON would be the construction of a Weapons and Armament Technology Center southeast of the intersection of Blandy Avenue and Knox Road. This facility would provide space for a laboratory, research offices, and a secure compartmented information facility (SCIF) for up to 678 personnel being relocated from NSWC Crane and NSWC Indian Head, NB Ventura County (Point Mugu and Port Hueneme), and NAS Patuxent River. The new Weapons and Armament Technology Center would be surrounded by lawn areas and sidewalks as well as a pedestrian plaza and its own parking area to the south. As part of this BRACON, West Blandy would be closed to through traffic in an attempt to optimize the plaza as well as to allow parking for P-719V. The pedestrian plaza would allow traffic on Knox from the traffic circle to Blandy. East Blandy would remain open.

The design of P-745V is integrated with BRACON P-719V. The Auto Hobby Shop (Buildings 02602) and an associated shade structure (Building 02624), located in the southeastern corner of the proposed P-745V site, would be demolished to allow enough room for the project's parking lot.

P-754V
This BRACON would involve the renovation of Buildings 01028, 01025, 02477, and 20210. The focus of this BRACON would be to group personnel together who are all doing similar work (operational efficiency). This project is required for the evacuation and renovation of Michelson Laboratory (P-732V) and for the evacuation of the Engineering Building (Building 02466) for occupation by the Logistics Competency from NB Ventura County.

Renovations to Buildings 01025 and 01028 would allow the relocation of personnel from the Technical Information Division (TID) photo lab from Wing 1 of Michelson Laboratory. Moving the TID personnel to these buildings would make room in Michelson Laboratory for the personnel from NSWC Crane, NSWC Dahlgren, and NB Point Mugu who are part of BRACON P-732V.

Renovation of Building 02477 would be required to relocate the Defense Automated Printing Service personnel and equipment from Building 02466 where the Logistics Competency from NB Ventura County would be moving.

Renovation of Building 20210 would be required to relocate the Fleet Support and Survival Systems Branch from Building 02466 to where the Logistics Competency from NB Ventura County would be moving. Building 20210 would function as a parachute loft for the Fleet Support and Survival Systems Branch currently working in Building 02466.

P-755V
This BRACON would result in the renovation of Buildings 00001, 00466, and 31567 and the new construction of a Support Equipment Storage Facility and a Support Equipment Storage Yard. The renovation of Building 00001 would provide space to relocate the NB Point Mugu comptroller group. The rehabilitation of Building 00466 would provide space for the Environmental Planning and Management Office from Building 00982. This movement would create space in Building 00982 so that the procurement personnel from NB Point Mugu could be collocated with the NAWS China Lake procurement personnel. The renovation of Building 31567 would provide research office and laboratory space for the Point Mugu Test Support Equipment Competency. The new Support Equipment Storage Facility would also be for the NB Point Mugu Support Equipment Competency.

ES2.1.2 FY 2008

P-701V
This BRACON would involve the construction of a Type II modular hangar in an existing undisturbed location to contain maintenance hangar space (OH), crew space (01), and administrative space (02) for large fixed-wing aircraft (two C-130s and two P-3s) from VX-30 (NB Point Mugu).

This BRACON would also include a concrete parking apron, taxiway, utility connection, fire protection water storage vault, oil and water separator tank, and upgraded storm drainage system, and would extend existing sanitary sewer lines, including manholes and lift stations.

P-710V
This BRACON would be the construction of the hardware-in-the-loop system, which would provide laboratory space for the realignment of the Advanced Modeling and Simulation Branch from NB Point Mugu. It would involve the construction of three anechoic chambers (12.2 by 12.2 by 12.2 meters [40 by 40 by 40 feet]) on the site of a temporary building area. These chambers would absorb electronic and radar waves and would be associated with the Integrated Battlespace Arena. The three chambers would be enclosed within a one-story building connected to a low bay building (enclosing three radio frequency shielded labs, preparation laboratory spaces, and equipment room).

The anechoic chambers, radio frequency shielded labs, and all other laboratory space would be individually secured to SCIF standard. The equipment room would be isolated outside the facility for noise consideration. Excavation would accommodate an approximately 3.7-meter (12-foot) depressed lab for the anechoic chambers and would include construction of a foundation, loading area, retaining wall, and railing. Relocation of existing overhead electrical line and underground communication lines would be required.

P-749V
This BRACON would be the construction of a fuze test facility and the renovation of Buildings 10170 and 10173 in the China Lake Propulsion Lab (CLPL) for the realignment of personnel from NSWC Crane. It would involve construction of a single-story facility with reinforced concrete walls and roof, reinforced concrete slab on grade with spread footings, and blast doors. New construction would be required because this function requires thick concrete walls. The project was sited in the CLPL to be adjacent to the existing fuze work. This would create the desired synergies and savings that the BRAC process intended. Siting in this location allows for establishment of necessary explosive safety quantity distance (ESQD) arcs for this facility.

ES2.1.3 FY 2009

P-712V
This BRACON would be the construction of multiple ordnance magazines, parking areas, access road, and supporting appurtenances for the realignment of NSWC Crane and NSWC Dahlgren's RD&AT&E to NAWS China Lake. These magazines would be of standard, approved design and would be comprised of reinforced concrete spread footings, slab on grade, reinforced concrete walls and roof, hardened structure, intrusion detection system, communications and surveillance, electromagnetic grounding systems, area lighting, security fencing, parking, sidewalks, and an access road.

P-719V
This BRACON would be the new construction of laboratory facilities, administrative offices, and parking area for the realignment of personnel from seven sites to create a W&ARD&AT&E Center at NAWS China Lake. This project is located northwest of the intersection of Knox Road and Blandy Avenue within the NAVAIR fenced compound. It is integrated with the design of P-745 and would be part of the P-745 footprint.

P-732V
This BRACON would be the renovation of Michelson Laboratory (Building 00005) for the relocation of Weapons and Armaments (W&A) functions from NSWC Crane and NSWC Dahlgren and Naval Air Warfare Center Weapons Division (NAWCWD) Point Mugu to NAWS China Lake. Wings one, four, and five would be renovated along with the first and second floors of the main corridor. The renovations would demolish the interior of the concrete shell of Michelson Laboratory, its wings and corridors, and increase the capability of accommodating a large portion of the expected new space requirements of this BRAC action. This would represent an increase in space resource capacity from approximately 252 personnel and associated laboratories to 702 personnel and their associated laboratories. The 252 personnel in Michelson Lab would be relocated during the 24-month renovation. Renovations on this facility would be phased between wings to minimize the number of temporary relocations at any

given time. Temporarily relocated personnel would be accommodated in existing facilities elsewhere on the station, such as Thomson Lab and other smaller facilities. Consequently, no additional renovations or new construction would be required solely for purposes of temporarily relocating employees from Michelson Lab.

ES2.1.4 FY 2010

P-747V
This BRACON would be the construction of a public works warehouse and fenced compound. The public works warehouse facility would provide relief for the storage space being vacated in the Michelson Lab basement. It would allow the public works department to organize the current shop stock to allow for an increased inventory of shop stock materials. The outside storage area would be utilized for storage of masonry, large valves, and other large items. This additional capacity would also provide the additional material storage needed to support the increased square footage of facilities at NAWS China Lake. Nine structures (Buildings 02619, 00971, 02638, 02025, 02637, 01483, 01482, 01464, and 02369) would be demolished under this BRACON.

P-704V
This BRACON would involve the renovations to accommodate:

- W&A functions from NSWC Indian Head – Renovations are proposed for Buildings 11510, 10690, 12143, 15560, 31562, 12042, 12170, and a portion of 11570.

- W&ARD&AT&E functions from NSWC Crane – Renovations are proposed for Buildings 10520, 15800, 16079, and 15790.

- W&ARD&AT&E at NSWC Indian Head – Renovations are proposed for Buildings 12042 and 12170. About 92 meters (300 feet) of potable water distribution line at Building 12170 would be replaced.

In addition, a restroom facility would be constructed at Building 11050 to accommodate the relocation of W&ARD&AT&E from NSWC Dahlgren.

P-759V
This BRACON would be the renovation of three buildings previously used as general bulk warehouses for realignment of the TRIDENT, non-nuclear effort from NWS Seal Beach to NAWS China Lake.

P-777V
This BRACON would be the construction of a Weapons Dynamic Research Development, Test, and Evaluation (RDT&E) Center capable of conducting vibration and risk reduction shock on live (explosive loaded) missiles in launcher canisters as well as non-missile related test items. This BRACON would provide

adequate test facilities to conduct RDT&E of surface ship weapons and munitions. It would provide the capability for the transportation vibration and shipboard vibration testing portions of an explosive safety and insensitive munitions testing program. This project would eliminate safety concerns regarding existing workarounds and reduce handling and transportation of explosives. Additionally, the Weapons Dynamic RDT&E Center would provide facility/test function/test equipment consolidation, as well as process improvement of current test capabilities.

This BRACON would result in the new construction of a single-story, pre-engineered steel frame building with insulated metal walls and roof, expandable wall, concrete foundation with high bay and low bay areas. Low and high bay areas include specific areas for the following functions: vibration isolation, radiographic inspection, assembly/disassembly, support equipment, and a control room. Construction features include steel towers with winch and rails and a support system for two overhead bridge cranes (35-ton and 10-ton), instrumentation booms, and x-ray shielded walls. The new Navy/Marine Corps Intranet (NMCI) infrastructure would be built adjoining Building 12140.

P-778V

This BRACON includes the addition of facilities at two different sites for a small, a medium, and a large ship shock capability for the realignment of the W&ARD&AT&E from NSWC Crane and NSWC Dahlgren to NAWS China Lake. The facilities would include the construction of a small- and medium-weight shipboard shock environmental testing facility at the Skyline area. An addition to the existing control room on Building 12160 also would be required. At another site approximately 15 kilometers (10 miles) east, a concrete test pad will be required for large ship shock tests in the area designated as CT-4, where a magazette is currently located. This facility will require the relocation of the magazette (a small, temporary, movable magazine, grounded for temporary storage of small quantities of explosive materials) to an undisturbed area approximately 393 meters (1,300 feet), west, of its current location. The Shipboard Shock Test Facility will support medium and large shock tests for live and inert missiles and components.

ES2.2 Alternatives to the Proposed Action

The CEQ places significant importance on the discussion of alternatives in a NEPA environmental planning analysis. As defined in 40 CFR 1502.14, the heart of an EA is the analysis of alternatives, which provides decision makers and the public a clear picture of the issues and rationale used to decide upon the preferred alternative.

ES2.2.1 Alternative Criteria

The Navy used the following criteria in identifying and considering reasonable alternatives for analysis in this EA. The EA's criteria are based on the purpose and need for the Proposed Action.

Criterion A: The Facility Needs and Requirements of Incoming Commands Can be Met. The commands that are being realigned have very specific and uncommon facility needs, among which are the capability to safely store explosive materials; use large x-ray systems for examination of weapons, ordnance, and other explosive materials; and be sited in areas of open space such that large-scale research and development, developmental testing, and operational testing can take place. Under Criterion A, a reasonable alternative would be able to accommodate the facility needs and requirements of the realigned activities.

Criterion B: Locate Realigned R&DAT&E Activities in Proximity to Existing W&ARD&AT&E Facilities and Activities. The commands that are being realigned primarily perform W&ARD&AT&E. These types of activities are most efficiently performed when personnel involved in similar missions are able to freely and readily exchange ideas and information. Time and distance are major factors in facilitating such information exchanges. Thus, one of the reasons that this proposed BRAC 2005 realignment was recommended stemmed from the need to consolidate similar functions being conducted in several locations to one location on military-owned land. NAWS China Lake was chosen as the home for the proposed W&ARD&AT&E Center because of the amount of land area available to accommodate the entire function, all within existing base property boundaries. Moreover, implementation of this recommendation would complement the fact that W&ARD&AT&E functions are already performed at NAWS China Lake. Under Criterion B, a reasonable alternative for evaluation in this EA would site the W&ARD&AT&E activities being realigned to NAWS China Lake from different locations in the U.S. in proximity to existing W&ARD&AT&E facilities and activities.

Criterion C: The Use of Existing Facilities is Maximized. One of the purposes of the BRAC program is to generate cost savings by making U.S. Department of Defense (DoD) operations more efficient and eliminating excess infrastructure. The resulting savings would then to be reinvested in warfighting capability. Consequently, maximizing the use of existing facilities is essential to meeting the cost-savings goal. NAWS China Lake has a large number of unused facilities that can be reused as is or renovated to allow for an efficient layout of functions, decreasing the surplus of space. Under Criterion C, a reasonable alternative is one that would make extensive use of existing facilities at NAWS China Lake.

ES2.2.2 Alternatives to be Evaluated in this EA

Two action alternatives (identified below) plus the No Action Alternative are considered in this EA.

As set forth in the Proposed Action, all personnel and functional realignments would take place under either action alternative; however, certain buildings would be relocated. The functions associated with the Proposed Action would not be affected. The alternatives were selected because they were found to meet most, if not all, of the functional criteria previously discussed.

Alternative 1 - Redesign of BRACON P-745V

Under this alternative, all the personnel and functional realignments would take place as set forth in the Proposed Action. In addition, all the BRACONs would take place as set forth in the Proposed Action with the exception of P-745V. This BRACON would be sited on the southwest side of the intersection of Blandy Avenue and Knox Road along with its associated parking area. This would site the Weapons and Armament Technology Center closer to the facilities proposed for P-719V. In addition, no roads would be blocked and the pedestrian plaza would not be created. This alternative would be consistent with all three of the criteria outlined previously in that the facility needs and requirements of incoming commands could be met; the proposed siting of facilities would allow synergy between existing and proposed W&ARD&AT&E facilities and activities; and, the use of existing facilities would be maximized under this alternative, thus, Alternative 1 would fulfill the purpose and needs of the proposed BRAC action.

Alternative 2 - BRACONs P-745V and P-719V Combined

Implementation of Alternative 2 would result in all the personnel and functional realignments taking place as set forth in the Proposed Action. In addition, with the exceptions of P-745V and P-719V (which would be combined), the remaining 12 BRACONs would be implemented as set forth in the Proposed Action. Specifically, the Weapons and Armament Technology Center and the proposed facilities for P-719V would be combined into one structure located northwest of the intersection of Blandy Avenue and Knox Road within the existing NAVAIR compound and adjoining Building 00005. The parking area for P-719 and P-745 would be combined and located southwest of the Weapons and Armament Technology Center. No roads would be blocked off and no pedestrian plaza would be created. This alternative would meet all of the criteria previously outlined by meeting the facility needs and requirements of incoming commands; facilitating synergy among existing W&ARD&AT&E facilities and activities and proposed facilities due to siting proximity; and lastly, maximizing the use of existing facilities. Thus, Alternative 2 would fulfill the purpose and needs of the proposed BRAC action.

No Action Alternative

Under the No Action Alternative, the personnel and functions would not be relocated to NAWS China Lake from the seven different sites as recommended by the BRAC 2005 Commission; additionally, the proposed BRACONs would not be implemented. Implementation of the No Action Alternative would impair the Navy's ability to implement BRAC 2005 recommendations to create a W&ARD&AT&E Center at NAWS China Lake. While short-term costs associated with construction and renovation would be avoided, overall, given the loss in efficiency and productivity that would occur as a result of not implementing the BRACONs contemplated in the Proposed Action, no actual savings or other efficiencies would be realized. The No Action Alternative is used primarily as a baseline to support the impacts analysis of the Proposed Action and the two alternative actions. The No Action Alternative is not an option within the

agency's discretion, but rather is used as a baseline to forward the impacts analysis.

ES2.3 Alternatives Considered but Not Carried Forward

The following alternatives were considered, but were not carried forward for additional analysis.

ES2.3.1 Leasing of Facilities

Under this alternative, facilities would be leased (i.e., rented) from private owners in the communities surrounding NAWS China Lake. This alternative is not considered to be feasible as there are no facilities available in the surrounding area that would be capable of meeting the identified facility needs and requirements necessary to meeting the missions being realigned to NAWS China Lake, specifically the explosive/equipment safety requirements. Thus, this alternative option fails to meet Criteria A, B, and C. In addition, leased space would be considered a primary gathering facility for which Navy anti-terrorism/force protection (AT/FP) requirements would have to be applied, imposing additional costs. Moreover, it would be difficult locating a facility where these requirements would either be allowed or could be implemented. Therefore, this alternative was not carried forward for additional analysis.

ES2.3.2 Renovation/Modernization in Lieu of New Construction at NAWS China Lake

Renovation or modernization in lieu of new construction is not a viable alternative for the BRACONs that are projected as new construction under the Proposed Action because there are not enough unused facilities on NAWS China Lake with the requisite capabilities to accommodate the majority of the W&ARD&AT&E Center functions. This option would meet Criteria B and C, however it would not meet Criterion A since existing unused facilities cannot meet the specialized needs of incoming commands. Therefore, this alternative was not carried forward for additional analysis.

ES2.3.3 Alternative Hangar Siting for P-701V

There were two possibilities for the P-701 hangar siting. One option considered was to site the new hangar close to Hangar Number 3. This option would result in significant utility problems and environmental constraints. The other option would be to site the P-701 hangar adjacent to the existing taxiway which is close to the Weaponization Building and is the future location of an unmanned combat aerial vehicle site. Neither of these options would provide an adequate taxiway. In summary, while these siting possibilities would meet Criterion B, they are not consistent with Criteria A and C.

ES2.4 Summary of Impacts

Table ES-2 is a summary of the impacts expected to occur as part of this Proposed Action.

Table ES-2 Summary of Impacts

Resource Area	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
Geology, Soils, and Seismicity	No significant impacts.	No significant impacts.	No significant impacts.	No significant impacts.
Hydrology and Water Quality	No significant impacts.	No significant impacts.	No significant impacts.	No significant impacts.
Biological Resources	**Impacts** Of the three federally listed threatened and endangered species, the desert tortoise is the only species with the potential to be affected. The BRACON P-701V area is known to be desert tortoise habitat, not USFWS-designated desert tortoise critical habitat and is not within the NAWS China Lake Desert Tortoise Management Area; however, surveys conducted show no sightings or evidence of the desert tortoise, therefore no direct impacts to threatened and endangered species would occur. Other species of concern include state sensitive species. Potential impacts could occur to state sensitive species such as the burrowing owl, which was observed within the footprint for P-701V during surveys in November 2005. Two burrowing owls were observed at the entrances to active burrows and two other active burrows were observed, though no owls were seen associated with these burrows. Therefore, the burrowing owl is known to be either present or likely to be present at the site. Additionally, vegetation communities historically associated with Le Conte's thrasher and the Mohave ground squirrel are present at the site for P-701V. There has been one recorded occurrence of Le Conte's thrasher approximately 16 kilometers (10 miles) from the site, and six recorded occurrences of the Mohave ground squirrel within 8 kilometers (5 miles) of the site; consequently, there is a moderate potential for occurrence of these species at the site itself, and these species could potentially be impacted as well. However, the Navy believes that the Proposed Action is unlikely to have any adverse effect on any of the above-referenced state sensitive species, and that any potential adverse impact or effect would not be significant. With respect to the burrowing owl and Mojave ground squirrel, the Navy would implement impact-	**Impacts** No impacts to federally listed plant and wildlife species would occur as a result of the redesign of P-745V. In all other respects, Alternative 1 would be equivalent to the Proposed Action in terms of potential impacts on biological resources. **Mitigation** Same as for the Proposed Action.	**Impacts** No impacts on federally listed plant and wildlife species would occur as a result of the combination of P-745V and P-719. In all other respects, Alternative 2 would be equivalent to the Proposed Action in terms of potential impacts on biological resources. **Mitigation** Same as for the Proposed Action.	No significant impacts.

Table ES-2 Summary of Impacts

Resource Area	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
	avoidance measures (discussed below) to either eliminate adverse effect or ensure that any adverse effect would be insignificant. The burrowing owl is considered a Second Priority Species of Special Concern by the State of California, which indicates the State's conclusion that the species is in decline but not in imminent danger. As part of its commitment to conservation of sensitive species, and in accordance with the Sikes Act (16 U.S.C. 670a-670f) and the NAWS China Lake INRMP (U.S. Navy 2000), the Navy would implement measures to minimize and/or avoid impacts to nesting burrows and to ground squirrel colonies in the project area (since the Mohave ground squirrel is itself a sensitive species and since such colonies support burrowing owls), as set forth below. The California Department of Fish and Game (CDFG) has concurred in NAWS China Lake's INRMP. To the extent practicable, the Navy would attempt to start initial construction work (e.g., grading) in the Proposed Action area during the non-breeding season (generally September 1 through February 28). For construction work performed in the Proposed Action area during the non-breeding season, a pre-construction survey would not be necessary, as owls could be displaced from occupied burrows during the non-breeding season without the possibility of chicks being abandoned. To the extent practicable, the Navy would attempt to relocate any burrowing owls remaining in the project area after initiation of construction (e.g., through use of one-way doors on burrows) to off-site habitat area. If it is necessary to perform initial construction work in the project area during the breeding season (generally March 1 - August 31), a pre-construction survey would be conducted for the burrowing owl and burrows in areas of the site that may provide suitable breeding habitat. This survey would be conducted by a qualified ornithologist. To the extent practicable in light of project considerations, any active nests or burrows found during the breeding season would be left			

Table ES-2 Summary of Impacts

Resource Area	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
	undisturbed, with an appropriate buffer zone around any such burrow or nest, and any relevant construction work would be redirected or halted until nesting has concluded. If it is not possible to redirect or delay certain work potentially impacting an active nest or burrow, the Navy would attempt to relocate any burrowing owls and chicks to burrows outside the project area, to include construction of artificial nest boxes. Additionally, measures would be taken to avoid impacts to any known ground squirrel colonies (as discussed below). The above-referenced measures would be incorporated as appropriate into the planning, contracting (Request For Proposals), and execution stages of the proposed P-701V BRACON. Given these measures, and given the fact that the number of burrowing owls and/or active burrows previously observed in the project area is relatively low, the Navy believes there would likely be no adverse effect on any individual burrowing owls, and that any potential adverse effect would be experienced by no more than a very small number of such owls. Consequently, the Navy believes the Proposed Action presents no potentially significant adverse effect on the burrowing owl. Le Conte's thrasher is considered a Third Priority Species of Special Concern by the State of California, which indicates the State's conclusion that the species is not currently in any danger of extirpation as a species, but instead would be vulnerable to extirpation if a threat to the species should materialize. Given that there are no recorded occurrences of Le Conte's thrasher in the P-701V project area, and given that the one recorded occurrence of the species in any relative proximity to the project area was approximately ten miles away, the Navy believes the Proposed Action would present no risk of significant adverse effect on Le Conte's thrasher. The Navy notes that neither the Federal Government nor the State of California considers this species to be presently facing any risk as a species. The Mohave ground squirrel is considered a threatened species by the State of California. Per the NAWS China Lake INRMP, the			

Table ES-2 Summary of Impacts

Resource Area	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
	Navy seeks to protect and enhance habitats used by mammals such as the Mohave ground squirrel. (U.S. Navy 2000.) Practices include documenting the occurrence of and monitoring known species. As a matter of policy, the Navy does not conduct construction work in the vicinity of known colonies of Mojave ground squirrels on NAWS China Lake. To the Navy's knowledge, no such colony has ever been observed in the vicinity of the P-701V project area. Consequently, given the relatively low level of occurrences of the species in proximity to the project area (six occurrences within an 8-kilometer [5-mile] radius of the site), the Navy believes there would likely be no adverse effect on any individual Mohave ground squirrels, and that any potential adverse effect would be experienced by no more than a small number of such squirrels. Consequently, the Navy believes the Proposed Action presents no potentially significant adverse effect on the Mohave ground squirrel. **Mitigation** Desert Tortoise Because indirect impacts on the desert tortoise may occur if BRACON P-710V is implemented, mitigation measures will follow the guidance provided in the desert tortoise Biological Opinion (U.S. Navy 2004), which is included as Appendix A. Formal consultation with the USFWS is not required since the Proposed Action area is not within the Desert Tortoise Management Area, is less than 20.2 hectares (50 acres) in total area, and biological surveys found no desert tortoise sign; therefore, NAWS China Lake would only be required to notify the USFWS concerning the Proposed Action in its annual report (Paragraph 1.h of the Terms and Conditions of the BO). The Navy believes that the Proposed Action is not likely to adversely affect the desert tortoise, and that any potential adverse effect on the desert tortoise would be reduced to insignificance by these measures.			

Table ES-2 Summary of Impacts

Resource Area	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
Cultural Resources	**Impacts** The Navy has determined that of the 32 buildings potentially affected by the Proposed Action, the following 13 structures are eligible for listing on the NRHP, either individually or as contributing elements to historic districts: Buildings 00001, 00005, 10520, 10690, 11050, 11570, 15560, 15790, 15800, 10170, 10173, 12170, and 12160 (JRP Historical Consulting Services 1997a, Mikesell 1999, Kaldenberg 2006a, Kaldenberg 2007). The Navy also has determined that Buildings 00008, 00466, 02602, 01025, 01028, 01040, 01041, 01042, 02624, 02477, 11510, 12042, 12143, 16079, 20210, 31562, 31567, 12140, and 91042 are ineligible for NRHP listing (JRP Historical Consulting Services 1997a, Mikesell 1999, Kaldenberg 2006a, Herbert 2007, Kaldenberg 2007). The Navy initiated a series of consultations with the Office of Historic Preservation of the California Department of Parks and Recreation (Appendix B). In a letter dated 17 May 2006, the Navy provided the SHPO with information on the proposed renovations to buildings 00001, 00005, 10520, 10690, 11050, 11570, 15560, 15790, and 15800 and requested the SHPO concur with the determination of No Adverse Effect (Shepherd 2006a). In a letter dated 15 June 2006, the SHPO requested additional information from the Navy on the renovations to Buildings 00005 and 11050 in regard to the specifics of the changes to the windows, doors, sheer walls, and louvers in order to determine the effects on these historic structures (Donaldson 2006a). The Navy agreed to submit the design plans for Building 00005 and Building 11050 once they have been prepared in order for the SHPO to conclude a finding of No Adverse Effect with Conditions (Kaldenberg 2006a). On 14 September and 25 September 2006, the Navy provided the SHPO with additional information pertaining to the proposed modifications. In a letter dated 19 March 2007, the SHPO stated that it would agree to the finding of No Adverse Effects with Conditions.	Same as for the Proposed Action.	Same as for the Proposed Action.	No significant impacts.

Table ES-2 Summary of Impacts

Resource Area	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
	These conditions would include the submittal to the SHPO of the design plans and specifications once they have been completed (Donaldson 2006b). Subsequent to the initial SHPO consultation, the scope of the EA was further defined. Additional consultation was determined to be needed for additional historic-era buildings and resources that could be affected. A letter was sent on 15 February 2007 to notify the SHPO of the "no effect" determination for proposed interior renovations to four historic district buildings (10170, 10173, 12160, and 12170), and to request the following: 1) Concurrence with NAWS China Lake's determination of "ineligible for inclusion on the National Register" for two archeological sites (ASM-AA1 and ASM-AA2) occurring in the BRACON P-701V area; 2) Concurrence with NAWS China Lake's determination of "ineligible for inclusion on the National Register" for four buildings (11510, 12143, 20210, and 31567) evaluated in 2007; and 3) Concurrence with NAWS China Lake's determination of "ineligible for inclusion on the National Register" for 13 other historic-era buildings (00008, 01028, 01040, 01041, 01483, 00466, 01042, 01482, 01025, 01095, 02025, 02624, and 02602) evaluated in 1997. (Buildings 01482, 01483, 01095, and 02025 are being consulted on as not eligible as part of P-747V even though they are not being directly affected.) Since these two sites and buildings were evaluated as not eligible for listing under the NRHP, NAWS China Lake determined that the Proposed Action would result in a "no effect" determination to the two archaeological sites and the 17 structures. Ground-disturbing activities would also take place under BRACONs P-710V, P-712V, P-719V, P-745V, P-747V, P-749V, P-755V, P-777V, and P-778V. However, the Navy has determined that ground-disturbing activity for these BRACONs			

Table ES-2 Summary of Impacts

Resource Area	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
	would take place in existing disturbed areas where there is no potential for the presence of cultural resources. Therefore, none of the proposed ground-disturbing activities would affect archaeological sites eligible for listing on the NRHP and SHPO consultation was not required (Kaldenberg 2006b; Andrews and Giambastini 2006, U.S. Navy 2006). In a letter dated 19 March 2007, the SHPO stated that it concurred with the Navy's determination of "ineligible for inclusion on the National Register" for the 17 buildings and two archaeological sites in the 15 February 2007 letter. The SHPO also stated that it would agree to a "No Historic Properties Affected" determination in lieu of a "no effect" determination for proposed interior renovations to four historic district buildings (10170, 10173, 12160, and 12170). Six (6) buildings (16079, 02477, 31562, 91042, 12042, and 12140) that would be potentially affected by the Proposed Action were not consulted on due to the fact that they are not historic either because they were heavily modified from the original construction date or are not historic era according to the year of construction. As a result of the SHPO concurrence with the Navy's findings, there would be no significant impacts to cultural resources. **Mitigation** Since there would be no significant impacts to cultural resources, no mitigation measures would be proposed.			
Land Use	No significant impacts.	No significant impacts.	No significant impacts.	No significant impacts.
Socioeconomics/ Environmental Justice	No significant impacts.	No significant impacts.	No significant impacts.	No significant impacts.
Traffic and Circulation	**Impacts** There are two intersections that would function at LOS D or worse during the peak periods with the Proposed Action. The two	Same as for the Proposed Action.	Same as for the Proposed Action.	No significant impacts.

Table ES-2 Summary of Impacts

Resource Area	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
	intersections are: • Lauritsen Road/Sandquist Road; and • East Inyokern Road/Bullard Road. The movement that causes the Lauritsen Road/Sandquist Road intersection to operate at LOS E during the a.m. peak is the westbound movement. **Mitigation** The proposed mitigation for the Lauritsen Road/Sandquist Road intersection would consist of the following improvement: • Separating the shared westbound left-through lane into an exclusive left-turn and through lane. With this improvement, the Lauritsen Road/Sandquist Road intersection would operate at LOS D. In order to achieve LOS C or better, a traffic signal would be required. However, this location does not meet any of the warrants needed for a traffic signal. As such, a traffic signal would not be recommended. At the East Inyokern Road/Bullard Road intersection, the movements that cause the intersection to operate at LOS D or worse in all peaks are the northbound and southbound movements of Bullard Road. Vehicles traveling along Bullard Road would have to stop and wait for an acceptable gap before turning on East Inyokern Road. The proposed mitigation for the East Inyokern Road/Bullard Road intersection would consist of the following improvements: • Converting the inside eastbound through lane into a left-turn pocket; • Separating the southbound shared left-through-right lane into an exclusive left-turn and right-turn lane; • Restricting the northbound approach along Bullard Road to right-in, right-out movements only by constructing a "pork chop" raised median; and			

Table ES-2 Summary of Impacts

Resource Area	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
	• Adding an acceleration lane for the southbound to eastbound movement along East Inyokern Road. With these improvements, the East Inyokern Road/Bullard Road intersection would operate at LOS C or better in all peak periods.			
Air Quality	**Impacts** Total annual emissions resulting from project construction within each year of activity have been estimated. The highest annual emissions of PM_{10}, VOCs, and NO_X would occur in FY 2008 (11.78, 2.56, and 31.75 tons per year (TPY), respectively). Once construction is complete, final annual emissions are estimated to result in an increase in annual emissions as shown in Table 4.8-5. These annual emission increases would not result in a significant impact to air quality; however, management practices would be utilized to minimize insignificant impacts still further (as set forth below). Since no calendar year would see an annual emission of PM_{10} that exceeds the 100 TPY *de minimis* threshold, the project is exempt from the General Conformity regulation and does not require a Conformity Determination. Additional detail related to this is found in Appendix C in the Record of Nonapplicability (RONA). For P-701V, expected combined fuel use of the four new VX-30 aircraft ranges from 4.9 to 6.4 million liters (1.3 to 1.7 million gallons) per year of JP 8 and would not exceed the NAWS fuel farm permit limit of 4.5 million liters (12 million gallons) per year. Maintenance operations for these aircraft would be consistent with established airfield procedures and would continue to use NESHAP-compliant solvents for all related operations. These operations would be supported with existing air/ground equipment. For P-749V, test events at this facility are not expected to result in the generation of additional air pollution or hazardous wastes. For P-712V, a modest increase in air pollution emissions is expected as a result of increased forklift operations associated with the	Same as for the Proposed Action.	Same as for the Proposed Action.	No significant impacts.

Table ES-2 Summary of Impacts

Resource Area	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
	movement of ordinance items. There would be no other operational impacts to air quality from any of the BRACONs. For P-777V, test events at this facility are not expected to result in the generation of additional air pollution. For P-778V, test events at this facility are not expected to result in the generation of additional air pollution. Air quality impact-avoidance and minimization measures for the Proposed Action would be focused on controlling and reducing air quality impacts from construction-related activities. The following mitigations should be employed to reduce potential particulate emissions: • Using water for controlling dust during construction operations, grading roads, or clearing land; • Applying water on dirt roads, materials stockpiles, and other surfaces that could create airborne dust; • Installing and using hoods, fans, and fabric filters to enclose and vent the handling of dusty material, including implementing of adequate containment methods during sandblasting or other similar operations; • Covering open equipment for conveying or transporting material likely to create objectionable air pollution when airborne; and Promptly removing spilled or tracked dirt or other materials from paved streets **Mitigation** Since there would be no significant impacts to air quality, no mitigation measures would be proposed.			
Noise	No significant impacts.	No significant impacts.	No significant impacts.	No significant impacts.
Aesthetics	No significant impacts.	No significant impacts.	No significant impacts.	No significant impacts.

Table ES-2 Summary of Impacts

Resource Area	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
Public Services and Utilities	No significant impacts.	No significant impacts.	No significant impacts.	No significant impacts.
Public Health and Safety	No significant impacts.	No significant impacts.	No significant impacts.	No significant impacts.

Key:
BO = Biological Opinion.
LOS = level of service.
NAWS = Naval Air Weapons Station.
NOX = nitrogen oxides.
NRHP = National Register of Historic Places.
PM_{10} = particulate matter less than 10 microns.
SHPO = State Historic Preservation Officer.
TPY = tons per year.
USFWS = U.S. Fish and Wildlife Service.
VOC = volatile organic compound.

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List of Abbreviations and Acronyms

ACHP	Advisory Council on Historic Preservation
ACM	asbestos containing material
ADT	average daily trip
AICUZ	Air Installations Compatible Use Zone
AMSL	above mean sea level
APE	Area of Potential Effect
APCD	Air Pollution Control District
AQMA	Air Quality Management Area
AQMD	Air Quality Management District
AT/FP	Anti-terrorism/Force Protection
BLM	Bureau of Land Management
BMP	best management practice
BO	biological opinion
BP	before present
BRAC	Base Realignment and Closure
BRACON	Base Realignment and Closure Construction
BRRM	Base Redevelopment and Realignment Manual
Btu	British thermal unit
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CATEX	Categorical Exclusion
CBC	California Building Code
CBQ	Combined Bachelor Quarters
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDMG	California Division of Mines and Geology
CERCLA	Comprehensive Environmental Response Compensation Liability Act
CFR	Code of Federal Regulations
CEQ	Council on Environmental Quality
CLPD	China Lake Police and Physical Security Division
CLPL	China Lake Propulsion Lab
CLPPHD	China Lake Pilot Plant Historic District
CLUMP	Comprehensive Land Use Management Plan
CNEL	community noise equivalent level
CNIC	Commander, Naval Installations Command
CO	carbon monoxide

List of Abbreviations and Acronyms (cont.)

CWA	Clean Water Act
dB	decibels
dBA	decibels (A-weighted)
DNL	Day-Night Average Sound Level
DoD	Department of Defense
DOI	U.S. Department of the Interior
DON	Department of the Navy
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMR	electromagnetic radiation
EMCS	electronic monitoring and control system
EO	Executive Order
ESA	Endangered Species Act
ESQD	explosive safety quantity distance
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
FR	*Federal Register*
FTA	Federal Transportation Administration
FY	Fiscal Year
HCM	Highway Capacity Manual
HERF	Hazards of Electromagnetic Radiation to Fuel
HERO	Hazards of Electromagnetic Radiation to Ordnance
HERP	Hazards of Electromagnetic Radiation to Personnel
HVAC	heating, ventilation, and air conditioning
INRMP	Integrated Natural Resources Management Plan
IS	information systems
KvA	kilovolt ampere
LAN	local area network
LBP	lead-based paint
Ldn	Mathematical symbol for Day Night Level
LMU	land use management units
LOS	level of service
MBTA	Migratory Bird Treaty Act
MDAQMD	Mojave Desert Air Quality Management District
MGD	million gallons per day
MLD	million liters per day
MW	megawatt

List of Abbreviations and Acronyms (cont.)

NAAQS	National Ambient Air Quality Standards
NAS	Naval Air Station
NAVAIR	Naval Air Systems Command
NAVAIRINST	Naval Air Systems Command Instruction
NAVFACENGCOM	Naval Facilities Engineering Command
NAWCWD	Naval Air Warfare Center Weapons Division
NAWCWDINST	Naval Air Warfare Center Weapons Division Instruction
NAWS	Naval Air Weapons Station
NB	Naval Base
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NLR	Noise Level Reduction
NMCI	Navy/Marine Corps Intranet
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSPR	New Source Performance Standards
NSR	New Source Review
NSWC	Naval Surface Warfare Center
NWC	Naval Weapons Center
NWS	National Weapons Station
O_3	ozone
OPNAVINST	Operational Navy Instruction
OSRD	Office of Scientific Research and Development
Pb	lead
PCE	passenger car equivalent
PG&E	Pacific Gas & Electric
PL	Public Law
$PM_{2.5}$	particulate matter 2.5 microns in diameter
PM_{10}	particulate matter less than 10 microns
ppm	parts per million
POV	privately owned vehicles
PSD	prevention of significant deterioration
RACUZ	Range Area Compatible Use Zone
RD&A	Research, Development and Acquisition
RDT&E	Research, Development, Test and Evaluation
RFP	Request for Proposal
ROI	Region of Influence
RONA	Record of Nonapplicability
RSM	range safety manual
RWQCB	Regional Water Quality Control Board

List of Abbreviations and Acronyms (cont.)

SANTEC/ITE	San Diego Traffic Engineering Council/Institute of Transportation Engineers
SCIF	secure compartmented information facility
SCS	Soil Conservation Service
SECNAV	Secretary of the Navy
SECNAVINST	Secretary of the Navy Instruction
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	sulfur dioxide
SSUSD	Sierra Sands Unified School District
STATSGO	State Soil Geographic
SWPPHD	Salt Wells Pilot Plant Historical District
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
T&E	Test and Evaluation
TID	Technical Information Division
TJUSD	Trona Joint Unified School District
TPY	tons per year
µg/m3	micrograms per cubic meter
USC	United States Code
USACE	U.S. Army Corp of Engineer
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOC	volatile organic compounds
W&A	Weapons and Armaments
W&ARD&AT&E	Weapons and Armaments Research, Development, and Acquisition, Test and Evaluation
WSC	Weapons Survivability Complex

1 Purpose and Need for the Proposed Action

This Environmental Assessment (EA) describes the potential environmental consequences resulting from construction and operations related to the proposed realignment of seven facilities to create a Naval Integrated Weapons and Armaments Research, Development, and Acquisition, Test and Evaluation (W&ARD&AT&E) Center at Naval Air Weapons Station (NAWS) China Lake, California. It has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] §§ 4321-4370d [1994]), as implemented by the Council on Environmental Quality (CEQ) Regulations (40 Code of Federal Regulations [CFR] §§ 1500-1508 [1997]), Department of the Navy (DON) regulations implementing NEPA (32 CFR 775), and DON Base Realignment and Closure (BRAC) Implementation Guidance.

1.1 Introduction

The Proposed Action is in response to the BRAC Commission of 2005 recommendations for the realignment of personnel and activities at seven facilities to NAWS China Lake to create a Naval Integrated W&ARD&AT&E Center. This recommendation would result in the realignment of the following activities to NAWS China Lake:

- Naval Weapons Station (NWS) Seal Beach, California, by relocating all W&ARD&AT&E functions, except underwater weapons and explosive materials;
- Naval Base (NB) Ventura County, Point Mugu, California, by relocating all W&ARD&AT&E functions;
- NB Ventura County, Port Hueneme, California, by relocating all W&ARD&AT&E functions, except weapon system integration;
- Naval Surface Warfare Center (NSWC) Crane, Indiana, by relocating all W&ARD&AT&E functions, except gun/ammo, combat system security, and explosive materials;

- NSWC Dahlgren, Virginia, by relocating all W&ARD&AT&E functions, except guns/ammo and weapon systems integration;

- NSWC Indian Head, Maryland, by relocating all W&ARD&AT&E functions, except gun/ammo, underwater weapons, and explosive materials; and

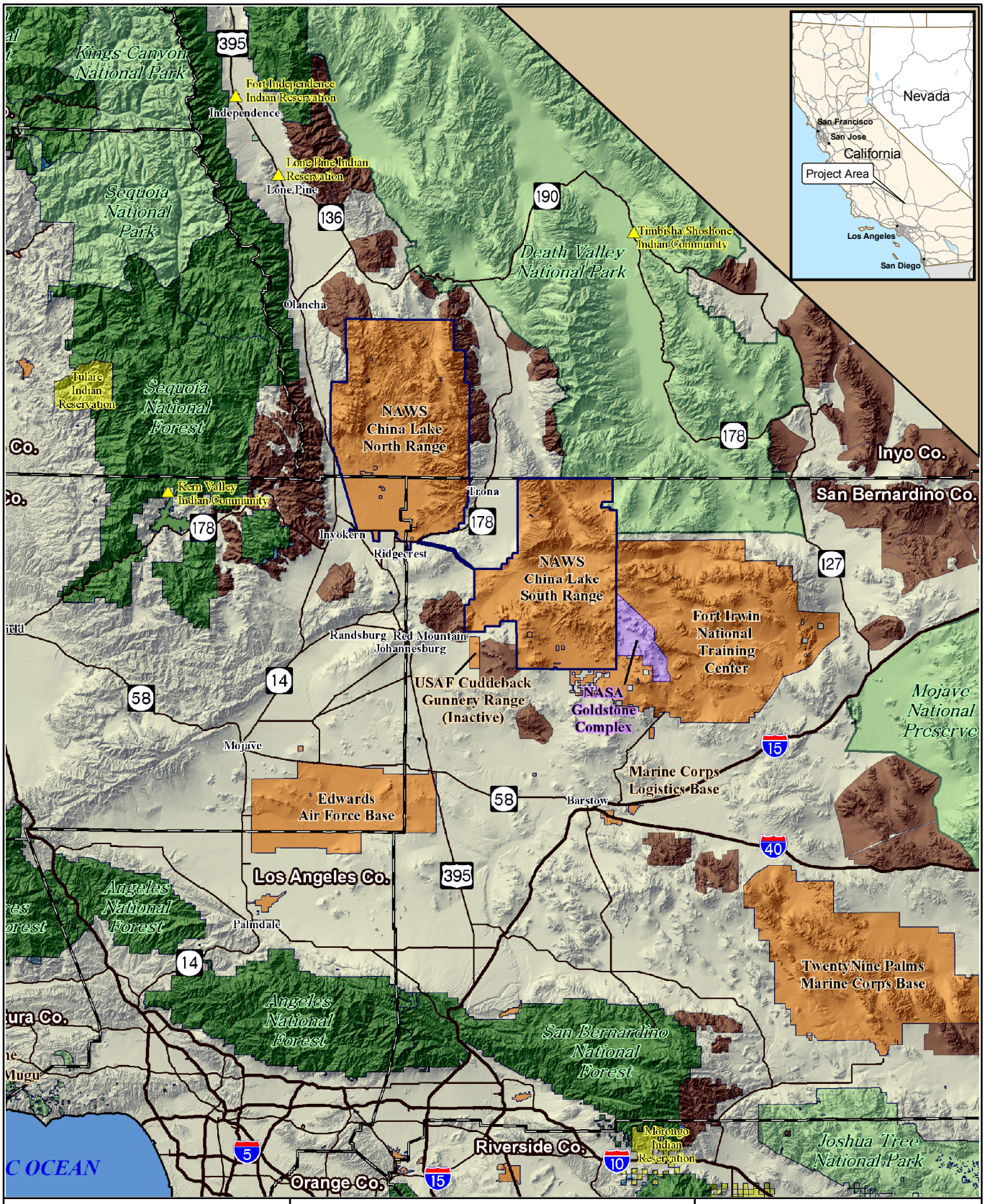
- Naval Air Station (NAS) Patuxent River, Maryland, by relocating all W&ARD&AT&E functions, except the Program Executive Office and Program Management Offices in Naval Air Systems Command (NAVAIR).

The BRAC Act (commonly known as the BRAC legislation) was signed into law on October 24, 1988 (Public Law [PL] 101-526) and subsequently amended in November 1990 (PL 101-510; commonly known as the BRAC II legislation). The purpose of the BRAC legislation was to establish a procedure for the realignment and closure of U.S. Department of Defense (DoD) military installations. To achieve this, the legislation established nonpartisan BRAC commissions to review and evaluate the military installation closure or realignment recommendations of the Secretary of Defense and to make closure and realignment recommendations to the President and the Congress. Recommendations were issued by the commissions in 1988, 1991, 1993, 1995, and 2005; all of the recommendations have become law.

1.2 Proposed Action Location

NAWS China Lake is in the Upper Mojave Desert of California, approximately 242 kilometers (150 miles) northeast of Los Angeles (Figure 1-1). The NAWS, composed of the North Range and the South Range, covers approximately 4,402 square kilometers (1,700 square miles) and is located in three counties: Inyo, Kern, and San Bernardino. The North Range lies in all three of these counties; the southwest portion of the North Range is in Kern County, the northern two-thirds are in Inyo County, and the southeast portion is in San Bernardino County. The South Range lies entirely in San Bernardino County.

NAWS is predominantly surrounded by federally owned lands interspersed with pockets of private and state lands (Figure 1-2). Small areas of privately owned land are found immediately to the south and along the western boundary of the North Range and south of the South Range. The incorporated city of Ridgecrest and the unincorporated town of Inyokern are located adjacent to NAWS China Lake.



N
W E
S

0 5 10 20 30 40
Miles

NAWS CHINA LAKE BRAC EA

Central Southern California

Figure 1-1
Regional Vicinity Map

Date: 9/18/2006	GIS Analyst: avh
Map Source Information:	

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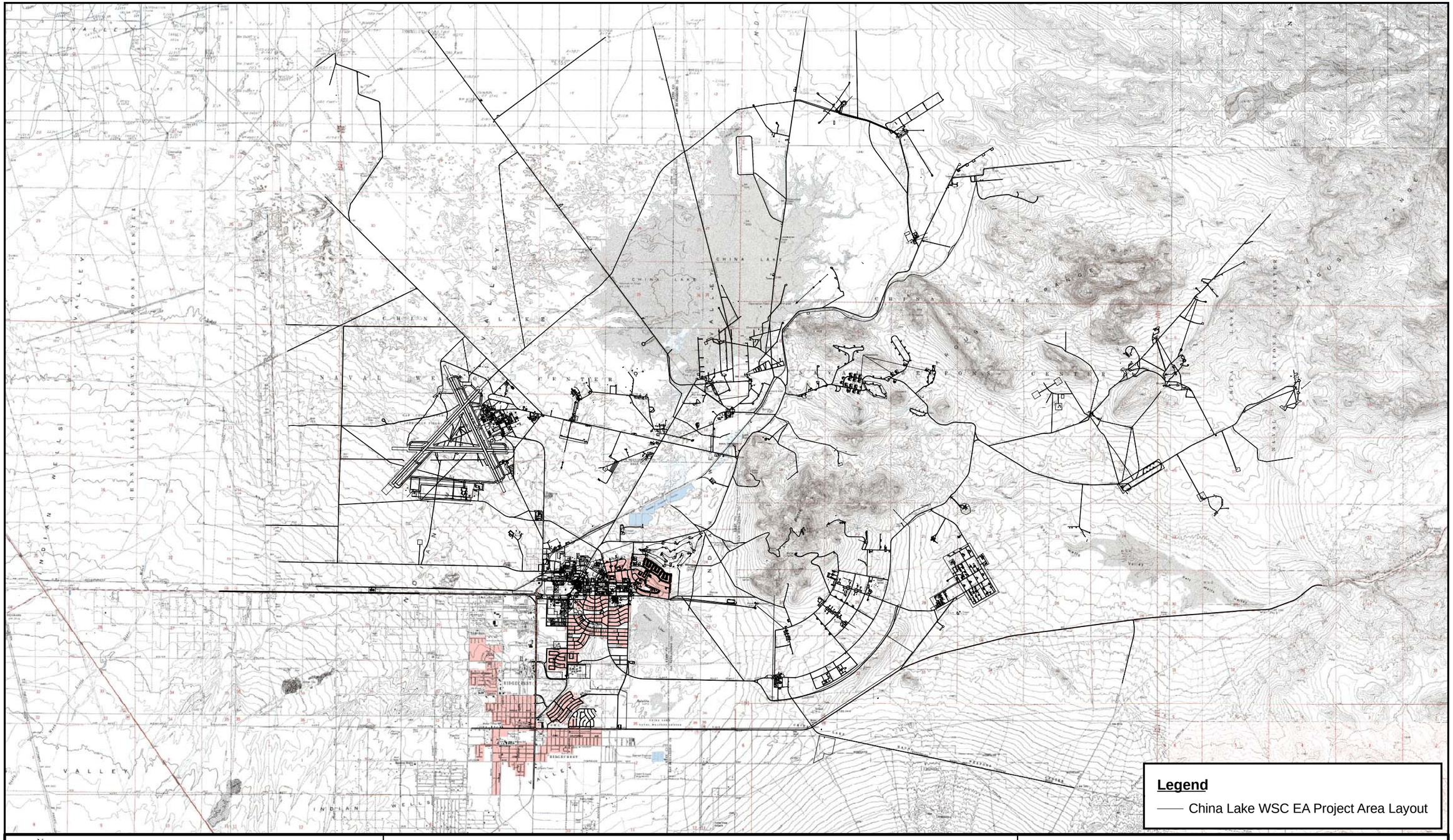

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Map Reference: USGS Geological Survey Topographic 1:24,000. Terraserver.com.

NAWS CHINA LAKE BRAC EA

Ridgecrest, California

Figure 1-2
NAWS CHINA LAKE MAP

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1.3 Purpose of the Proposed Action

The movement of personnel, functions, and equipment to NAWS China Lake, is required in order to comply with BRAC law. The BRAC Commission's Final Recommendations are not discretionary actions for the Navy and thus, are not subject to environmental impact analysis under NEPA. Therefore, this EA will not address the potential environmental impacts of realignment upon NWS Seal Beach, NB Ventura County, NSWC Crane, NSWC Dahlgren, NSWC Indian Head, and NAS Patuxent River.

Existing facility configurations at NAWS China Lake cannot accommodate the workforce transfer mandated by the 2005 BRAC Commission's Recommendation. The realignment of workload would require the construction of new, properly designed space and renovation of existing space to facilitate the move of functions from the above mentioned locations to NAWS China Lake. The purpose of the Proposed Action is to provide appropriate facilities at NAWS China Lake to accommodate the workforce transfer and subsequent operations in support of BRAC.

1.4 Need for the Proposed Action

The Navy's internal planning process identified the need for a number of different actions that are needed now, in advance of personnel, function, and equipment movement to successfully implement the realignment of assets and functions from NWS Seal Beach; NB Ventura County (Point Mugu and Port Hueneme); NSWC Crane, NSWC Dahlgren, and NSWC Indian Head; and NAS Patuxent River to NAWS China Lake. By addressing the need for additional infrastructure and facilities upgrades at this time, the Navy can provide facilities necessary to support the incoming assets, which would allow for little or no interruption to operational readiness activities that are ongoing at the selected sites. These actions would encompass 14 BRAC Construction (BRACON) projects that would take place over a four-year period. These 14 BRACONs represent the maximum number of construction projects that could occur as a result of the Proposed Action. The 14 BRACONs involve the construction of the following facilities:

- Weapons and Armaments Technical Center;
- Weapons and Armaments Facility;
- Aircraft hangar;
- Special test facilities;
- Ordnance storage facilities;
- Hardware-in-the-loop facility;
- New warehouses; and
- General administrative and laboratory space.

These BRACONs also include the following projects:

- Rehabilitation of Michelson Laboratory;
- Rehabilitation of multiple NAWS China Lake facilities; and

- Reuse of existing NAWS China Lake facilities.

Implementation of these actions would facilitate the realignment and consolidation of the BRAC-designated facilities into one Naval Integrated W&ARD&AT&E Center at NAWS China Lake. This center would provide a diverse set of open-air range and test environments (desert, mountain, forest) for conducting W&ARD&AT&E functions. Consolidating the Navy's air-to-air, air-to-ground, and surface launched missile research, development, and acquisition (RD&A) and test and evaluation (T&E) activities at China Lake would also create efficiencies in operations. With these modifications/additions, NAWS China Lake would be able to accommodate both mission and lifecycle/sustainment functions creating synergies between these traditionally independent warfare communities. As a result, the DoD would be able to exploit center-of-mass scientific, technical and acquisition expertise with W&ARD&AT&E functions that have historically resided at 10 separate locations; and to consolidate those capabilities into one integrated W&ARD&AT&E site, one specialty site, and an explosives site all situated in one geographical location.

1.5 Environmental Documentation

This EA was prepared using a systematic, interdisciplinary assessment process, designed to provide decision makers with an organized analysis of the environmental consequences of implementing the Proposed Action. Chapter 1 discusses the purpose and need for the Proposed Action, and Chapter 2 describes the Proposed Action and alternative actions considered. Chapter 3 characterizes the affected environment, and Chapter 4 provides an assessment of the environmental consequences of the Proposed Action. Chapter 5 addresses cumulative impacts under NEPA, and Chapters 6 and 7 discuss other NEPA considerations. Chapter 8 lists individuals who participated in the preparation of this EA. Chapter 9 provides the references used in the EA process to assist readers and decision makers in the review and use of this document.

1.6 Environmental Scope of the Proposed Action

In accordance with the CEQ regulations for implementing NEPA, material relevant to a proposed action may be incorporated by reference with the intent of reducing the size of the document. Accordingly, the following documents are incorporated by reference in this EA because the actions addressed are applicable to the Proposed Action:

- *NAWS China Lake Comprehensive Land Use Management Plan (CLUMP), May 2005;*

- *NAWS China Lake Environmental Impact Statement (EIS), February 2004; and*

- *NAWS Integrated Natural Resources Management Plan (INRMP) September 2000.*

This EA covers the full range of environmental issues resulting from the realignment of assets and functions from NWS Seal Beach; NB Ventura County (Point Mugu and Port Hueneme); NSWC Crane, NSWC Dahlgren, and NSWC Indian Head; and NAS Patuxent River to NAWS China Lake. The primary issues of concern in evaluating the potential impacts of the Proposed Action are the effects it could have on biological resources, cultural resources, traffic and circulation, air quality, and public health and safety. Consequently, these issues have received the greatest emphasis in the evaluations presented in this document. Other issues are also addressed and evaluated in this EA, but to a lesser degree than the primary issue identified above. For each of the other issues, the level of evaluation and depth of discussion in this document are commensurate with the relative degree of importance attributed to each issue in the decision process. Specifically, the EA contains an evaluation of the following issues of concern.

Primary Issues

- Biological Resources
- Cultural Resources
- Traffic and Circulation
- Air Quality
- Public Health and Safety

Secondary Issues

- Geology, Soils, and Seismicity
- Hydrology/Water Quality
- Socioeconomics
- Noise
- Land Use
- Aesthetics
- Public Services and Utilities

1.7 Intergovernmental Coordination

As part of the NEPA compliance process, coordination and consultation with appropriate government agencies is initiated as appropriate to obtain regulatory input and guidance related to the Proposed Action. The purpose is to ensure that all applicable laws, rules, regulations, and policies have been identified and the Proposed Action has been duly considered in light of these considerations.

This EA has been prepared pursuant to the following:

- NEPA (42 USC §§ 4321-4370d);
- CEQ Regulations (40 CFR 1500-1508);
- DoD 4165.66-M – Base Redevelopment and Realignment Manual (BRRM);

- Secretary of the Navy (SECNAV) Instruction (SECNAVINST) 5090.6A – Environmental Planning for Department of the Navy Actions;
- DON BRAC Implementation Guidance, Chapter 9;
- Revitalizing Base Closure Communities and addressing impacts of Realignment (32 CFR Parts 174, 175, and 176);
- DON Guidance on Admin Records – Developing an Administrative Record for Litigation Pursuant to NEPA, a Legal Primer for the DON;
- Archaeological Resources Protection Act of 1979, 16 USC § 470aa (1994);
- Clean Air Act (CAA), 42 USC § 7401 (1994);
- CAA (Amendments of 1990), PL No. 101-549, 104 Statute 2399;
- Clean Water Act (CWA), 33 USC § 1251 (1994);
- CWA (Section 404 Permitting), 33 USC §1344 (1944);
- Endangered Species Act (ESA), 16 USC §1531 (1994);
- Safe Drinking Water Act (SDWA), 42 USC 300f;
- Executive Order (EO) 11988 (Floodplain Management) 42 *Federal Register* (FR) 26951 (1977) (Codified as 42 USC § 4321 (note) (1994);
- EO 11990 (Wetlands Protection) 42 FR 26961 (1977);
- EO 12898 (Environmental Justice) 59 FR 7629 (1994);
- EO 13045 (Environmental Justice for Children) 62 FR 19885 (1997);
- EO 12372 (Intergovernmental Review of Federal Programs) 7 CFR § 3015 (1977), Subpart V and final rule-related notices published at 48 FR 29114 (1983), and 49 FR 22676 (1984);
- Migratory Bird Treaty Act (MBTA) 16 U.S.C. §§ 703-712, July 3, 1918, as amended 1936, 1960, 1968, 1969, 1974, 1978, 1986 and 1989;
- National Historic Preservation Act (NHPA) of 1966, as amended 16 USC § 470 (1994); and
- National Register of Historic Places (NRHP) 36 CFR § 60 (1977).

Environmental compliance requirements for Navy activities are defined in Operational Navy Instruction (OPNAVINST) 5090.1B, as amended. Specific

local environmental management policies and procedures are contained in the CLUMP (U.S. Navy 2005a), and the INRMP (U.S. Navy 2000). The Environmental Planning and Management Office have responsibility for the protection of sensitive resources and were consulted throughout the preparation of this EA and associated technical surveys and reports.

1.8 Decisions to be Made

The decision maker for the proposed action is Commander, Naval Installations Command (CNIC).

Based on this EA, a decision will be made whether a Finding of No Significant Impact (FONSI) or a Notice of Intent to prepare an EIS is appropriate for the Proposed Action. This decision will be based on a determination whether all potential impacts are either less than significant or can be reduced to less than significant levels through the implementation of mitigation measures. If it is determined that all potential impacts are either less than significant or can be mitigated to less than significant levels, then preparation of a FONSI would be appropriate. If any potential impacts would be considered significant and cannot be avoided or reduced to less than significant levels, then the preparation and processing of an EIS are required.

The Proposed Action may also require the following decisions and approvals from federal and state agencies.

1.8.1 Clean Air Act General Conformity Rule

The DON must prepare a Conformity Review (applicability analysis) prior to the finalization of this EA, in accordance with requirements and procedures described in the CAA General Conformity Guidance (U.S. Navy 2002).

1.8.2 Section 106 Compliance

The NHPA requires federal agencies to consider the preservation of historic and prehistoric resources. Under the NHPA, the Secretary of the Interior is authorized to expand and maintain the NRHP. Section 106 of the NHPA mandates that all federal agencies take into account the effects of their undertakings (actions) on historic/prehistoric resources and to afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to review and comment on any action that may affect properties that are listed, or are eligible for listing, on the NRHP. Under Section 101 of the NHPA, a State Historic Preservation Officer (SHPO) was established in each state and designated the responsibility of reviewing and commenting on any action affecting NRHP properties or properties eligible for listing on the NRHP.

The Navy has determined that of the 32 buildings, the following 13 structures are eligible for listing on the NRHP, either individually or as contributing elements to historic districts: Buildings 00001, 00005, 10520, 10690, 11050, 11570, 15560, 15790, 15800, 10170, 10173, 12170, and 12160 (JRP Historical Consulting Services 1997a, Mikesell 1999, Kaldenberg 2006a, Kaldenberg 2007). The Navy

also has determined that Buildings 00008, 00466, 02602, 01025, 01028, 01040, 01041, 01042, 02624, 02477, 11510, 12042, 12143, 16079, 20210, 31562, 31567, 12140, and 91042 are ineligible for NRHP listing (JRP Historical Consulting Services 1997a, Mikesell 1999, Kaldenberg 2006a, Herbert 2007, Kaldenberg 2007).

In compliance with Section 106, the Navy initiated a series of consultations with the Office of Historic Preservation of the California Department of Parks and Recreation (Appendix B). In a letter dated 19 March 2007, the SHPO stated that it would agree to the finding of No Adverse Effects with Conditions for Buildings 00005 and 11050. These conditions would include the submittal to the SHPO of the design plans and specifications once they have been completed (Donaldson 2006b).

Subsequent to the initial SHPO consultation, the scope of the EA was further defined. Additional consultation was determined to be needed for additional historic-era buildings and resources that could be affected. In a letter dated 19 March 2007, the SHPO stated that it concurred with the Navy's determination of "ineligible for inclusion on the National Register" for the 17 buildings and two archaeological sites in the 15 February 2007 letter. The SHPO also stated that it would agree to a "No Historic Properties Affected" determination in lieu of a "no effect" determination for proposed interior renovations to four historic district buildings (10170, 10173, 12160, and 12170).

1.8.3 Endangered Species Act, Section 7 Consultation

Informal consultation with the U.S. Fish and Wildlife Service (USFWS) is required under the ESA if the Proposed Action would occur at locations likely to be inhabited by threatened or endangered plant and animal species. The only federally listed species potentially present in the Proposed Action area includes:

- Desert tortoise (*Gopherus agassizii*).

Two other federally listed species, the Mohave tui chub (*Gila bicolor mohavensis*) and Inyo California towhee (*Pipilo crissalis eremophilus*), are found on NAWS China Lake; however they are not found in proximity to any of the BRACON areas.

The only state-listed species that are known to be found or have the potential to be found in the Proposed Action area are the Mojave ground squirrel, Le Conte's thrasher, and the burrowing owl.

NAWS China Lake has a Biological Opinion (BO) on the desert tortoise from the USFWS which is included in this document as Appendix A. The BO was issued in 1995 and evaluates the impacts that *NAWS China Lake's Desert Tortoise Habitat Management Plan* would have on desert tortoise critical habitat. It was the opinion of the USFWS that *NAWS China Lake's Desert Tortoise Habitat Management Plan* would not likely jeopardize the continued existence of the

desert tortoise or adversely modify desert tortoise critical habitat. In this case, no consultation with the USFWS is required since: the Proposed Action area is not within the Desert Tortoise Management Area, is less than 20.2 hectares (50 acres) in total area, and biological surveys found no desert tortoise sign; therefore, NAWS China Lake would only be required to notify the USFWS concerning the Proposed Action in its annual report (Paragraph 1.h of the Terms and Conditions of the BO).

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2 Description of the Proposed Action and Alternatives

This chapter provides an in-depth discussion of the Proposed Action and its alternatives.

In September 2005, the BRAC Commission recommended the realignment of assets and functions from NWS Seal Beach; NB Ventura County (Point Mugu and Port Hueneme); NSWC Crane, NSWC Dahlgren, and NSWC Indian Head; and NAS Patuxent River to NAWS China Lake. On 27 October 2005, the BRAC Commission's recommendations were enacted into law.

Unlike the official BRAC Commission's Final Recommendations of 8 September 2005, the 14 Navy BRACON projects are discretionary actions proposed by the Navy and, therefore, are subject to analysis under NEPA. Thus, this EA analyzes the potential environmental impacts that may be associated with the Proposed Action, which includes the 14 BRACONs and the operational activities that would occur after the realignment of assets and functions from the above-mentioned installations.

The 14 BRACON projects at NAWS China Lake that are required to support the Proposed Action would involve new construction as well as repair, renovation, and modification of existing facilities. The Proposed Action would also involve the movement of existing commands and their personnel among different buildings while the construction and renovation is ongoing.

2.1 Description of the Proposed Action

The Proposed Action is the implementation of the BRAC recommendations and will require the transfer and relocation of active duty and civilian Navy personnel (and equipment) and the construction of 14 BRACON projects. Currently, there are 956 active duty military and 3,077 civilian employees of the Navy working at NAWS China Lake. Table 2-1 provides a count of the maximum number of active duty and civilian personnel by activity that would be affected by the proposed realignment to NAWS China Lake. These personnel are associated with the W&ARD&AT&E functions at NSWC Crane, NSWC Indian Head, NSWC Dahlgren, NAS Patuxent River, and NWS Seal Beach; and the W&ARD&AT&E functions at NB Port Hueneme and NB Point Mugu, both of which are part of NB Ventura County.

Table 2-1 Personnel Movement

Location	Active Duty	Civilian
NWS Seal Beach		20
NB Ventura County (Point Mugu)	182	1,066
NB Ventura County (Port Hueneme)	5	368
NSWC Crane		193
NSWC Dahlgren		147
NSWC Indian Head		80
NAS Patuxent River		39
Total	187	1,913

All BRACON new construction projects (Figure 2-1) would be designed to be compliant with the Americans with Disabilities Act and would meet all current seismic requirements. Built-in equipment would include individual heating, ventilation, and air conditioning (HVAC) equipment and a Navy/Marine Corps Intranet (NMCI) equipment room. Electrical systems would include lighting, power, fire alarms, and information systems (IS; telephone, local area network [LAN], and NMCI). Mechanical systems would include plumbing, fire suppression, energy-efficient HVAC, and energy-saving electronic monitoring and control system (EMCS). Supporting facilities would include site and building utility connections (water, fire, sanitary sewer, gas, electrical, telephone, LAN, and NMCI). Anti-terrorism/force protection (AT/FP) measures would include blast-resistant glazed window and door systems, mass notification systems, and emergency air distribution shut-off. Site improvements would include paved parking areas, sidewalks, roadway access, landscaping, anti-terrorism setbacks and barricades, and relocation of existing steam utility lines, sewer, and electrical. Site preparation activities would include site excavation, grading, and stormwater management.

BRACON building renovations (Figure 2-2) would include, but not be limited to abatement of asbestos-containing material (ACM) and lead-based paint (LBP); removal of interior non-bearing walls; demolition and replacement of interior walls, floor and ceiling finishes, doors, lighting, plumbing lines and fixtures; and work involving HVAC and electrical systems. Additional work may include AT/FP compliance, fence realignment, fire and life safety systems, seismic upgrades, and IS.

Sustainable design principles would be included in the design, development, and construction of the BRACONs in accordance with EO 13123 and other laws and EOs.

P-712V

P-778V

P-755V

P-701V

P-777V

P-710V

P-745V

P-747V

P-749V

Legend

NAWS China Lake BRAC Site Features

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Map Reference:

NAWS CHINA LAKE BRAC EA

Ridgecrest, California

Figure 2-1

BRACON NEW CONSTRUCTION PROJECTS

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P-754V

P-732V

P-759V

Legend

NAWS China Lake BRAC Site Features

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Miles

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Map Reference:

NAWS CHINA LAKE BRAC EA

Ridgecrest, California

Figure 2-2

BRACON RENOVATION PROJECTS

Date: 2/19/2007

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All the BRACON design drawings contained in this document are conceptual and subject to change. The drawings address the site and scope of the projects. The 14 BRACONs would be constructed in a phased manner over a four-year period staring in Fiscal Year (FY) 2007 and continuing through FY 2010. Each of these 14 BRACONs are discussed below in the order (by FY) they would be implemented.

FY 2007

P-745V

This BRACON would be the construction of a Weapons and Armament Technology Center southeast of the intersection of Blandy Avenue and Knox Road (Figure 2-3). This facility would provide space for a laboratory, research offices, and a secure compartmented information facility (SCIF) for up to 678 personnel being relocated from NSWC Crane and NSWC Indian Head, NB Ventura County (Point Mugu and Port Hueneme), and NAS Patuxent River. The new Weapons and Armament Technology Center would be surrounded by lawn areas and sidewalks as well as a pedestrian plaza and its own parking area to the south. The Request for Proposal (RFP) for this BRACON would require either a 5.4-meter (18-foot) high covered pedestrian walkway above Knox Road that would connect the new Weapons and Armament Technology Center and the new facilities being developed as part of P-719V, or a traffic signal. As part of this BRACON, West Blandy would be closed to through traffic in an attempt to optimize the plaza as well as to allow parking for P-719V. The pedestrian plaza would allow traffic on Knox from the traffic circle to Blandy. East Blandy would remain open.

This project would be constructed on an existing disturbed site where a personnel building has been demolished. Existing parking, driveways, and abandoned in place utilities would be demolished as part of this BRACON. The design of P-745V is integrated with BRACON P-719V (Figure 2-3). The Auto Hobby Shop (Buildings 02602) and an associated shade structure (Building 02624) located in the southeastern corner of the proposed P-745V site would be demolished to allow enough room for the project's parking lot. The Auto Hobby Shop's function would be relocated to an undetermined location at NAWS China Lake.

The analysis contained in this EA addresses only the demolition and not the relocation of the Auto Hobby Shop. Operations at the Weapons and Armament Technology Center would include administrative and computer laboratory activities involving up to 680 people.

P-754V

This BRACON would involve the renovation of Buildings 01028, 01025, 02477, and 20210. The focus of this BRACON would be to group personnel together who are all doing similar work (operational efficiency). This project is required for the evacuation and renovation of Michelson Laboratory (P-732V), and for the evacuation of the Engineering Building (Building 02466) for occupation by the Logistics Competency from NB Ventura County.

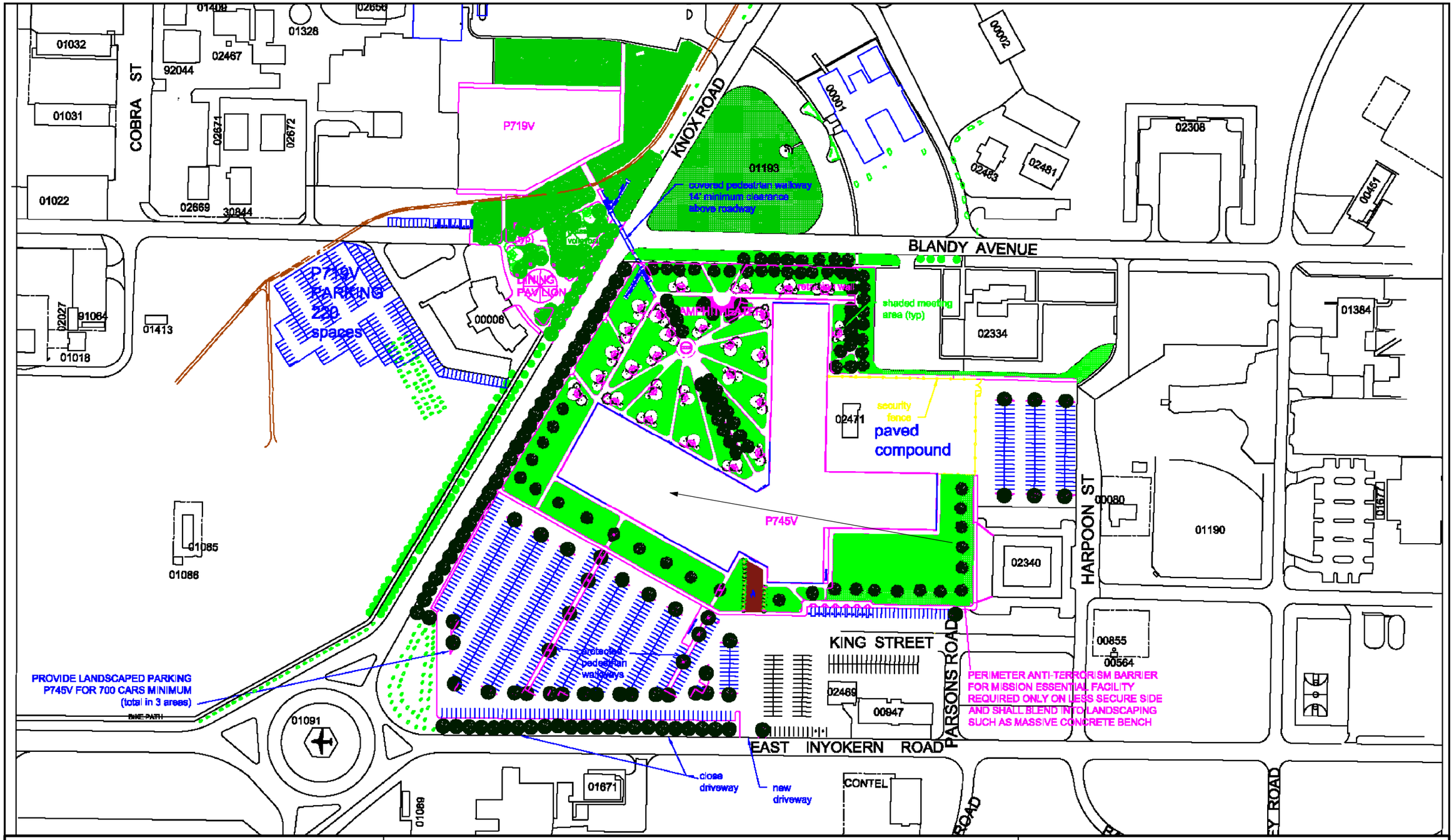
Renovations to Buildings 01025 and 01028 would allow the relocation of personnel from the Technical Information Division (TID) photo lab from Wing 1 of Michelson Laboratory. Moving the TID personnel to these buildings would make room in Michelson Laboratory for the personnel from NSWC Crane, NSWC Dahlgren, and NB Point Mugu who are part of BRACON P-732V. The contractor would be given the option of constructing an entirely new facility for the TID on a different site in a parking lot just east of Building 02334 if that could be accomplished at lower cost than renovation of Building 01028.

Renovation of Building 02477 would be required to relocate the Defense Automated Printing Service personnel and equipment from Building 02466 where the Logistics Competency from NB Ventura County would be moving.

Renovation of Building 20210 would be required to relocate the Fleet Support and Survival Systems Branch from Building 02466 to where the Logistics Competency from NB Ventura County would be moving. Building 20210 would function as a parachute loft for the Fleet Support and Survival Systems Branch currently working in Building 02466.

P-755V

This BRACON would result in the renovation of Buildings 00001, 00466, and 31567, and the new construction of a Support Equipment Storage Facility and a Support Equipment Storage Yard (Figures 2-4, 2-5, and 2-6). The renovation of Building 00001 would provide space to relocate the NB Point Mugu comptroller group. The rehabilitation of Building 00466 would provide space for the Environmental Planning and Management Office from Building 00982. This movement would create space in Building 00982 so that the procurement personnel from NB Point Mugu could be collocated with the NAWS China Lake procurement personnel. The renovation of Building 31567 would provide research office and laboratory space for the Point Mugu Test Support Equipment Competency. The new Support Equipment Storage Facility also would be for the NB Point Mugu Support Equipment Competency. Operations associated with this BRACON are administrative and storage functions and would involve an increase of up to 40 additional personnel.



Map Reference: USGS Geological Survey Topographic 1:24,000. Terraserver.com.

NAWS CHINA LAKE BRAC EA

China Lake, California

Figure 2-3

P745V DESIGN LAYOUT

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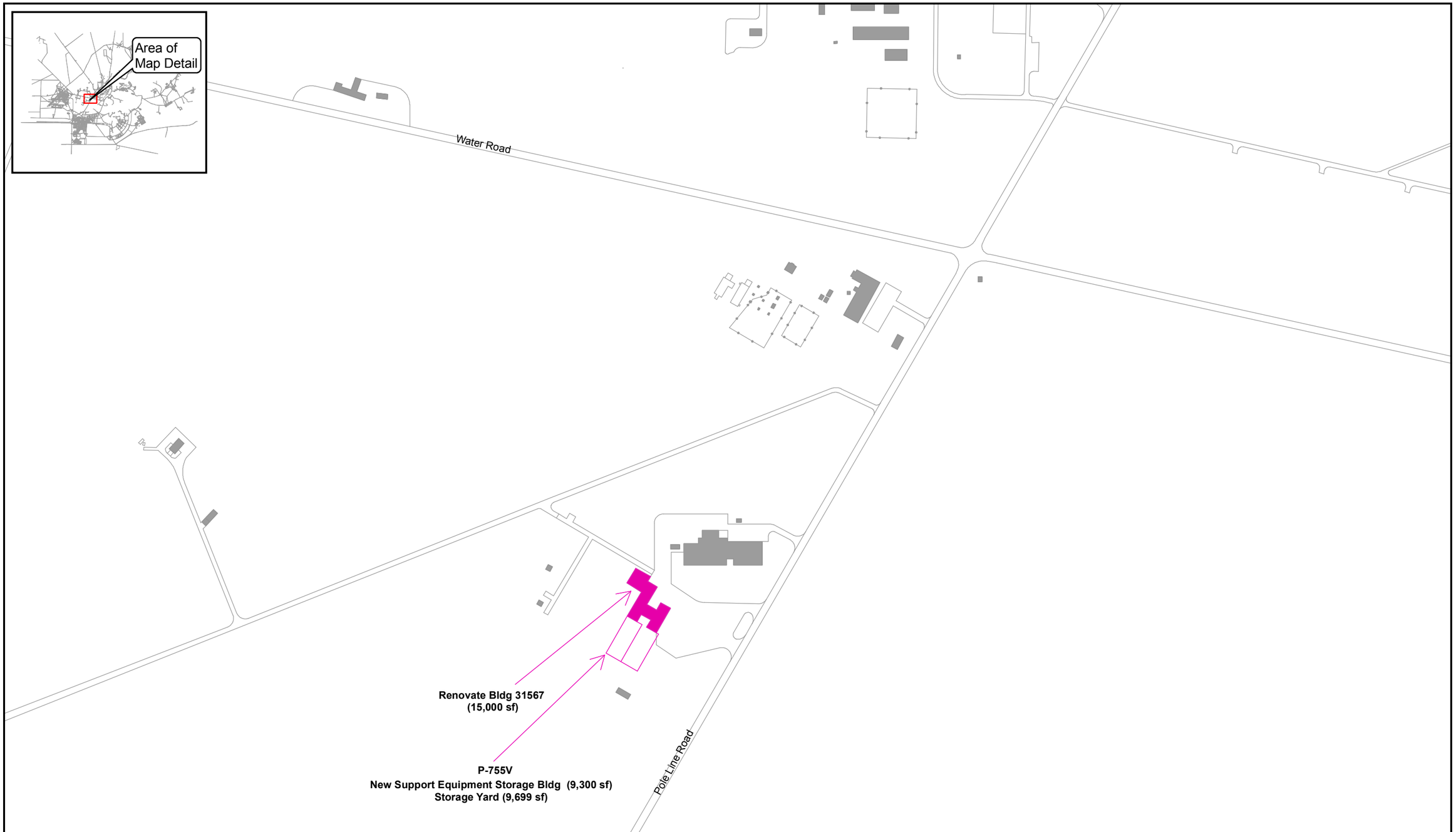

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Map Reference:

NAWS CHINA LAKE BRAC EA

Ridgecrest, California

Figure 2-4
P-755V DESIGN LAYOUT

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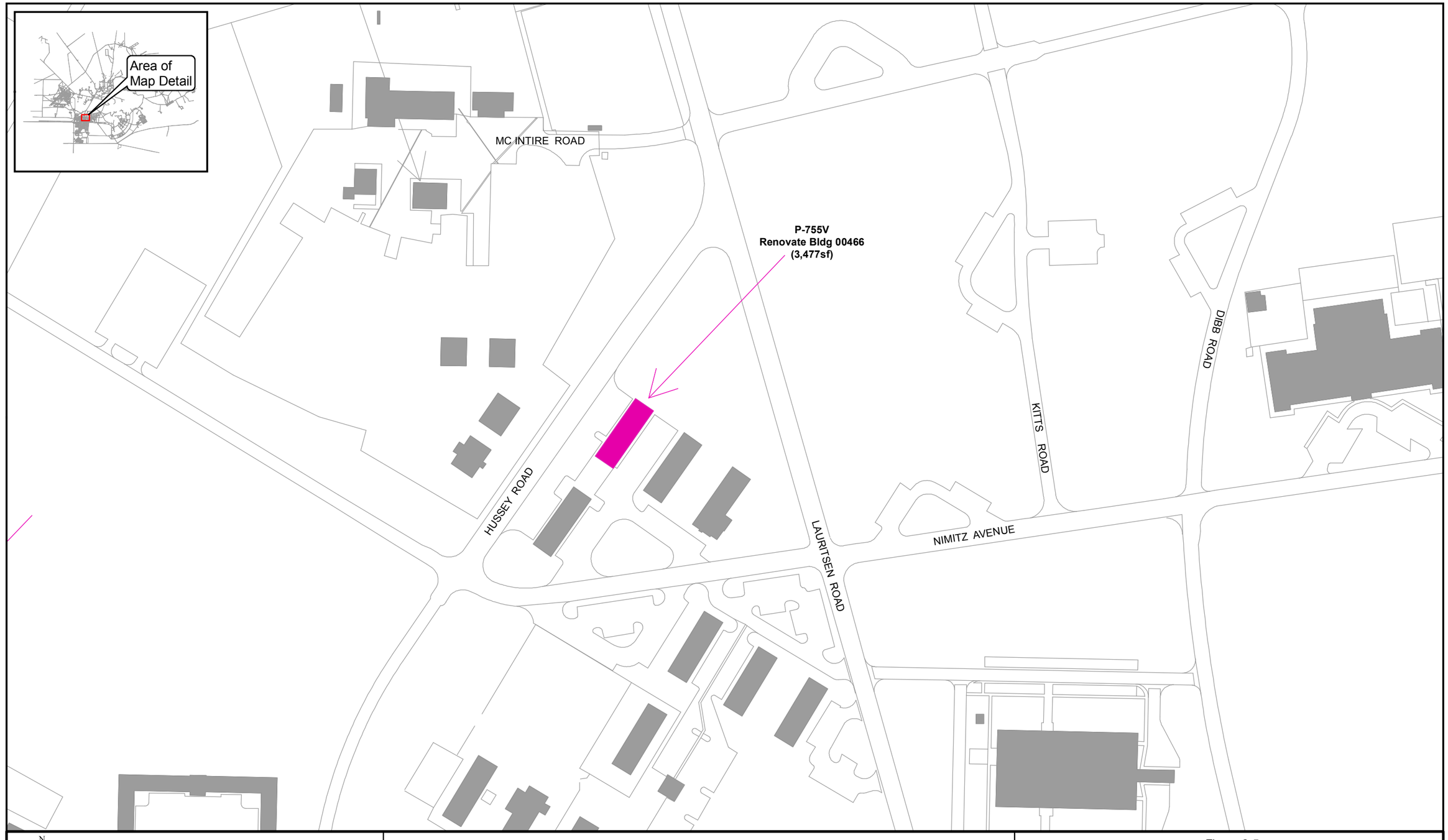

Map Reference:

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Ridgecrest, California

Figure 2-5
P-755V DESIGN LAYOUT

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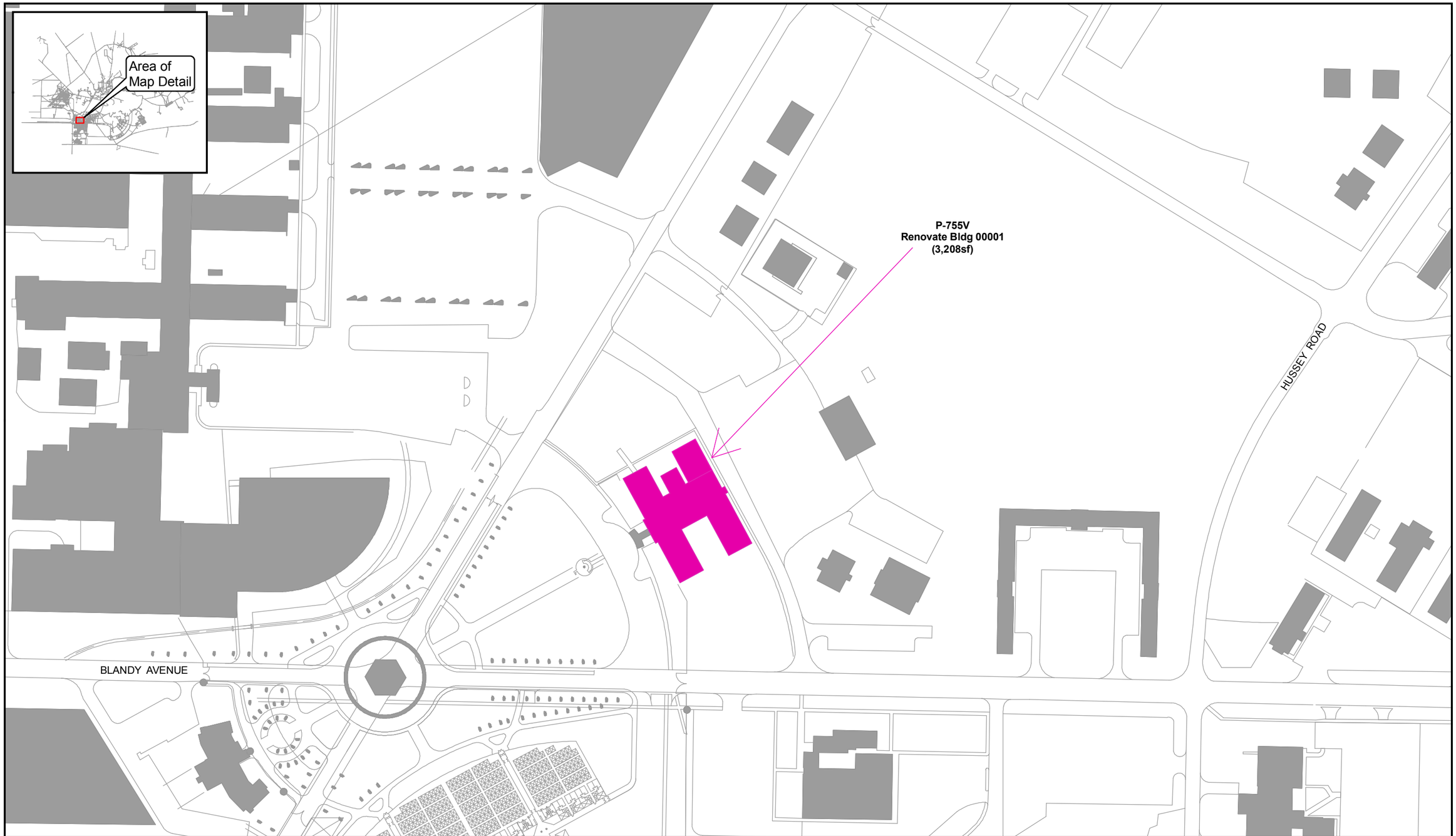

Map Reference:

NAWS CHINA LAKE BRAC EA

Ridgecrest, California

Figure 2-6
P-755V DESIGN LAYOUT

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Table 2-2 lists all the FY 2007 BRACONs, their locations and footprints, and indicates whether they are renovation or new construction.

Table 2-2 FY 2007 BRACONs

BRACON	Location	Footprint (Square Meters / Square Feet)	Type
P-745V	W&A Research Offices	11,817 / 127,197	New
	W&ARDT&E Lab Space	3,552 / 38,233	New
	W&ARDT&E SCIF	966 / 10,400	New
	NMCI Infrastructure	163 / 1,755	New
	Total	**16,498 / 177,585**	**All**
P-754V	Building 01028	604 / 6,505	Renovation [(a)]
	Building 01025	121 / 1,307	Renovation
	Building 02477	220 / 2,424	Renovation/New
	Building 20210	1,069 / 11,509	Renovation
	NMCI Infrastructure	18 / 196	New
	Total	**1,841 / 19,817**	**All**
P-755V	00001	298 / 3,208	Renovation
	Building 00466	323 / 3,477	Renovation
	Building 31567 (Missile RDT&E Lab)	279 / 3,000	Renovation
	Building 31567 (Research Lab)	1,115 / 12,000	Renovation
	Support Equipment Storage Building	864 / 9,300	New
	Support Equipment Storage Yard	901 / 9,699	New
	NMCI Infrastructure	29 / 312	New
	Total	**3,809 / 40,995**	**All**
ALL	**GRAND TOTAL**	**22,148 / 238,397**	

Note: [(a)] Would be demolished if contractor deems it more cost efficient.

FY 2008

P-701V

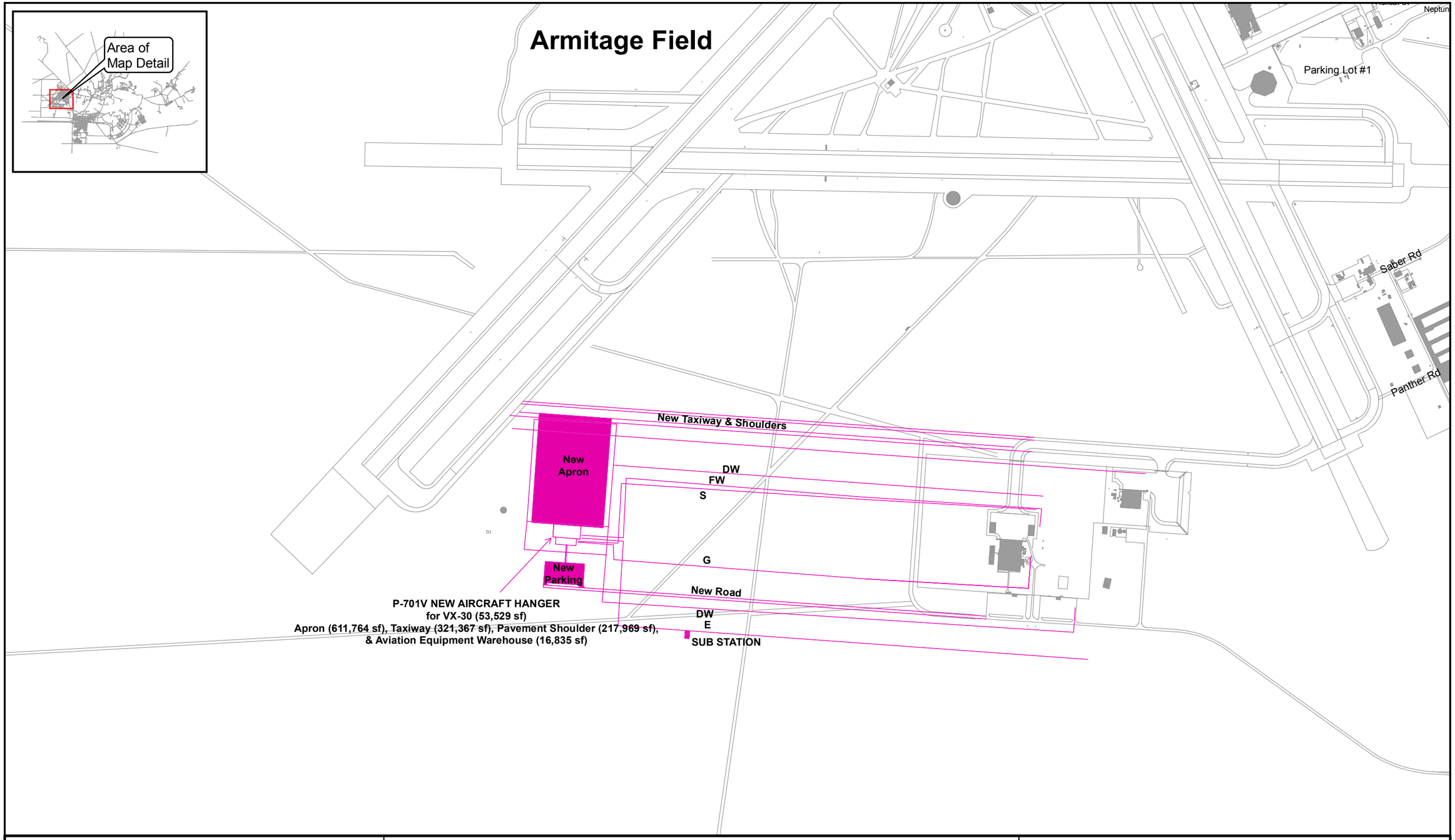
This BRACON would involve the construction of a Type II modular hangar in an existing undisturbed location to contain maintenance hangar space (OH), crew space (01), and administrative space (02) for large fixed-wing aircraft (two C-130s and two P-3s) from VX-30 (NB Point Mugu) (Figure 2-7). The primary mission of these aircraft would be to clear the Point Mugu Sea Range prior to missile launches from submarines, ships, and aircraft, as well as land launches from Point Mugu and China Lake Land Ranges as well as San Nicolas Island. Launches also come from off-range locations such as Vandenberg and the Southern California Offshore Range. Projected flight operations would include 650 take-offs and landings per year (combined) for a sortie total of 1,300 operations annually.

This BRACON also would include a concrete parking apron, taxiway, utility connection, fire protection water storage vault, oil and water separator tank, and upgraded storm drainage system, and would extend existing sanitary sewer lines, including manholes and lift stations. This BRACON would take advantage of prevailing sunlight by incorporating energy-efficient systems by maximizing use of natural light.

P-710V

This BRACON would be the construction of the hardware-in-the-loop system, which would provide laboratory space for the realignment of the Advanced Modeling and Simulation Branch from NB Point Mugu. It would involve the construction of three anechoic chambers (12.2 by 12.2 by 12.2 meters [40 by 40 by 40 feet]) on the site of a temporary building area (Figure 2-8). Operations at this facility would include administrative and computer laboratory functions. These chambers would absorb electronic and radar waves and would be associated with the Integrated Battlespace Arena. The three chambers would be enclosed within a one-story building connected to a low bay building (enclosing three radio frequency shielded labs, preparation laboratory spaces, and equipment room).

The anechoic chambers, radio frequency shielded labs, and all other laboratory space would be individually secured to SCIF standard. The equipment room would be isolated outside the facility for noise consideration. Excavation would accommodate an approximately 3.7-meter (12-foot) depressed lab for the anechoic chambers and would include construction of a foundation, loading area, retaining wall, and railing. Relocation of existing overhead electrical line and underground communication lines would be required.



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Scale 1:10,000

Map Reference:

NAWS CHINA LAKE BRAC EA

Ridgecrest, California

Figure 2-7

P-701V DESIGN LAYOUT

Date: 9/19/2006

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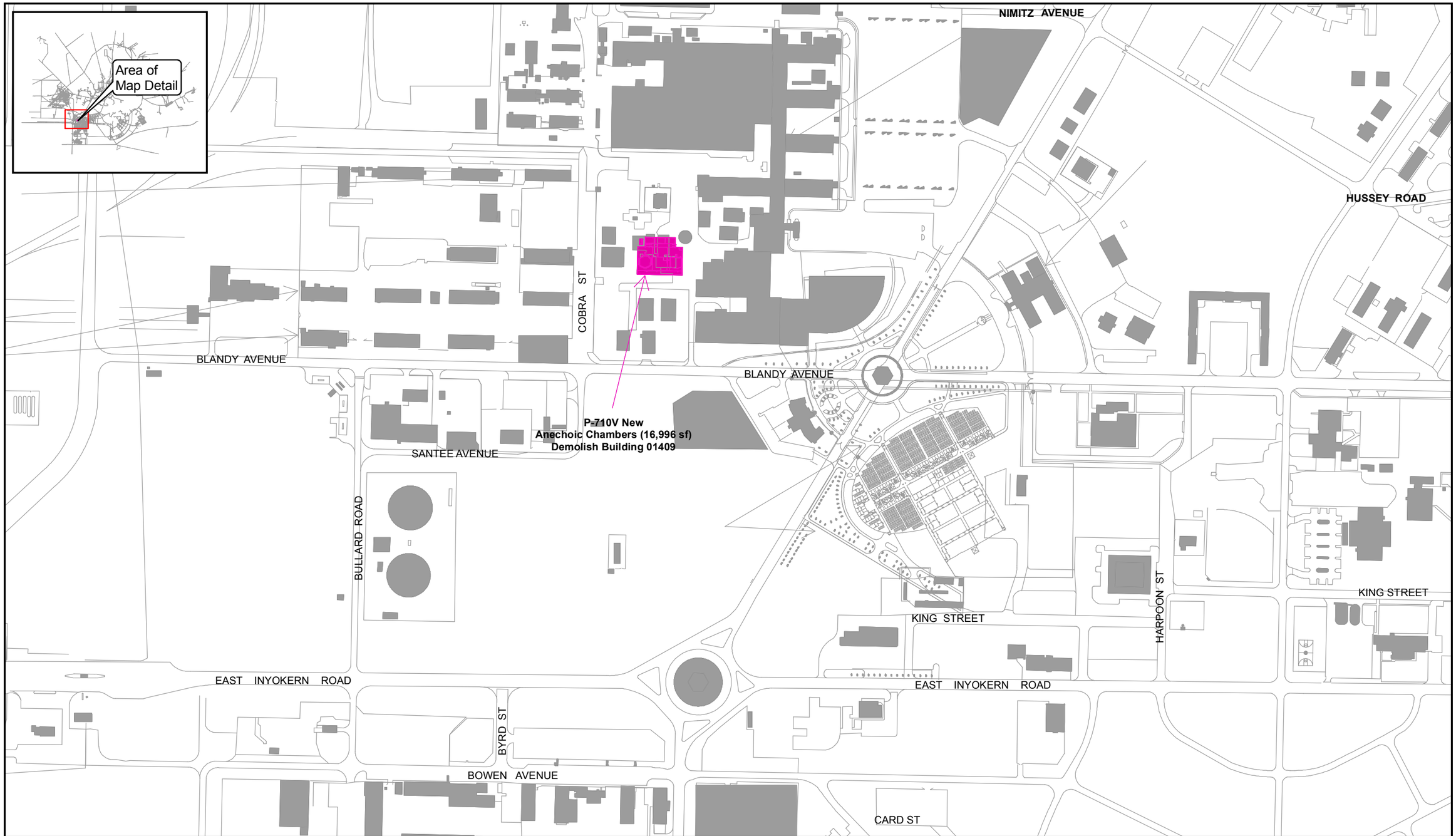

Map Reference:

NAWS CHINA LAKE BRAC EA

Ridgecrest, California

Figure 2-8
P-710V DESIGN LAYOUT

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P-749V

This BRACON would be the construction of a fuze test facility and the renovation of Buildings 10170 and 10173 in the China Lake Propulsion Lab (CLPL) for the realignment of personnel from NSWC Crane (Figure 2-9). It would involve construction of a single-story facility with reinforced concrete walls and roof, reinforced concrete slab on grade with spread footings, and blast doors. New construction would be required because this function requires thick concrete walls. The project was sited in the CLPL to be adjacent to the existing fuze work. This would create the desired synergies and savings that the BRAC process intended. Siting in this location allows for establishment of necessary explosive safety quantity distance (ESQD) arcs for this facility. Operations at this facility would support the test and evaluation of fuze systems associated with live and inert missiles and components. Operations would include the mechanical and electronic testing of fuzing components and systems.

Table 2-3 lists all the FY 2008 BRACONs, their locations and footprints, and indicates whether they are renovation or new construction.

Table 2-3 FY 2008 BRACONs

BRACON	Location	Footprint (Square Meters / Square Feet)	Type
P-701V	Aircraft Parking Apron	56,835 / 611,764	New
	Taxiway, Surfaced	29,856 / 321,367	New
	Aircraft Pavement Shoulder	20,250 / 217,969	New
	Aviation Equipment Warehouse	1,564 / 16,835	New
	Aircraft Maintenance Hangar	4,973 / 53,529	New
	NMCI Infrastructure	10 / 108	New
	Total	**113,488 / 1,221,572**	**All**
P-710V	High Bay Lab	752 / 8,094	New
	Missile Integration Lab	827 / 8,902	New
	Telecommunications Room	8.3 / 89	New
	Total	**1,587 / 17,085**	**All**
P-749V	Fuze Test Facility	1,196 / 12,870	New
	Building 10170	131 / 1,410	Renovation
	Building 10173	86 / 928	Renovation
	Total	**1,413 / 15,208**	**All**
ALL	**GRAND TOTAL**	**116,488 / 1,253,865**	**All**

FY 2009

P-712V

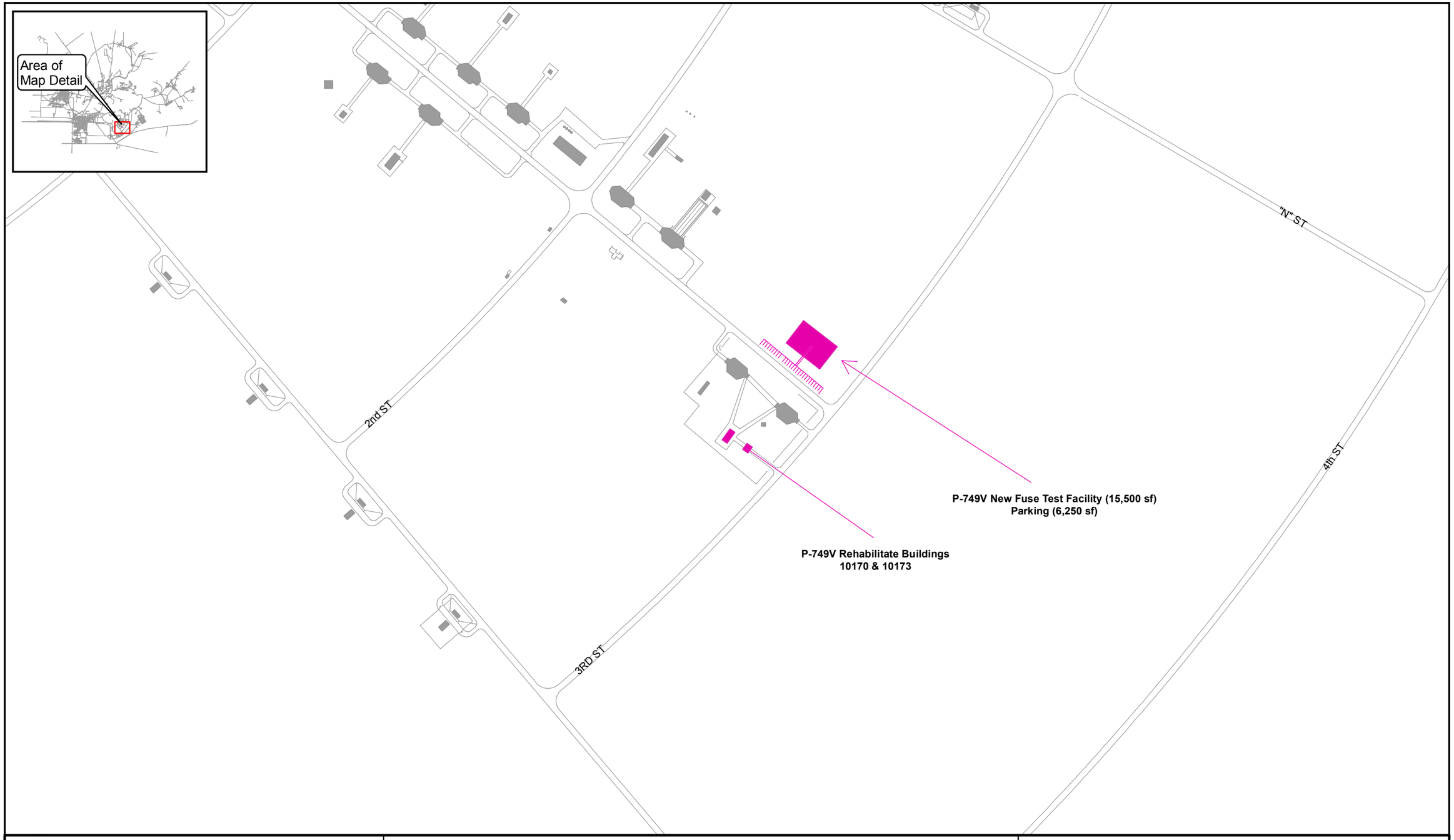
This BRACON would be the construction of multiple ordnance magazines, parking areas, access road, and supporting appurtenances for the realignment of NSWC Crane and NSWC Dahlgren's RD&AT&E to NAWS China Lake (Figure 2-10). These magazines would be of standard approved design and would be comprised of reinforced concrete spread footings, slab on grade, reinforced concrete walls and roof, hardened structure, intrusion detection system, communications and surveillance, electromagnetic grounding systems, area lighting, security fencing, parking, sidewalks, and an access road. Operations at these facilities would include the handling of ordnance items being received and dispensed for RD&AT&E purposes.

P-719V

This BRACON would be the new construction of laboratory facilities, administrative offices, and parking area for the realignment of personnel from seven sites to create a W&ARD&AT&E Center at NAWS China Lake. Operations at the W&ARD&AT&E Center would include administrative and computer laboratory activities. This project is located northwest of the intersection of Knox Road and Blandy Avenue within the NAVAIR fenced compound. It is integrated with the design of P-745 and would be part of the P-745 footprint (Figure 2-3).

P-732V

This BRACON would be the renovation of Michelson Laboratory (Building 00005) for the relocation of Weapons and Armaments (W&A) functions from NSWC Crane and NSWC Dahlgren and Naval Air Warfare Center Weapons Division (NAWCWD) Point Mugu to NAWS China Lake. Wings one, four, and five would be renovated along with the first and second floors of the main corridor. The renovations would demolish the interior of the concrete shell of Michelson Laboratory, its wings and corridors, and increase the capability of accommodating a large portion of the expected new space requirements of this BRAC action. Operations at the W&A Technology Center would include administrative and computer laboratory activities, and accommodate up to 450 additional personnel. This would represent an increase in space resource capacity from approximately 252 personnel and associated laboratories to 702 personnel and their associated laboratories. The 252 personnel in Michelson Lab would be relocated during the 24-month renovation. Renovations on this facility would be phased between wings to minimize the number of temporary relocations needed at any given time. Temporarily relocated personnel would be accommodated in existing facilities elsewhere on the station such as Thomson Lab and other smaller facilities. Consequently, no additional renovation or new construction would be required solely for purposes of temporarily relocating employees from Michelson Lab.



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Map Reference:

NAWS CHINA LAKE BRAC EA

Ridgecrest, California

Figure 2-9
P-749V DESIGN LAYOUT

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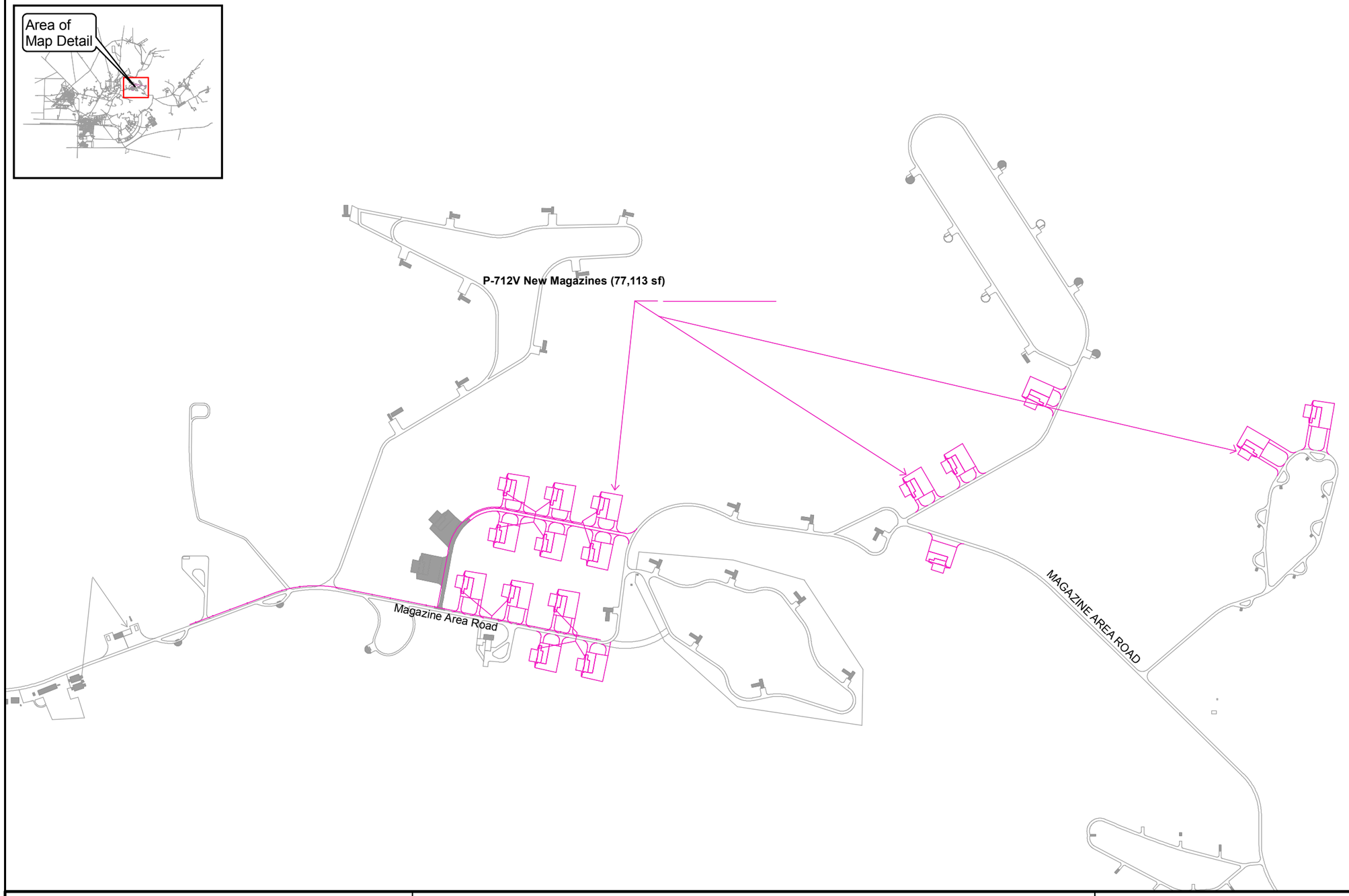

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Map Reference:

NAWS CHINA LAKE BRAC EA

Ridgecrest, California

Figure 2-10
P-712V DESIGN LAYOUT

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Table 2-4 lists all the FY 2009 BRACONs, their locations and footprints, and indicates whether they are renovation or new construction.

Table 2-4 FY 2009 BRACONs

BRACON	Location	Footprint (Square Meters / Square Feet)	Type
P-712V	Ordnance Storage Facility	7,164 / 77,113	New
	Total	**7,164 / 77,113**	**New**
P-719V	Lab Space	1,858 / 20,000	New
	Administrative Space	4,496 / 48,400	New
	Telecommunications Room	31 / 330	New
	Total	**6,385 / 68,730**	**All**
P-732V	Renovate Building 00005 Main Corridor	6,137 / 66,058	Renovation
	Renovate Building 00005 Wings 1, 4 and 5	7,573 / 81,515	Renovation
	NMCI Infrastructure	138 / 1,485	New
	Total	**7,711 / 83,000**	**All**
ALL	**GRAND TOTAL**	**21,260 / 228,843**	**All**

FY 2010

P-747V

This BRACON would be the construction of a public works warehouse and fenced compound (Figure 2-11). The public works warehouse facility would provide relief for the storage space being vacated in the Michelson Lab basement. It would allow the public works department to organize the current shop stock to allow for an increased inventory of shop stock materials. The outside storage area would be utilized for storage of masonry, large valves, and other large items. This additional capacity would also provide the additional material storage needed to support the increased square footage of facilities at NAWS China Lake.

P-704V

This BRACON would involve the renovations to accommodate:

- W&A functions from NSWC Indian Head – Renovations are proposed for Buildings 11510, 10690, 12143, 15560, 31562, 12042, 12170, and a portion of 11570.

- W&ARD&AT&E functions from NSWC Crane – Renovations are proposed for Buildings 10520, 15800, 16079, and 15790.

- W&ARD&AT&E at NSWC Indian Head – Renovations are proposed for Buildings 12042 and 12170. About 92 meters (300 feet) of potable water distribution line at Building 12170 would be replaced.

In addition, a restroom facility would be constructed at Building 11050 to accommodate the relocation of W&ARD&AT&E from NSWC Dahlgren.

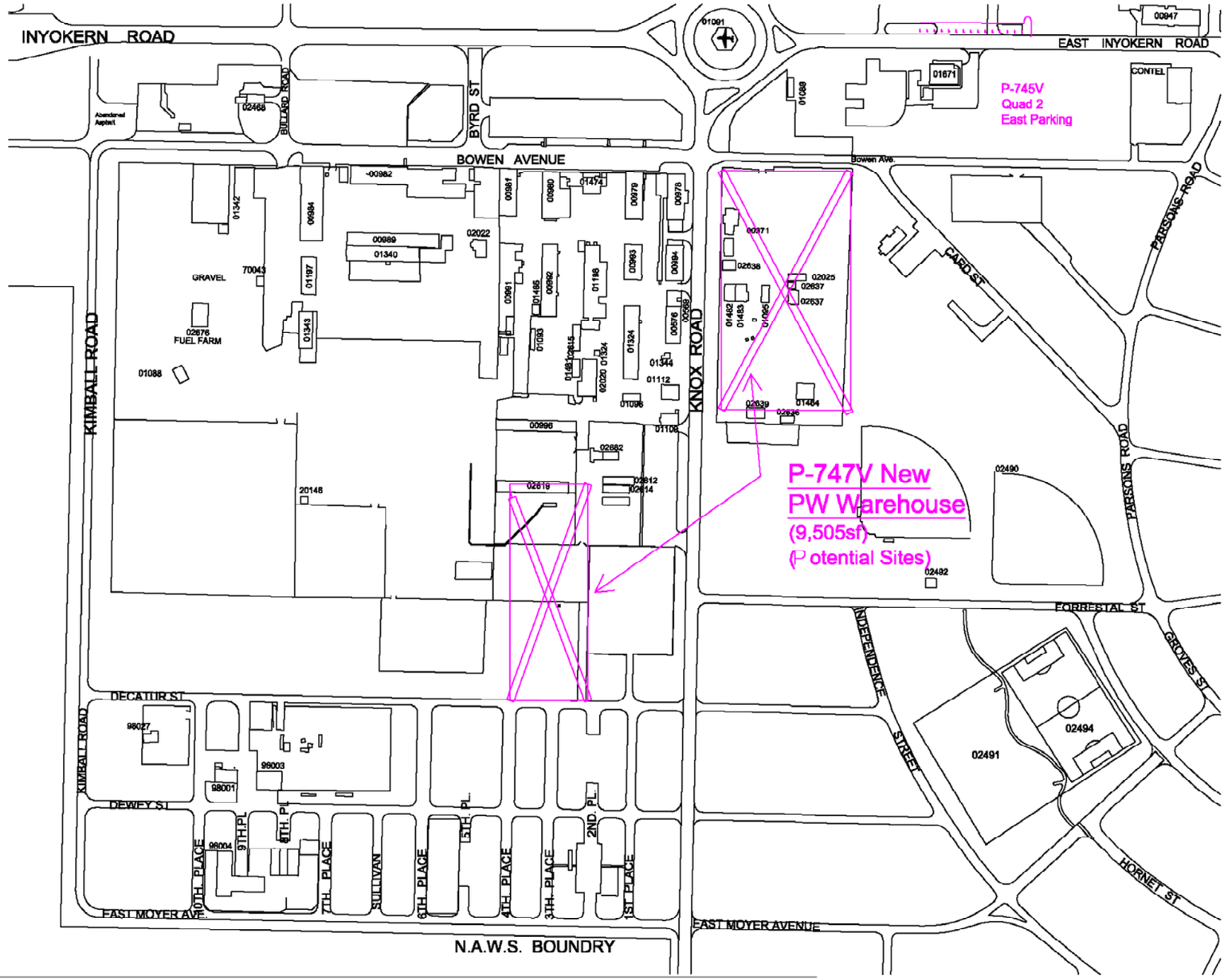
P-759V

This BRACON would be the renovation of three buildings previously used as general bulk warehouses for realignment of the TRIDENT, non-nuclear effort from NWS Seal Beach to NAWS China Lake.

P-777V

This BRACON would be the construction of a Weapons Dynamic Research Development, Test and Evaluation (RDT&E) Center capable of conducting vibration and risk reduction shock on live (explosive loaded) missiles in launcher canisters as well as non-missile-related test items (Figure 2-12). This BRACON would provide adequate test facilities to conduct RDT&E of surface ship weapons and munitions. It would provide the capability for the transportation vibration and shipboard vibration testing portions of an explosive safety and insensitive munitions testing program. This project would eliminate safety concerns regarding existing workarounds and reduce handling and transportation of explosives. Operations would include the mechanical testing for large and medium missiles and related components. Additionally, the Weapons Dynamic RDT&E Center would provide facility/test functions/test equipment consolidation, as well as process improvement of current test capabilities.

This BRACON would result in the new construction of a single-story, pre-engineered steel frame building with insulated metal walls and roof, expandable wall, concrete foundation with high bay and low bay areas. Low and high bay areas include specific areas for the following functions: vibration isolation, radiographic inspection, assembly/disassembly, support equipment, and a control room. Construction features include steel towers with winch and rails and a support system for two overhead bridge cranes (35-ton and 10-ton), instrumentation booms, and x-ray shielded walls. The new NMCI infrastructure would be built adjoining Building 12140.



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Map Reference:

NAWS CHINA LAKE BRAC EA

Ridgecrest, California

Figure 2-11

P-747V DESIGN LAYOUT

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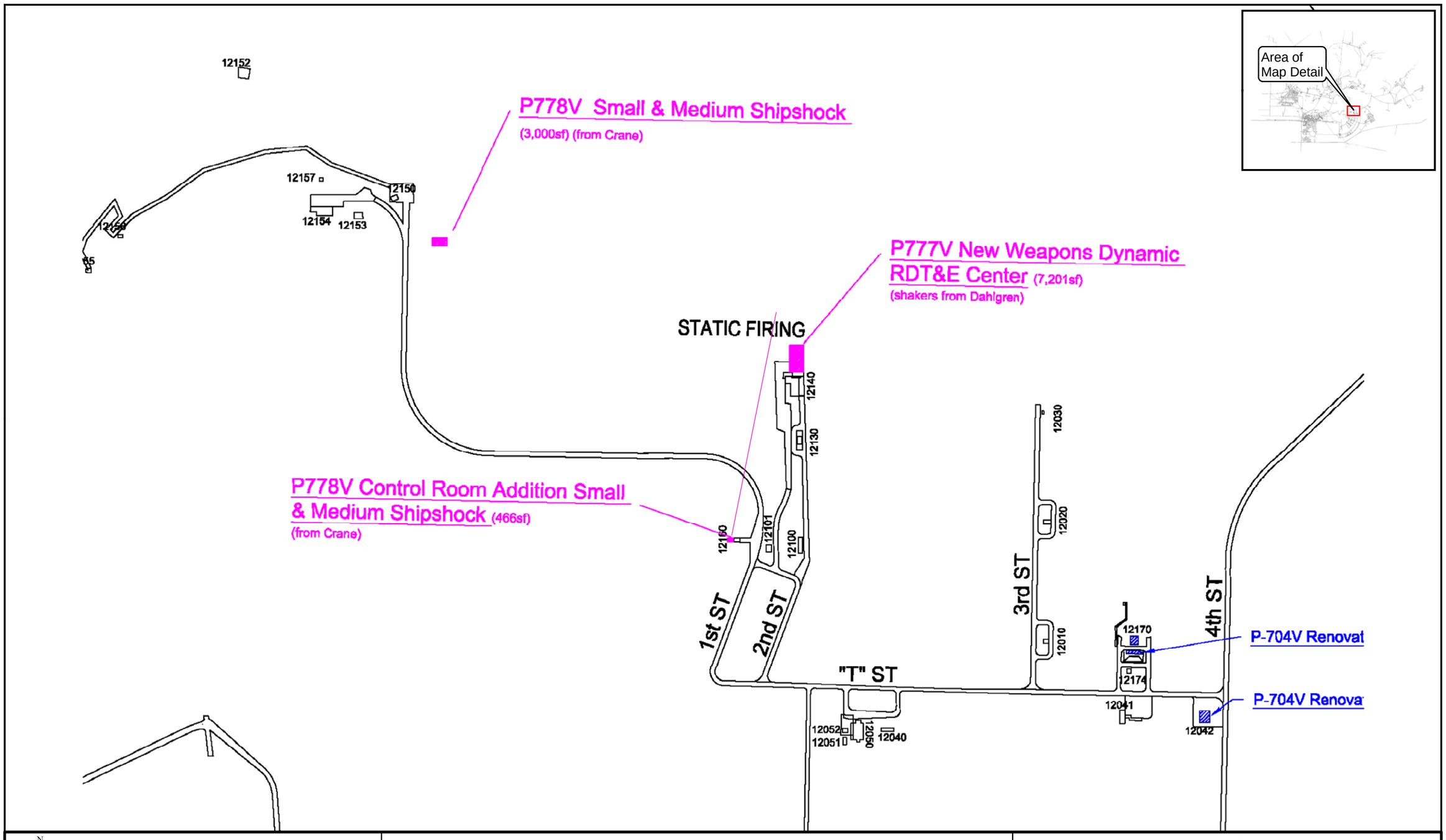

Map Reference: P777 P778 Medium shipshock Vib Facility.pdf

NAWS CHINA LAKE BRAC EA

Ridgecrest, California

Figure 2-12
P-777V and P-778V DESIGN LAYOUT

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P-778V

This BRACON includes the addition of facilities at two different sites for a small, medium, and a large ship shock capability for the realignment of the W&ARD&AT&E from NSWC Crane and NSWC Dahlgren to NAWS China Lake (Figure 2-12). The facilities would include the construction of a small- and medium-weight shipboard shock environmental testing facility at the Skyline area. An addition to the existing control room on Building 12160 also would be required.

At another site, approximately 15 kilometers (10 miles) east, a concrete test pad will be required for large ship shock tests in the area designated as CT-4, where a magazette (a small, temporary, movable magazine, grounded for temporary storage of small quantities of explosive materials) is currently located. This facility will require the relocation of the magazette to an undisturbed area approximately 393 meters (1,300 feet) west of its current location. The Shipboard Shock Test Facility will support medium and large shock tests for live and inert missiles and components. Operations include the mechanical testing for large and medium missiles and related components.

Table 2-5 lists all the FY 2010 BRACONs, their locations and footprints, and indicates whether they are renovation or new construction.

Table 2-5 FY 2010 BRACONs

BRACON	Location	Footprint (Square Meters/ Square Feet)	Type
P-747V	Public Works Warehouse	883 / 9,505	New
	Total	**883 / 9,505**	**New**
P-704V	Building 10520	329 / 3,541	Renovation
	Building 16079	381 / 4,101	Renovation
	Building 15800	388 / 4,176	Renovation
	Building 11050	316 / 3,401	Renovation
	Building 15790	256 / 2,756	Renovation
	Building 11570	92 / 990	Renovation
	Building 10690	312 / 3,358	Renovation
	Building 12143	11 / 118	Renovation
	Building 15560	144 / 1,550	Renovation
	Building 31562 and 91042	102 / 1,098	Renovation
	Building 11570	89 / 958	Renovation
	Building 11050	28 / 301	Renovation
	Building 11510	1,294 / 13,929	Renovation
	Building 12042	73 / 786	Renovation
	Building 12170	228 / 2,454	Renovation
	NMCI Infrastructure	40 / 431	New
	Total	**4,083 / 43,949**	**All**
P-759V	Building 01040	604 / 6,496	Renovation
	Building 01041	614 / 6,604	Renovation
	Building 01042	578 / 6,240	Renovation
	Total	**1,797 / 19,339**	**All**

Table 2-5 FY 2010 BRACONs

BRACON	Location	Footprint (Square Meters/ Square Feet)	Type
P-777V	RDT&E Building	669 / 7,201	New
	Telecommunications Room	7 / 75	New
	Total	**676 / 7,276**	**All**
P-778V	Shipboard Shock Test Facility	279 / 3,000	New
	Control Room Addition	40/432	New
	Concrete Test Pad	67/718	New
	Telecommunications Building	3/34	New
	Total	**389/4,184**	**All**
ALL	**GRAND TOTAL**	**7,827/84,253**	**All**

2.2 Alternatives to the Proposed Action

The CEQ places significant importance on the discussion of alternatives in a NEPA environmental planning analysis. As defined in 40 CFR 1502.14, the heart of an EA is the analysis of alternatives, which provides decision makers and the public a clear picture of the issues and rationale used to decide upon the preferred alternative.

2.2.1 Alternative Criteria

The Navy used the following criteria in identifying and considering reasonable alternatives for analysis in this EA. The EA's criteria are based on the purpose and need for the Proposed Action.

Criterion A: The Facility Needs and Requirements of Incoming Commands Can be Met. The commands that are being realigned have very specific and uncommon facility needs, among which are the capability to safely store explosive materials; use large x-ray systems for examination of weapons, ordnance, and other explosive materials; and be sited in areas of open space such that large-scale research and development, developmental testing, and operational testing can take place. Under Criterion A, a reasonable alternative would be able to accommodate the facility needs and requirements of the realigned activities.

Criterion B: Locate Realigned R&DAT&E Activities in Proximity to Existing W&ARD&AT&E Facilities and Activities. The commands that are being realigned primarily perform W&ARD&AT&E. These types of activities are most efficiently performed when personnel involved in similar missions are able to freely and readily exchange ideas and information. Time and distance are major factors in facilitating such information exchanges. Thus, one of the reasons that this proposed BRAC 2005 realignment was recommended stemmed from the need to consolidate similar functions being conducted in several locations to one location on military-owned land. NAWS China Lake was chosen as the home for the proposed W&ARD&AT&E Center because of the amount of land area available to accommodate the entire function, all within existing base property boundaries. Moreover, implementation of this recommendation would

complement the fact that W&ARD&AT&E functions are already performed at NAWS China Lake. Under Criterion B, a reasonable alternative for evaluation in this EA would site the W&ARD&AT&E activities being realigned to NAWS China Lake from different locations in the U.S. in proximity to existing W&ARD&AT&E facilities and activities.

Criterion C: The Use of Existing Facilities is Maximized. One of the purposes of the BRAC program is to generate cost savings by making DoD operations more efficient and eliminating excess infrastructure. The resulting savings would then to be reinvested in warfighting capability. Consequently, maximizing the use of existing facilities is essential to meeting the cost-savings goal. NAWS China Lake has a large number of unused facilities that can be reused as is or renovated to allow for an efficient layout of functions, decreasing the surplus of space. Under Criterion C, a reasonable alternative is one that would make extensive use of existing facilities at NAWS China Lake.

2.2.2 Alternatives to be Evaluated in this EA

Two action alternatives (identified below) plus the No Action Alternative are considered in this EA.

As set forth in the Proposed Action, all personnel and functional realignments would take place under either of the two alternatives; however, certain building locations would be relocated. The functions associated with the Proposed Action would not be affected. The alternatives were selected because they were found to meet most, if not all, of the functional criteria previously discussed in Section 2.2.1.

2.2.2.1 Alternative 1 - Redesign of BRACON P-745V

Under this alternative, all the personnel and functional realignments would take place as set forth in the Proposed Action. In addition, all the BRACONs would take place as set forth in the Proposed Action with the exception of P-745V. This BRACON would be sited on the southwest side of the intersection of Blandy Avenue and Knox Road along with its associated parking area. This would site the Weapons and Armament Technology Center closer to the facilities proposed for P-719V. In addition, no roads would be blocked and the pedestrian plaza would not be created (Figure 2-13). This alternative would be consistent with all three of the criteria as outlined in Section 2.2.1 in that the facility needs and requirements of incoming commands could be met; the proposed siting of facilities would allow synergy between existing and proposed W&ARD&AT&E facilities and activities; and the use of existing facilities would be maximized under this alternative, thus, Alternative 1 would fulfill the purpose and needs of the proposed BRAC action.

2.2.2.2 Alternative 2 - BRACONs P-745V and P-719V Combined

Implementation of Alternative 2 would result in all the personnel and functional realignments taking place as set forth in the Proposed Action. In addition, with the exceptions of P-745V and P-719V (which would be combined), the remaining

12 BRACONs would be implemented as set forth in the Proposed Action. Specifically, the Weapons and Armament Technology Center and the proposed facilities for P-719V would be combined into one structure located northwest of the intersection of Blandy Avenue and Knox Road within the existing NAVAIR compound and adjoining Building 00005 (Figure 2-14). The parking area for P-719 and P-745 would be combined and located southwest of the Weapons and Armament Technology Center. No roads would be blocked off and no pedestrian plaza would be created. This alternative would meet all of the criteria as outlined in Section 2.2.1 by meeting the facility needs and requirements of incoming commands; facilitating synergy among existing W&ARD&AT&E facilities and activities and proposed facilities due to siting proximity; and lastly, maximizing the use of existing facilities, thus, Alternative 2 would fulfill the purpose and needs of the proposed BRAC action.

2.2.2.3 No Action Alternative

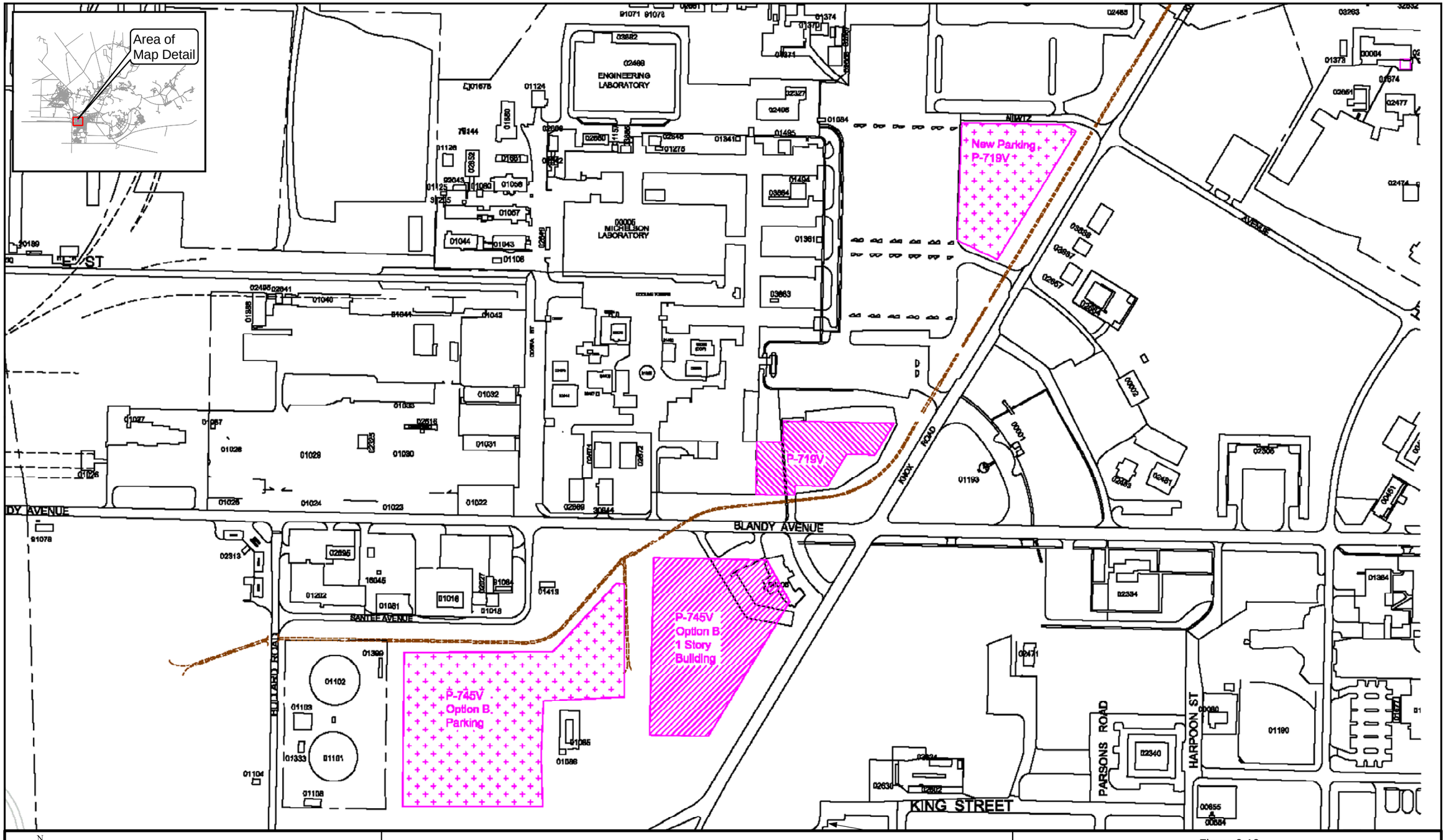
Under the No Action Alternative, the personnel and functions would not be relocated to NAWS China Lake from the seven different sites as recommended by the BRAC 2005 Commission; additionally, the proposed BRACONs would not be implemented. Implementation of the No Action Alternative would impair the Navy's ability to implement BRAC 2005 recommendations to create a W&ARD&AT&E Center at NAWS China Lake. While short-term costs associated with construction and renovation would be avoided, overall, given the loss in efficiency and productivity that would occur as a result of not implementing the BRACONs contemplated in the Proposed Action, no actual savings or other efficiencies would be realized. The No Action Alternative is used primarily as a baseline to support the impacts analysis of the Proposed Action and the two alternative actions. The No Action Alternative is not an option within the agency's discretion, but rather is used as a baseline to forward the impacts analysis.

2.3 Alternatives Considered but Not Carried Forward

The following alternatives were considered but were not carried forward for additional analysis.

2.3.1 Leasing of Facilities

Under this alternative, facilities would be leased (i.e., rented) from private owners in the communities surrounding NAWS China Lake. This alternative is not considered to be feasible as there are no facilities available in the surrounding area that would be capable of meeting the identified facility needs and requirements necessary to meeting the missions being realigned to NAWS China Lake, specifically the explosive/equipment safety requirements. Thus, this alternative option fails to meet Criteria A, B, and C. In addition, leased space would be considered a primary gathering facility for which Navy AT/FP requirements would have to be applied, imposing additional costs. Moreover, it would be



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Map Reference:

NAWS CHINA LAKE BRAC EA

Ridgecrest, California

Figure 2-13

REDESIGN OF MILCONS P745

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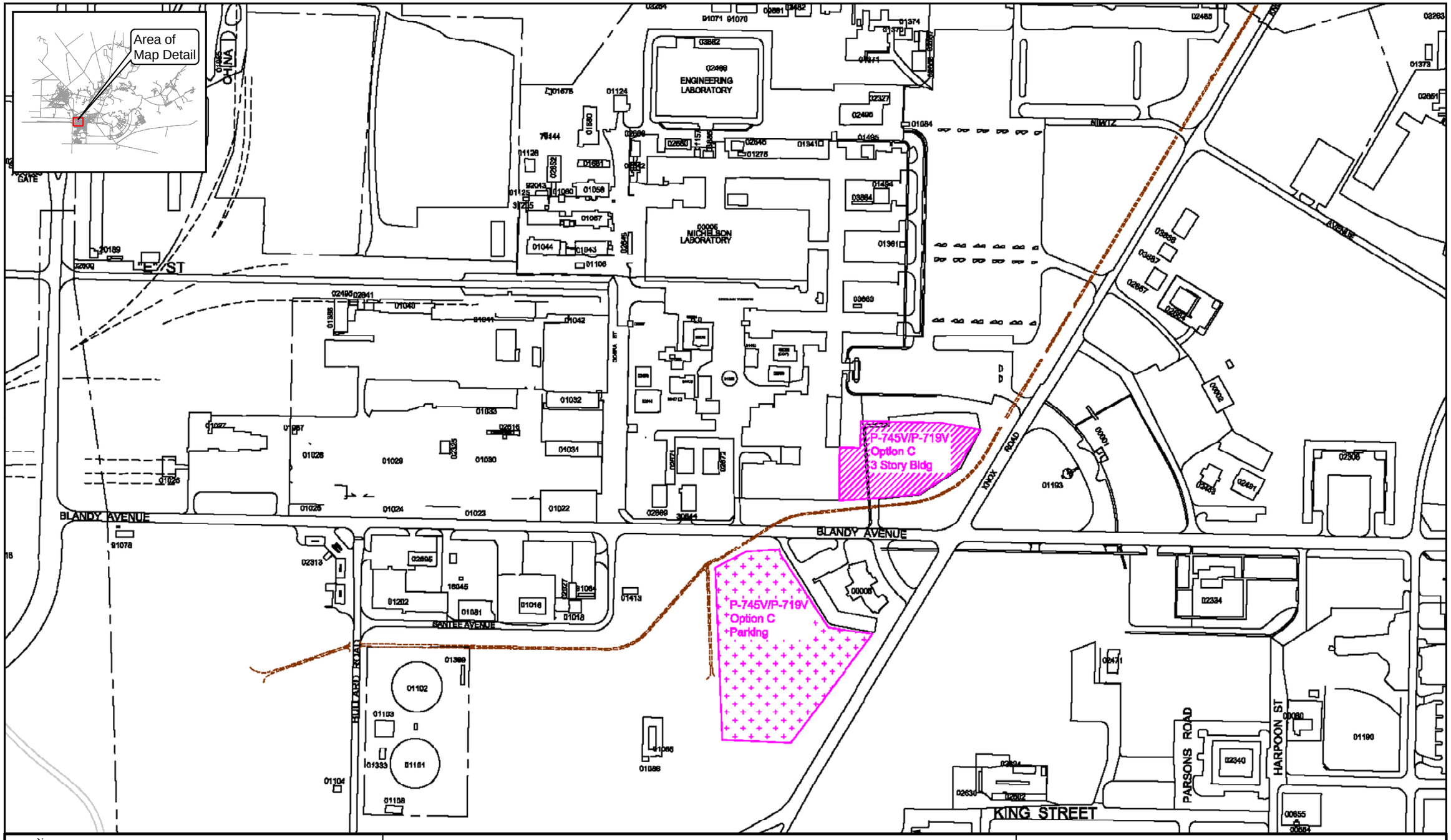

Map Reference:

NAWS CHINA LAKE BRAC EA

Ridgecrest, California

Figure 2-14

MILCONS P745 and P719 COMBINED

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difficult locating a facility where these requirements would either be allowed or could be implemented. Therefore, this alternative was not carried forward for additional analysis.

2.3.2 Renovation/Modernization in Lieu of New Construction at NAWS China Lake

Renovation or modernization in lieu of new construction is not a viable alternative for the BRACONs that are projected as new construction under the Proposed Action because there are not enough unused facilities on NAWS China Lake with the requisite capabilities to accommodate the majority of the W&ARD&AT&E Center functions. This option would meet Criteria B and C, however, it would not meet Criterion A since existing unused facilities cannot meet the specialized needs of incoming commands. Therefore, this alternative was not carried forward for additional analysis.

2.3.3 Alternative Hangar Siting for P-701V

There were two possibilities for the P-701 hangar siting. One option considered was to site the new hangar close to Hangar Number 3. This option would result in significant utility problems and environmental constraints. The other option would be to site the P-701 hangar adjacent to the existing taxiway, which is close to the Weaponization Building and is the future location of an unmanned combat aerial vehicle site. Neither of these options would provide an adequate taxiway. In summary, while these siting possibilities would meet Criterion B, they are not consistent with Criteria A and C.

2.4 Summary of Impacts

Table 2-6 is a summary of the impacts expected to occur as part of this Proposed Action.

Table 2-6 Summary of Impacts

Resource Area	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
Geology, Soils, and Seismicity	No significant impacts.	No significant impacts.	No significant impacts.	No significant impacts.
Hydrology and Water Quality	No significant impacts.	No significant impacts.	No significant impacts.	No significant impacts.
Biological Resources	**Impacts** Of the three federally listed threatened and endangered species, the desert tortoise is the only species with the potential to be affected. The BRACON P-701V area is known to be desert tortoise habitat, not USFWS-designated desert tortoise critical habitat and is not within the NAWS China Lake Desert Tortoise Management Area; however, surveys conducted show no sightings or evidence of the desert tortoise, therefore no direct impacts to threatened and endangered species would occur. Other species of concern include state sensitive species. Potential impacts could occur to state sensitive species such as the burrowing owl, which was observed within the footprint for P-701V during surveys in November 2005. Two burrowing owls were observed at the entrances to active burrows and two other active burrows were observed, though no owls were seen associated with these burrows. Therefore, the burrowing owl is known to be either present or likely to be present at the site. Additionally, vegetation communities historically associated with Le Conte's thrasher and the Mohave ground squirrel are present at the site for P-701V. There has been one recorded occurrence of Le Conte's thrasher approximately 16 kilometers (10 miles) from the site, and six recorded occurrences of the Mohave ground squirrel within 8 kilometers (5 miles) of the site; consequently, there is a moderate potential for occurrence of these species at the site itself, and these species could potentially be impacted as well. However, the Navy believes that the Proposed Action is unlikely to have any adverse effect on any of the above-referenced state sensitive species, and that any potential adverse impact or effect would not be significant. With respect to the burrowing owl and Mojave ground squirrel, the Navy would implement impact-avoidance measures (discussed below) to either eliminate adverse effect or ensure that any adverse effect would be insignificant. The burrowing owl is considered a Second Priority Species of Special Concern	**Impacts** No impacts to federally listed plant and wildlife species would occur as a result of the redesign of P-745V. In all other respects, Alternative 1 would be equivalent to the Proposed Action in terms of potential impacts on biological resources. **Mitigation** Same as for the Proposed Action.	**Impacts** No impacts on federally listed plant and wildlife species would occur as a result of the combination of P-745V and P-719. In all other respects, Alternative 2 would be equivalent to the Proposed Action in terms of potential impacts on biological resources. **Mitigation** Same as for the Proposed Action.	No significant impacts.

Table 2-6 Summary of Impacts

Resource Area	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
	by the State of California, which indicates the State's conclusion that the species is in decline but not in imminent danger. As part of its commitment to conservation of sensitive species, and in accordance with the Sikes Act (16 U.S.C. 670a-670f) and the NAWS China Lake INRMP (U.S. Navy 2000), the Navy would implement measures to minimize and/or avoid impacts to nesting burrows and to ground squirrel colonies in the project area (since the Mohave ground squirrel is itself a sensitive species and since such colonies support burrowing owls), as set forth below. The California Department of Fish and Game (CDFG) has concurred in NAWS China Lake's INRMP. To the extent practicable, the Navy would attempt to start initial construction work (e.g., grading) in the Proposed Action area during the non-breeding season (generally September 1 through February 28). For construction work performed in the Proposed Action area during the non-breeding season, a pre-construction survey would not be necessary, as owls could be displaced from occupied burrows during the non-breeding season without the possibility of chicks being abandoned. To the extent practicable, the Navy would attempt to relocate any burrowing owls remaining in the project area after initiation of construction (e.g., through use of one-way doors on burrows) to off-site habitat area. If it is necessary to perform initial construction work in the project area during the breeding season (generally March 1 through August 31), a pre-construction survey would be conducted for the burrowing owl and burrows in areas of the site that may provide suitable breeding habitat. This survey would be conducted by a qualified ornithologist. To the extent practicable in light of project considerations, any active nests or burrows found during the breeding season would be left undisturbed, with an appropriate buffer zone around any such burrow or nest, and any relevant construction work would be redirected or halted until nesting has concluded. If it is not possible to redirect or delay certain work potentially impacting an active nest or burrow, the Navy would attempt to relocate any burrowing owls and chicks to burrows outside the project area, to include construction of artificial nest boxes. Additionally, measures would be taken to avoid impacts to any known ground squirrel colonies (as discussed below). The above-referenced measures would be incorporated as appropriate into the planning, contracting (Request for			

Table 2-6 Summary of Impacts

Resource Area	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
	Proposals), and execution stages of the proposed P-701V BRACON. Given these measures, and given the fact that the number of burrowing owls and/or active burrows previously observed in the project area is relatively low, the Navy believes there would likely be no adverse effect on any individual burrowing owls, and that any potential adverse effect would be experienced by no more than a very small number of such owls. Consequently, the Navy believes the Proposed Action presents no potentially significant adverse effect on the burrowing owl. Le Conte's thrasher is considered a Third Priority Species of Special Concern by the State of California, which indicates the State's conclusion that the species is not currently in any danger of extirpation as a species, but instead would be vulnerable to extirpation if a threat to the species should materialize. Given that there are no recorded occurrences of Le Conte's thrasher in the P-701V project area, and given that the one recorded occurrence of the species in any relative proximity to the project area was approximately ten miles away, the Navy believes the Proposed Action would present no risk of significant adverse effect on Le Conte's thrasher. The Navy notes that neither the Federal Government nor the State of California considers this species to be presently facing any risk as a species. The Mohave ground squirrel is considered a threatened species by the State of California. Per the NAWS China Lake INRMP, the Navy seeks to protect and enhance habitats used by mammals such as the Mohave ground squirrel. (U.S. Navy 2000.) Practices include documenting the occurrence of and monitoring known species. As a matter of policy, the Navy does not conduct construction work in the vicinity of known colonies of Mojave ground squirrels on NAWS China Lake. To the Navy's knowledge, no such colony has ever been observed in the vicinity of the P-701V project area. Consequently, given the relatively low level of occurrences of the species in proximity to the project area (six occurrences within an 8-kilometer [5-mile] radius of the site), the Navy believes there would likely be no adverse effect on any individual Mohave ground squirrels, and that any potential adverse effect would be experienced by			

Table 2-6 Summary of Impacts

Resource Area	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
	no more than a small number of such squirrels. Consequently, the Navy believes the Proposed Action presents no potentially significant adverse effect on the Mohave ground squirrel. **Mitigation** *Desert Tortoise* Because indirect impacts on the desert tortoise may occur if BRACON P-710V is implemented, mitigation measures will follow the guidance provided in the desert tortoise BO (U.S. Navy 2004), which is included as Appendix A. Formal consultation with the USFWS is not required since the Proposed Action area is not within the Desert Tortoise Management Area, is less than 20.2 hectares (50 acres) in total area, and biological surveys found no desert tortoise sign; therefore, NAWS China Lake would only be required to notify the USFWS concerning the Proposed Action in its annual report (Paragraph 1.h of the Terms and Conditions of the BO). The Navy believes that the Proposed Action is not likely to adversely affect the desert tortoise, and that any potential adverse effect on the desert tortoise would be reduced to insignificance by these measures.			
Cultural Resources	**Impacts** The Navy has determined that of the 32 buildings potentially affected by the Proposed Action, the following 13 structures are eligible for listing on the NRHP, either individually or as contributing elements to historic districts: Buildings 00001, 00005, 10520, 10690, 11050, 11570, 15560, 15790, 15800, 10170, 10173, 12170, and 12160 (JRP Historical Consulting Services 1997a, Mikesell 1999, Kaldenberg 2006a, Kaldenberg 2007). The Navy also has determined that Buildings 00008, 00466, 02602, 01025, 01028, 01040, 01041, 01042, 02624, 02477, 11510, 12042, 12143, 16079, 20210, 31562, 31567, 12140, and 91042 are ineligible for NRHP listing (JRP Historical Consulting Services 1997a, Mikesell 1999, Kaldenberg 2006a, Herbert 2007, Kaldenberg 2007). The Navy initiated a series of consultations with the Office of Historic Preservation of the California Department of Parks and Recreation (Appendix B). In a letter dated 17 May 2006, the Navy provided the SHPO with information on the proposed renovations to buildings 00001, 00005, 10520, 10690, 11050, 11570, 15560, 15790, and 15800 and requested the SHPO	Same as for the Proposed Action.	Same as for the Proposed Action.	No significant impacts.

Table 2-6 Summary of Impacts

Resource Area	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
	concur with the determination of No Adverse Effect (Shepherd 2006a). In a letter dated 15 June 2006, the SHPO requested additional information from the Navy on the renovations to Buildings 00005 and 11050 in regard to the specifics of the changes to the windows, doors, sheer walls, and louvers in order to determine the effects on these historic structures (Donaldson 2006a). The Navy agreed to submit the design plans for Buildings 00005 and 11050 once they have been prepared in order for the SHPO to conclude a finding of No Adverse Effect with Conditions (Kaldenberg 2006a). On 14 September and 25 September 2006, the Navy provided the SHPO with additional information pertaining to the proposed modifications. In a letter dated 19 March 2007, the SHPO stated that it would agree to the finding of No Adverse Effects with Conditions. These conditions would include the submittal to the SHPO of the design plans and specifications once they have been completed (Donaldson 2006b). Subsequent to the initial SHPO consultation, the scope of the EA was further defined. Additional consultation was determined to be needed for additional historic-era buildings and resources that could be affected. A letter was sent on 15 February 2007 to notify the SHPO of the "no effect" determination for proposed interior renovations to four historic district buildings (10170, 10173, 12160, and 12170), and to request the following: 1) Concurrence with NAWS China Lake's determination of "ineligible for inclusion on the National Register" for two archeological sites (ASM-AA1 and ASM-AA2) occurring in the BRACON P-701V area; 2) Concurrence with NAWS China Lake's determination of "ineligible for inclusion on the National Register" for four buildings (11510, 12143, 20210, and 31567) evaluated in 2007; and 3) Concurrence with NAWS China Lake's determination of "ineligible for inclusion on the National Register" for 13 other historic-era buildings (00008, 01028, 01040, 01041, 01483, 00466, 01042, 01482, 01025, 01095, 02025, 02624, and 02602) evaluated in 1997. (Buildings 01482, 01483, 01095, and 02025 are being consulted on as not eligible as part of P-747V even though they are not being directly affected.) Since these two sites and buildings were evaluated as not eligible for listing			

Table 2-6 Summary of Impacts

Resource Area	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
	under the NRHP, NAWS China Lake determined that the Proposed Action would result in a "no effect" determination to the two archaeological sites and the 17 structures. Ground-disturbing activities would also take place under BRACONs P-710V, P-712V, P-719V, P-745V, P-747V, P-749V, P-755V, P-777V, and P-778V. However, the Navy has determined that ground-disturbing activity for these BRACONs would take place in existing disturbed areas where there is no potential for the presence of cultural resources. Therefore, none of the proposed ground-disturbing activities would affect archaeological sites eligible for listing on the NRHP and SHPO consultation was not required (Kaldenberg 2006b; Andrews and Giambastini 2006, U.S. Navy 2006). In a letter dated 19 March 2007, the SHPO stated that it concurred with the Navy's determination of "ineligible for inclusion on the National Register" for the 17 buildings and two archaeological sites in the 15 February 2007 letter. The SHPO also stated that it would agree to a "No Historic Properties Affected" determination in lieu of a "no effect" determination for proposed interior renovations to four historic district buildings (10170, 10173, 12160, and 12170). Six (6) buildings (16079, 02477, 31562, 91042, 12042, and 12140) that would be potentially affected by the Proposed Action were not consulted on due to the fact that they are not historic either because they were heavily modified from the original construction date or are not historic era according to the year of construction. As a result of the SHPO concurrence with the Navy's findings, there would be no significant impacts to cultural resources. **Mitigation** Since there would be no significant impacts to cultural resources, no mitigation measures would be proposed.			
Land Use	No significant impacts.	No significant impacts.	No significant impacts.	No significant impacts.
Socioeconomics/ Environmental	No significant impacts.	No significant impacts.	No significant impacts.	No significant impacts.

Table 2-6 Summary of Impacts

Resource Area	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
Justice				
Traffic and Circulation	**Impacts** There are two intersections that would function at LOS D or worse during the peak periods with the Proposed Action. The two intersections are: • Lauritsen Road/Sandquist Road; and • East Inyokern Road/Bullard Road. The movement that causes the Lauritsen Road/Sandquist Road intersection to operate at LOS E during the a.m. peak is the westbound movement. **Mitigation** The proposed mitigation for the Lauritsen Road/Sandquist Road intersection would consist of the following improvement: • Separating the shared westbound left-through lane into an exclusive left-turn and through lane. With this improvement, the Lauritsen Road/Sandquist Road intersection would operate at LOS D. In order to achieve LOS C or better, a traffic signal would be required. However, this location does not meet any of the warrants needed for a traffic signal. As such, a traffic signal would not be recommended. At the East Inyokern Road/Bullard Road intersection, the movements that cause the intersection to operate at LOS D or worse in all peaks are the northbound and southbound movements of Bullard Road. Vehicles traveling along Bullard Road would have to stop and wait for an acceptable gap before turning on East Inyokern Road. The proposed mitigation for the East Inyokern Road/Bullard Road intersection would consist of the following improvements: • Converting the inside eastbound through lane into a left-turn pocket; • Separating the southbound shared left-through-right lane into an exclusive left-turn and right-turn lane; • Restricting the northbound approach along Bullard Road to right-in, right-out movements only by constructing a “pork chop” raised median; and • Adding an acceleration lane for the southbound to eastbound movement	Same as for the Proposed Action.	Same as for the Proposed Action.	No significant impacts.

Table 2-6 Summary of Impacts

Resource Area	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
	along East Inyokern Road. With these improvements, the East Inyokern Road/Bullard Road intersection would operate at LOS C or better in all peak periods.			
Air Quality	**Impacts** Total annual emissions resulting from project construction within each year of activity have been estimated. The highest annual emissions of PM_{10}, VOCs, and NO_X occur in FY 2008 (11.78, 2.56, and 31.75 tons per year [TPY], respectively). Once construction is complete, final annual emissions are estimated to result in an increase in annual emissions as shown in Table 4.8-5. These annual emission increases would not result in a significant impact to air quality; however, management practices would be utilized to minimize any such impacts still further (as set forth below). Since no calendar year would see an annual emission of PM_{10} that exceeds the 100 TPY *de minimis* threshold, the project is exempt from the General Conformity regulation and does not require a Conformity Determination. Additional detail related to this is found in Appendix C in the Record of Nonapplicability (RONA). For P-701V, expected combined fuel use of the four new VX-30 aircraft ranges from 4.9 to 6.4 million liters (1.3 to 1.7 million gallons) per year of JP 8 and would not exceed the NAWS fuel farm permit limit of 4.5 million liters (12 million gallons) per year. Maintenance operations for these aircraft would be consistent with established airfield procedures and would continue to use NESHAP-compliant solvents for all related operations. These operations would be supported with existing air/ground equipment. For P-749V, test events at this facility are not expected to result in the generation of additional air pollution or hazardous wastes. For P-712V, a modest increase in air pollution emissions is expected as a result of increased forklift operations associated with the movement of ordinance items. There would be no other operational impacts to air quality from any of the BRACONs. For P-777V, test events at this facility are not expected to result in the generation of additional air pollution. For P-778V, test events at this facility are not expected to result in the generation of additional air pollution. Air quality impact-avoidance and minimization measures for the Proposed	Same as for the Proposed Action.	Same as for the Proposed Action.	No significant impacts.

Table 2-6 Summary of Impacts

Resource Area	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
	Action would be focused on controlling and reducing air quality impacts from construction-related activities. The following mitigations should be employed to reduce potential particulate emissions: • Using water for controlling dust during construction operations, grading roads, or clearing land; • Applying water on dirt roads, materials stockpiles, and other surfaces that could create airborne dust; • Installing and using hoods, fans, and fabric filters to enclose and vent the handling of dusty material, including implementing of adequate containment methods during sandblasting or other similar operations; • Covering open equipment for conveying or transporting material likely to create objectionable air pollution when airborne; and Promptly removing spilled or tracked dirt or other materials from paved streets **Mitigation** No significant impacts would occur to air quality, and no mitigation measures would be proposed.			
Noise	No significant impacts.	No significant impacts.	No significant impacts.	No significant impacts.
Aesthetics	No significant impacts.	No significant impacts.	No significant impacts.	No significant impacts.

Table 2-6 Summary of Impacts

Resource Area	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
Public Services and Utilities	No significant impacts.	No significant impacts.	No significant impacts.	No significant impacts.
Public Health and Safety	No significant impacts.	No significant impacts.	No significant impacts.	No significant impacts.

Key:
BO = Biological Opinion.
LOS = level of service.
NAWS = Naval Air Weapons Station.
NESHAP = National Emissions Standards for Hazardous Air Pollutants.
NOX = nitrogen oxides.
NRHP = National Register of Historic Places.
PM_{10} = particulate matter of 10 microns or less.
SHPO = State Historic Preservation Officer.
TPY = tons per year.
USFWS = U.S. Fish and Wildlife Service.
VOC = volatile organic compound.

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3 Affected Environment

This section describes existing conditions at NAWS China Lake in relation to each environmental issue area. The existing conditions provide the baseline for the analysis of potential effects resulting from the Proposed Action described in Chapter 2. Issue areas addressed include: Geology, Soils, and Seismicity; Hydrology and Water Quality; Biological Resources; Cultural Resources; Land Use; Socioeconomics; Traffic and Circulation; Air Quality; Noise; Aesthetics; Public Health and Safety; and Public Services and Utilities.

3.1 Geology, Soils, and Seismicity

This section describes the geologic and soil environment at NAWS China Lake, including physiography; general geology, faults and seismicity; liquefaction potential and geothermal resources. Geologic resources consist of the geomorphologic features in the project area (i.e., the playas, surrounding foothills and mountains, and underlying geologic formations and sedimentary cover). Seismicity includes the distribution of earthquake faults and the distribution and severity of seismic activity in the study area.

Soil resources are a subset of geologic resources. Soils are the thin, typically biologically active layer of sediments covering the earth's surface from which most plants and many animals derive moisture and nutrients. Soils are normally formed in place from the weathering of rock material, although soils may be formed elsewhere and transported by erosion or by human activities. Traditionally, soils are classified with respect to characteristics that affect plant growth (moisture retention capacity, drainage, depth, and organic matter content). Since soils are located at the earth's surface, their engineering characteristics—such as stability on slopes, compaction, and shrink swell potential—are also important. Soils grade with depth to the parent rock material from which they are derived, so the difference between soil and non-soil deposits is not necessarily distinct. The term "soil" is often used to describe any unconsolidated deposits found near the earth's surface, which is the definition used for this document.

3.1.1 Geology

The North Range is located within the Basin and Range Province and includes parts of the Coso and Argus ranges. Coso is a northwest-trending mountain range that dominates the northwest quadrant of the North Range. The Coso Range

extends from Owens Lake in the north (elevation 1,084 meters [3,557 feet] above mean sea level [AMSL]) to the Indian Wells Valley (U.S. Navy 2005a).

The Indian Wells Valley, south of the Coso Range, covers most of the southwest quadrant of the North Range and extends south beyond the boundaries of the North Range. The Sierra Nevada is the most prominent mountain range in the region and has an important effect on climate and runoff. The Sierra Nevada rises higher than 2,744 meters (9,000 feet) AMSL, compared to peak elevations in the Coso Range that average about 1,982 meters (6,500 feet) AMSL. The Sierra Nevada captures most of the moisture carried inland from the Pacific Ocean, making these mountains a more significant source of runoff and sediment to Indian Wells Valley than the smaller ranges farther east. Lack of rainfall and runoff east of the Sierra Nevada is responsible for the desert landscape features that characterize the NAWS region. These features include the following:

- Large alluvial fans that extend from the mouths of the canyons and fill the basins;
- Shallow, intermittent stream channels or washes that occasionally carry flash floods onto the valley floor from intense storms at higher elevations;
- Jagged rock outcrops; and
- Dry, terminal playa lakes that accumulate mineral salts and fine sediments as evaporation rates exceed the rate of inflow from runoff.

The southern rim of Indian Wells Valley is formed by the El Paso Mountains, Rademacher Hills, and the Spangler Hills. Near the southern end of the valley, several washes that drain Sierra Nevada canyons and the El Paso Mountains converge to form Little Dixie Wash. The wash continues onto the North Range east of Inyokern and terminates in the Charlie Range land-use management unit (LMU). Occasionally, the wash causes flooding in the North Range (U.S. Navy 2005a).

3.1.2 Soils

The soil units listed in Table 3.1-1 are soil associations occurring in the NAWS China Lake region and are based on the classification system of the State Soil Geographic (STATSGO) database established by the U.S. Natural Resources Conservation Service (NRCS), formerly the Soil Conservation Service (SCS). Soil association identification numbers correspond to Table 3.1-1, which lists the STATSGO name and a summary description for each soil unit. The STATSGO database is the only available source of soils data that encompasses the entire NAWS. The database was designed for regional, multi-state, river basin, state, and multi-county resource planning, management, and monitoring. The NRCS describes this database as having "not enough detail to make interpretations at the county level" (NRCS 1998).

Soils occurring in the Mainsite and Armitage Airfield LMUs (discussed in more detail in Section 3.5, Land Use) are identified in Table 3.1-1.

Table 3.1-1 Soil Characteristics

Identification Number	STATSGO Name	Description
CA 339	Rosamund, Rosamund Variant, Playas	Rosamond and Playa soils, mainly clay and silty clay; Rosamond Variant is sandy. Found on basin floors and playas in the North and South Ranges. Deep, moderate, susceptibility to wind and water erosion. Saline-sodic soils with low permeability, derived mainly from granitic rock. High shrink-swell potential.
CA 635	Cajon, Wasco, Rosamund	Cajon soil consists predominantly of loamy sand with varying amounts of gravel below the upper 0.3 meter (1 foot). Wasco soil is similar but generally contains finer sand and silt. The Rosamond component consists of loamy fine sand. Deep soil found on alluvial plains in the North Range. Moderately susceptible to water erosion. Moderate to highly susceptible to wind erosion.

Sources: STATSGO Database, NRCS 1991, SCS 1989.

Within the North Range, the predominant soil unit identified by the STATSGO database is map unit CA339. This soil type also occurs in Superior Valley in the south part of the South Range and in the Searles Valley along the northwest edge of the South Range. Further up the slope from the playa areas are soils formed on alluvial plains. These soils have a sandy surface layer in most areas, but the underlying soil varies widely in clay content and layering. Some of these soils contain cemented layers that are referred to as "caliche" or "hardpan" (SCS 1989). In the North Range, the STATSGO database map unit corresponding to this environment is CA635.

3.1.3 Seismicity and Seismic Hazards

Under California Public Resources Code § 2622 (the Alquist-Priolto Earthquake Fault Zoning Act of 1972), the California Division of Mines and Geology (CDMG) has delineated seismic zones deemed to be "sufficiently active and well defined as to constitute a potential hazard to structures from surface faulting or fault creep." The State geologist is required to continually review new geologic and seismic data and to revise earthquake fault zones or to delineate new zones based on new information. The Navy requires geotechnical investigations to be

performed as part of the design and retrofit of structures. Construction plans are reviewed for conformance with provisions of the Alquist-Priolto Act.

The California Code of Regulations (CCR) (24 CCR Part 2), also known as the California Building Code (CBC), contains the enforceable state building standards. CBC § 1629A.2 requires every structure have sufficient ductility and strength to undergo the displacement caused by "upper-bound earthquake" motion without collapse. The upper-bound earthquake ground motion is defined as the motion having a 10 percent probability of being exceeded in a 100-year period or a maximum level of motion that may ever be expected at the building site within the known geological framework. Navy construction requirements are in full compliance with the CBC (U.S. Navy 2005a).

Seismic (earthquake) hazards are caused by intense ground shaking, which is typically associated with movements along breaks (faults) in the earth's crust. Geologists have observed that earthquakes are more likely to occur on or near an existing fault than in an area not previously faulted. Moreover, earthquakes also occur more frequently on relatively young faults than on very old faults. The Quaternary Period (the last 1.6 million years) is typically used as a cutoff for determining earthquake probability because faults inactive throughout this period are extremely unlikely to be active again soon. Major fault zones active within the Quaternary Period and within 50 miles (80 kilometers) of the NAWS include the following:

- Sierra Nevada Fault Zone. Immediately adjacent to the western boundary of North Range;
- Valley Fault Zone. Along the same trend as the Sierra Nevada Fault Zone and within 16 kilometers (10 miles) of the northwest corner of the North Range;
- Garlock Fault Zone. Traverses the South Range and lies within about 18 kilometers (11 miles) of the southern boundary of the North Range;
- Panamint Valley Fault Zone. Extends onto the northern portion of the South Range; and
- Furnace Creek and Death Valley Fault Zones. About 24 kilometers (15 miles) northeast of the South Range.

A number of other, smaller Quaternary or younger faults occur in the immediate vicinity of the North Range. A large earthquake on one of these faults could cause damaging seismic shaking within the boundaries of the NAWS (U.S. Navy 2005a).

The primary seismic hazard at the North Range (southern China Lake Playa area) is liquefaction. Liquefaction occurs when ground shaking causes a temporary increase in pore pressure in water-saturated silts and sands, resulting in a sudden

loss of shear strength. Liquefaction of near-surface soils can cause foundations to settle, roadways to buckle, and hillsides to fail. For example, during and after an earthquake on 1 October 1982, minor wall cracking, door jamming, and similar problems in several structures were attributed to liquefaction-induced foundation settlements (U.S. Navy 2005a).

The southern portion of the North Range has been evaluated for liquefaction potential. Gentle slopes underlain by highly liquefaction-susceptible sediments occur within limited areas of the NAWS, especially in and around the China Lake playa area (Banks 1982). Most of the facilities within the Mainsite LMU area would be moderately susceptible to liquefaction (U.S. Navy 2005a).

3.2 Hydrology and Water Quality

This section describes the existing surface and sub-surface water conditions at NAWS China Lake.

3.2.1 Surface Water

NAWS China Lake is located in the South Lahontan Hydrologic Basin, a region extending from north of Mono Lake to the Colorado Basin on the eastern side of the Sierra Nevada. Average annual precipitation in the South Lahontan Basin ranges from about 178 centimeters (70 inches) at high elevations in the Sierra Nevada to less than 13 centimeters (5 inches) in parts of the basin floor. Average annual precipitation ranges from about 25 centimeters (10 inches) in the Coso and Argus Ranges to less than 13 centimeters (5 inches) at the lower elevations (U.S. Navy 2005a).

The Lahontan Regional Water Quality Control Board (RWQCB) divides the South Lahontan Basin into hydrologic units that represent watersheds or groups of watersheds (RWQCB 2006). The North Range contains all or a portion of 11 hydrologic units. On the North Range, the Indian Wells Valley forms a natural basin that receives drainage from the southern Sierra Nevada, Coso and Argus ranges, Rademacher Hills, Spangler Hills, and El Paso Mountains. Most precipitation flowing into the North Range region falls in the Sierra Nevada. About 53 percent of watersheds extending within the North Range originate in the Sierra Nevada (U.S. Navy 2005a). The Coso Hydrologic Unit, including the Renegade Canyon and Mountain Springs Canyon watersheds, receives about 31 percent of the total precipitation. About 8 percent of this precipitation falls on the southern Argus Range in the eastern part of the Indian Wells Valley Hydrologic Unit, south of Mountain Springs Canyon. The remaining 7 to 8 percent falls on the El Paso Mountains, Rademacher Hills, and Spangler Hills in the south part of the Indian Wells Valley Hydrologic Unit. Although not the largest component of inflow to the Indian Wells Valley, runoff from the El Paso Mountains is important to developed areas given the contribution to flooding along washes leading to China Lake, Mirror Lake, and Satellite Lake playas (dry lake beds) (U.S. Navy 2005a).

More than 120 springs have been identified at NAWS China Lake. These springs range from small areas with almost imperceptible discharge to areas supporting extensive riparian vegetation with discharges of up to 6 gallons (23 liters) per minute (U.S. Navy 2004). A few of these springs may disappear and reappear, depending on rainfall. Water is currently extracted for domestic use from New House Spring and Tennessee Spring in support of the Junction Ranch test site.

Seeps at NAWS China Lake consist of two interconnected seep systems: the Lark Seep system and the G-1 Seep system located near the southern end of the North Range. Lark Seep and G-1 Seep are brackish marshes formed on the edge of the China Lake playa. The seeps are not natural features but have resulted from various engineered sources, including leakage and percolation from the Ridgecrest wastewater treatment facility facultative evaporation and storage ponds, irrigation water from the NAWS golf course, Station housing and landscape water, and leakage from the NAWS potable water distribution system (U.S. Navy 2004).

3.2.2 Groundwater

Regional groundwater studies have focused primarily on Indian Wells Valley groundwater conditions as the valley represents the principal source of drinking water for the NAWS and the area's major population centers. Hydrogeology studies of Indian Wells Valley have been conducted by the U.S. Geological Survey (USGS), the Bureau of Reclamation (BOR), the Navy, and others. Current research indicates the Lahontan groundwater basin is not a closed system and recharge to the basin is greater than indicated by previous studies. However, this has not been fully investigated at this time. The Proposed Action would be located in Hydrologic Unit 24.20, which drains to China Lake (U.S. Navy 2005a).

The Indian Wells Valley basin is the sole source of drinking water in the North Range. Hydrogeologic evidence indicates more than one aquifer is present in the Indian Wells Valley basin beneath the North Range. At a minimum, there appears to be a shallow aquifer and a deep aquifer, separated by a clay zone (Dutcher and Moyle 1973). The shallow aquifer is present in the eastern side of the valley and may include numerous local perched water-bearing zones. Groundwater quality in the shallow aquifer is generally poor. The deep aquifer serves as the sole source of potable water for the NAWS and underlies much of the Indian Wells Valley. This aquifer is mostly unconfined but is considered to be confined or partly confined beneath the shallow aquifer in the eastern part of the Indian Wells Valley (U.S. Navy 2005a).

Indian Wells Valley principal water users include the agricultural sector (primarily Meadowbrook Farms), the Indian Wells Valley Water District, Searles Valley Minerals Company, the Inyokern Community Services District, NAWS China Lake, and private well owners (U.S. Navy 2005a).

3.2.3 Floodplains

Although rainfall is limited in the China Lake area, occasional storms produce periods of intense rainfall and subsequent flooding. Stormwater flooding occasionally has been a significant problem for the Mainsite LMU developed areas on the North Range. Most runoff in Indian Wells Valley comes from the southwest and forms four major ephemeral streams (streams that do not flow all year): El Paso Wash, Little Dixie Wash, Ridgecrest Wash, and Bowman Wash. El Paso Wash crosses Highway 178 about 3.22 kilometers (2 miles) west of the Main Gate and runs east of Armitage Field before discharging into China Lake playa. Little Dixie Wash originates in the very southwest of the basin, within the southern Sierra Nevada, crosses Highway 178 east of Inyokern, and runs in a northeast direction to China Lake playa. Ridgecrest Wash enters the NAWS near the Main Gate, flows northeast toward Michelson Laboratory area, and discharges to the China Lake playa (U.S. Navy 2005a). The CLUMP for NAWS China Lake does not identify any areas of China Lake being within Federal Emergency Management Agency (FEMA)-designated flood zones (U.S. Navy 2005a).

3.3 Biological Resources - Terrestrial

This section describes existing terrestrial habitat and plant and animal species in the Proposed Action area. The following discussion of biological resources at NAWS China Lake is based on information contained in the *Integrated Natural Resources Management Plan 2000 – 2004 for NAWS China Lake* (U.S. Navy 2000), and the *Final Environmental Impact Statement for NAWS China Lake* (U.S. Navy 2004).

3.3.1 Affected Environment

3.3.1.1 North Range

NAWS China Lake is composed of the North Range and the South Range. For purposes of this EA, the discussion will pertain to the North Range because all 14 BRACONs proposed are on land within the southern portion of the NAWS China Lake North Range.

Plants

The vegetation at NAWS China Lake is influenced by the presence of numerous springs and seeps as well as by its diverse topography and wide range of elevation changes (U.S. Navy 2004).

Approximately 675 unique vascular plant taxa (species, subspecies, and varieties) are known to occur on NAWS China Lake. An additional 20 taxa, primarily naturalized weeds, are known to occur only in the China Lake main complex.

Plant Communities

For natural resource management purposes, Holland (1986) created a specific plant community system for NAWS China Lake (U.S. Navy 2004). Sixteen (16) different plant communities occur on NAWS China Lake, seven which are associated with the BRACONs stated in this EA. They are as follows:

- **Mojave sand field** is defined as an area where sand deposits are sufficiently deep to influence areas normally dominated by Mojave mixed woody scrub, creosote brush scrub, or saltbrush scrub. Influences of sand fields or stabilized dunes usually reduce or exclude large shrubs with the exception of creosote bush (*Larrea tridentate*), which thrives and grows larger. Creosote clones are found most often in these areas. Extensive sand fields occur in the southern Argus Range on the eastern side of NAWS China Lake. Perennials characteristic of Mojave sand field include: freckled milkvetch (*Astragalus lentiginousus var. variabilis*), stillingia (*Stillingia spinulosa* and *S. paucidentata*), wooly star (*Eriastrum densifolioum ssp. Mohavense*), and bird cage primrose (*Oenothera deltoids*) (U.S. Navy 2004).

- **Alkali sink scrub** occurs where salt-tolerant plants grow as local patch covers. Alkali sink scrub is usually transitional between barren salt flats and salt brush scrub. Characteristic species or alkaline basin scrub include: bush seepweed (*Allenrolfea occidentalis*), shrubby alkali aster (*Maachaeranthera carnosa*), rubber rabbitbrush (*Chrysothamnus nauseosus*), allscale (*Atriplex polycarpa*), shadscale (*A. confertifolia)* and desert alyssum (*Lepidium fremontii var. fremontii*). Other perennials that occur in alkaline basin scrub include four-wing saltbrush (*Atriplex canescens*), Torrey saltbrush (*A. lentiformis var. torreyi*), tamarisk (*Tamarix sp.*), Mojave indigo bush (*Psorothamnus arborescens var. arborescens)*, desert horsebrush (*Tetradymia glabrata*), goldenbush (*Isocoma acradenia var. acredonia*), prince's plume (*Stanleya pinnata var. pinnata*), and salt grass (*Distichilis spicata*) (U.S. Navy 2004).

- **Creosote bush scrub** covers extensive areas of NAWS China Lake, particularly in the valleys of the North and South Ranges (U.S. Navy 2004). Creosote bush grows from the lowest, well-drained, non-alkaline areas at 579 meters (1,900 feet) to about 1,676 meters (5,500 feet) AMSL. Above 1,066 meters (3,500 feet) AMSL, creosote bush is present as an associated species of other plant communities. Common associated species in creosote bush scrub include: burro bush (*Ambrosia dumosa*) shadscale, goldenrod (*Acamptopappus sphaerocephalus*), Mojave indigo bush, allscale, cheesebush (*Hymenoclea salsola var. salsola*), desert senna (*Senna armata*), and Anderson tornbush (*Lycium andersonii*) (U.S. Navy 2004).

- **Mojave mixed scrub** occupies the largest percentage of land on NAWS China Lake, including both the North and South Ranges. It can be found at higher elevations than creosote bush scrub in well-drained areas from 762 meters to 1,676 meters (2,500 feet to 5,500 feet) AMSL. This plant community is defined where the upper zones of creosote bush scrub transition into scrub composites which are no longer dominated by creosote bush and burrobush, and is a collective of numerous associations with the highest diversity of plant species. On NAWS China Lake, Mojave mixed scrub is a codominant composition of creosote bush, copper goldenrod (*Ericameria*

cooperi var. Cooperi), Mojave indigo bush, cheesebush, bladder sage (*Salazaria mexicana*), Anderson thornbush, hopsage, California buckwheat (*Erigonum fasciculatum ssp. Polifoium*), Mojave aster (*Xylorhiza tortifolia var. tortifolia*), Nevada ephedra (*Ephedra nevadensis*), wire lettuce (*Stephanomeria pauciflora var. pauciflora*), and action brittlebush (*Encelia actoni*) (U.S. Navy 2004).

- **Saltbush Scrub** occurs on NAWS China Lake in both the North and South Ranges at elevations less than 1,524 meters (5,000 feet) AMSL. Saltbrush scrub communities are defined by areas where allscale and spinescale (*Atriplex spinifera*) is the dominant cover shrub, often devoid of other shrubs. Common associates include other saltbush species, including shadscale, desert holly, and four-wing saltbrush. Torrey saltbrush and Parry saltbrush also occur in saltbrush scrub (U.S. Navy 2004).

- **Playa** occurs in areas ranging from seasonal pools to flooded alkaline basins, which are normally barren but become flooded seasonally and produce dense to patchy annual growth. NAWS China Lake has numerous dry lakes, playas, and clay depressions, ranging from small clay depressions and pools in the basalt flows at 2,286 meters (7,500 feet) AMSL in the northern Coso Range to alkaline and semi-alkaline playas in Salt Wells and south Panamint Valleys at 579 meters (1,900 feet) AMSL and 427 meters (1,400 feet) AMSL, respectively. In years of abundant rainfall, annuals such as devil's lettuce (*Amsinkia tessellate*), tumble mustard (*Sisymbrium altissimum*), and pineapple weed (*Chamomilla suaveolens*) can form dense cover areas on the perimeters of depressions, pools, and playas. One prominent example of playa vegetation at NAWS China Lake is at the northern end of Airport Lake, which supports a field of tumble mustard and devil's lettuce (U.S. Navy 2004).

- **Riparian communities** are present where plants require a permanent source of water or a substantial ephemeral flow. Riparian communities are highly restricted, well-defined areas characterized by aquatic herbs, grasses, tall shrubs, and trees in active growth stages in the summer. Typical riparian areas at NAWS China Lake consist of various vegetation patches, each dominated by a single species, usually at springs or seeps. This habitat can consist of dense stands of willow (*Salix spp.*), Freemont cottonwood (*Populus fremontii var. fremontii*), seepwillow (*Baccharis sergiloides*), and rushes (*Juncus ssp.*), but plant species range with elevation and hydrology at a particular site (U.S. Navy 2004).

- **Urban exotics** are comprised of certain invasive and non-native species resulting from disturbance, such as human activities, overuse by feral domestic species, fires, rapid erosion, or flash flood. The disturbance replaces the existing plant community with a specific composition of plants that favor disturbed sites. Species common in disturbed sites are: devil's lettuce; tumbleweed (*Salsola tragus*), which are the annual cover at target areas;

annual ragweed (*Ambrosia acanthicarpa*), which occur along roads; and non-native grasses, such as annual cheat grass and downy chess (*Bromus madritensis spp. rubens*), which are present throughout NAWS China Lake (U.S. Navy 2004).

Figure 3.3-1 shows the vegetation communities and cover types on NAWS China Lake, North Range.

Wildlife

Wildlife on NAWS China Lake is rich and varied due to varied topography and diversified habitats. This section provides an overview of wildlife resources occurring on NAWS China Lake. As there is a relative scarcity of water in the desert, riparian areas and other water sources tend to concentrate wildlife species, creating an oasis effect. These areas generally show the highest diversity of wildlife for a given region and represent valuable resources for wildlife.

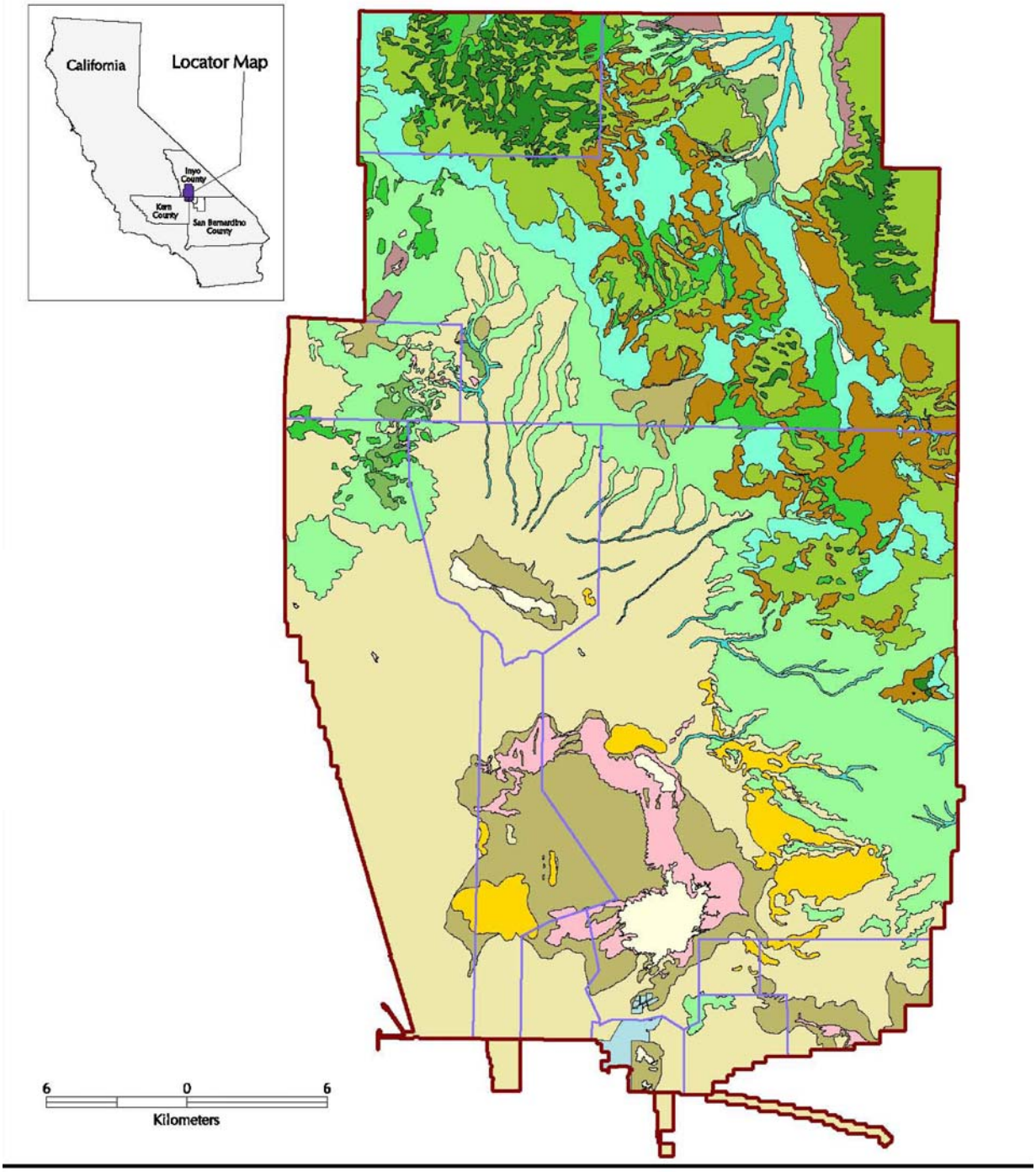
A wide variety of wildlife occurs within all floristic provinces. Many species are wide-ranging (existing in all floristic provinces), while others are restricted to microhabitats within a particular plant community. Many of the more mobile species, especially larger mammals and birds, may use a variety of plant communities, even within a single day. Less mobile species, smaller mammals, some invertebrates, reptiles, and amphibians may live their entire life cycles within a single plant community.

Avian Species

NAWS China Lake provides foraging and nesting habitat for a variety of birds. Some of these species are resident, while others are migratory, using NAWS China Lake's habitat seasonally. More than 310 bird species, including the federally listed Inyo California towhee, are known to occur on NAWS China Lake. The National Audubon Society conducts an annual Christmas bird count on the North Range and, since 1988, has completed more than 800 surveys at the wastewater ponds in the southern portion of George Range.

Special-Status Species

There are three federally listed threatened or endangered resident species at NAWS China Lake and five federally listed threatened or endangered nonresident species. Table 3.3-1 lists federally listed species. NAWS China Lake has many sensitive species. These sensitive species include: those listed or are being considered for listing as endangered or threatened; those considered a species of special management concern by the USFWS, Bureau of Land Management (BLM), U.S. Forest Service (USFS), National Audubon Society, or the California Department of Fish and Game (CDFG); those with limited range or endemic to a particular area; those of questionable or unclear taxonomic status; species of scientific interest (e.g., butterflies); those exhibiting unique or rare features; those found in a known valuable habitat (e.g., riparian areas or sand dunes); and those species found in a protected habitat (e.g., wetlands, riparian areas, or playas).



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NAWS CHINA LAKE BRAC EA

Central Southern California

Figure 3.3-1
Plant Communities on NAWS/CL North Range

Date: 12/5/2006	GIS Analyst: avh
Map Source Information: FEIS NAWS China Lake 2004	

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Species Common Name (Scientific Name)	Status Federal/ State	Habitat on NAWS	Occurrence	Range
Mohave tui chub (Gila bicolor mohavensis)	E/E	Lark Seep, G-1 Seep	Resident	North
Desert tortoise (Xerobates [Gopherus] agassizii)	T/T	Creosote bush scrub, saltbush scrub, and Joshua tree woodland; Designated Critical Habitat on South Range	Resident	Both
Inyo California towhee (Pipilo crissalis eremophilus)	T/E	Riparian habitats in the southern Argus Range; Designated Critical Habitat on North Range	Resident	North
California brown pelican (Pelecanus occidentalis californicus)	E/E	Recorded twice at Lark Seep	Vagrant, extremely rare	North
Bald eagle (Haliaeetus leucocephalus)	FPD/E	Migrate over most habitats	Transient, extremely rare	North
Western snowy plover (Charadrius alexandrinus nivosus)	T	Wastewater Treatment Facility ponds, G-1 Seep	Uncommon migrant, extremely rare summer resident	North
Southwestern willow flycatcher (Empidonax traillii extimus)	E/E	Riparian habitats, as well as the housing area and golf course	Transient, fairly common	North
Least Bell's vireo (Vireo bellii pusillus)	E/E	Riparian habitats, as well as the housing area and golf course	Transient, extremely rare	North

[a] Only the Pacific coastal population of western snowy plover is listed. Plovers occurring on NAWS are considered to be part of an unlisted inland population.

E = Endangered.
T = Threatened.
FPD = Federal Proposed Delisted.

Sources: USFWS 1996a, 1996b; ; CDFG 1997; U.S. Navy 1998b, 1999a.

NAWS CHINA LAKE BRAC EA

Central Southern California

Table 3.3-1
Federally Listed Threatened and Endangered Species on NAWS

Date: 12/5/2006	GIS Analyst: avh
Source Information: FEIS NAWS China Lake 2004	

Plant Communities

Federally Listed Plant Species

Currently, there are no known occurrences of federally listed threatened or endangered plant species on NAWS China Lake lands.

Sensitive Plant Species

A number of plant species are located on NAWS China Lake that are not federally listed but have been identified as sensitive plant species.

Wildlife

Three wildlife species formally listed by USFWS as threatened or endangered are sometimes present on NAWS China Lake: the Mohave tui chub, desert tortoise, and Inyo California towhee. In addition, several nonresident federally listed threatened or endangered bird species occur on the Station as transients or migrants. Threatened and endangered wildlife species known to occur on NAWS China Lake are included in Table 3.3-2.

Avian Species

Federally Listed Birds

The USFWS listed Inyo California towhee (*Pipilo fuscus eremophilus*) as a threatened species on 3 August 1987. It is the only federally listed bird species resident on NAWS China Lake. Inyo California towhees are a relict of a species that was widespread in the southwestern United States and northern Mexico. This subspecies is thought to have become restricted to mountain areas in the northern Mojave Desert as a result of climatic changes beginning in the Pliocene era. It is now restricted to riparian habitats in the southern Argus Mountain Range of Inyo County. Data gathered during the spring and summer of 1998 (following an above-average rainfall year) indicate the towhee's range has extended about 6.4 kilometers (4 miles) farther north than previously believed (LaBerteaux/Garlinger 1998). Estimates indicated a population of approximately 570 adult towhees in 1998. Sixty-nine (69) percent of the entire towee habitat is on the North Range. The remaining habitat is on adjacent BLM and State lands (U.S. Navy 2004). The primary threat to towhees is the degradation or destruction of riparian habitat that has occurred on off-Station lands. On NAWS China Lake lands, potential for habitat degradation results primarily from burros and horses using springs and grazing on native vegetation in upland areas (U.S. Navy 2004).

Federally Listed Nonresident Bird Species

Five federally listed nonresident birds occur as migrants with varying degrees of abundance at NAWS China Lake: the California brown pelican (*Pelecanus occidentalis californicus)*, bald eagle (*Haliaeetus leucocephalus*), least Bell's vireo (*Vire bellii pusillus*), willow flycatcher (*Empidonax traillii*), and western snowy plover (*Charadrius alexandrinus nivosus*). Immature California brown pelicans have been recorded only twice, both times at Lark Seep. As such, they are considered vagrants. The bald eagle has recently been proposed for federal

Species Common Name	Species Scientific Name	Range	Status Federal/State	Reason for NAWS-Sensitive Species Status
Plants With Confirmed Records at NAWS				
Pinyon rock cress	Arabis dispar	North	-/-	4
Darwin Mesa milkvetch	Astragalus atratus var. mensanus	North	-/-	1B
Desert bird's-beak	Cordylanthus eremicus ssp. eremicus	North	---	4
Yerba desierto	Fendlerella utahensis	North	-/-	4
Creosote clones	Larrea tridentata	North		Scientific value (extreme age)
Coso Mountains lupine	Lupinus magnificus var. glarecola	North	-/-	4
Crowned muilla	Muilla coronata	North	-/-	4
Death Valley round-leaved phacelia	Phacelia mustelina	South	-/-	1B
Charlotte's phacelia	P. nashiana	North	FSC/-	1B
Mojave indigo bush	Psorothamnus arborescens var. arborescens	South	-/-	4
Mojave fish-hook cactus	Sclerocactus polyancistrus	Both	-/-	4
DeDecker's clover	Trifolium macilentum var. dedeckerae	North	-/-	1B
Clokey's cryptantha	Cryptantha clokeyi	South	-/-	1B
Plants with unconfirmed records at NAWS				
Darwin rock cress	Arabis pulchra var. munciensis	North	-/-	2
Shining milkvetch	Astragalus lentiginosus var. micans	North	FSC/-	1B
Naked milkvetch	A. serenoi var. shockleyi	North	-/-	2
Panamint mariposa lily	Calochortus panamintensis	North	-/-	4
Booth's evening primrose	Camissonia boothii ssp. boothii	North	-/-	4
Panamint dudleya	Dudleya saxosa ssp. saxosa	South	FSC/-	4
Inyo hulsea	Hulsea vestita ssp. inyoensis	North	-/-	2
Caespitose evening primrose	Oeonothera caespitosa ssp. crinita	North	-/-	4
Plant with habitat at NAWS				
Pygmy poppy	Canbya candida	North	-/-	1B

Notes:
List 1B = Plants CNPS considers rare and endangered in California and elsewhere.
List 2B = Plants CNPS considers rare, threatened, or endangered in California, but more common elsewhere.
4 = Plants of limited distribution; a watch list.
CNPS = California Native Plant Society.
FSC = Federal Status, State Status, CNPS Status.
- = No status definition.
Sources: Hickman 1993; Skinner and Pavlik 1994; USFWS 1996b; CDFG 1997, 1999c; U.S. Navy 1998b.

NAWS CHINA LAKE BRAC EA

Central Southern California

Table 3.3-2
Sensitive Plant Species Known or Potentially Occurring at NAWS

Date: 12/5/2006	GIS Analyst: avh
Source Information: FEIS NAWS China Lake 2004	

delisting from the endangered species list. The eagle and least Bell's vireo occur at the NAWS only as extremely rare transients during migration. The willow flycatcher is a fairly common transient during migration. Willow flycatchers migrating through NAWS China Lake could belong to several subspecies, most likely including the endangered southwestern willow flycatcher. These four species are not known to breed on the NAWS. Because they are extremely rare or are primarily associated with riparian or wetland habitats, which are currently managed for their resource values, these nonresident birds are not considered further in this document. The western snowy plover is common during the spring at the City of Ridgecrest's wastewater treatment facility ponds. It is not certain whether these individuals are from the threatened Pacific Coast population or the unlisted inland population. The western snowy plover may breed at the ponds or at the G-1 Seep, where fledged juveniles have been observed. However, no nests or non-flying juveniles have been located, and breeding has not been documented at the NAWS (U.S. Navy 2000).

State Sensitive Species (No Federal Status)

NAWS China Lake sensitive avian species are those using protected habitats, such as wetlands, or federally threatened or endangered species that are migrants at NAWS China Lake, including:

- **Burrowing owl** (*Athene cunicularia*). A California special concern species that is historically known to occur in open, dry grasslands, agricultural and range lands, and desert habitats often associated with burrowing animals. Two burrowing owls were encountered at the entrance of active burrows during the Armitage Airfield surveys of November 2005 conducted for BRACON P-701V; therefore, they are known to be present on the site.

- **Le Conte's thrasher** (*Toxostoma lecontei*). A California special concern species that historically is known to occur primarily in open desert wash, desert scrub, alkali desert scrub, and desert succulent scrub vegetation communities; as well as Joshua tree communities with scattered shrubs. Open desert wash, desert scrub, and alkali desert scrub communities occur on the Armitage Airfield site, which is the location of proposed BRACON P-701V, and there is a recorded occurrence of Le Conte's thrasher approximately 15 kilometers (10 miles) southwest of Armitage Field; therefore there is a moderate potential for occurrence of this species on the Armitage site.

Mammalian Species

State Sensitive Species (No Federal Status)

Due to the small geographic range of the Mohave ground squirrel (*Spermophilus mohavensis*) and loss of its habitat, this species was designated rare by the State of California in 1971. This was changed to a designation of threatened in 1985 when the State of California amended their ESA to match the federal nomenclature. The Mohave ground squirrel prefers alluvial-filled valleys with deep, fine-to-medium textured soils with Joshua tree woodland, creosote scrub,

shadscale scrub, or alkali sink scrub. Desert pavement and eroded, shallow soils that promote rapid runoff seem to limit populations, and they generally avoid rocky or mountainous terrain and sterile playas. On NAWS China Lake, the majority of Mohave ground squirrel habitat is on alluvial fans adjacent to hills and mountains, where the sandy soils tend to be deep. It occurs on Brown Mountain at the south end of the Slate Range, Pilot Knob Valley, and Superior Valley on the South Range, and on the North Range it occurs in the Coso geothermal area, and south and east throughout the Indian Wells and Salt Wells valleys (U.S. Navy 2004). Habitat historically associated with Mojave ground squirrel occurrence is marginal on the Armitage site; however, there are six recorded occurrences of the species within 8 kilometers (5 miles) of Armitage Field. Therefore, there is a moderate potential for this Mojave ground squirrel to occur on the Armitage site.

Fish Species

Federally Listed Fish

Mohave tui chub (*Gila bicolor mohavensis*) is a federally listed endangered fish species. They are typically associated with deep pools and slough-like areas of the Mojave River, where they are the only native fish in that system. The Mohave tui chub likely no longer exists in natural habitats within its native range. Hybridization with the introduced arroyo chub (*Gila orcutti*) has contributed to population declines in many areas (U.S. Navy 1998). Genetically pure populations now occur only in refugia (i.e., habitats maintained in a more or less stable state) located at NAWS China Lake as well as at other off-Station areas including MC Spring and Soda Springs along the western shore of Soda Lake, and at Camp Cady along the Mojave River channel west of Afton Canyon. Mohave tui chub feeds primarily on zooplankton and benthic invertebrates (U.S. Navy 2004).

In 1971, 400 Mohave tui chubs were introduced from the Soda Springs population into the Lark Seep system at NAWS China Lake. The population was augmented with another 75 individuals in 1976. As water levels rose through the years, this population has increased and expanded in range. Mohave tui chubs currently occur throughout the Lark Seep/G-1 Seep drainage system, which consists of the two seeps and about 8 kilometers (5 miles) of interconnecting channels. Estimates in 1995 and 1997 place the population at 7,500 to 10,000 chubs, making this the largest known population in the world. During sampling, more than 90 percent of the chubs were in the channels rather than the two seeps (U.S. Navy 2004). At the G-1 Seep, the chubs occur in a small area where the channel terminates into the seep. Habitat within the slow-flowing channel likely mimics the chub's natural Mojave River habitat and may help buffer the fish from changes in water temperature and quality.

Herpetofauna

Amphibians

State Sensitive Species (No Federal Status). There are two sensitive species on NAWS China Lake, the western toad (*Bufo boreas*) and the Pacific tree frog (*Pseudaerus regilla)*. Both species are used by BLM as indicator species for habitat quality determination. The western toad occurs throughout the NAWS China Lake urban areas (U.S. Navy 2004). Outside of these developed areas, the western toad has been confirmed only at Haiwee Spring. The Pacific tree frog was recorded at Haiwee Spring in 1980.

Reptiles

Federally Listed Species. In August 1989, USFWS listed the Mojave population (west of the Colorado River) of the desert tortoise (*Gopherus agassizii*) as endangered under the emergency listing provisions of the ESA. The State of California listed the species as threatened in June 1989, and the USFWS formally listed the desert tortoise as threatened in April 1990. The USFWS finalized the Desert Tortoise Recovery Plan in 1994 and designated critical habitat in 1995. The USFWS issued a BO on the desert tortoise in 1995 (see Appendix A).

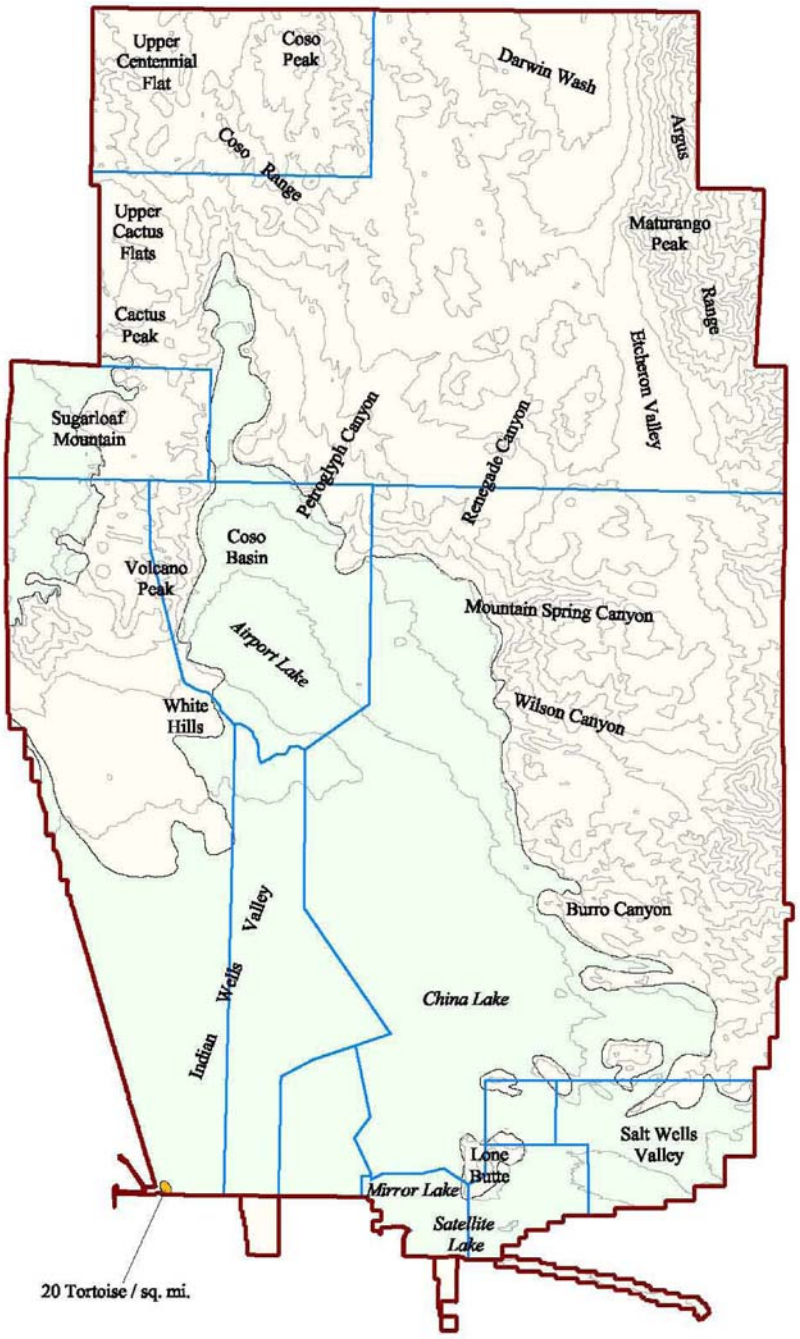
At NAWS China Lake, tortoises occur in creosote bush scrub and saltbush scrub communities. Surveys of the North Range and South Range conducted in 1990 and 1991 demonstrated the highest density tortoise habitat tends to be on gentle slopes (bajadas), in creosote bush scrub with sandy-loam to pebbly soils (U.S. Navy 2004). Desert tortoise densities on NAWS China Lake are shown on Figure 3.3-2.

On the North Range, surveys identified 352 square kilometers (136 square miles) of potential desert tortoise habitat. However, only two areas totaling 18 square kilometers (7 square miles) or approximately 5 percent of the total identified as potential tortoise habitat were estimated to have densities of as many as 20 tortoises per square kilometer. These two locations include an area 4.8 kilometers (3 miles) east of Airport Lake and another near the town of Inyokern. The remaining potential desert tortoise habitat, if occupied, supports lower densities of tortoise. A survey of the proposed location for P-701V conducted in November 2005 did not detect the presence or evidence of the desert tortoise.

3.3.1.2 Wetlands and Waters of the U.S.

Wetlands typically are defined as areas inundated or saturated by surface or groundwater, often supporting vegetation typically adapted for life in saturated soil conditions. Wetlands serve important biological functions, such as providing nesting, breeding, foraging, and spawning habitat for aquatic or land species.

Past activities that may have disturbed wetlands and other surface water features at NAWS China Lake include historic water withdrawal from springs to support mining, grazing, and human uses. Wild horses, wild burros, and cattle have degraded vegetation along riparian corridors, thereby increasing sedimentation, water temperatures, and nutrient load.



20 Tortoise per Square Mile

Known Tortoise Habitat Area

500-Ft Contour

Land Management Unit

NAWS Boundary

5 0 5 10 Kilometers

N

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NAWS CHINA LAKE BRAC EA

Central Southern California

Figure 3.3-2

Known Desert Tortoise Habitat Areas and Densities North Range

Date: 12/5/2006	GIS Analyst: avh

Map Source Information:
FEIS NAWS China Lake 2004

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More than 120 springs have been identified at NAWS China Lake. These springs range from small areas with almost imperceptible discharges to areas supporting extensive riparian vegetation with discharges of up to 23 liters (6 gallons) per minute (U.S. Navy 2004). A few of these springs may disappear and reappear, depending on rainfall. Water is currently extracted for domestic use from New House Spring and Tennessee Spring in support of the Junction Ranch test site.

Seeps at NAWS China Lake consist of two interconnected seep systems, the Lark Seep system and the G-1 Seep system located near the southern end of the North Range. Leakage and percolation from the City of Ridgecrest's wastewater treatment facility evaporation storage ponds and some water from the NAWS golf course and housing area formed these seeps. The seep systems include areas of open water and are connected by constructed channels that provide habitat for the federally listed endangered Mohave tui chub. Dominant vegetation types in these seeps include cattail marsh, tule marsh, and alkali meadow (U.S. Navy 2004). NAWS China Lake contains several major playas and as many as 80 smaller playas, ranging from hundreds of acres to less than 0.4 hectare (1.0 acre). The major playas on the North Range are: China Lake, Mirror Lake, Satellite Lake, Paxton Ranch Playa, and Airport Lake. Movie Lake is the major playa on South Range (U.S. Navy 2004).

3.3.2 Regulatory Setting

This section provides an overview of the laws and regulations influencing the management of biological resources in the project area. While many of these regulations will not apply to the proposed project if biological resources are avoided as part of the project, they are discussed here to provide a context for determining which biological resources are considered "sensitive" for the purposes of this report and to discuss the effects the proposed project may have on them.

Federal

Federal Endangered Species Act

The federal ESA defines species as "endangered" and "threatened" and provides regulatory protection for listed species. The federal ESA provides a program for conservation and recovery of threatened and endangered species, and conservation of designated critical habitat the USFWS has determined is required for the survival and recovery of these listed species. Section 9 of the federal ESA prohibits the "take" of species listed by USFWS as threatened or endangered. "Take" is defined as "...to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in such conduct." Recognizing that take cannot always be avoided, Section 10(a) of the federal ESA includes provisions for take incidental to but not the purpose of otherwise lawful activities. Section 10(a)(1)(B) permits (incidental take permits) may be issued if take is incidental and does not jeopardize the survival and recovery of the species.

Section 7(a)(2) of the federal ESA requires all federal agencies, including the USFWS and the Navy, to evaluate projects with respect to any species for listing

or already listed as endangered or threatened, and any designated critical habitat for the species. Federal agencies must undertake programs for the conservation of endangered and threatened species, and are prohibited from authorizing, funding, or carrying out any action that will jeopardize a listed species or destroy or modify its critical habitat. As defined in the federal ESA, "individuals, organizations, states, local governments, and other non-Federal entities are affected by the designation of critical habitat only if their actions occur on Federal lands, require a Federal permit, license, or other authorization, or involve Federal funding." Due to the potential presence of the desert tortoise (a federally listed species) on the project site, project compliance with the federal ESA was considered in this evaluation.

Migratory Bird Treaty Act

The MBTA makes it unlawful to pursue, capture, kill, or possess any migratory bird or part, nest, or egg of any such bird listed in wildlife protection treaties between the United States, Great Britain, Mexico, Japan, and the countries of the former Soviet Union. Similar to the federal ESA, the MBTA authorizes the Secretary of the Interior to issue permits for incidental take. Due to the presence of migratory birds on the project site, project compliance with the MBTA was considered in this evaluation. Nesting birds and the contents of nests within the project site are afforded protection during the nesting season, pursuant to the MBTA.

Section 404 of the Federal Clean Water Act

The U.S. Environmental Protection Agency (USEPA) regulates the discharge of dredged or fill material into waters of the U.S. under Section 404 of the CWA. As described above, no U.S. Army Corps of Engineers (USACE) waters of the U.S. would be affected by the project. Therefore, this permit is not anticipated. If it is later found that waters of the U.S. would be affected, the applicant must obtain a permit from the USACE for all discharges of fill material into waters of the United States, including wetlands, before proceeding with the project.

3.4 Cultural Resources

This section describes the existing cultural resources located within the Area of Potential Effect (APE) for the Proposed Action. This section also identifies potential impacts on cultural resources due to the implementation of the Proposed Action, and includes measures to avoid, reduce, or mitigate for these potential impacts.

Cultural resources consist of archaeological resources (prehistoric and historic sites) and architectural resources (historic districts, buildings, and other structures). Historic architectural resources consist primarily of individual historic buildings or a group of buildings within a historic district, but can also include other structures, such as roads, bridges, radio towers, canals, and military earthworks.

3.4.1 Prehistory and History

3.4.1.1 Prehistoric Background

During the Paleo-Indian Period (11,000 to 7,500 Before Present [B.P.]), the prehistoric populations of the Mojave Desert region consisted of small, highly mobile groups of hunter gatherers. The Lake Mojave period (10,000 to 7,000 B.P.) is characterized by increasing temperature with little change in precipitation. Increased glacial melting led to greater availability of water and higher ecosystem productivity (U.S. Navy 2003). The procurement system appears to have been based on exploitation of large and small mammals, reptiles, and plants. Diagnostic artifacts of this period are fluted projectile points (11,000 to 10,000 B.P.), later replaced by stemmed projectile points (10,000 to 7,500 B.P.) (Andrews and Gianbastini 2006). The majority of sites appear to be located along the shorelines of relict lakebeds and fossil washes. The sites rarely have a subsurface component. One of the oldest sites in the Mojave area was discovered at NAWS China Lake and yielded evidence of extinct burned Pleistocene fauna associated with fluted points (Andrews and Gianbastini 2006).

Starting around 9,000 B.P., a climatic trend towards increasing aridity, drying lowlands, and decreased ecological diversity led to increased upland utilization and changes in artifact tool assemblages and diversity (U.S. Navy 2003). The emergence of fully fledged, generalized foraging cultural adaptation was triggered by changing climates during the Pinto Period (7,500 to 4,000 B.P.). Pinto populations continued the exploitation of large animals, but a greater emphasis was placed on the utilization of plant food and small game. The sites of this period are typically associated with fossil and active streams and margins of playas. Diagnostic artifacts included stemmed Pinto points and occasionally leaf-shaped points and contracting-stem Gypsum points. A majority of the points were made of fine-grained igneous basalt and rhyolite. Milling stones are more abundant than in earlier assemblages, indicating an increased consumption of plant foods (Andrews and Gianbastini 2006).

The Gypsum/Newberry Period (4,000 to 1,500 B.P.) is typified by dart-sized projectile points such as Gypsum (contracting-stem), Elko (corner-notched or eared), and Humboldt (basal-notched). The milling tools seem to have been retained and utilized for longer times than in earlier periods, signifying more intensive land-use strategies. There also is evidence of cultural exchange between the Mojave Desert and Southwest cultures (Andrews and Gianbastini 2006) Late in the period, the introduction of the bow and arrow may have increased the efficiency of large-game procurement. Most sites tend to be small and short-term occupations of specific landforms. There is greater reliance on plant and small animal resources, possibly due to increased aridity (U.S. Navy 2003).

The Rose Springs Period (1,500 to 700 B.P.) is represented by medium-sized arrow points of Rose Spring, Eastgate, or Saratoga Springs types. The archaeological materials show an increased influence of the Southwest groups, predominately the Anasazi. The Mojave River emerges as a major trade route

between the California coast and the Colorado River area (Andrews and Gianbastini 2006). Seasonal movements were restricted to smaller foraging areas possibly due to increased population pressure (U.S. Navy 2003).

The Shoshonean Period (700 to 100 B.P.) is represented by small side-notched or unnotched (Desert Side-Notched or Cottonwood) arrow points (Andrews and Gianbastini 2006). Both the Rose Springs and Shoshonean Periods witnessed a change in subsistence strategies as reflected in a decline in frequency of large residential bases in favor of smaller family-based sites (U.S. Navy 2003).

As of 2004, archaeological surveys have been conducted for approximately 37,433 hectares (92,500 acres) at NAWS China Lake. In the area surveyed, 1,736 sites were located, including 1,592 prehistoric sites, 88 historic sites, and 56 dual-component sites. Of these, 697 prehistoric sites have been evaluated for NRHP eligibility and 545 sites have been recommended as eligible (U.S. Navy 2004).

A number of Prehistoric Districts and Landmarks are either listed on the NRHP or have been evaluated for NRHP listing. Coso Rock Art District National Historic Landmark contains over 250,000 petroglyphs. The Sugarloaf Archaeological District has over 480 sites that are listed as contributing elements; the area was an extensive source of obsidian, which was widely traded in prehistoric times. The Cactus Flat Village Site, located within the Sugarloaf District, was a major habitation site and included quarries, milling features, and lithic scatters. The Pothunter Spring Site Complex in the South Range consists of a series of rock shelters with a long record of habitation. Coso Hot Springs has been listed for its historic and Native American significance (U.S. Navy 2004). Other areas at NAWS China Lake being considered for nomination to the NRHP are the TWENTY MULE TEAM BORAX ROUTE; Fort Coso, a 19th Century military outpost associated with Fort Independence; Seep Springs Archaeological District; Lake China Paleo-Indian District; and the Agnes Bierman Pictograph Caves District (U.S. Navy 2003).

3.4.1.2 History

The first map that shows routes through NAWS China Lake was drafted by Lieutenant George Wheeler in 1871 and depicts a route through the North Range Complex (U.S. Navy 2003). At the time of the European contact, the NAWS China Lake area was occupied by Native American groups that included the Chemehuevi, the Kawaiisu, and Timbisha (Andrews and Giambastiani 2006; Kaldenberg 2006b). In 1860, gold deposits were discovered in the Coso Mountains, which led to the mining settlement of Coso Village. The small village had about 200 inhabitants until it was abandoned and used intermittently through the 1880s and 1890s (U.S. Navy 2003). In the 1860s, borax was discovered in the region. The growth of the borax industry increased traffic and settlement in the region. China Lake got its name from Chinese settlers who prospected for borax after working on the Central Pacific Railroad (U.S. Navy 2003, Andrews and Gianbastini 2006).

Ranching became an important industry in the area during the late 1800s. Junction Ranch was the only permanent ranch located on China Lake. It operated from the 1880s to the early 1900s and was located at the convergence of trails leading to Darwin, the Panamint Valley, and Renegade Canyon. The Sterling Ranch raised pack mules and also owned and operated several mines, including the Sterling Queen Mine at B-Mountain on NAWS China Lake (CIRHM 2006). The Indian Wells Valley area was settled starting in 1908 when the area was opened to federal homesteading. Shortly after, a branch of the Southern Pacific Railroad was extended into the Indian Wells Valley. The railroad facilitated the development of the valley and its population grew until a drought in 1921 drove most families out of the area (U.S. Navy 2006).

In the mid-1930s, the airfield at Inyokern was initially used as a provisional emergency landing field for the Trans-Sierra Airlines flight between Fresno, California, and Phoenix, Arizona. In 1942, the airfield was taken over by the Army, which used the airfield for cross-country flights. Just before World War II, the Office of Scientific Research and Development (OSRD) was created to oversee academic scientists' work on weapons development. A Naval Ordnance Test Station was commissioned in 1943 at China Lake and included a 2,331-square-kilometer (900-square-mile) test range. During World War II, the Station played an important role in developing non-nuclear bomb components for the Manhattan Project (CSMD 2006).

In the 1940s, the primary work site areas were the development and testing of rockets and guided missiles, solid propellants, fire-control systems, and air-launched rockets. These projects included "Holy Moses," a 12-centimeter (5-inch) high-velocity aircraft rocket and "Tiny Tim," a 226-kilogram (500-pound), rocket-propelled bomb.

After the war, China Lake was involved in underwater ordnance and torpedo development. Mighty Mouse, the BOAR rocket, and the Sidewinder missile were under development during the 1950s. The 1960s saw the development of the Snakeeye and Rockeye bombs, the Zuni rocket, the Shrike antiradar missile, and the Walleye. In 1967, the complex was renamed Naval Weapons Center (NWC), China Lake. During the Vietnam War, 75 percent of the air-to-air and air-to-ground missiles used were developed at the NWC. During the 1970s, the Navy shifted to more advanced, computer-intensive systems, including optical and laser systems, advanced propulsion technologies, and anti-radiation guidance systems. In the 1980s, China Lake's Advanced Sidewinder missiles were used in the Middle East and the Falklands, and the Tomahawk Cruise Missile was developed. Sidewinders, Tomahawks, and Shrike weapons systems developed at the NWS were used in Operation Desert Storm. In 1992, the RDT&E functions of the NWC were combined with other Navy T&E functions to form NAWS China Lake (CSMD 2006; U.S. Navy 2004).

3.4.2 Legislative Background

The 1966 NHPA (PL 89-665, as amended by PL 96-515; 16 USC 470 et seq.) provides for establishment of the NRHP to include districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, and culture. Section 106 of the NHPA requires federal agencies with jurisdiction over a proposed federal project take into account the undertaking's affect on cultural resources listed or eligible for listing on the NRHP, and affords the SHPO and the ACHP an opportunity to comment with regard to the undertaking. The NRHP eligibility criteria have been defined by the Secretary of the Interior's Standards for Evaluation (36 CFR 60).

Cultural resources are considered to be eligible for listing on the NRHP if they display the quality of significance in American history, architecture, archaeology, engineering, and culture present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, workmanship, feeling, and association, and meet the following criteria:

- Criterion A: are associated with the events that have made a significant contribution to the broad patterns of American history; or
- Criterion B: are associated with the lives of persons significant in our past; or
- Criterion C: embody the distinctive characteristic of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic value, or that represent a significant or distinguishable entity whose components may lack individual distinction; or
- Criterion D: have yielded or may likely yield information important in prehistory or history.

The process of agency review and assessment of the effect of an undertaking on cultural resources is set forth in the implementing regulations formulated by the ACHP (36 CFR 800, Protection of Historic Properties). Other applicable laws and guidelines include the following:

- EO 11593: Protection and Enhancement of Cultural Environment (16 USC 470 [Supp. 1, 1971]).
- Native American Graves Protection and Repatriation Act (PL 101 – 601; USC 3001 – 3013).
- Determination of Eligibility for Inclusion in the National Register (36 CFR 63).
- Recovery of Scientific, Prehistoric, and Archaeological Data (36 CFR 66).

- Curation of Federally Owned and Federally Administered Archaeological Collections (36 CFR 79).

- DoD Directive 4710.1 (outlines the policy to incorporate historic preservation requirements into all DoD activities).

Section 101(d) (6) (B) of the 1966 NHPA requires federal agencies to consult with Native American tribes who attach religious or cultural significance to historic properties. Compliance with 36 CFR 800.2, which implements consultations with Native Americans, may be conducted by federal agencies as part of a government-to-government undertaking.

In accordance with Section 101(b)(3) of the 1966 NHPA, the SHPO advises and assists federal agencies in carrying out their Section 106 responsibilities and assists agencies, organizations, and individuals to ensure historic properties are taken into considerations at all levels of planning and development.

In California the SHPO is the Director of the Office of Historic Preservation, which is a division of the California Department of Parks and Recreation.

3.4.3 Standing Structures Affected By Proposed Action

Thirty two (32) existing structures are proposed for renovation, adjoining construction, or demolition as part of the Proposed Action. A number of these structures have been evaluated for NRHP eligibility. Information on NRHP-eligible architectural resources is contained in the following sources:

- JRP Historical Consulting Services. 1997a. *Inventory and Evaluation of National Register Eligibility for Buildings and Structures: Main Site/China Lake Propulsion Laboratory (CLPL)/Salt Wells China Lake Propulsion Laboratory/Armitage Field; Naval Air Weapons Station, China Lake, California*.

- JRP Historical Consulting Services. 1997b. *National Register of Historic Places Registration Forms for Michelson Laboratory, Headquarters Building, China Lake Pilot Plant Historic District, and Salt Wells Pilot Plant Historic District*.

- Mikesell, Stephen. 1999. *Inventory and Evaluation of National Register Eligibility for Buildings and Structures on the Ranges: Naval Air Weapons Station China Lake, California.*

- O'Gara, John. 2006. Memorandum: "China Lake Data Needs" to Darrell Gundrum. September 28, 2006.

- Kaldenberg, R. 2006a. Letter to David Byrd at California State Historic Preservation Office. September 12, 2006. Russell Kaldenberg is the Command Archeologist at NAWS China Lake. David Byrd is a SHPO Historian.

- Kaldenberg, Russell. 2006b. Memorandum: "Archeological and Biological Surveys for BRAC items" to David McIntyre, Project Manager Ecology and Environment. October 4, 2006.

- Kaldenberg, Russell. 2007. Memorandum: "Technical Review meeting on BRAC Tech 18 (China Lake) EA" to John O'Gara. January 8, 2007.

- Herbert, Rand. 2007. Memo from Rand Herbert of JRP Historical Consulting, LLC to Carolyn Shepherd. January 2, 2007. Ms. Shepard is the Head of Environmental Planning & Management for the Navy in China Lake.

BRACON building renovations as described in Chapter 2 would include, but would not be limited to: abatement of ACM and LBP; removal of interior non-load-bearing walls; demolition and replacement of interior walls, floor, and ceilings, doors, lighting, plumbing lines, and fixtures; and work involving HVAC and electrical systems. Additional work may include AT/FP compliance, fence realignment, fire and life safety systems, seismic upgrades, and IS. Supporting facilities would include site and building utility connections (water, fire, sanitary sewer, gas, electrical, telephone, LAN, and NMCI). Site improvements would include paved parking areas, sidewalks, roadway access, landscaping, and relocation of existing steam, sewer, and electrical utility lines. Site preparation activities would include site excavation, grading, and storm water management.

Table 3.4-1 lists the 32 structures potentially affected by the BRACONs, which have been evaluated as eligible or ineligible for NRHP listing.

Table 3.4-1 Structures Potentially Affected by the BRACONs

FY	BRACON	Building	Historic District [b]
2007	P745	00008 [a] 02602 02624	
	P754	01028 01025 02477 20210	
	P755	00001 – Eligible [b] 00466 31567	
2008	P749	10170 10173	CLPPHD CLPPHD
2009	P732	00005 – Eligible [b]	

Table 3.4-1 Structures Potentially Affected by the BRACONs

FY	BRACON	Building	Historic District [b]
2010	P704	91042	
		10520	CLPPHD
		16079	
		15800	SWPPHD
		15790	SWPPHD
		10690	CLPPHD
		12143	
		15560	SWPPHD
		31562	
		11570	SWPPHD
		11050	CLPPHD
		11510	SWPPHD
		12042	CLPPHD
		12170	CLPPHD
	P759	01040	
		01041	
		01042	
	P777	12140	
	P778	12160	CLPPHD)

Notes:
[a] Would be affected under Alternative 1 only.
[b] JRP Historical Consulting Services 1997b.
Key:
CLPPHD = China Lake Pilot Plant Historic District.
SWPPHD = Salt Wells Pilot Plant Historical District.

3.4.3.1 NRHP Eligible Structures Affected by Proposed Action

The sources above indicate 13 of the structures affected by the Proposed Action have been evaluated as eligible for listing on the NRHP.

Mainsite LMU

The Mainsite LMU at NAWS China Lake includes most of the administrative buildings, a commercial center, recreation buildings, the public works section, the main research and development facilities of the base, and a variety of miscellaneous buildings. The site is heavily developed and includes a large proportion of the structures on the base. The Mainsite LMU is not eligible for listing on the NRHP as a historic district because it lacks visual and historical coherence, and the buildings from the 1944 to 1946 period have, in general, been extensively modified. The buildings in this section were evaluated on an individual basis (JRP Historical Consulting Services 1997a).

Buildings 00001 and 00005, which have been evaluated as eligible for NRHP listing (JRP Historical Consulting Services 1997a), would be potentially affected under BRACONs P-755V and P-732V, respectively.

The Headquarters building (Building 00001) is architecturally unusual and possibly unique among World War II-era American military buildings. Most military buildings during World War II were built from standardized engineering

plans and were temporary in purpose. Because the Headquarters building was one of a very small number of buildings that was designed to be permanent, built in the International Style, and has had very minimal modifications, it is considered an important part of U.S. military history.

Building 00001 is a two-story, reinforced concrete, I-shaped building with a central hallway with four wings at right angles from the ends of the hallway. The rear wings are one-story, with a roof that extends to form a pent roof on the front of the second story. There is a freestanding concrete block utility enclosure in the northern courtyard which, along with the fill in the northern courtyard and the new doors on the front and back of the building, is the only modification of consequence to the building. This building is eligible for listing on the NRHP because of its high degree of integrity and architectural value (JRP Historical Consulting Services 1997a). Under BRACON P-755V, Building 00001 would be renovated which would involve removal of interior non-load-bearing walls, floor and ceiling finishes, doors, interior lighting, electrical, communications, HVAC, plumbing and fire sprinkler systems, renovated restrooms and energy conservation measures.

Michelson Laboratory (Building 00005) consists of a long central stem with seven wings made of reinforced concrete, with a flat roof, and a large later addition to the south. Most of the building has two stories, but some sections have three or four stories. Two four-story towers rise from the front of the eastern portion of the building. Although there are many later additions to the original building and many of the concrete louvers have been removed, the integrity of the original building is very high. The towers are unmodified, and very few windows or doors have been replaced. The design elements, craftsmanship, and unusual design of the original building are well intact. Building 00005 is eligible for listing on the NRHP under Criterion A for its historic role as an ordnance testing station during the Cold War, and, under Criterion C, as a distinguished example of World War II-era military design (JRP Historical Consulting Services 1997b and Donaldson 2006b).

Under BRACON P-732V, Michelson Laboratory would be renovated which would involve demolition of the interiors of wings one, four, and five, and the first and second floors of the main corridor, including removal of floors, ceilings, doors, windows, and interior non-load-bearing walls, as well as lighting, electrical, and communication systems, HVAC, plumbing lines and fixtures, fire alarms, and abatement of LBP and ACM. New interior walls, ceilings, floors, interior finishes, and doors would then be installed. Renovation of the electrical systems would include installation of new interior lighting and electrical rewiring. Fiber-optic, telephone, and intrusion detection wiring also would be installed. Renovation of the mechanical systems would include installation of energy-efficient HVAC systems, new HVAC duct systems, plumbing lines, and fixtures. AT/FP measures would include installation of blast-resistant windows, window frame and doorframe reinforcements, and mass notification systems.

3.4.3.2 China Lake Pilot Plant Historic District

The China Lake Pilot Plant Historic District (CLPPHD) encompasses 809 hectares (2,000 acres) near the southern end of NAWS China Lake. It contains the remains of a ballistite (a rocket propellant) test production facility built in 1944. The district includes 76 buildings and one structure that are contributing elements and 68 non-contributing buildings built after 1954. The district preserves a group of World War II-era buildings constructed in a distinct and relatively unmodified architectural style, providing a window to a unique period of American military history (JRP Historical Consulting Services 1997b). Buildings 10170, 10173, 10520, 10690, 11050, 12170, and 12160 would be potentially affected under BRACONs P-749V, P-778V, and P-704V.

Building 10170 is constructed of reinforced concrete walls and a flat concrete roof and includes two storage docks and an ancillary building (Building 10173). The building is a part of the 30-centimeter (12-inch) press processing group of buildings, where 30-centimeter (12-inch) presses were used to compress ballistite into missile propellant cores (grains), which were used during World War II and the Cold War. It also was used as a grain boxing building of 102 square meters (1,100 square feet). Building 10170 is accessible though steel doors on the storage docks. It is attached to the ancillary building by concrete walkways, covered by steel-framed gabled roofs constructed of corrugated fiber. The storage docks, which are accessible from the sides, are constructed of open concrete walls surrounded by a reinforced concrete barricade on the processing building side and an earth and concrete barricade on the street side. Building 10170 is a contributing building to the CLPPHD (JRP Historical Consulting Services 1997b). Under BRACON P-749V, Building 10170 would be renovated which would consist of replacing all doors and roof overhangs, renovating restrooms, painting the interior, and installation of new conductive flooring.

Building 10173 is a part of the 30-centimeter (12-inch) press processing group of buildings. This small-frame ancillary building is associated with Building 10170 and was used for grain boxing. It is a contributing element to CLPPHD (JRP Historical Consulting Services 1997b). Under BRACON P-749V, Building 10173 would be renovated which would involve installing a roll-up door, replacing the double doors, and installing new conductive flooring, a security alarm system, and HVAC. Improvements would include support facilities for Building 10170 and 10173, including site and building utility connections (water, electrical, sanitary sewer, industrial waste, natural gas, telephone, and LAN), sidewalks and walkways, area lighting, vehicle parking, and a paved delivery area. Site preparations would include site excavation, grading, and storm water management.

Building 10520 is currently used as an ammunition testing facility and includes a control room, workshop, work areas, and gun firing bay. It was used as a sorting building for the 18-inch press line and received the propellant grains pressed in Building 10510. The building is a plain concrete-reinforced box with several steel

doors and a broad concrete overhang. A concrete block addition was added to the east side of the original building. Covered walkways and two loading platforms are associated with the building. Overall, the building and loading platforms retain a good degree of integrity, and it is a contributing element to the CLPPHD (JRP Historical Consulting Services 1997b). Under BRACON P-704V, Building 10520 would be renovated, which would include replacing existing interior finishes, lighting, plumbing lines and fixtures, electrical wiring and fixtures, work areas, and HVAC.

Building 10690 currently houses laboratories and test facilities. It was part of Motor Loading Area B, where propellant was loaded into the castings of rockets. The building is constructed of reinforced concrete and has a flat roof and steel doors. It is linked by covered walkways to three small magazines and to Building 10700, which is a large igloo-type magazine. Building 10690 is a contributing element to the CLPPHD (JRP Historical Consulting Services 1997b). Under BRACON P-704V, Building 10690 would be renovated, which would involve replacing existing interior finishes, lighting, electrical wiring and fixtures, and plumbing lines and fixtures.

Building 11050 was a machine shop built in 1944. It is a wood-frame building with a flat roof and stucco siding, and there is a small utility enclosure on the west side of the building. It retains a high degree of integrity and is a contributing element to the CLPPHD (JRP Historical Consulting Services 1997b). Under BRACON P-704V, Building 11050 would be renovated, which would include replacement of existing interior finishes, lighting, plumbing lines and fixtures, HVAC, and exterior siding, removal of non-load-bearing walls, renovation of the roof, modification of fire sprinkler systems, and construction of a restroom facility.

Building 12170 is currently used to test rocket stability. It was listed as the "Vibrator Building" in the early plans for the China Lake Pilot Plant; the building presumably was used for testing rocket stability in transit. It is a flat-roofed, reinforced-concrete building with steel doors and windows and an attached igloo-type magazine. The structure retains significant integrity and is a contributing element to the CLPPHD (JRP Historical Consulting Services 1997b). Under BRACON P-704V, Building 12170 would be renovated, which would involve replacing interior finishes, lighting, electrical, the concrete slab, and the potable water line.

Building 12160 was used as an impulse tester as part of the Static Firing Area of the facility. It is a contributing element to CLPPHD (JRP Historical Consulting Services 1997b). Under BRACON (P-778V), Building 12160 would receive an addition that would involve construction of a medium-weight shipboard shock environmental testing facility for the realignment of the W&ARD&AT&E from NSWC Crane to NAWS China Lake.

3.4.3.3 Salt Wells Pilot Plant Historic District

The SWPPHD encompasses about 242 hectares (600 acres) and includes 39 contributing buildings and 100 non-contributing buildings. The plant was originally constructed in 1945 as part of the Manhattan Project. After August 1945, it was the principal American plant capable of building the "lenses" (conventional explosives used to implode plutonium to its critical mass) used in atomic weapons. This group of buildings was built for a highly specialized purpose and contributed to the successful development of atomic weapons at the end of World War II. The buildings apparently have no equivalent anywhere else in the world.

The Salt Wells facility includes the following groups of buildings: processing, rest houses, fuze testing, laboratories, and service (i.e., administrative and support buildings). It is generally laid out in a "T" pattern, with buildings widely dispersed on relatively level ground near the southern end of NAWS China Lake. The contributing elements are mainly clusters of reinforced-concrete buildings, including: processing buildings connected to supporting buildings by covered walkways; machining buildings consisting of an inner core and main and exterior barricades; heavily barricaded magazines and the larger rest houses where explosives were stored; fuze manufacturing and testing buildings, which are located a considerable distance from the other buildings; and the service buildings. The non-contributing elements are either buildings built after 1954, including many portable steel magazines, or buildings built prior to 1954 that have been extensively remodeled and have lost their historical integrity (JRP Historical Consulting Services 1997b). Buildings 11570, 15560, 15790, and 15800, which have been evaluated as contributing elements to the SWPPHD, would be potentially affected under BRACON P-704V.

Building 11570 currently houses laboratories, technical work areas, offices, and storage space. Built in 1948, it is a wood-frame stucco warehouse with a concrete firewall and loading docks. It is largely unmodified and is a contributing element to the SWPPHD (JRP Historical Consulting Services 1997b). Under BRACON P-704V, Building 11570 would be renovated, which would include replacing interior finishes, lighting, plumbing, fixtures, electrical conduits, HVAC, renovation of the restrooms, and reconfiguration of the work areas.

Building 15560 currently houses laboratories, a control room, and offices. This building and Building 15790 were two of nine processing buildings located within the district. The processing buildings are connected to loading docks, storage buildings, and other processing buildings by covered walkways. The conventional explosive "lenses" used by the Manhattan Project and the Atomic Energy Commission were constructed in these buildings. Building 15560 was used for melting and casting explosives. The building consists of an inner steel core with "transite" (asbestos) siding, a surrounding earthen barricade, and two access tunnels. Within the berm are two concrete offices used for remote handling of explosives and two tunnels that provide access to the inner core. At the

entrances to the tunnels are reinforced-concrete and earthen barricades. This building is listed as a contributing element to the SWPPHD (JRP Historical Consulting Services 1997b). Under BRACON P-704V, Building 15560 would be renovated, which would include replacing existing interior finishes, lighting, and all electrical conduits.

Building 15790 was similar in function to Building 15560 (above) and is a contributing element to the SWPPHD (JRP Historical Consulting Services 1997b). Under BRACON P-704V, Building 15790 would be renovated which would include abatement of ACM and LBP; removal of interior non-load-bearing walls; demolition and replacement of interior walls, floor, and ceiling finishes, doors, lighting, plumbing lines and fixtures; and upgrades involving HVAC and electrical systems. Additional work may include ATFP compliance, fence realignment, fire and life safety systems, and seismic upgrades.

Building 15800 is a 139-square-meter (1,500-square-foot), reinforced-concrete room constructed in 1952. It is currently used as an x-ray facility and houses an x-ray room, operation room, offices, and film processing room. It has an earthen berm on the roof, sides, and rear, and a transite-covered shield on the front. A covered walkway connects the building to an associated loading platform. It originally housed five x-ray machines, which were used to inspect explosives. Because it is highly unusual in construction and purpose among the other buildings at the SWPPHD and is largely unmodified, it is considered a contributing element to the SWPPHD (JRP Historical Consulting Services 1997b). Under BRACON P-704V, Building 15800 would be renovated, which would include replacement of interior finishes, lighting, plumbing lines and fixtures, HVAC, and all electrical conduits, and reconfiguration of work areas.

3.4.4 NRHP Ineligible Structures Affected by the Proposed Action

3.4.4.1 Mainsite LMU

Nine buildings at the Mainsite LMU—00466, 02602, 01025, 01028, 01040, 01041, 01042, 02624, and 02477—potentially would be affected by the Proposed Action. These structures are not considered eligible for listing on the NRHP (JRP Historical Consulting Services 1997a).

- Under BRACON P-755V, Building 00466 would be renovated which includes interior renovation, seismic upgrades new parking, landscaping, and pavement removal.

- Under BRACON P-754V, buildings 01025, 01028, and 02477 would have interior renovations. Building 01028 may be demolished if renovations are deemed too costly.

- Under BRACON P-759V, buildings 01040, 01041, and 01042 would undergo renovations to the interiors and roofs.

- Under BRACON P-745, buildings 02602 and 02624 would be demolished.

One structure at the Mainsite LMU, Building 00008, which would be renovated, would be potentially affected under BRACON P-745V Alternative 1.

3.4.4.2 China Lake Pilot Plant Historic District

Building 12042 was built in 1996 and potentially would be affected by the Proposed Action. It is ineligible for listing on the NRHP (JRP Historical Consulting Services 1997b). Under BRACON P-704V, Building 12042 would have interior renovations.

Building 12140 was built in 1944 and is potentially affected by the Proposed Action. It is ineligible for listing on the NRHP (JRP Historical Consulting Services 1997b). Under BRACON P-777V, Building 12140 would receive an addition that would involve the construction of the New Weapons Dynamic RDT&E Center.

3.4.4.3 Salt Wells Pilot Plant Historic District

Building 11510 was built in 1964 and potentially would be affected by the Proposed Action. It is ineligible for listing on the NRHP (JRP Historical Consulting Services 1997b, Herbert 2007). Under BRACON P-704V, Building 11510 would have interior renovations.

3.4.4.4 Area R Complex

Building 31562 was built in 1952 and is potentially affected by the Proposed Action. It is ineligible for listing on the NRHP (Mikesell 1999). Under BRACON P-704V, Building 31562 would have interior remodeling.

Building 31567 is the WR Human Factors Building and was constructed in 1953. It was evaluated for NRHP eligibility and was recommended ineligible (Kaldenberg 2007). Under BRACON P-755V, Building 31567 would undergo interior and exterior remodeling, seismic upgrades, utility connections, new parking, and walkways.

3.4.4.5 Skytop Complex

Buildings 16079 and 12143 are potentially affected by the Proposed Action. Both buildings are ineligible for listing on the NRHP (Mikesell 1999, Herbert 2007). Under BRACON P-704V, buildings 16079 and 12143 would have interior renovations.

3.4.4.6 Armitage Airfield

Building 20210 is a paraloft building constructed in 1979. It is ineligible for listing on the NRHP (Kaldenberg 2006a, Herbert 2007). Under BRACON P-754V, Building 20210 would undergo seismic upgrades and interior renovations.

3.4.4.7 CT-4 Test Area

Building 91042 is a contemporary mobile home office. It is ineligible for listing on the NRHP (Kaldenberg 2006a). Under BRACON P-704V, Building 91042 would have interior renovations.

3.4.5 Archaeological Resources Potentially Affected by the Proposed Action

A total of ten BRACON projects under the Proposed Action – P-701V, P-710V, P-712V, P-719V, P-745V, P-747V, P-749V, P-755V, P-777V, P-778V – and one BRACON under Alternative 2 (P-745V combined with P-719V) would involve major ground-disturbing activities. Information on the presence or absence of archeological resources for the proposed BRACONs comes from three sources:

- U.S. Navy. 2006. *Archaeological Survey of the Magazine Area and the proposed Safe haven Facility Area in Support of BRAC Activities at the Naval Air Weapons Station China Lake, California.* Prepared by Epsilon Systems Solutions.

- Andrews, Sherri, and Mark A. Gianbastini. 2006. *Archaeological Survey of 219.86 Acres in the Armitage Airfield and Weapons Survivability Area, North Range, Naval Air Weapons Station China Lake, California*. ASM Affiliates, Inc. Pasadena, California.

- Kaldenberg, Russell. 2006. Memorandum: "Archeological and Biological Surveys for BRAC items" to David McIntyre, Project Manager, Ecology and Environment. October 4, 2006.

3.4.5.1 P-701V

This BRACON involves construction of a Type II modular hanger in an existing undisturbed location to provide maintenance hangar space. The project would include construction of a concrete parking apron, a taxiway, a fire-protection water storage vault, and an oil/water separator tank; installation of a utility connection and an upgraded storm water drainage system; and extension of existing sanitary sewer lines, including manholes and lift stations. Desert xeriscaping would be used to reduce water use in landscaping.

The area of BRACON P-701V was subjected to an archaeological survey in 2005. The survey encompassed 84 hectares (207.7 acres) and resulted in the discovery of two archaeological sites. Site ASM-AA1 is a moderate-density prehistoric lithic scatter. A majority of artifacts found were unmodified quartz and obsidian flakes. One undiagnostic biface tip was recorded. Because the artifacts are on hard-packed, partially deflated surfaces, there does not appear to be any potential for the presence of subsurface features or middens. Due to the poor data potential and lack of datable diagnostics, the site is ineligible for listing on the NRHP (Andrews and Gianbastini 2006).

Site ASM-AA2 is a historic water storage and pumping facility with a temporary residence. The site has a variety of features, including a concrete reservoir and foundation, a capped well, a barbed-wire fence, equipment mounts, and a scatter of cans, ceramics, glass, and milled wood fragments. The domestic refuse suggests dates of 1910 to 1925. The site is not eligible for listing on the NRHP because of its lack of integrity and low information potential.

In addition to the above sites, the survey resulted in the discovery of seven isolated finds consisting of one biface and ten unmodified flakes. These resources are not NRHP eligible due to the lack of cultural context and a low potential to contribute to local or regional culture history (Andrews and Giambastiani 2006).

3.4.5.2 P-710V

This BRACON entails construction of three anechoic chambers (12.2 by 12.2 by 12.2 meters [40 by 40 by 40 feet]) on the site of a trailer farm. The project would include construction of a foundation, loading area, retaining wall, and railing. Excavation would be required for an approximately 3.7-meter (12-foot) deep subsurface laboratory for the anechoic chambers. Existing overhead electrical lines and underground communication lines would have to be relocated. On 4 October 2006, the Navy conducted an archaeological reconnaissance at this location and determined it corresponds to a paved parking lot and contained no archaeological resources (Kaldenberg 2006b).

3.4.5.3 P-712V

This BRACON would involve construction of multiple ordnance magazines, parking areas, an access road, sidewalks, an intrusion detection system, communications and surveillance facilities, electromagnetic grounding systems, area lighting, and security fencing. The location of this BRACON was subjected to an archaeological survey in 2006; no cultural resources were identified (U.S. Navy 2006).

3.4.5.4 P-719V

This BRACON involves construction of new laboratory facilities, administrative offices, and a parking area to create a W&ARD&AT&E Center at NAWS China Lake. It is integrated into the design of P-745 and would be part of the footprint of P-745. On 4 October 2006, the Navy conducted an archaeological reconnaissance at this location and determined it contained previously graded parcels and had no archaeological resources (Kaldenberg 2006b).

3.4.5.5 P-745V

This BRACON involves construction of a one-story Weapon and Armament Technology Center, athletic fields, sidewalks, a pedestrian plaza, and a parking area. A 4.3-meter (14-foot) -high covered pedestrian walkway above Knox Road would connect the new Weapons and Armament Technology Center and the new facilities being developed as part of P-719V. This project would be constructed on an existing disturbed site where a personnel building had been demolished. Existing parking, driveways, a hobby shop, and utilities lines would be demolished. The design of P-745V is integrated with the design of P-719V. On 4 October 2006, the Navy conducted an archaeological reconnaissance at this location. All structures in this area have been demolished, and all surfaces have been graded, with many covered with fill. This location contains no archeological resources (Kaldenberg 2006b).

3.4.5.6 P-747V

This BRACON would involve construction of a public works warehouse and fenced compound. There are no archaeological resources within the confines of P-747V, nor are there any archaeological resources expected to be located subsurface at the site. Construction and compaction activities during the 1944-1945 period substantially altered the site (Kaldenberg 2006b).

3.4.5.7 P-749V

This BRACON would involve construction of a missile fuse test facility in the CLPL. It would include construction of a single-story facility with reinforced-concrete walls and roof, a reinforced-concrete slab on grade with spread footings, and blast doors. On 4 October 2006, the Navy conducted an archaeological reconnaissance at this location. The area has been graded and contains dumped concrete debris. It contains no archaeological resources (Kaldenberg 2006b).

3.4.5.8 P-755V

This BRACON would involve construction of a new Support Equipment Storage Facility and a Support Equipment Storage Yard. On 4 October 2006, the Navy conducted an archaeological reconnaissance at this location and determined that it had been bulldozed and graded. It contains no archaeological resources (Kaldenberg 2006b).

3.4.5.9 P-777V

This BRACON would involve construction of a Weapons Dynamic RDT&E Center. On 4 October 2006, the Navy conducted an archaeological reconnaissance at this location. It was determined approximately one-half of the proposed footprint corresponds to an existing parking lot and the other half corresponds to an area of previously disturbed soils. The area contains no archaeological sites, and none would be expected since this area is not located near any consumable resources utilized in prehistory (Kaldenberg 2006b).

3.4.5.10 P-778V

This BRACON would involve construction of a medium-weight shipboard shock environmental testing facility for the realignment of the W&ARD&AT&E from NSWC Crane to NAWS China Lake. On 4 October 2006, the Navy conducted an archaeological reconnaissance at this location. It was determined that this location has been subjected bulldozing and grading in the course of the construction of roads and landscaping. The area contains no archaeological sites (Kaldenberg 2006b).

3.4.5.11 Alternative 1 – Redesign of P-745V

This Alternative BRACON would be sited on the northwest side of the traffic circle at the intersection of East Inyokern Road and Knox Road along with its associated parking area. This would site the Weapons and Armament Technology Center closer to the facilities proposed for P-719V. On 4 October 2006, the Navy conducted an archaeological reconnaissance at this location. It was determined

that this location has sustained prior bulldozing and grading. The area contains no archaeological sites (Kaldenberg 2006b).

3.4.5.12 Alternative 2 – P-745V Combined with P-719V

This alternative would involve the Weapons and Armament Technology Center and the proposed facilities for P-719V would be combined into one structure located northwest of the intersection of Blandy Avenue and Knox Road within the existing NAVAIR compound (Figure 2-14).The parking area for P-719 and P-745 would be combined and located southwest of the Weapons and Armament Technology Center. On 4 October 2006, the Navy conducted an archaeological reconnaissance at this location and determined that it had been bulldozed and graded. It contains no archaeological resources (Kaldenberg 2006b).

3.5 Land Use

This section discusses applicable plans and policies, on-Station land use, and surrounding land use for each alternative.

3.5.1 Existing Conditions

3.5.1.1 Regional Setting

NAWS China Lake is located in the Upper Mojave Desert of California, approximately 242 kilometers (150 miles) northeast of Los Angeles. The Station, composed of the North Range and the South Range, covers approximately 4,402 square kilometers (1,700 square miles) and is located in three counties: Kern, Inyo, and San Bernardino. The North Range is within all three of these counties, the southwest portion of which is in Kern County; the northern two-thirds are in Inyo County; and the southeast portion is in San Bernardino County. The South Range lies entirely in San Bernardino County.

The NAWS is predominantly surrounded by federally owned lands interspersed with pockets of private and state lands. Small areas of privately owned land are found immediately to the south and along the western boundary of the North Range and south of the South Range. The incorporated City of Ridgecrest and the unincorporated City of Inyokern are located adjacent to the NAWS (U.S. Navy 2005a).

3.5.1.2 China Lake Lands

The NAWS ranges extend over 445,154 hectares (1.1 million acres), which are in an ecological transition zone between the China Lake Basin and the Mojave Desert. Station lands are composed of complex terrain and contain a variety of landforms, including forested mountain peaks, deeply cut canyons within volcanic tablelands, and an extensive system of upland slopes and low-lying playa dry lakes. As such, these lands contain a diversity of environmental resources, including extensive natural and cultural (prehistoric and historic) resources (U.S. Navy 2005a).

3.5.1.3 Land Ownership

NAWS land assets within the China Lake boundaries are a combination of: lands owned by the DON; U.S. Department of the Interior (DOI) lands withdrawn from public domain; and other lands acquired through lease, easement, or permit for Navy use, as described in Table 3.5-1.

Table 3.5-1 Lands Acquired by Lease, Easement, or Permit for Navy Use

Status of Land Ownership	Hectares/Acres
Fee Simple (owned by U.S. Navy)	34,996/86,479
Withdrawn from public domain (expiration 30 Sep 2014)	414,307/1,023,777
License/permit/agreement	22/54
Easement (purchase and/or condemnation)	6/16
In-leased (from various sources)	47/117
Total Land Assets	449,380/1,110,443

Source: U.S. Navy 2005a.

3.5.1.4 Land Use Management Units

Due to the large size of the North Range, the NAWS is divided into smaller planning units to manage activities that occur within the NAWS and for ease of planning. Called land use management units (LMUs), they are defined by the uses that occur within them, and are divided into two categories: whether they are located within developed portions of the NAWS or within the testing ranges. The northern developed portion of the NAWS, where the Proposed Action would occur, is divided into 18 separate LMUs. The proposed BRACONS would occur within the following LMUs:

- **Mainsite LMU.** The Mainsite LMU is on the southern portion of the North Range and covers approximately 21 square kilometers (8 square miles). This unit comprises the Station headquarters, principal laboratories, and most of the administrative and support functions of the NAWS. The Mainsite LMU is the largest developed area at the NAWS China Lake.

- **Armitage Airfield LMU.** The Armitage Airfield LMU, covering 34 square kilometers (13 square miles), is on the North Range, northwest of the Mainsite LMU. Armitage Field consists of: (1) three runways; (2) aircraft hangars; and (3) facilities for aircraft fuel-storage, aircraft maintenance, ordnance handling and storage, ground-support equipment-maintenance, and RDT&E. Activities on this LMU relate primarily to aircraft maintenance and modification, laboratory support, aviation supply, ready magazine (explosive storage), and fuel storage (U.S. Navy 2005a).

3.5.1.5 Non-Military Land Use

A variety of civilian uses occurs on the NAWS and is subject to a case-by-case discretionary review by the Base Commanding Officer. Activities such as tours of

archeological resources at Little Petroglyph Canyon, hiking, and equestrian use do occur within the North Range.

3.5.2 Applicable Rules and Regulations

A CLUMP written in 2005 guides land management within NAWS China Lake. The CLUMP establishes a formal corporate process for land use management at the NAWS that meets current and evolving military mission requirements and ensures compliance with Navy regulations contained in OPNAVINST 5090.1B. Land use includes ongoing and future military operations, public health and safety practices, and environmental resources management programs. The CLUMP provides a strategic framework for managing these operations, practices, and programs until the year 2014, or until the next reauthorization legislation. The CLUMP management framework provides a business compliance plan that consolidates existing procedures and streamlines land management processes. The plan provides the tools to achieve the goals and objectives of existing and developing land use and resource management plans. The CLUMP formally establishes the strategic planning and management vehicle to support the Navy's military mission for both land use and environmental resource management (U.S. Navy 2005a).

3.6 Socioeconomics

The term socioeconomics describes the basic attributes and resources associated with the human environment, with particular emphasis on population, employment, and personal income. Substantial changes in these fundamental socioeconomic indicators may influence related variables, such as the provisions of community services and utilities, and the cost and availability of housing. For this EA, relevant socioeconomic indicators are population, housing, and employment. The region of influence (ROI) for socioeconomics as it applies to the Proposed Action is the Indian Wells Valley, with particular emphasis on the City of Ridgecrest, China Lake's nearest residential and commercial neighbor.

The socioeconomic data presented for the areas within the Indian Wells Valley were obtained from the Ridgecrest Chamber of Commerce. The Chamber of Commerce monitors population growth in the valley (through the U.S. Census) as well as population trends, employment information, and economic indicators. Employment information for this section was compiled from the Ridgecrest Chamber of Commerce's most recent Employment Inventory.

3.6.1 Population

The China Lake area is located within the census-surveyed areas of Ridgecrest, Inyokern, and China Lake Acres. Table 3.6-1 presents population characteristics, including populations in 2000 and 1990 for these statistical areas. As shown in Table 3.6-1, the regional population had decreased by 25 percent from 1990 to 2000. This large decrease is mainly due to economic constraints within the Indian Wells Valley area that were present during the 1990s.

Table 3.6-1 Population Growth for Ridgecrest, Indian Wells Valley, and Inyokern Areas - 1980-2000

	1980	1990[a]	2000	Percent Change 1990-2000
Indian Wells Valley	N/A	36,879	27,772	-25%
Ridgecrest	15,500	27,725	24,927	-11%
Inyokern	n/a	n/a	984	n/a
China Lake Acres	n/a	n/a	1,761	n/a

Note:
[a] China Lake Acres and Inyokern were not counted as separate census areas during the 1980 and 1990 census.
Source: Ridgecrest Chamber of Commerce 2006.

3.6.2 Housing

While the numbers of available housing stock in the Indian Wells Valley area are not known, an indicator of economic recovery of the area is evidenced by the increase in building permits being filed with the City of Ridgecrest (Ridgecrest, 2006). Housing within the City of Ridgecrest has been estimated to be increasing at approximately 9 percent, as shown in Table 3.6-2. The development philosophy within the Ridgecrest General Plan has Ridgecrest continuing as a support community for the NAWS. The new or planned military facilities on NAWS China Lake as part of the proposed project would result in increases in housing demand. Housing growth is lower than that of the county as a whole.

Table 3.6-2 Estimated Total Housing Units for the Ridgecrest Area

	2000	2006	Percent Change 2000-2006
Kern County	232,000	282,934	18%
Ridgecrest	11,370	11,529	9%

Source: Kern Council of Governments 2006.

3.6.3 Employment

The economy of the Indian Wells Valley /Ridgecrest region is based primarily on the military, retail trade, government, and manufacturing sectors of the economy. According to the 2000 Census, 21 percent of the residents of Kern County live below the poverty level. The 2000 Census estimated total employment for the Ridgecrest area at approximately 64 percent (Kern Council of Governments 2000a), with 10 percent of the population living below the poverty level, below the county average of 21 percent (Kern Council of Governments 2000b).

According to the Kern County Economic Development Strategy (April 2005), construction (commercial and retail) is a sector contributing broadly to employment in Kern County. The construction industry in Kern County is large and highly concentrated but is driven by the fast growth in housing throughout the County. Kern County has many construction occupations with high location

quotients (i.e., a higher concentration than for the national economy). The construction and extraction occupation is the seventh largest occupation in Kern County with 14,679 people employed in that industry.

3.6.4 Environmental Justice

EO 12898, 59 FR 7629, Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations, signed in February 1994, directs federal agencies "… to make achieving environmental justice part of its mission by identifying and addressing … disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority population and low-income population in the [U.S.]." The aim of the EO is to prevent low-income and minority communities from being subjected to disproportionately adverse environmental effects.

The following provides information on the race and ethnicity of populations near the Proposed Action area, as well as economic status. The goal is to identify whether minority or disadvantaged populations are in the vicinity of each of the alternatives. To provide a context for considering these data, it is appropriate to compare the same categories for the local jurisdiction and larger region. Therefore, these data provide information on ethnicity and median income for the Proposed Action area compared to the local jurisdiction and Kern County. For this EA, the environmental justice-affected environment is described in terms of minority and low-income population in the City of Ridgecrest and Kern County.

3.6.4.1 Minority Population Trends

The ethnic composition of the Ridgecrest area is composed primarily of white and Latino residences. In comparison to Kern County, Ridgecrest has a smaller minority population than the county as a whole, with 12 percent of the population being of Latino heritage (Kern Council of Governments 2000a). Ridgecrest also has a majority of individuals who are white; consequently, it has a lower percentage of nonwhite population than the county as a whole (12 percent to about 38 percent) (Kern Council of Governments 2000b).

3.6.4.2 Median Household Income

The estimated median household income for Kern County is $35,446. The estimated median household income for the Ridgecrest area is $52,725, significantly above the county average (Kern Council of Governments 2000a).

3.7 Traffic/Circulation

This section summarizes the existing conditions that form the baseline for the Proposed Action. A separate, detailed traffic analysis was prepared for the Navy in December 2006.

Traffic conditions to be discussed include selected intersections and roadway segments within the China Lake base. To analyze the operations of the intersections in the study area, methodologies outlined in the 2000 *Highway Capacity Manual (HCM)* were used. The 2000 HCM, published by the

Transportation Research Board, establishes a system whereby transportation facilities are rated for their ability to process traffic volumes. The terminology "level of service" is used to provide a "qualitative" evaluation based on certain "quantitative" calculations, which are related to empirical values.

The level of service (LOS) for unsignalized intersections is determined by the computed or measured control delay and is defined for each movement. Table 3.7-1 describes the LOS criteria for unsignalized intersections as described in the 2000 HCM.

Due to the NAWS being located in a rural area, all the intersections within the base are expected to operate at LOS C or better. This threshold is consistent with other rural communities located throughout the region.

Table 3.7-1 Level of Service (LOS) Criteria For Unsignalized Intersections

LOS	Average Control Delay (sec/veh) [(a)]	Description
A	≤10.0	Operations with very low delay and most vehicles do not stop.
B	>10.0 and ≤15.0	Operations with good progression but with some restricted movement.
C	>15.0 and ≤25.0	Operations where a significant number of vehicles are stopping, with some backup and light congestion.
D	>25.0 and ≤35.0	Operations where congestion is noticeable, longer delays occur, and many vehicles stop. The proportion of vehicles not stopping declines.
E	>35.0 and ≤50.0	Operations where there is significant delay, extensive queuing, and poor progression.
F	>50.0	Operations that are unacceptable to most drivers, when arrival rates exceed the capacity of the intersection.

Note:
[(a)] 2000 Highway Capacity Manual, Chapter 17, Page 2, Exhibit 17-2.
Key: sec/veh = seconds per vehicle.

3.7.1 Existing Conditions

This section summarizes the existing roadway circulation network, peak-hour and daily traffic volumes. Information pertaining to average vehicle occupancy, pedestrian/bicycle traffic, accident data, queuing at access gates, and operations at the study intersections and roadway segments in the study area is included within the *NAWS China Lake Traffic Study* (December 2006).

3.7.2 Road Network

The following provides a description of the existing street system within the vicinity of the project study area. Roadway classifications for the different roadways in the study area were based on field observations and on the San Diego Traffic Engineering Council/Institute of Transportation Engineers (SANTEC/ITE) guidelines.

East Inyokern Road is a collector roadway that runs in an east-west direction extending approximately 3.2 kilometers (2 miles) into the base and serving as the main access to NAWS China Lake. A collector roadway is a public facility that includes the entire area within the right-of-way. The urban collector street also serves pedestrian and bicycle traffic and often accommodates public utility facilities within the right-of-way.

Access to the base is controlled at the Inyokern Gate just east of Sandquist Road. From the gate to the intersection with Knox Road, which is controlled by a roundabout, East Inyokern Road has a total of four travel lanes. East of Knox Road, East Inyokern Road is reduced to two travel lanes. The posted speed limit is 35 miles per hour (mph), except for the segment between Lauritsen Road and North Richmond Road, which is signed as 25 mph. West of the Inyokern Gate, the road becomes State Route 178 and continues west to State Route 14.

Blandy Avenue is a two-lane collector roadway, which runs in an east-west direction from Sandquist Boulevard to Essex Circle. At the intersection with Sandquist Road, Blandy Avenue is closed to vehicular traffic. The posted speed limit is 35 mph.

Sandquist Road is a two-lane collector roadway, which runs in a north-south direction, beginning at East Inyokern Road and continuing several miles into NAWS China Lake. Access to the base is controlled at the Sandquist Gate, just north of Blandy Avenue. At Lauritsen Road, the posted speed limit is 55 mph. South of East Inyokern Road, Sandquist Road becomes China Lake Boulevard and State Route 178.

Bullard Road is a short, two-lane collector roadway, which runs from Bowen Avenue to Blandy Avenue. The posted speed limit is 25 mph. This road is used as a cut-through route for entering/exiting vehicles using the surface parking lots near the Michelson Laboratory.

Knox Road is a two-lane collector roadway, which runs in a north-south direction beginning at Hayward Avenue and continuing north for several miles. The intersection with East Inyokern Road is controlled by a roundabout. The posted speed limit is 30 mph.

Lauritsen Road is a two-lane collector roadway, which generally runs in the north-south direction and connects the northwestern part of the base with the south side of the base. The posted speed limit is 45 mph north of Nimitz Avenue and 30 mph south of Nimitz Avenue. Access to the northern part of the base is controlled by an access gate located between Knox Road and Hussey Road.

North Richmond Road is a two-lane collector roadway, which runs in a north-south direction. Access to the base is controlled at the Richmond Gate, just north of East Ridgecrest Boulevard. South of East Inyokern Road, the posted speed limit is 25 mph, and north of East Inyokern Road, the speed limit increases to 30 mph. South of the gate, the road continues south into the City of Ridgecrest.

3.7.3 Intersection Analysis

Table 3.7-2 displays the LOS analysis results for the study intersections under existing conditions. As shown in the table, all intersections operate at LOS C or better during all peak periods, except for the following intersections:

- East Inyokern Road and Bullard Road (LOS E in the AM peak); and
- Lauritsen Road and Sandquist Road (LOS D in the AM peak).

For the East Inyokern Road and Bullard Rd intersection, the movement that operates at LOS E is the northbound approach, which is stop-controlled. However, all other approaches operate at LOS A, and the overall intersection also operates at LOS A.

For the Lauritsen Road and Sandquist Road intersection, the movement that operates at LOS D is the westbound approach, which is stop-controlled. The eastbound approach operates at LOS C, while all other approaches operate at LOS A, and the overall intersection also operates at LOS A.

3.8 Air Quality

3.8.1 Applicable Regulations, Plans, and Policies

3.8.1.1 Clean Air Act

The CAA of 1970, 42 USC 7401 et seq., amended in 1977 and 1990, is the primary federal statute governing air pollution. The federal CAA designates six pollutants as criteria pollutants, for which National Ambient Air Quality Standards (NAAQS) have been promulgated to protect public health and welfare. The six criteria pollutants are respirable particulate matter smaller than 10 micrometers in diameter (PM_{10}) and particulate matter smaller than 2.5 micrometers in diameter ($PM_{2.5}$), carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), lead (Pb), and ozone (O_3).

TABLE 3.7-2

EXISTING CONDITIONS

PEAK-HOUR INTERSECTION LOS SUMMARY

INTERSECTION		PEAK HOUR	EXISTING	
			DELAY (a)	LOS (b)
1	Lauritsen Rd & Sandquist Rd	AM	**26.0**	**D**
		MD	14.7	B
		PM	15.9	C
2	Nimitz Ave & Lauritsen Rd	AM	11.7	B
		MD	10.5	B
		PM	12.2	B
3	Blandy Ave & Knox Rd	AM	10.1	B
		MD	8.9	A
		PM	9.5	A
4	Blandy Ave & Lauritsen Rd	AM	8.5	A
		MD	8.8	A
		PM	9.4	A
5	Blandy Ave & N Richmond Rd	AM	8.3	A
		MD	8.2	A
		PM	8.1	A
6	E Inyokern Rd & Bullard Rd	AM	**35.6**	**E**
		MD	19.8	C
		PM	17.9	C
7	E Inyokern Rd & Knox Rd	AM	4.1	A
		MD	4.4	A
		PM	4.2	A
8	E Inyokern Rd & Lauritsen Rd	AM	7.9	A
		MD	7.8	A
		PM	8.1	A
9	E Inyokern Rd & N Richmond Rd	AM	8.4	A
		MD	8.6	A
		PM	9.5	A

Notes:

Bold values indicate intersections operating at LOS D, E, or F.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the *2000 Highway Capacity Manual* and performed using Synchro 6.0.

3.8.1.2 National and California Ambient Air Quality Standards

The NAAQS and California Ambient Air Quality Standards (CAAQS) are summarized in Table 3.8-1. The primary NAAQS represent maximum background air pollution levels with an adequate margin of safety to protect public health. Secondary NAAQS represent the maximum pollutant concentration allowable to protect vegetation, crops, and other public resources along with maintaining visibility standards. Areas that meet the NAAQS are designated as in "attainment"; areas where the ambient pollutant concentration exceeds the NAAQS are designated as "non-attainment" areas. The number of exceedances and the concentrations determine the non-attainment classification of an area. There are six classifications of O_3 non-attainment status—transitional, marginal, moderate, serious, severe, and extreme; and two classifications of CO and PM_{10} non-attainment status—moderate and serious. An area that has been re-designated from non-attainment to attainment is referred to as a "maintenance" area. The State of California Air Resources Board (CARB) has established additional standards that are generally more restrictive than the NAAQS. Federal standards for 8-hour O_3 and $PM_{2.5}$ became effective on 18 July 1997, and were subsequently challenged and litigated. The U.S. Supreme Court affirmed the standards, and on 15 April 2004, the USEPA issued a final ruling for the 8-hour O_3 designations and controls (USEPA 2004).

Table 3.8-1 National and California Ambient Air Quality Standards

Pollutant	Time Frame	Federal Primary Standard	Federal Secondary Standard	California Standard
PM_{10}	Annual[a]	50 µg/m^3	50 µg/m^3	20 µg/m^3
	24-hour[b]	150 µg/m^3	150 µg/m^3	50 µg/m^3
$PM_{2.5}$	Annual[c]	15 µg/m^3	15 µg/m^3	12 µg/m^3
	24-hour[d]	65 µg/m^3	65 µg/m^3	N/A
SO_2	Annual	0.030 ppm (80 µg/m^3)	N/A	N/A
	24-hour[b]	0.14 ppm (365 µg/m^3)	N/A	0.04 ppm (105 µg/m^3)
	3-hour[b]	N/A	0.05 ppm (1,300 µg/m^3)	N/A
	1-hour	N/A	N/A	0.25 ppm (655 µg/m^3)
CO	8-hour[b]	9 ppm (10,000 µg/m^3)	None	9 ppm (10,000 µg/m^3)
	1-hour[b]	35 ppm (40,000 µg/m^3)	None	20 ppm (23,000 µg/m^3)

Table 3.8-1 National and California Ambient Air Quality Standards

Pollutant	Time Frame	Federal Primary Standard	Federal Secondary Standard	California Standard
NO_2	Annual	0.053 ppm (100 µg/m^3)	0.053 ppm (100 µg/m^3)	N/A
	1-hour	N/A	N/A	0.25 ppm (470 µg/m^3)
O_3	1-hour	N/A	N/A	0.09 ppm (180 µg/m^3)
	8-hour[e]	0.08 ppm (157 µg/m^3)	0.08 ppm (157 µg/m^3)	0.07 ppm (137 µg/m^3)
Pb	Quarterly	1.5 µg/m^3	1.5 µg/m^3	N/A
	30-Day	N/A	N/A	1.5 µg/m^3

Key:
µg = micrograms per cubic meter.
CO = carbon monoxide.
m^3 = cubic meter.
N/A = not applicable.
NO_2 = nitrogen dioxide.
O_3 = ozone.
Pb = lead.
PM_{10} = particulate matter less than 10 microns.
$PM_{2.5}$ = particulate matter less than 2.5 microns.
ppm = parts per million.
SO_2 = sulfur dioxide.

Source: 40 CFR Part 50, Last updated July 21, 2005.

Attainment with NAAQS and CAAQS for NAWS China Lake is determined using air quality data from monitoring stations in the Kern County Air Pollution Control District (APCD), the Mojave Desert Air Quality Management District (MDAQMD), and the Great Basin Unified APCD.

3.8.1.3 The General Conformity Rule

The General Conformity Rule has been promulgated by the USEPA to ensure the actions of federal departments or agencies conform to the applicable State Implementation Plan (SIP). The rule is a statutory obligation in Section 176(c)(4) of the CAA; it was added to the CAA by the 1990 amendments. The USEPA implemented Sec. 176(c)(4) by amending 40 CFR, Parts 6, 51, and 93. Part 6 was amended to reference the General Conformity Rule under the environmental review and consultation requirements associated with NEPA. Part 51, "Requirements for Preparation, Adoption, and Submittal of Implementation Plans," was amended to require states to revise their implementation plans to include conformity requirements.

The Navy provides *Guidance on Compliance with the Clean Air Act General Conformity Rule* (U.S. Navy 2002), a guidance document for conducting conformity reviews. This guidance summarizes provisions of the General Conformity Rule, provides steps to be followed to determine the applicability of the General Conformity Rule to Navy actions, and sets forth procedures for making conformity determinations. The General Conformity Rule requires using the latest USEPA emission estimation techniques and models listed in the most

recent version of *Guideline on Air Quality Models*. The rule also contains reporting, public participation, and mitigation provisions.

The General Conformity Rule covers direct and indirect emissions of criteria pollutants or their precursors that are caused by a federal action, are reasonably foreseeable, and can practically be controlled by the federal agency through its continuing program responsibility.

Conformity is demonstrated if the total net emissions expected to result from a federal action in a non-attainment or maintenance area will not:

- Cause or contribute to any new violation of any NAAQS;
- Interfere with provisions in the applicable SIP for maintenance of any standard;
- Increase the frequency or severity of any existing violation; or
- Delay the timely attainment of a standard, interim emission reduction or milestone, including, where applicable, emission levels specified in the applicable SIP for purposes of demonstrating reasonable further progress, attainment, or a maintenance plan.

Enforceable mitigation measures may be used to demonstrate conformity. Conformity also can be demonstrated by obtaining emissions offsets; however, the entire emissions increase must be offset so the action results in no net emissions increase.

A federal action is exempt from applicability of the General Conformity Rule requirements if the action's total net emissions are below the *de minimis* levels shown in Table 3.8-2 and are not regionally significant (i.e., the emissions represent 10 percent or less of a non-attainment or maintenance area's total emission inventory of that pollutant) or are otherwise exempt per 40 CFR 51.153. Total net emissions include direct and indirect emissions from all stationary point and area sources, construction sources, and mobile sources caused by the federal action. However, special considerations regarding mobile source emissions exist. If the action or a portion of it is subject to the transportation conformity rule, that portion of the action is not subject to the General Conformity Rule.

Table 3.8-2 *De Minimis* Levels for Exemption from General Conformity Rule Requirements

Pollutant	Metric Tons/Year (Tons Per Year)
Ozone (O_3) (volatile organic compounds [VOCs] or nitrogen oxides [NO_x])	
Serious non-attainment areas	45 (50)
Severe non-attainment areas	23 (25)
Extreme non-attainment areas	9 (10)
Marginal and moderate O_3 non-attainment and ozone maintenance areas outside an O_3 transport region	
VOCs	91 (100)
NO_X	91 (100)
Marginal and moderate non-attainment and ozone maintenance areas inside an O_3 transport region	
VOCs	45 (50)
NO_X	91 (100)
Carbon monoxide (CO)	
All non-attainment and maintenance areas	91 (100)
Sulfur dioxide (SO_2) or nitrogen dioxide (NO_2)	
All non-attainment and maintenance areas	91 (100)
Particulate matter less than 10 microns (PM_{10})	
Moderate non-attainment and maintenance areas	91 (100)
Serious non-attainment areas	64 (70)
Lead (Pb)	
All non-attainment and maintenance areas	23 (25)

Source: 40 CFR 51.

If the total net emissions increase caused by a federal action exceeds *de minimis* levels for non-attainment pollutants or pollutants subject to a maintenance plan, then a formal conformity determination is required. Conformance with a SIP can be demonstrated by:

- Fully offsetting the emissions increase (i.e., no net increase);
- Showing the emissions of non-attainment or maintenance pollutants are accounted for in the air basin's emissions budget; or
- Obtaining a state commitment to revising the SIP to accommodate the increase in emissions.

3.8.1.4 Attainment Status

Activities associated with the Proposed Action will take place within the Kern County APCD and the MDAQMD. An area is designated in attainment when the Air Quality District can demonstrate it is in compliance with the NAAQS and/or CAAQS. The attainment status of these districts is summarized in Table 3.8-3.

Table 3.8-3 NAAQS and CAAQS for NAWS China Lake Area

Pollutant	Designation/Classification			
	Federal Standards		State Standards	
	Kern County APCD[(a)]	San Bernardino MDAQMD[(b)]	Kern County APCD[(a)]	San Bernardino MDAQMD[(b)]
O_3 – 8-hour	Attainment	Attainment	Attainment	Attainment
PM_{10}	Attainment/ Maintenance	Non attainment	Non attainment	Non attainment
$PM_{2.5}$	Unclassifiable/ Attainment	Unclassifiable/ Attainment	Unclassified	Unclassifiable/ Attainment
CO	Unclassifiable/ Attainment	Unclassifiable/ Attainment	Unclassified	Unclassified
NO_X	Unclassified	Unclassified	Attainment	Unclassified
SO_2	Unclassified	Unclassified	Unclassified	Unclassified

Notes:
[(a)] Kern County APCD Website n.d., retrieved 11/2006.
[(b)] MDAQMD website 2004 and 1995, retrieved 11/2006.
Key:
APCD = Air Pollution Control District.
CO = carbon monoxide.
MDAQMD = Mojave Desert Air Quality Management District.
NOX = nitrogen oxides.
O3 = ozone.
PM10 = particulate matter less than 10 microns.
PM2.5 = particular matter less than 2.5 microns.
SO2 = sulfur dioxide.

For determining whether an area is in attainment of the PM_{10} and 8-hour O_3 NAAQS, the Indian Wells Valley has been considered as a separate area from the rest of the Kern County APCD and Mojave Air Basin. The Kern River Valley and the western part of the Tehachapi Region were originally part of the San Joaquin Valley Air Basin and the San Joaquin Valley Unified Air Pollution Control District. The CARB modified the air basins in 1995 when it moved these areas into the Mojave Air Basin and gave the Kern County APCD jurisdiction. Since that time, USEPA has followed the new air basin boundaries when classifying or designating areas for O_3 or $PM_{2.5}$, excepting the aforementioned Indian Wells Valley. However, there is one part of the Kern County APCD (Kern River/Cummings Valleys) that retains a designation from prior to the 1995 boundary change.

The USEPA designated a major portion of the San Bernardino County area of the South East Desert Air Basin as a PM_{10} non-attainment area (MDAQMD 1995) and has designated the Southeast Desert Modified Air Quality Management Area

(AQMA) as non-attainment for O_3 NAAQS pursuant to the provisions of the CAA. A portion of the MDAQMD is included in the Southeast Desert Modified AQMA. The CARB has also designated the Mojave Desert Air Basin non-attainment for ozone CAAQS pursuant to the provisions of the California CAA. Portions of the Kern County APCD and MDAQMD where NAWS China Lake is located are designated attainment for the federal 8-hour O_3 standard, and designated "attainment/maintenance" for the federal PM_{10} standard. It was previously a maintenance area with respect to the 1-hour O_3 standard.

3.8.1.5 Applicable Regulatory Requirements

As specified under USEPA guidance and federal CAA regulations (40 CFR 55.15), the specific provisions of the CAA that might be relevant to the Proposed Action include:

- NAAQS;
- New Source Review (NSR);
- Prevention of Significant Deterioration (PSD);
- New Source Performance Standards (NSPS);
- National Emission Standards for Hazardous Air Pollutants (NESHAP);
- Title V Operating Permits; and
- CAAQS.

3.8.2 Climate and Meteorology

The NAWS climate is typical of the southern California high desert: hot summers, cold winters, large daily temperature fluctuations, and low rainfall and humidity. Summer daytime temperatures often exceed 38 Celsius [°C] (100 degrees Fahrenheit [°F]), while summer nighttime temperatures drop into the teens (low 60s). Winter daytime temperatures average in the low teens (50s), with winter nighttime temperatures below 5°C (30s). Precipitation averages 10.8 centimeters (4.25 inches) per year, with about 20 days per year of measurable precipitation. It snows an average of two days per year. However, in areas of higher elevation (e.g., Coso Range), the amount of rain or snowfall may be much higher. Maximum precipitation tends to occur from November through March. Winds flow through low mountain passes and gaps in the mountain ranges that surround the NAWS, with the strongest winds occurring in late winter and early spring.

3.9 Noise

Noise is generally defined as unwanted or annoying sound that is typically associated with human activity and that interferes with or disrupts normal activities. Although exposure to high noise levels has been demonstrated to cause hearing loss, the principal human response to environmental noise is annoyance. The response of individuals to similar noise events is diverse and influenced by the type of noise, the perceived importance of the noise, and its appropriateness in the setting, time of day, and type of activity during which the noise occurs, and the sensitivity of the individual. Noise levels are quantified in decibels (dB). The "A-weighted" noise scale, which weights the frequencies to which humans are

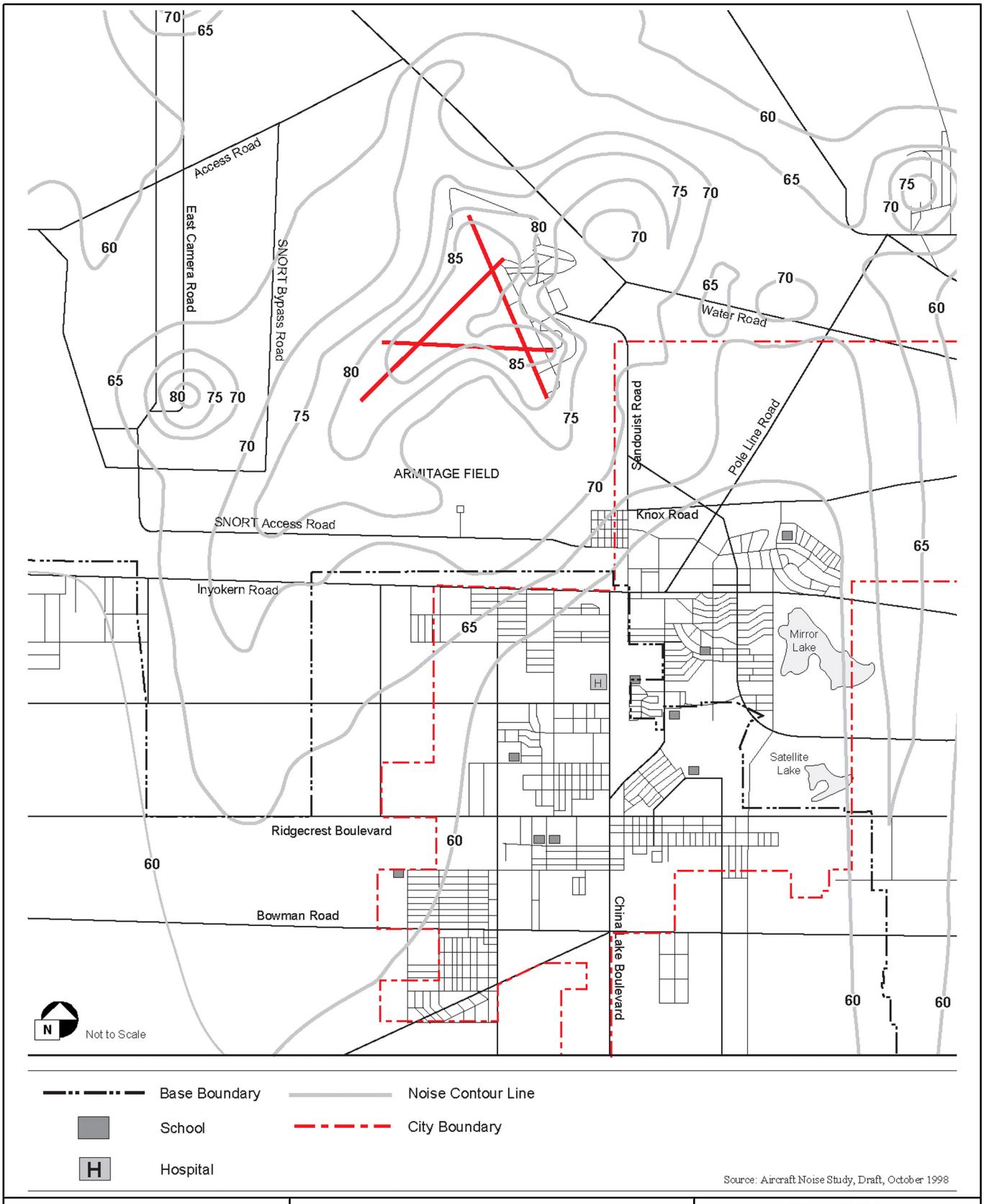
sensitive, is used to describe noise in the human environment, and noise levels using A-weighted measurements are written as dBA.

Average noise levels over a period of minutes or hours are usually expressed as dB L_{eq}, the equivalent noise level. The period of time may be specified; $L_{eq(3)}$ would be a 3-hour average. Noise levels that are often used to evaluate noise/land use compatibility are averaged over a period of 24 hours and are normally weighted to account for greater human sensitivity to noise in the evening and nighttime hours. These 24-hour noise averages are the Community Noise Equivalent Level (CNEL) and the L_{dn}. Title 24 of the CCR requires the use of the CNEL for planning purposes. For purposes of this EA, the CNEL is given.

The noise environment around an airfield is described using a measure of the cumulative noise exposure that results from aircraft operations. These operations generally include flight activity in the immediate vicinity of the airfield plus stationary in-frame and/or out-of-frame engine run-ups associated with aircraft maintenance operations (U.S. Navy 2005b). Figure 3.9-1 illustrates the projected noise contours for air operations at Armitage Airfield (arrivals and departures) and ground-based ordnance use at the Supersonic Naval Ordnance Research Track facility and Area R.

Noise contour lines are similar to topographic contour lines in that there are no sudden drops in level when one gets to a line. The contours mark specific levels along an uninterrupted slope of increasing or decreasing impact. To illustrate, if one were to stand on the side of a hill, one could see that one side of an elevation level (topographic contour line) is higher than the other. However, the human ear is not that highly tuned to be able to hear differences in sound level from one side of a noise contour line to the immediate other side. Nevertheless, the distance between contour lines indicates the rate of noise change. For example, contour lines that are spaced close to each other indicate rapidly changing noise levels, while largely spaced lines indicate a slow and consistent change in noise levels. Noise contour lines have become tools for making planning decisions and are used as the State of California Standard for land use planning by government agencies.

The contour lines computed for China Lake have noise levels ranging from 60 CNEL (quietest) to 85 dBA CNEL (loudest). Intermediate contours are expressed in increments of 5 dBA CNEL. Certain land uses are compatible within the lower noise levels; however, sound attenuated construction would be required with increased noise levels.



Not to Scale

NAWS CHINA LAKE BRAC EA

Central Southern California

Figure 3 9.1
NOISE CONTOURS PROJECTED CONDITIONS

Date: 2/20/2007	GIS Analyst: avh
Map Source Information:	

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Applicable Plans, Policies, and Regulations

Planning in the Noise Environment, Naval Facilities Engineering Command (NAVFACENGCOM) P-970, published by the U.S. Departments of the Air Force, Army, and Navy (U.S. Navy 1978), provides compatibility criteria for various land uses. Exterior sound levels up to 65 dBA CNEL are compatible with land uses such as residences, transient lodging, classrooms, and medical facilities. Appropriate noise mitigation is required for development in areas where the CNEL would exceed 65 dBA. Sound levels exceeding 75 dBA CNEL are incompatible with these types of land uses. In addition, OPNAVINST 11010.36B establishes land use compatibility guidelines in aircraft noise zones which are shown in Table 3.9-1.

Under Section 9 of the ESA, construction noise can be considered harassment. Harassment is defined "as an intentional or negligent act or mission which creates the likelihood of injuring federally listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to breeding, feeding, or sheltering." Examples of this could be construction activities that could disturb federally listed or threatened species, including temporary construction activities. Disturbance of species of special concern when associated with nesting, foraging, and breeding can have adverse affects. Actions that do not involve habitat degradation or removal of habitat may still affect the animal if noise will disturb their activities. Regulations set forth may be that the construction activities be conducted outside the species' activity, such as nesting season.

3.10 Aesthetics

The viewscape is defined as the natural and manufactured features that comprise an area's aesthetic qualities. These features form the overall impression that an observer receives of an area or its landscape character. Topography, landforms, water features, vegetation, man-made features, and the degree of panoramic view available are considered characteristics of an area if they are inherent to the structure and foundation of the landscape.

3.10.1 Mainsite LMU

NAWS China Lake's Mainsite LMU is currently occupied by several weapons research laboratories, R&D facilities, and administration offices. The existing visual character of the Mainsite LMU is typically of 20- to 50-year-old military facilities in good condition. Each structure at the Mainsite LMU has a parking area. Additionally, the Mainsite LMU contains landscaped areas of shrubs and grass, as well as undeveloped areas of native vegetation.

The site is partially visible while traveling east on West Inyokern Road and on North China Lake Boulevard off-base within Ridgecrest city limits. The views from both roads are partially obstructed by vegetation and intervening topography. The Mainsite LMU is not designated as a scenic area in the Base CLUMP and is not near a designated scenic highway.

Table 3.9-1 Air Installations Compatible Use Zones Suggested Land Use Compatibility in Noise Zones

Land Use		Suggested Land Use Compatibility						
		Noise Zone 1 *(DNL or CNEL)*		Noise Zone 2 *(DNL or CNEL)*		Noise Zone 3 *(DNL or CNEL)*		
SLUCM NO	Land Use Name	< 55	55 - 64	65 - 69	70 - 74	75 - 79	80 - 84	85+
	Residential							
11	Household Units	Y	Y [1]	N [1]	N [1]	N	N	N
11.11	Single units: detached	Y	Y [1]	N [1]	N [1]	N	N	N
11.12	Single units: semidetached	Y	Y [1]	N [1]	N [1]	N	N	N
11.13	Single units: attached row	Y	Y [1]	N [1]	N [1]	N	N	N
11.21	Two units: side-by-side	Y	Y [1]	N [1]	N [1]	N	N	N
11.22	Two units: one above the other	Y	Y [1]	N [1]	N [1]	N	N	N
11.31	Apartments: walk-up	Y	Y [1]	N [1]	N [1]	N	N	N
11.32	Apartment: elevator	Y	Y [1]	N [1]	N [1]	N	N	N
12	Group quarters	Y	Y [1]	N [1]	N [1]	N	N	N
13	Residential Hotels	Y	Y [1]	N [1]	N [1]	N	N	N
14	Mobile home parks or courts	Y	Y [1]	N	N	N	N	N
15	Transient lodgings	Y	Y [1]	N [1]	N [1]	N [1]	N	N
16	Other residential	Y	Y [1]	N [1]	N [1]	N	N	N
20	***Manufacturing***							
21	Food & kindred products; manufacturing	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
22	Textile mill products; manufacturing	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
23	Apparel and other finished products; products made from fabrics, leather and similar materials; manufacturing	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
24	Lumber and wood products (except furniture); manufacturing	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
25	Furniture and fixtures; manufacturing	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
26	Paper and allied products; manufacturing	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
27	Printing, publishing, and allied industries	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
28	Chemicals and allied products; manufacturing	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
29	Petroleum refining and related industries	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
30	***Manufacturing (continued)***							
31	Rubber and misc. plastic products; manufacturing	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
32	Stone, clay and glass products; manufacturing	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
33	Primary metal products; manufacturing	Y	Y	Y	Y [2]	Y [3]	Y [4]	N

Table 3.9-1 Air Installations Compatible Use Zones Suggested Land Use Compatibility in Noise Zones

Land Use		Suggested Land Use Compatibility						
		Noise Zone 1 (DNL or CNEL)		Noise Zone 2 (DNL or CNEL)		Noise Zone 3 (DNL or CNEL)		
34	Fabricated metal products; manufacturing	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
35	Professional scientific, and controlling instruments; photographic and optical goods; watches and clocks	Y	Y	Y	25	30	N	N
39	Miscellaneous manufacturing	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
40	***Transportation, communication and utilities.***							
41	Railroad, rapid rail transit, and street railway transportation	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
42	Motor vehicle transportation	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
43	Aircraft transportation	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
44	Marine craft transportation	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
45	Highway and street right-of-way	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
46	Automobile parking	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
47	Communication	Y	Y	Y	25 [5]	30 [5]	N	N
48	Utilities	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
49	Other transportation, communication and utilities	Y	Y	Y	25 [5]	30 [5]	N	N
50	***Trade***							
51	Wholesale trade	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
52	Retail trade – building materials, hardware and farm equipment	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
53	Retail trade – shopping centers	Y	Y	Y	25	30	N	N
54	Retail trade - food	Y	Y	Y	25	30	N	N
55	Retail trade – automotive, marine craft, aircraft and accessories	Y	Y	Y	25	30	N	N
56	Retail trade – apparel and accessories	Y	Y	Y	25	30	N	N
57	Retail trade – furniture, home, furnishings and equipment	Y	Y	Y	25	30	N	N
58	Retail trade – eating and drinking establishments	Y	Y	Y	25	30	N	N
59	Other retail trade	Y	Y	Y	25	30	N	N
60	***Services***							
61	Finance, insurance and real estate services	Y	Y	Y	25	30	N	N
62	Personal services	Y	Y	Y	25	30	N	N
62.4	Cemeteries	Y	Y	Y	Y [2]	Y [3]	Y [4,11]	Y [6,11]
63	Business services	Y	Y	Y	25	30	N	N
63.7	Warehousing and storage	Y	Y	Y	Y [2]	Y [3]	Y [4]	N

Table 3.9-1 Air Installations Compatible Use Zones Suggested Land Use Compatibility in Noise Zones

Land Use		Suggested Land Use Compatibility						
		Noise Zone 1 *(DNL or CNEL)*		Noise Zone 2 *(DNL or CNEL)*		Noise Zone 3 *(DNL or CNEL)*		
64	Repair Services	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
65	Professional services	Y	Y	Y	25	30	N	N
65.1	Hospitals, other medical fac.	Y	Y [1]	25	30	N	N	N
65.16	Nursing Homes	Y	Y	N [1]	N [1]	N	N	N
66	Contract construction services	Y	Y	Y	25	30	N	N
67	Government Services	Y	Y [1]	Y [1]	25	30	N	N
68	Educational services	Y	Y [1]	25	30	N	N	N
69	Miscellaneous	Y	Y	Y	25	30	N	N
70	***Cultural, entertainment and recreational***							
71	Cultural activities (& churches)	Y	Y [1]	25	30	N	N	N
71.2	Nature exhibits	Y	Y [1]	Y[1]	N	N	N	N
72	Public assembly	Y	Y [1]	Y	N	N	N	N
72.1	Auditoriums, concert halls	Y	Y	25	30	N	N	N
72.11	Outdoor music shells, amphitheaters	Y	Y [1]	N	N	N	N	N
72.2	Outdoor sports arenas, spectator sports	Y	Y	Y [7]	Y [7]	N	N	N
73	Amusements	Y	Y	Y	Y	N	N	N
74	Recreational activities (include golf courses, riding stables, water rec.)	Y	Y [1]	Y [1]	25	30	N	N
75	Resorts and group camps	Y	Y [1]	Y [1]	Y [1]	N	N	N
76	Parks	Y	Y [1]	Y [1]	Y [1]	N	N	N
79	Other cultural, entertainment and recreation	Y	Y [1]	Y [1]	Y [1]	N	N	N
80	***Resource Production and Extraction***							
81	Agriculture (except live stock)	Y	Y	Y [8]	Y [9]	Y [10]	Y [10,11]	Y [10,11]
81.5,	Livestock farming	Y	Y	Y [8]	Y [9]	N	N	N
81.7	Animal breeding	Y	Y	Y [8]	Y [9]	N	N	N
82	Agriculture related activities	Y	Y	Y [8]	Y [9]	Y [10]	Y [10,11]	Y [10,11]
83	Forestry Activities	Y	Y	Y [8]	Y [9]	Y [10]	Y [10,11]	Y [10,11]
84	Fishing Activities	Y	Y	Y	Y	Y	Y	Y
85	Mining Activities	Y	Y	Y	Y	Y	Y	Y
89	Other resource production or extraction	Y	Y	Y	Y	Y	Y	Y

Table 3.9-1 Air Installations Compatible Use Zones Suggested Land Use Compatibility in Noise Zones

Land Use	Suggested Land Use Compatibility		
	Noise Zone 1 *(DNL or CNEL)*	Noise Zone 2 *(DNL or CNEL)*	Noise Zone 3 *(DNL or CNEL)*

Key:
SLUCM = Standard Land Use Coding Manual, U.S. Department of Transportation
Y (Yes) = Land use and related structures compatible without restrictions.
N (No) = Land use and related structures are not compatible and should be prohibited.
Yx (Yes with Restrictions) = The land use and related structures are generally compatible. However, see note(s) indicated by the superscript.
Nx (No with exceptions) = The land use and related structures are generally incompatible. However, see note(s) indicated by the superscript.
25, 30, or 35: The numbers refer to Noise Level Reduction levels. Land use and related structures generally compatible however, measures to achieve NLR of 25, 30, or 35 must be incorporated into design and construction of structures. However, measures to achieve an overall noise reduction do not necessarily solve noise difficulties outside the structure and additional evaluation is warranted. Also, see notes indicated by superscripts where they appear with one of these numbers.

Notes:

1. a) Although local conditions regarding the need for housing may require residential use in these Zones, residential use is discouraged in DNL 65-69 and strongly discouraged in DNL 70-74. The absence of viable alternative development options should be determined and an evaluation should be conducted locally prior to local approvals indicating that a demonstrated community need for the residential use would not be met if development were prohibited in these Zones.
   b) Where the community determines that these uses must be allowed, measures to achieve and outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB in DNL 65-69 and NLR of 30 dB in DNL 70-74 should be incorporated into building codes and be in individual approvals; for transient housing a NLR of at least 35 dB should be incorporated in DNL 75-79.
   c) Normal permanent construction can be expected to provide a NLR of 20 dB, thus the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation, upgraded Sound Transmission Class (STC) ratings in windows and doors and closed windows year round. Additional consideration should be given to modifying NLR levels based on peak noise levels or vibrations.
   d) NLR criteria will not eliminate outdoor noise problems. However, building location and site planning, design and use of berms and barriers can help mitigate outdoor noise exposure NLR particularly from ground level sources. Measures that reduce noise at a site should be used wherever practical in preference to measures that only protect interior spaces.
2. Measures to achieve NLR of 25 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
3. Measures to achieve NLR of 30 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
4. Measures to achieve NLR of 35 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
5. If project or proposed development is noise sensitive, use indicated NLR; if not, land use is compatible without NLR.
6. No buildings.
7. Land use compatible provided special sound reinforcement systems re-installed.
8. Residential buildings require a NLR of 25
9. Residential buildings require a NLR of 30.
10. Residential buildings not permitted.
11. Land use not recommended, but if community decides use is necessary, hearing protection devices should be worn.

3.10.2 Armitage Airfield LMU

The Armitage Airfield LMU is currently occupied by several airplane hangers, airfield support structures, laboratories, and the China Lake airfield itself. The existing visual character of the LMU is that of 20- to 50-year-old military buildings that have undergone minimal renovations. The conditions of the facilities are well maintained, although there is sparse landscaping relative to newer facilities on the Base. The facilities are typical of those elsewhere on the NAWS and are painted in earth tones, with landscaping consisting of native vegetation. The existing Armitage Airfield LMU is not located near a designated scenic area and is not located near a designated scenic highway.

The site is partially visible from West Inyokern Road Road. The views from West Inyokern Road are partially obscured by vegetation and intervening topography. The Armitage Airfield LMU is not designated as a scenic area in the Base CLUMP and is not near a designated scenic highway.

3.11 Services and Utilities

3.11.1 Police Protection

Police services at NAWS China Lake are provided and managed by the China Lake Police and Physical Security Division (CLPD). The CLPD has 44 military and civilian personnel, including police officers, security specialists, and administrative staff. Division personnel operate over the entire Station and are responsible for maintaining law and order, developing physical security measures, and implementing access control policies and procedures. Currently, CLPD is able to meet the demand for police services and mandated response times at the NAWS (U.S. Navy 2005a).

3.11.2 Fire Protection

The NAWS manages and operates fire stations at Main Site, Armitage Airfield, and Randsburg Wash. There are 67 firefighting personnel, including 60 firefighters, two chief officers, four fire prevention inspectors, and a fire chief. Assistance is also available through a mutual-aid agreement with the Kern County Fire Department stations in Ridgecrest and Inyokern. These stations can provide assistance for fires in the NAWS Main Site area. Cooperation between the two firefighting agencies is excellent; however, their response times are not adequate to meet DoD requirements for first arriving or second alarm responders (U.S. Navy 2005a).

3.11.3 Schools

Per the CLUMP EIS (U.S. Navy 2004), the Sierra Sands Unified School District (SSUSD) and the Trona Joint Unified School District (TJUSD) serve the student population in the NAWS China Lake area. SSUSD provides kindergarten through 12^{th} grade education in the NAWS China Lake, Ridgecrest, Inyookern, and Rundsburg areas. SSUSD operates 11 schools, four of which (two elementary, one middle, and one secondary) are located on-Station. Another on-Station school (Groves Elementary) closed in 1997 and is not included in the above figures. The

EIS indicates that SSUSD has a historical total capacity of 7,000 kindergarten through 12th grade students, with a current overall capacity of approximately 8,500 students as a result of a shift to year-round education. Projections for the 1999-2000 school year indicated that kindergarten through 12th grade enrollment would be below 6,200 students. TJUSD provides kindergarden through 12th grade education in the Trona area at one elementary school and one secondary school. The EIS that 1997 enrollment was approximately 500 students, which was within design capacity.

3.11.4 Utilities

Major utility-based systems at the NAWS include water, wastewater treatment, flood control, electrical service, natural gas, propane, and steam distribution. Most of the systems are at Main Site and immediately adjacent areas. Facilities located on the North and South Ranges are served by a limited, local distribution network. Typically, utilities are buried adjacent to the roads on each range (U.S. Navy 2005a).

3.11.4.1 Water

The NAWS owns and operates its own water supply, storage, and distribution systems, supplied from local groundwater. Agreements with the Indian Wells Valley Water District and the Inyokern Community Services District provide for additional water to be supplied to the Station in emergency situations. These connections are near the NAWS geodesic water reservoirs in the Intermediate Well Field on the North Range and in Inyokern (U.S. Navy 2005a).

Permits for drinking water wells are administered by Kern County. Requirements for lead and copper sampling are outlined in the federal SDWA, 42 USC § 300f et seq. The Navy's Environmental and Natural Resource Program Manual (OPNAVINST 5090.1B) identifies requirements and responsibilities for protecting drinking water supplies at naval facilities.

Deep wells in the Indian Wells Valley area are the source of potable water for the population center at North Range. The main water distribution system serves the Main Site and the Michelson Laboratory Complex, the propulsion and ordnance laboratories, Armitage Airfield, and the southern portion of George Range. Seven production wells are currently on line (U.S. Navy 2005a). Water for fire protection is provided by this same system. Peak demand for water in calendar year 2006 was 19.6 million liters per day (mld) (5.2 million gallons per day [mgd]). By comparison, in calendar year 2001 the peak demand for water on NAWS China Lake was 26.8 mld (7.1 mgd) (Halpin 2007).

3.11.4.2 Wastewater

The City of Ridgecrest leases and operates the on-Station wastewater treatment plant (Mainsite LMU) and maintains the plant to meet water quality standards and future loads. The plants operate under the jurisdiction of the Lahontan RWQCB. Individual septic systems are under the jurisdiction of the San Bernardino and Kern County health departments. The City's plant operates under two board

orders: Waste Discharge #6-93-85 (WDID #6B150116001), and Reclamation #6-93-86 (WDID #6B159101001) (U.S. Navy 2004).

The City of Ridgecrest processes wastewater from the NAWS and the Ridgecrest area. NAWS China Lake pays for the cost of disposal based on the measured wastewater flow from entities on-Station. Primary treatment consists of removing grit and primary sediment. Secondary treatment is provided by seven oxidation ponds and four evaporation/percolation ponds on approximately 88 hectares (220 acres). Most of the effluent is evaporated or percolated; however, up to 5.30 mld (1.4 mgd) of effluent is used to irrigate the NAWS golf course (U.S. Navy 2004).

3.11.4.3 Electricity

Southern California Edison provides electrical service to the NAWS from its Inyokern substation (U.S. Navy 2004). In calendar year 2006, NAWS China Lake had a peak demand of 19.4 megawatt (MW) of electricity. This was down from a peak demand of 23.8 MW in calendar year 2001. The substations have a total capacity of 57,212 kilovolt amperes (KvA) which equates to 45.7 MW. The distribution system has an even greater capacity of 111,862 KvA, which equals 89.5 MW. Thus, the current demand is at 50 percent of the electrical capacity (Halpin 2007). Electrical distribution throughout NAWS is performed by 33 on-Station sub-stations, which then distribute electricity to each building via power lines. The electrical system at the NAWS is within system capacity (U.S. Navy 2004).

3.11.4.4 Natural Gas

Naval Facilities Engineering Command, Southwest (NAVFACENGCOM Southwest) manages the contracts with Pacific Gas & Electric (PG&E) to provide natural gas service to the NAWS. PG&E maintains natural gas service easements for operations and maintenance of natural gas lines. Natural gas is the primary fuel used for space, process, and water heating in the more populated areas. Approximately 1,000 natural gas service connections supply the NAWS through a gas main transmission line installed in the late 1950s (U.S. Navy 2004). In calendar year 2006, NAWS China Lake used 249,883 British thermal units (Btu) of natural gas. This is down from a recent high of 346,410 Btu used in calendar year 2001 (Halpin 2007). The natural gas distribution system is reported to be in good condition, and the capacity is more than adequate to meet both existing demand and an increase in demand (U.S. Navy 2004).

3.11.4.5 Solid Waste

NAWS China Lake has an active pollution prevention program to reduce the amount of solid waste generated on-Station. The pollution prevention program is implemented by the Environmental Planning and Management Department and includes requirements to develop integrated waste management procedures and to document these procedures in a Solid Waste Management Plan. The Solid Waste Management Plan for NAWS China Lake is currently being updated and revised. This plan outlines procedures to minimize waste generation and landfill disposal and is written in conjunction with the following regulations:

- OPNAVINST 5090.1B Environmental and Natural Resources Program Manual;
- The California Integrated Waste Management Act (Assembly Bill 939); and
- The California Beverage Container Recycling Act (Assembly Bill 2020).

NAWS China Lake produced 2,276.9 metric tons (2,509.9 tons) of non-hazardous waste in calendar year 2006. An aggressive recycling program is an integral part of the NAWS China Lake pollution prevention program. Recycling is the reuse or reclamation of previously used materials, which would become wastes and require disposal if not recycled. In addition to recycling, the pollution prevention program also incorporates such efforts as source reduction, waste treatment, and contained disposal; many of these actions are implemented in conjunction with the City of Ridgecrest (U.S. Navy 2004).

3.12 Safety and Environmental Health

Public safety issues on the NAWS include hazards inherent in munitions transportation, testing, and development. It is the Navy's policy to observe every possible precaution in the planning and execution of all operations to prevent injury to people or damage to property. This section also addresses issues of public proximity and access, electromagnetic radiation (EMR), and potential ordnance hazards.

NAWS China Lake currently has a variety of range safety procedures in place to ensure human health and safety, both from weapons testing and research as well as airfield flight operations. All military personnel and visitors register at the NAWS security pass desk for entry authorization. Airspace above the installation is restricted as well. Portions of the Station have been identified as controlled access areas due to operations and the presence of natural and cultural resources. These areas include, not only restricted danger areas, but also security zones where access is prohibited based on classified operations which may be occurring.

3.12.1 Explosive Safety Quantity Distance (ESQD) Arcs

ESQD arcs are safety buffer zones established by the DoD for storage or handling of various quantities and types of ammunition and explosives. Minimum safety distances are prescribed for separating explosives from inhabited structures, public roads, and other explosives. In general, these distances are proportional to the quantity of ammunition at each location. Procedures to safely manage ordnance debris and unexploded ordnance on ranges are implemented in accordance to DoD Directive 4715.11, "Environmental and Explosives Safety Management on Department of Defense Active and Inactive Ranges." Activities at NAWS require a wide variety and large quantity of ordnance. The NAWS has more than 100 magazines and other explosives storage facilities located throughout the Station.

3.12.2 Hazardous Materials

Hazardous materials are chemical substances that pose a substantial hazard to human health or the environment. In general, these materials posed hazards because of their quantity, concentration, physical, chemical, or infectious characteristics. A hazardous waste may be a solid, liquid, semi-solid, or contained gaseous material that alone or in combination may cause or contribute to an increase in mortality or an increase in illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

3.12.3 Munitions Storage and Transportation

Activities at NAWS China Lake require a wide variety and large quantity of ordnance. The NAWS has more than 100 magazines and other explosives storage facilities located throughout the Station. These storage areas are located in remote areas, generally in conjunction within the presence of ESQD arcs.

3.12.4 Weapons Range Access

Several weapons-testing ranges exist north of the project areas. Access to the NAWS ranges is controlled by NAWCWD Instruction (NAWCWDINST) 5520.2A and applies to all personnel entering the ranges. Safety procedures for range flight and ground operations are addressed in two primary directives, the NAWCWD Range Safety Manual (RSM) and Naval Air Systems Command Instruction (NAVAIRINST) 3960.4A. The NAVAIRINST provides policies and procedures for the conduct of flight, ground, and laboratory testing of air vehicles, weapons, and installed systems. The RSM establishes safety guidelines and procedures for all aspects of range test and training operations conducted at the NAWS ranges (U.S. Navy 2004).

3.12.5 Electromagnetic Radiation

Electromagnetic radiation (EMR) is emitted by electrical circuits carrying rapidly changing signals as a byproduct of normal operation and causes unwanted signals (interference or noise) to be induced in other circuits. This interrupts, obstructs, or otherwise degrades or limits the effective performance of other affected circuits. It can be induced intentionally, as in some forms of electronic warfare, or unintentionally.

Radar and other high-energy electromagnetic emissions from electronic support systems can constitute a hazard to personnel exposed to radiation. The operation of these systems is managed under the regulations of the Navy Hazards of Electromagnetic Radiation to Personnel (HERP) program. HERP is defined in terms of power density or watts of power flowing through a given area. For a HERP condition to exist, personnel would have to be within proximity of an emitting antenna directing the power into a concentrated area. Therefore, HERP zones are not considered as construction exclusion zones for habitable facilities, but rather as zones where a heightened awareness of the potential hazard should exist. The HERP zone distances are designated on a case-by-case basis. Ordnance and fuel are also susceptible to the hazards of electromagnetic radiation. These

effects are managed under Navy regulations for Hazards of Electromagnetic Radiation to Ordnance (HERO) and Hazards of Electromagnetic Radiation to Fuel (HERF). A HERO-susceptible ordnance system is any ordnance system that contains electro-explosive devices that can be adversely affected by radio frequency energy, so the safety or reliability of the system is jeopardized when the system is employed. Distances for HERF zones are designated on a case-by-case basis (U.S. Navy 2004).

3.12.6 Flight Operations

Safety considerations for airfield flight operations are addressed in the NAWS's Air Installations Compatible Use Zones (AICUZ) Program. The AICUZ Program is a planning tool designed to protect the airfield's operational capability and ensure safe and compatible land use development in the areas surrounding the airfield. Safety considerations for range flight and ground activities are addressed by two primary directives, the NAWCWD RSM and NAVAIRINST 3960.4A. NAVAIRINST 3060.4A provides policies and procedures for the conduct of flight, ground, and laboratory testing of air vehicles, weapons, and installed systems. The RSM establishes the safety planning and management practices applied to test and training operations conducted at the NAWS. The RSM implements the guidance provided in NAVAIRINST 3960.4A and defines procedures for conducting range test and training operations. Such operations involve the use of live and inert ordnance, lasers, and radar, and may include the treatment of accidents and dudded or damaged ordnance (U.S. Navy 2004).

4 Environmental Consequences

This chapter provides an analysis of the environmental impacts for the three development alternatives and the No Action Alternative to the Proposed Action. The term "impact," as used within this document, refers to effects that are adverse in nature. The analysis addresses both direct and indirect impacts. The impacts on each environmental resource area and mitigation measures for each of the three alternatives and the No Action Alternative are discussed below.

The impact assessment for the Proposed Action addresses the impacts associated with realignment-related operational impacts and the implementation of the 14 BRACON projects discussed in detail in Chapter 2. The Proposed Action and alternatives would also result in the temporary movement of personnel out of Michelson Laboratory. These personnel already work on NAWS China Lake and would simply be temporarily relocating to existing facilities. The alternatives to the Proposed Action are Alternative 1: "Redesign of BRACON P-745V," Alternative 2: "BRACON P-745V and BRACON P-719V Combined," and the No Action Alternative.

4.1 Geology, Soils, and Seismicity

4.1.1 Approach to Analysis

For this analysis, factors considered in determining whether an impact would be significant include the potential for substantial change in soil characteristics that would preclude established land uses, or would adversely impact a sensitive environmental resource, such as a threatened or endangered species or their habitats.

4.1.2 Proposed Action

Prior to any new development, a complete subsurface geotechnical analysis of soil and geologic conditions would be conducted to evaluate and identify potential geologic hazards and to provide remedial grading recommendations, foundation and slab design criteria, and soil parameters for the design of the proposed new development projects. The following standard construction measures would be implemented as part of the Proposed Action:

- Standard soil and geotechnical engineering investigations would be conducted to ensure foundation stability;

- Before on-site grading, an erosion control plan would be prepared to adequately control erosion during construction;

- Grading would be performed so that all identified compressible materials would be removed and recompacted, and fill soils placed and compacted to at least 90 percent relative compaction; and

- All graded pads would have drainage swales that would direct stormwater runoff or irrigation runoff away from the structures to control drainage facilities.

4.1.2.1 Impacts

Topography, Geology, and Soils
Construction of new weapons R&D facilities, laboratory space, and storage areas would be subject to stormwater measures contained in a stormwater pollution prevention plan (SWPPP) and would include other best management practices (BMPs) as required by a general construction activity stormwater permit issued by the California State Water Resources Control Board (SWRCB). The SWPPP would be subject to the review and approval by the Lahontan RWQCB. (See Section 4.2, Hydrology and Water Quality, for additional information on SWPPP requirements.) Current soil erosion and sediment control measures at NAWS China Lake that would be implemented during all phases of construction would include road maintenance, grading, culvert maintenance and installation, water runoff control, installation of storm drain inlet protection devices, traffic control in erosion-damaged areas, use of erosion control blankets and soil stabilizers, use of hay bales and sand bags, and mulching areas with a protective cover of organic material such as wood chips and vegetation. Because this alternative would include implementation of erosion control measures, impacts on soils would not be adverse.

Faulting and Seismicity
NAWS China Lake is located within a seismically active region. No known faults are located within the site area. The fault zone most likely to affect the project is the Sierra Nevada Fault Zone, which is located to the northwest approximately 8 kilometers (5 miles) west of the Mainsite LMU and that has not had a recent rupture since the Holocene-Pleistocene era of the late Quaternary period. This fault is capable of producing a maximum credible earthquake of a Richter magnitude of 7.1 (Banks 1982). Given the distance from the faults and the likelihood of a rupture occurrence, the Proposed Action would not be adversely affected by ground shaking. However, the risk of liquefaction is moderate in the Mainsite LMU area and moderate to high in the Armitage Airfield LMU area. Compliance with the Uniform Building Code and the incorporation of appropriate design criteria would minimize impacts resulting from regional seismicity.

4.1.2.2 Mitigation Measures

No significant impacts would occur, and therefore, no mitigation measures are proposed.

4.1.3 Alternative 1- Redesign of BRACON P-745V

4.1.3.1 Impacts

While Alternative 1 would result in the relocation of the Weapons and Armament Technology Center closer to the proposed P-719V facility, impacts of the relocation on the topography, geology, and soils would not be significant. No impacts additional to those expected under the Proposed Action would occur.

4.1.3.2 Mitigation Measures

Implementation of Alternative 1 would not result in any impacts other than those that would occur under the Proposed Action, and therefore no mitigation measures are proposed.

4.1.4 Alternative 2-BRACONs P-745V and P-719V Combined

4.1.4.1 Impacts

While Alternative 2 would result in the combined housing of the Weapons and Armament Technology Center with P-719V facilities within the same structure, the impacts on geology, seismicity, and soils would not be significant. No impacts additional to those expected under the Proposed Action would occur.

4.1.4.2 Mitigation Measures

Implementation of Alternative 2 would not result in any additional impacts than would be experienced under the Proposed Action, and therefore no mitigation measures are proposed.

4.1.5 No Action Alternative

4.1.5.1 Impacts

Under the No Action Alternative, the realignment of personnel and functions to NAWS China Lake would not take place. None of the proposed BRACON projects would be constructed; therefore, no groundbreaking for new facilities would occur. No changes in geologic conditions would result.

4.1.5.2 Mitigation Measures

Implementation of the No Action Alternative would not result in significant impacts, and therefore no mitigation measures are proposed.

4.2 Hydrology and Water Quality

4.2.1 Approach to Analysis

Factors considered in determining whether an alternative would have significant impacts on water resources include the extent or degree to which an action would:

- Significantly affect surface water quality or supply; or
- Significantly affect groundwater quality or supply.

4.2.2 Proposed Action
4.2.2.1 Impacts

Surface Water Hydrology. With the exception of BRACON P-701V, the sites chosen for the BRACON actions are within already developed areas at the Mainsite and Armitage Airfield LMUs. The new impervious surfaces that would result from construction activities would be relatively minor sources of increased surface runoff, but the Proposed Action would not substantially change runoff characteristics. All new construction at NAWS would be required to provide a drainage system capable of conveying surface water equivalent to that of a 10-year storm. Therefore, potential impacts on surface water hydrology would not be considered adverse.

Surface Water Quality. The construction activities associated with site preparation for this alternative do not have the potential for temporary impacts on surface water quality, particularly through erosion of disturbed soil from stormwater, because of the lack of surface water in the project area. Nevertheless, the BRACON activities would comply with the CWA as implemented by the SWRCB's National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000002, a general permit for construction activities, and the associated Order No. 92-08-DWQ, "Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction Activity." Projects of 0.4 hectare (1 acre) or more are subject to this general construction permit process. Additionally, the contractor would be required to eliminate or reduce non-stormwater discharges to stormwater systems, develop a SWPPP prior to beginning construction, inspect all stormwater control structures, and implement other pollution prevention measures such as applicable BMPs and conservation measures during construction.

The SWPPP would include specific measures and techniques to be implemented to protect the project sites and adjacent areas from erosion and deposition during site grading, construction, and post-construction stabilization of sediment on the site. The contractor would provide a copy of the SWPPP for the various crews performing work on the construction site, and a copy would be kept on-site during the project to satisfy the requirements of the NPDES permit. A draft of this SWPPP would be forwarded to the NAWS China Lake for review prior to finalization of the SWPPP. Because construction crews would comply with the SWPPP contained in the NPDES permit process, the project's potential to increase erosion would not be considered adverse.

Because of the similarity between the existing structures at the Mainsite and Armitage Airfield LMUs and the projects that would be constructed as part of the BRACONs, surface water runoff would have similar characteristics. Storm drains would have catch basin inserts to collect debris carried by stormwater runoff. These measures would reduce litter in the washes where stormwater flows to

China Lake. Therefore, potential impacts on surface water quality are not considered adverse.

Groundwater Quality. The new construction at the Mainsite and Armitage Airfield LMUs is not expected to significantly alter the existing drainage patterns because grading the areas subject to ground disturbance would not require significant landform modification. The new aircraft hanger, laboratories, and research facilities would not introduce new or different pollutants to the area that would threaten the use of groundwater for potable or irrigation uses. Potential impacts on groundwater quality or quantity would not be considered adverse.

Floodplains. Information obtained from the 2004 EIS for the NAWS China Lake CLUMP indicates that the proposed BRACON actions at the Mainsite and Armitage Airfield LMUs are not within a 100-year floodplain; thus, there would be no adverse impacts.

4.2.2.2 Mitigation Measures

No significant impacts would occur, and therefore no mitigation measures are proposed.

4.2.3 Alternative 1- Redesign of BRACON P-745V

4.2.3.1 Impacts

While Alternative 1 would result in the relocation of the Weapons and Armament Technology Center closer to the proposed P-719V facility, impacts on hydrology would not be significant. No additional impacts on hydrology and water quality other than those identified under the Proposed Action would occur.

4.2.3.2 Mitigation Measures

Implementation of Alternative 1 would not result in any impacts other than those of the Proposed Action, and therefore no mitigation measures are proposed.

4.2.4 Alternative 2- BRACONs P-745V and P-719V Combined

4.2.4.1 Impacts

While Alternative 2 would result in the combined housing of the Weapons and Armament Technology Center with P-719V facilities within the same structure, impacts on hydrological resources would not be significant. No additional impacts on hydrology and water quality other than those identified under the Proposed Action would occur.

4.2.4.2 Mitigation Measures

Implementation of Alternative 2 would not result in any impacts other than those of the Proposed Action, and therefore no mitigation measures are proposed.

4.2.5 No Action Alternative

4.2.5.1 Impacts

Under the No Action Alternative, the realignment of personnel and facilities to NAWS China Lake would not take place. None of the proposed BRACON

projects would be constructed; therefore, no impacts to surface or groundwater quality would occur.

4.2.5.2 Mitigation Measures

Implementation of No Action Alternative would not result in any significant impacts, therefore, no mitigation measures are proposed.

4.3 Biological Resources

4.3.1 Approach to Analysis

For the purposes of this EA, biological impacts are considered significant if the project may adversely affect:

- Either a species federally identified as endangered or threatened pursuant to the ESA of 1973; or
- A species reasonably susceptible to suffering significant adverse effects to the species or a population of the species as a result of activities encompassed by the alternatives considered in this EA; or
- Habitat determined to be critical to such species.

The No Action Alternative, or prevailing conditions, provides the baseline for changes discussed in each section.

The following discussion presents the likely effects of each alternative on each biological resource. As mentioned, alternatives would be implemented in compliance with all Navy regulations and federal, state, and local laws as they apply and pertain to the relevant issue.

4.3.2 Proposed Action

4.3.2.1 Impacts

BRACONs P-745V, P-719V, and P-755V

Plant Communities. Implementation of BRACONs P-745V (the construction of a one-story Weapons and Armament Technology Center), P-719V (the construction of laboratory facilities, administrative offices and parking area), and P-755V (the construction of a Support Equipment Storage Facility and a Support Equipment Storage yard) would not have environmental consequences for native plant communities and plant species. The proposed construction would not impact native plant communities because the sites are located in disturbed areas and contain urban exotics and weeds.

Wildlife. Implementation of BRACONs P-745V (the construction of a one story Weapons and Armament Technology Center), P-719V (the construction of laboratory facilities, administrative offices and parking area), and P-755V (the construction of a Support Equipment Storage Facility and a Support Equipment Storage yard) would not have environmental consequences for non-federally

listed wildlife species. The proposed construction would not impact wildlife because the sites are located in already disturbed areas.

Special-Status Species. Implementation of BRACONs P-745V (the construction of a one story Weapons and Armament Technology Center), P-719V (the construction of laboratory facilities, administrative offices and parking area), and P-755V (the construction of a Support Equipment Storage Facility and a Support Equipment Storage yard) would not have environmental consequences for special-status species. The proposed construction would not impact special-status species because the sites are located in disturbed areas where there are no federally listed plant and wildlife species. The INRMP (U.S. Navy 2000) shows no federally listed plant or wildlife species occurring within the proposed BRACON footprints. Thus, no impacts to federally listed plant and wildlife species would occur. Available information also indicates that no state sensitive species occur or are likely to occur within the footprint for this project.

BRACON P-701V

Special-Status Species. Implementation of BRACON P-701V may cause indirect environmental consequences for special-status species. Of the three federally listed threatened and endangered species known from the Station, the desert tortoise would be the only species potentially affected. The INRMP (U.S. Navy 2000) shows that the area is known to be desert tortoise habitat; however, it is not USFWS-designated desert tortoise critical habitat and is not within the NAWS China Lake Desert Tortoise Management Area. Surveys conducted for this BRACON show no sightings or evidence of the desert tortoise within the footprint of this BRACON; therefore no direct impacts to federally listed threatened and endangered species would be likely to occur, and the Navy believes the Proposed Action presents no risk of significant impacts on the desert tortoise. Potential insignificant indirect impacts to the desert tortoise could occur if the desert tortoise does come into the footprint for P-701V (see Section 4.3.2.2).

Other species of concern include state sensitive species. Potential impacts could occur to state sensitive species such as the burrowing owl, which was observed within the footprint for P-701V during surveys in November 2005. Two burrowing owls were observed at the entrances to active burrows and two other active burrows were observed, though no owls were seen associated with these burrows. Therefore, the burrowing owl is known to be either present or likely to be present at the site.

Additionally, vegetation communities historically associated with Le Conte's thrasher and the Mohave ground squirrel are present at the site for P-701V. There has been one recorded occurrence of Le Conte's thrasher approximately 16 kilometers (10 miles) from the site, and six recorded occurrences of the Mohave ground squirrel within 8 kilometers (5 miles) of the site; consequently, there is a moderate potential for occurrence of these species at the site itself, and these species could potentially be impacted as well. However, the Navy believes that

the Proposed Action is unlikely to have any adverse effect on any of the above-referenced state sensitive species and that any potential adverse impact or effect would not be significant. With respect to the burrowing owl and Mojave ground squirrel, the Navy would implement impact-avoidance measures (discussed below) to either eliminate adverse effect or ensure that any adverse effect would be insignificant.

The burrowing owl is considered a Second Priority Species of Special Concern by the State of California, which indicates the State's conclusion that the species is in decline but not in imminent danger.

As part of its commitment to conservation of sensitive species, and in accordance with the Sikes Act (16 U.S.C. 670a-670f) and the NAWS China Lake INRMP (U.S. Navy 2000), the Navy would implement measures to minimize and/or avoid impacts to nesting burrows and to ground squirrel colonies in the project area (since the Mohave ground squirrel is itself a sensitive species and since such colonies support burrowing owls), as set forth below. The California Department of Fish and Game (CDFG) has concurred in NAWS China Lake's INRMP. To the extent practicable, the Navy would attempt to start initial construction work (e.g., grading) in the Proposed Action area during the non-breeding season (generally September 1 through February 28). For construction work performed in the Proposed Action area during the non-breeding season, a pre-construction survey would not be necessary, as owls could be displaced from occupied burrows during the non-breeding season without the possibility of chicks being abandoned.

To the extent practicable, the Navy would attempt to relocate any burrowing owls remaining in the project area after initiation of construction (e.g., through use of one-way doors on burrows) to off-site habitat area. If it is necessary to perform initial construction work in the project area during the breeding season (generally March 1 through August 31), a pre-construction survey would be conducted for the burrowing owl and burrows in areas of the site that may provide suitable breeding habitat.

This survey would be conducted by a qualified ornithologist. To the extent practicable in light of project considerations, any active nests or burrows found during the breeding season would be left undisturbed, with an appropriate buffer zone around any such burrow or nest, and any relevant construction work would be redirected or halted until nesting has concluded. If it is not possible to redirect or delay certain work potentially impacting an active nest or burrow, the Navy would attempt to relocate any burrowing owls and chicks to burrows outside the project area, to include construction of artificial nest boxes. Additionally, measures would be taken to avoid impacts to any known ground squirrel colonies (as discussed below). The above-referenced measures would be incorporated as appropriate into the planning, contracting (Request for Proposals), and execution stages of the proposed P-701V BRACON. Given these measures, and given the fact that the number of burrowing owls and/or active burrows previously observed in the project area is relatively low, the Navy believes there would likely be no

adverse effect on any individual burrowing owls, and that any potential adverse effect would be experienced by no more than a very small number of such owls. (See the discussion of noise-related impacts at 4.9.2.1, below.)

Consequently, the Navy believes the Proposed Action presents no potentially significant adverse effect on the burrowing owl.

Le Conte's thrasher is considered a Third Priority Species of Special Concern by the State of California, which indicates the State's conclusion that the species is not currently in any danger of extirpation as a species, but instead would be vulnerable to extirpation if a threat to the species should materialize. Given that there are no recorded occurrences of Le Conte's thrasher in the P-701V project area, and given that the one recorded occurrence of the species in any relative proximity to the project area was approximately 16 kilometers (10 miles) away, the Navy believes the Proposed Action would present no risk of significant adverse effect on Le Conte's thrasher. The Navy notes that neither the Federal Government nor the State of California considers this species to be presently facing any risk as a species.

The Mohave ground squirrel is considered a threatened species by the State of California. Per the NAWS China Lake INRMP, the Navy seeks to protect and enhance habitats used by mammals such as the Mohave ground squirrel (U.S. Navy 2000). Practices include documenting the occurrence of and monitoring known species. As a matter of policy, the Navy does not conduct construction work in the vicinity of known colonies of Mojave ground squirrels on NAWS China Lake. To the Navy's knowledge, no such colony has ever been observed in the vicinity of the P-701V project area. Consequently, given the relatively low level of occurrences of the species in proximity to the project area (six occurrences within an 8-kilometer [5-mile] radius of the site), the Navy believes there would likely be no adverse effect on any individual Mohave ground squirrels, and that any potential adverse effect would be experienced by no more than a small number of such squirrels.

Consequently, the Navy believes the Proposed Action presents no potentially significant adverse effect on the Mohave ground squirrel.

Wetlands and Waters of the U.S. Implementation of BRACON P-701V would not have environmental consequences for wetlands and waters of the U.S. The proposed construction would not impact wetlands or waters of the U.S because the site is located in a disturbed area that does not contain waters of the U.S.

BRACON P-749V

Special-Status Species. Implementation of BRACON P-749V would not have environmental consequences for special-status species. The proposed construction would not impact special-status species because the site is located in a disturbed area where there are no federally listed plant and wildlife species. The INRMP (U.S. Navy 2000) shows no federally listed plant or wildlife species occurring

within the proposed BRACON footprint. Thus, no impacts to federally listed plant and wildlife species would occur. Available information also indicates that no state sensitive species occur or are likely to occur within the footprint for this project.

BRACON P-712V

Special-Status Species. Implementation of BRACON P-712V would not impact special-status species. Current information (U.S. Navy 2000) shows no federally listed plant or wildlife species occurring within the proposed BRACON footprint. Thus, no impacts on federally listed plant and wildlife species would occur. Available information also indicates that no state sensitive species occur or are likely to occur within the footprint for this project.

BRACON P-777V and BRACON P-778V

Special-Status Species. Implementation of BRACON P-777V and P-778V would not impact special-status species because there are no federally listed plant and wildlife species in the area. Current information (U.S. Navy 2000) shows no federally listed plant or wildlife species occurring within the proposed BRACON footprints. Thus, no impacts on federally listed plant and wildlife species would occur. Available information also indicates that no state sensitive species occur or are likely to occur within the footprint for this project.

4.3.2.2 Mitigation Measures

No significant impacts would occur as a result of implementing BRACONs P-745V, P-719V, P-749V, P-755V, and P-712V, P-777V, and P-778V and therefore no mitigation measures are proposed. Formal consultation with the USFWS is not required since the Proposed Action area for these BRACONs is not within the Desert Tortoise Management Area, is less than 20.2 hectares (50 acres) in total area, and biological surveys found no desert tortoise sign; therefore, NAWS China Lake would only be required to notify the USFWS concerning the Proposed Action in its annual report (Paragraph 1.h of the Terms and Conditions of the BO). Similarly, the Navy believes BRACON P-701V would not result in significant impacts on biological resources; however, because indirect impacts on the desert tortoise may occur if BRACON P-701V is implemented, mitigation measures will be implemented as a precautionary measure, and will follow the guidance provided in the desert tortoise BO (U.S. Navy 2004; see Appendix A). These measures include: conducting a pre-construction survey within seven days of construction activities to ensure the lack of presence of desert tortoise; monitoring of construction activities; project personnel briefings; and flagging of any areas that may be identified where the probability of a take would be high. Consequently, the Navy believes that the Proposed Action is not likely to adversely affect the desert tortoise, and that any potential adverse effect on the desert tortoise would be reduced to insignificance by these measures.

4.3.3 Alternative 1 - Redesign of BRACON P-745

4.3.3.1 Impacts

Special-Status Species. Implementation of Alternative 1, the redesign of BRACON P-745V, would not have environmental consequences for special-status species. The proposed construction would not impact special-status species because the site is located in a disturbed area where there are no federally listed plant and wildlife species. The INRMP (U.S. Navy 2000) provided shows no federally listed plant or wildlife species occurring within proposed building site. Thus, no impacts to federally listed plant and wildlife species would occur as a result of the redesign of P-745V. Available information also indicates that no state sensitive species occur or are likely to occur within the footprint for this project. In all other respects, Alternative 1 would be equivalent to the Proposed Action in terms of potential impacts on biological resources.

4.3.3.2 Mitigation Measures

No significant impacts would occur as a result of Alternative 1, the redesign of BRACON P-745V, and therefore no mitigation measures are proposed based on that redesign. Any potential indirect impacts on biological resources under other aspects of Alternative 1 would be mitigated as set forth in Section 4.3.2.2.

4.3.4 Alternative 2 - BRACON P-745 and P-719 Combined

4.3.4.1 Impacts

Plant Communities. Implementation of Alternative 2, the combination of P-745V and P719V into one structure and construction of a parking area, would not have environmental consequences for native plant communities and plant species. The proposed construction would not impact native plant communities because the site is located in a disturbed area and contains urban exotics and weeds.

Wildlife. Implementation of Alternative 2, the combination of P-745V and P719V into one structure and construction of a parking area, would not cause environmental consequences to wildlife species. The proposed construction would not impact wildlife because the site is located in a disturbed area.

Special-Status Species. Implementation of Alternative 2, the combination of P-745V and P719V into one structure and construction of a parking area, would not have environmental consequences for special-status species. The proposed construction would not impact special-status species because the site is located in a disturbed area where there are no federally listed plant and wildlife species. Current information (U.S. Navy 2000) provided shows no federally listed plant or wildlife species occurring within the proposed building site. Thus, no impacts on federally listed plant and wildlife species would occur as a result of the combination of P-745V and P-719. Available information also indicates that no state sensitive species occur or are likely to occur within the footprint for this

project. In all other respects, Alternative 2 would be equivalent to the Proposed Action in terms of potential impacts on biological resources.

4.3.4.2 Mitigation Measures

No significant impacts would occur as a result of Alternative 2, the combination of P-745V and P719V into one structure and construction of a parking area, and therefore no mitigation measures are proposed based on that combination. Any potential indirect impacts on biological resources under other aspects of Alternative 2 would be mitigated as set forth in Section 4.3.2.2.

4.3.5 No Action Alternative

4.3.5.1 Impacts

Under the No Action Alternative, the realignment of personnel and functions to NAWS China Lake would not take place. None of the BRACON projects would be constructed. There would be no impacts to biological resources.

4.3.5.2 Mitigation Measures

Because no impacts on biological resources would be associated with the No Action Alternative, no mitigation measures are proposed.

4.4 Cultural Resources

4.4.1 Approach to Analysis

Impacts have been assessed with respect to their potential to result in a substantial adverse change to the integrity of an historic property's location, design, setting, materials, workmanship, feeling, or association. Impacts to historic properties include, but are not limited to the following:

- Physical destruction, damage, or alteration of all or part of the property;
- Isolation of the property or alteration of the character of the property's setting when that character contributes to the property's qualifications for the NRHP;
- Introduction of visual, audible, or atmospheric elements that are out of character with the property or changes that may alter its setting;
- Neglect of a property resulting in its deterioration or destruction; and
- Transfer, lease, or sale of a property without adequate provisions to protect its historic integrity.

4.4.2 Proposed Action

4.4.2.1 Impacts

BRACON P-745V

This BRACON involves construction of a one-story Weapon and Armament Technology Center, athletic fields, sidewalks, a pedestrian plaza, and a parking area. A 4.3-meter (14-foot)-high covered pedestrian walkway above Knox Road

would connect the new Weapons and Armament Technology Center and the new facilities being developed as part of P-719V. The design of P-745V is integrated with the design of P-719V.

This project would be constructed on an existing disturbed site where a personnel building had previously been demolished. This BRACON would involve the demolition of an Auto Hobby Shop (Building 02602) and associated shade structure (Building 02624), which have been evaluated by the Navy to be ineligible for NRHP listing (Kaldenberg 2007).

On 4 October 2006, the Navy conducted an archaeological reconnaissance of the footprint at this location. All structures in this area have been demolished, and all surfaces have been graded, with many covered with fill. This location contains no archeological resources (Kaldenberg 2006b).

BRACON P-754V
This BRACON would involve the renovation of buildings 01028, 01025, 02477, and 20210. Building 01028 may be demolished if renovations are too costly. Buildings 01028, 01025, 02477, and 20210 were recommended as ineligible for the NRHP (JRP Historical Consulting Services 1997a, Kaldenberg 2006a, Herbert 2007 and Kaldenberg 2007).

New construction under this BRACON would involve 163 square meters (1,755 square feet) of NMCI infrastructure. Under this BRACON, minimal ground-disturbing activity would be planned.

BRACON P-755V
This BRACON would involve construction of a new Support Equipment Storage Facility and a Support Equipment Storage Yard and renovation of buildings 00001, 00466, and 31567. Building 00001 is considered eligible for NRHP listing (JRP Historical Consulting Services 1997a). Buildings 00466 and 31567 were recommended as ineligible for NRHP listing. The new construction of the Support Equipment Storage Facility and Yard would adjoin Building 31567. (JRP Historical Consulting Services 1997a, Kaldenberg 2006a, Herbert 2007, Kaldenberg 2007).

On 4 October 2006, the Navy conducted an archaeological reconnaissance of the footprint at this location and determined that it had been bulldozed and graded. It contains no archaeological resources (Kaldenberg 2006b).

BRACON P-701V
This BRACON involves construction of a Type II modular hanger in an existing undisturbed location to provide maintenance hangar space. This BRACON does not propose any renovations to existing buildings.

Archeological reconnaissance of the footprint was performed in 2006. Site ASM-AA1 (a prehistoric lithic scatter), Site ASM-AA2 (a 1910-1925 historic water

storage and pumping facility), and seven isolated finds are within the footprint of the proposed construction. These resources have been evaluated as not eligible for NRHP listing due to the lack of cultural context and a low potential to contribute to local or regional culture history. These resources do not require any preservation or mitigation measures (Andrews and Giambastiani 2006).

BRACON P-710V
This BRACON entails construction of three anechoic chambers (12.2 by 12.2 by 12.2 meters [40 by 40 by 40 feet]) on the site of a trailer farm. Excavation would be required for an approximately 3.7-meter (12-foot)-deep subsurface laboratory for the anechoic chambers. This BRACON does not propose any renovations to existing buildings.

On 4 October 2006, the Navy conducted an archaeological reconnaissance of the footprint at this location and determined it corresponds to a paved parking lot and contained no archaeological resources (Kaldenberg 2006b).

BRACON P-749V
This BRACON would involve construction of a missile fuse test facility in the CLPL. This BRACON would involve renovation to Buildings 10170 and 10173. Both buildings were recommended as contributing elements to the CLPPHD (JRP Historical Consulting Services 1997b).

On 4 October 2006, the Navy conducted an archaeological reconnaissance of the footprint at this location. The area has been graded and contains dumped concrete debris. It contains no archaeological resources (Kaldenberg 2006b).

BRACON P-712V
This BRACON would involve construction of multiple ordnance magazines and related facilities. This BRACON does not involve renovation to any existing structures.

In 2006, the location of this BRACON footprint was subjected to an archaeological survey and no cultural resources were identified (Kaldenberg 2006b).

BRACON P-719V
This BRACON involves construction of new laboratory facilities, administrative offices, and a parking area to create a W&ARD&AT&E Center at NAWS China Lake. It is integrated into the design of P-745 and would be part of the footprint of P-745.

On 4 October 2006, the Navy conducted an archaeological reconnaissance of the footprint at this location and determined it contained previously graded parcels and had no archaeological resources (Kaldenberg 2006b).

BRACON P-732V
This BRACON would be the renovation of Michelson Laboratory (Building 00005), which is NRHP eligible (JRP Historical Consulting Services 1997a). Wings one, four, and five would be renovated along with the first and second floors of the main corridor. The renovations would demolish the interior of the concrete shell of Michelson Laboratory, its wings and corridors, and would increase the capability to accommodate a large portion of the expected new space requirements of this BRAC action.

BRACON P-747V
This BRACON would involve construction of a public works warehouse and fenced compound. The Navy conducted archeological reconnaissance of the footprint at this location and reported the results in a memo on 7 November 2006. The Navy found that there are no archaeological resources within the footprint of the BRACON and reported that no archaeological resources are expected to be located subsurface at the site (Kaldenberg 2006b).

BRACON P-704V
This BRACON would involve the renovations to accommodate:

- W&A functions from NSWC Indian Head;
- W&ARD&AT&E functions from NSWC Crane; and
- W&ARD&AT&E at NSWC Indian Head.

In addition, a restroom facility would be constructed at Building 11050 to accommodate the relocation of W&ARD&AT&E from NSWC Dahlgren.

This BRACON would involve renovation of 14 buildings: 10520, 16079, 15800, 11050, 15790, 11570, 10690, 12143, 15560, 31562, 91042, 11510, 12042, and 12170. Buildings 10520, 15800, 15790, 10690, 15560, 11570, 11050, and 12170 have been evaluated as contributing elements to either the CLPPHD or the SWPPHD. Buildings 16079, 11510, 12042, 12143, 31562, and 91042 have been evaluated as ineligible for NRHP listing (JRP Historical Consulting Services 1997b, Kaldenberg 2006a, Kaldenberg 2007, Herbert 2007).

BRACON P-759V
This BRACON would involve renovation to buildings 01040, 01041, and 01042, which are ineligible for NRHP listing (JRP Historical Consulting Services 1997a).

BRACON P-777V
This BRACON would involve construction of a Weapons Dynamic RDT&E Center. The Weapons Center would be constructed adjoining Building 12140, which is ineligible for NRHP listing (JRP Historical Consulting Services 1997a).

On 4 October 2006, the Navy conducted an archaeological reconnaissance of the footprint at this location. It was determined that approximately one-half of the proposed footprint corresponds to an existing parking lot and the other half corresponds to an area of previously disturbed soils. The area contains no archaeological sites, and none would be expected since this area is not located near any consumable resources utilized in prehistory (Kaldenberg 2006b).

BRACON P-778V

This BRACON would involve construction of a medium-weight shipboard shock environmental testing facility for the realignment of the W&ARD&AT&E from NSWC Crane to NAWS China Lake, as well as construction of a concrete test pad, and the relocation of a magazette within the CLPPHD. This BRACON also would involve an addition to the existing control room in Building 12160, which is a contributing element to the CLPPHD (JRP Historical Consulting Services 1997b).

This BRACON footprint has been subjected to bulldozing and grading in the course of the construction of roads and landscaping. The area contains no archaeological sites (Kaldenberg 2006b).

4.4.2.2 SHPO Consultation

As stated in Chapter 3, the Navy has determined that of the 32 buildings, the following 13 structures are eligible for listing on the NRHP, either individually or as contributing elements to historic districts: Buildings 00001, 00005, 10520, 10690, 11050, 11570, 15560, 15790, 15800, 10170, 10173, 12170, and 12160 (JRP Historical Consulting Services 1997a, Mikesell 1999, Kaldenberg 2006a, Kaldenberg 2007). The Navy also has determined that Buildings 00008, 00466, 02602, 01025, 01028, 01040, 01041, 01042, 02624, 02477, 11510, 12042, 12143, 16079, 20210, 31562, 31567, 12140, and 91042 are ineligible for NRHP listing (JRP Historical Consulting Services 1997a, Mikesell 1999, Kaldenberg 2006a, Herbert 2007, Kaldenberg 2007).

In compliance with Section 106, the Navy initiated a series of consultations with the Office of Historic Preservation of the California Department of Parks and Recreation (Appendix B). In a letter dated 17 May 2006, the Navy provided the SHPO with information on the proposed renovations to buildings 00001, 00005, 10520, 10690, 11050, 11570, 15560, 15790, and 15800 and requested the SHPO concur with the determination of No Adverse Effect (Shepherd 2006a).

In a letter dated 15 June 2006, the SHPO requested additional information from the Navy on the renovations to Buildings 00005 and 11050 in regard to the specifics of the changes to the windows, doors, sheer walls, and louvers in order to determine the effects on these historic structures (Donaldson 2006a). The Navy agreed to submit the design plans for Buildings 00005 and 11050 once they have been prepared in order for the SHPO to conclude a finding of No Adverse Effect with Conditions (Kaldenberg 2006a). On 14 September and 25 September 2006,

the Navy provided the SHPO with additional information pertaining to the proposed modifications.

In a letter dated 19 March 2007, the SHPO stated that it would agree to the finding of No Adverse Effects with Conditions. These conditions would include the submittal to the SHPO of the design plans and specifications once they have been completed (Donaldson 2006b).

Subsequent to the initial SHPO consultation, the scope of the EA was further defined. Additional consultation was determined to be needed for additional historic-era buildings and resources that could be affected. A letter was sent on 15 February 2007 to notify the SHPO of the "no effect" determination for proposed interior renovations to four historic district buildings (10170, 10173, 12160, and 12170), and to request the following:

1) Concurrence with NAWS China Lake's determination of "ineligible for inclusion on the National Register" for two archeological sites (ASM-AA1 and ASM-AA2) occurring in the BRACON P-701V area;

2) Concurrence with NAWS China Lake's determination of "ineligible for inclusion on the National Register" for four buildings (11510, 12143, 20210, and 31567) evaluated in 2007; and

3) Concurrence with NAWS China Lake's determination of "ineligible for inclusion on the National Register" for 13 other historic-era buildings (00008, 01028, 01040, 01041, 01483, 00466, 01042, 01482, 01025, 01095, 02025, 02624, and 02602) evaluated in 1997. (Buildings 01482, 01483, 01095, and 02025 are being consulted on as not eligible as part of P-747V even though they are not being directly affected.)

Since these two sites and buildings were evaluated as not eligible for listing under the NRHP, NAWS China Lake determined that the Proposed Action would result in a "no effect" determination to the two archaeological sites and the 17 structures.

Ground-disturbing activities would also take place under BRACONs P-710V, P-712V, P-719V, P-745V, P-747V, P-749V, P-755V, P-777V, and P-778V. However, the Navy has determined that ground-disturbing activity for these BRACONs would take place in existing disturbed areas where there is no potential for the presence of cultural resources. Therefore, none of the proposed ground-disturbing activities would affect archaeological sites eligible for listing on the NRHP and SHPO consultation was not required (Kaldenberg 2006b; Andrews and Giambastini 2006, U.S. Navy 2006).

In a letter dated 19 March 2007, the SHPO stated that it concurred with the Navy's determination of "ineligible for inclusion on the National Register" for the 17 buildings in the 15 February 2007 letter. The SHPO also stated that it would

agree to a "No Historic Properties Affected" determination in lieu of a "no effect" determination for proposed interior renovations to four historic district buildings (10170, 10173, 12160, and 12170).

Six (6) buildings (16079, 02477, 31562, 91042, 12042, and 12140) that would be potentially affected by the Proposed Action were not consulted on due to the fact that they are not historic either because they were heavily modified from the original construction date or are not historic era according to the year of construction.

As a result of the SHPO concurrence with the Navy's findings, there would be no significant impacts to cultural resources.

4.4.2.3 Mitigation Measures

Since there would be no significant impacts to cultural resources, no mitigation measures would be proposed.

4.4.3 Alternative 1 - Redesign of BRACON P-745V

4.4.3.1 Impacts

Under this alternative, all the personnel and functional realignments would take place as currently planned under Proposed Action. In addition, under BRACON P-745V, the Weapons and Armament Technology Center would be relocated. Also under this Alternative, Building 00008, which has been evaluated as ineligible for NRHP listing, would be renovated (JRP Historical Consulting Services 1997a). In all other respects, Alternative 1 would be equivalent to the Proposed Action in terms of potential impacts on cultural resources.

4.4.3.2 SHPO Consultation

The Navy has received concurrence from SHPO that Building 00008 is not eligible for listing on the NRHP, thus there would be no significant impacts to cultural resources.

4.4.3.3 Mitigation Measures

Since there would be no significant impacts no mitigation measures would be proposed.

4.4.4 Alternative 2 - BRACON P-745V and P-719V Combined

4.4.4.1 Impacts

This Alternative would involve the construction of the Weapons and Armament Technology Center and the proposed facilities for P-719V which would be combined into one structure. The location of the footprint of this BRACON was subjected to archaeological reconnaissance on 4 October 2006. It was determined that the location was previously graded and contained no archeological resources (Kaldenberg 2006b). In all other respects, Alternative 2 would be equivalent to the Proposed Action in terms of potential impacts on cultural resources.

4.4.4.2 SHPO Consultation

The Navy has determined that ground-disturbing activity for this BRACON would take place in existing disturbed areas where there is no potential for the presence of cultural resources. Therefore, the proposed ground-disturbing activities would not affect archaeological sites eligible for listing on the NRHP and SHPO consultation was not required (apart from consultation previously discussed with respect to the Proposed Action).

4.4.4.3 Mitigation Measures

Since there would be no significant impacts, no mitigation measures would be proposed.

4.4.5 No Action Alternative

Under the No Action Alternative, the BRAC 2005 recommendations would not be implemented. There would be no ground-disturbing activities and thus no impacts on cultural resources, so no mitigation is proposed.

4.5 Land Use

4.5.1 Approach to Analysis

Factors used to assess significance include the extent or degree to which implementation of an alternative would cause substantial change to currently approved or planned land uses within the Mainsite and Armitage Airfield LMUs. For this analysis, land use impacts were evaluated by assessing the compatibility of all proposed use with the existing or planned on-Station land uses described in Section 3.1. A land use incompatibility would arise when a proposed use would preclude or adversely affect an existing or intended use of an LMU area.

4.5.2 Proposed Action

The assessment of land use impacts focuses primarily on whether the proposed development would be compatible with (1) adopted land use plans and (2) land uses on and adjacent to the site of Proposed Action. The potential for construction to affect nearby land uses is generally related to traffic, air pollution, and noise that would be generated by those activities. Traffic, air quality, and noise are addressed in Sections 4.7, 4.8, and 4.9, respectively, and are not further addressed in this resource analysis.

The 14 BRACONS associated with the Proposed Action would result in ground disturbance associated with construction and demolition activities located throughout the Mainsite and Armitage Airfield LMUs. Impacts on land use regulations and current usage are discussed below.

4.5.2.1 Impacts

Land Use Policies, Plans, and Regulations

The new construction associated with the 14 BRACONS would result in land uses being introduced that would be consistent with the land uses established within the China Lake CLUMP for both the Mainsite and Armitage LMUs. Since this

action would not change the existing land use at either LMU, it is consistent with adopted land use plans, policies, and regulations. Therefore, no conflicts with existing land use plans, policies, and regulations have been identified at either LMU.

Land Use at the Mainsite LMU
Several of the BRACON actions would involve the construction and renovation of new facilities within the Mainsite LMU. As described above, the Mainsite LMU contains the majority of administrative and laboratory space within the NAWS. All construction associated with the Proposed Action that would occur within the Mainsite LMU would be consistent with current land uses, namely laboratory, research/development, and administration activities. Although the Proposed Action would provide additional increases in density on the Mainsite LMU, the land usage would not change as a result.

Land Use at the Armitage Airfield LMU
Several of the BRACON actions would involve the construction of new laboratory and aircraft hanger facilities within the Armitage Airfield LMU. As described above, the Armitage Airfield LMU contains three major runways and facilities for aircraft maintenance, hangars, ordnance handling and storage, ground support equipment maintenance, and RDT&E. All construction associated with the Proposed Action that would occur within the Armitage Airfield LMU would be consistent with current land uses, namely laboratory, research/development, and aircraft support activities. Although the Proposed Action would provide additional increases in density on the Armitage Airfield LMU, the land usage would not change as a result.

4.5.2.2 Mitigation Measures
No significant impacts would occur, and therefore no mitigation measures are proposed.

4.5.3 Alternative 1-Redesign of BRACON P745V
4.5.3.1 Impacts
Implementation of Alternative 1 would result in no impacts on land use. All BRACONS (with the exception of P-745V) would take place as described in the Proposed Action. The proposed Weapons and Armament Technology Center would be moved closer to P-719V facilities but this would not result in changes to current permitted land uses. No impacts on land use would occur as a result Alternative 1.

4.5.3.2 Mitigation Measures
Implementation of Alternative 1 would not result in any impacts different from those of the Proposed Action, and therefore no mitigation measures are proposed.

4.5.4 Alternative 2-BRACONS P-745V and P719V Combined

4.5.4.1 Impacts

Implementation of Alternative 2 would result in the P-745V and P-719V BRACONS being combined into a single BRACON. Specifically, Alternative 2 calls for the Weapons and Armament Technology Center and P-719V's facilities to be housed in the same building. No changes to current land use within the Mainsite LMU would occur, and all other BRACONs would occur as proposed for the Proposed Action. No impacts on land use would occur as a result of Alternative 2.

4.5.4.2 Mitigation Measures

Implementation of Alternative 2 would not result in impacts different from those of the Proposed Action, and therefore no mitigation measures are proposed.

4.5.5 No Action Alternative

4.5.5.1 Impacts

Under the No Action Alternative, The realignment of personnel and functions to NAWS China Lake would not take place. The 14 proposed BRACONs would not be constructed.

4.5.5.2 Mitigation Measures

Implementation of the No Action Alternative would not result in any significant impacts, and therefore no mitigation measures are proposed.

4.6 Socioeconomics

4.6.1 Approach to Analysis

In evaluating potential impacts to socioeconomic conditions in the region, the Navy considered whether each alternative could cause one or more of the following conditions:

- Increased employment that creates shortages in local labor that exceed historic levels, or increased unemployment rates and loss of income that exceed historic rates; or

- Increased housing demand that creates housing shortages, difficulty in finding suitable and affordable housing and likely use of substandard housing, or increased vacancies in support communities that exceed historic vacancy levels.

4.6.2 Proposed Action

4.6.2.1 Impacts

Population, Housing, and Employment

Implementation of the Proposed Action would result in a maximum of 2,100 personnel being relocated to NAWS China Lake. Assuming all 2,100 are married and have at least two children, an estimated maximum of 8,400 people would be moving to the Indian Wells Valley area. This would represent an approximate 33

percent increase in the 2000 population of Indian Wells Valley. Given that the population of this area has been declining since 1990, this influx of people would create a total estimated population that would be only 5 percent greater than the 1990 population.

Many of the personnel relocated to NAWS China Lake would be housed on existing off-base civilian housing. According to the 2005 CLUMP, off-base housing has been maintained in order to accommodate personnel movements. The 2000 Census also indicates a single-family residence vacancy rate of approximately 13 percent. Given the high vacancy rate for single-family homes and the fact that the population of the area has been in decline since at least 1990, the Navy believes it is reasonable to conclude that there would be ample housing for the incoming personnel and thus that no adverse impacts on housing would occur as a result of the BRAC realignment.

The Proposed Action could potentially positively impact the job market in Ridgecrest as there would be an influx of military and civilian families into the area. The influx of up to 2,100 personnel (with secure employment) and their families would result in beneficial socioeconomic impacts on the local project area from the purchase of goods and services. Additionally, the increased activity at NAWS China Lake would also result in beneficial socioeconomic impacts on the local area through increased utilization of labor and construction materials. The employment base within Kern County is adequate to meet the need for the construction workers.

Environmental Justice

The population of the City of Ridgecrest surrounding the project area is not considered disadvantaged but does contain a large minority population. The Proposed Action would have an impact on the local population through the realignment of personnel to NAWS China Lake. These personnel would reside in the local community. Since these personnel would be employed in high technology positions on NAWS China Lake, they would have a positive impact on the community since they would use additional goods and services in the industries that employ predominantly minority and low-income populations and would thereby result in increased revenues and employment opportunities for these industries. The BRACON activities would occur within NAWS China Lake boundaries (at the Mainsite and Armitage Airfield LMUs) and would not impact the local population. As such, the Proposed Action would not cause "disproportionately high and adverse human health or environmental effects on low-income and minority population" and would not affect the Navy's ability to achieve environmental justice as defined in EO 12898. Therefore, no adverse impact associated with environmental justice would occur under this alternative.

4.6.2.2 Mitigation Measures

No significant impacts would occur, and therefore no mitigation measures are proposed.

4.6.3 Alternative 1-Redesign of BRACON P745V

4.6.3.1 Impacts

While Alternative 1 would result in the relocation of the Weapons and Armament Technology Center closer to the proposed P719V facility, impacts on socioeconomics would be no different under Alternative 1 than would be experienced under the Proposed Action

4.6.3.2 Mitigation Measures

Implementation of Alternative 1 would not result in impacts different from those of the Proposed Action, and therefore no mitigation measures are proposed.

4.6.4 Alternative 2 - BRACONs P-745V and P-719V Combined

4.6.4.1 Impacts

While Alternative 2 would result in the combined housing of the Weapons and Armament Technology Center with P-719V facilities within the same structure, the impacts on socioeconomics would be no different under Alternative 2 than would be experienced under the Proposed Action

4.6.4.2 Mitigation Measures

Implementation of Alternative 2 would not result in impacts different from those of the Proposed Action, and therefore no mitigation measures are proposed.

4.6.5 No Action Alternative

4.6.5.1 Impacts

Under the No Action Alternative, the BRAC Recommendations would not be implemented and the 14 BRACON projects would not be constructed. Therefore, the No Action Alternative would not result in short-term, beneficial economic impacts as construction would not occur. However, since no personnel would be realigned to NAWS China Lake, there would be less competition for affordable housing which would be a positive benefit to the local population.

4.6.5.2 Mitigation Measures

Implementation of the No Action Alternative would not result in significant impacts, therefore, no mitigation measures are proposed.

4.7 Traffic/Circulation

4.7.1 Approach to Analysis

This analysis focuses on the potential effects of traffic loading on the NAWS and the surrounding roadway system that may occur from implementing any of the alternatives. Proposed increases in traffic loading are compared to roadway capacities identified in Section 3.7. Impacts are considered significant if the traffic increases associated with the Proposed Action or alternatives exceed the design capacity of an affected portion of the roadway system.

The following section describes the projected traffic impacts that would result from the implementation of the Proposed Action. A total of three scenarios were analyzed as part of the Proposed Action, which include the following:

- **Existing Conditions (2006**). Existing conditions comprise the current traffic conditions of the existing street network.

- **Near Term (2011)**. Near-term conditions are the traffic conditions of the near-term street network and include traffic volumes from the addition of approximately 200 new employees not working on the BRACONs (see Section 4.7.1.1).

- **Near Term (2011) With Project Conditions.** Near Term (2011) With Project Conditions are the near-term traffic conditions with the addition of the activities outlined under the Proposed Action. Individual projects would be constructed in a phased approach over a four-year period starting in FY 2007 and continuing through FY 2010. This scenario evaluates potential impacts from the completion of all projects.

4.7.1.1 Forecast Traffic Volumes

Traffic volumes for the near-term scenario were estimated by adding the increase in traffic related to 200 new-hire employees (not related to the BRACONs) to existing counts at the applicable study intersections and roadway segments in the study area. The following assumptions were made based on information provided by NAWS China Lake staff:

- 100 employees work at Michelson Laboratory;

- 50 employees work at the airfield and ranges (north of the Sandquist/ Lauritsen intersection); and

- 50 employees work at the propulsion plant (east on Lauritsen Road beyond North Richmond Road).

These 200 new-hire employees were converted to vehicle trips based on the same rates shown in Table 4.7-1.

4.7.1.2 Trip Generation

Although the Proposed Action consists of 14 BRACON projects, for the evaluation of traffic impacts only, BRACON P-700V is also being considered. To estimate the projected vehicular traffic for the Proposed Action (including P-700V), the total number of personnel related to each of the 15 BRACON projects was converted to vehicle trips. Table 4.7-2 summarizes the new personnel associated with the 15 BRACON projects at NAWS China Lake; only eight of the BRACON projects would result in an increase in personnel, as shown in Table 4.7-2. BRACON Project P-712V would not result in any personnel increase, but would result in an additional 12 trucks entering the site on a daily basis.

A rate of 2.5 trips per personnel was used to estimate the new daily trips. This rate is consistent with rates used for military facilities in the San Diego region. A trip rate of 2.5 trips per person would generally correspond to each person making one

trip to work in the morning and one trip home in the evening with a small percentage of people using a vehicle throughout the day. For the 12 additional trucks, a rate of 3.0 trips per truck was used, which was calculated by multiplying the truck trips (2.0, one for inbound and outbound traffic) by the passenger car equivalent (PCE) factor of 1.5 to adjust for the increased size of the vehicle.

The percentage of traffic during the morning, midday, and evening peak-hour was calculated by summarizing the traffic data at all three gate locations. Traffic counts indicated that 12.1 percent of the daily traffic occurred during the morning peak-hour, 9.5 percent of the daily traffic occurred during the midday peak-hour, and 10.6 percent of the daily traffic occurred during the evening peak-hour. These percentages were used to estimate the new project traffic during the peak periods.

Within NAWS China Lake, there are currently 605 residential units (198 family housing units, 298 permanent combined bachelor quarters [CBQ], and 109 transitional units). These residential units serve some of the existing personnel. However, as a conservative estimate, all project traffic was assumed to be generated outside of the base and that during the morning peak-hour traffic was assumed to enter NAWS China Lake and all project traffic during the evening peak-hour was assumed to exit. For the project traffic during the midday peak-hour, a 50/50 split was used, which correlates with the existing traffic data at the gates.

Table 4.7-1 shows the total trip generation for the Proposed Action. As shown in the table, the Proposed Action would be estimated to generate a total of 4,526 average daily trips (ADTs), including 548 morning peak-hour trips, 424 midday peak-hour trips, and 479 evening peak-hour trips. It should be noted that all morning peak-hour trips were assumed to be entering NAWS China Lake, half of the midday peak-hour trips were assumed to be entering, while the other half were assumed to be leaving, and all evening peak-hour trips were assumed to be exiting NAWS China Lake.

Site	BRACON Project	Personnel[1] Increase	Trip Rate[1]	Daily Trips	AM Peak-Hour					Mid-Day Peak-Hour					PM Peak-Hour				
					% of ADT[2]	In:Out Ratio[3]	In	Out	Total	% of ADT[2]	In:Out Ratio[3]	In	Out	Total	% of ADT[2]	In:Out Ratio[3]	In	Out	Total
1	P-700V	15 personnel	2.5 / Personnel	38	12.1%	1.00 : 0.00	5	0	5	9.5%	0.50 : 0.50	2	2	4	10.6%	0.00 : 1.00	0	4	4
2	P-701V	182 personnel	2.5 / Personnel	455	12.1%	1.00 : 0.00	55	0	55	9.5%	0.50 : 0.50	22	21	43	10.6%	0.00 : 1.00	0	48	48
3	P-712V	12 trucks	3 / Truck	36	12.1%	1.00 : 0.00	4	0	4	9.5%	0.50 : 0.50	2	1	3	10.6%	0.00 : 1.00	0	4	4
4	P-719V	250 personnel	2.5 / Personnel	625	12.1%	1.00 : 0.00	76	0	76	9.5%	0.50 : 0.50	30	29	59	10.6%	0.00 : 1.00	0	66	66
5	P-732V	450 personnel	2.5 / Personnel	1,125	12.1%	1.00 : 0.00	136	0	136	9.5%	0.50 : 0.50	53	54	107	10.6%	0.00 : 1.00	0	119	119
6	P-745V	678 personnel	2.5 / Personnel	1,695	12.1%	1.00 : 0.00	205	0	205	9.5%	0.50 : 0.50	81	80	161	10.6%	0.00 : 1.00	0	180	180
7	P-749V	57 personnel	2.5 / Personnel	143	12.1%	1.00 : 0.00	17	0	17	9.5%	0.50 : 0.50	7	7	14	10.6%	0.00 : 1.00	0	15	15
8	P-754V	84 personnel	2.5 / Personnel	210	12.1%	1.00 : 0.00	25	0	25	9.5%	0.50 : 0.50	10	10	20	10.6%	0.00 : 1.00	0	22	22
9	P-755V	80 personnel	2.5 / Personnel	200	12.1%	1.00 0.00	24	0	24	9.5%	0.50 : 0.50	10	9	19	10.6%	0.00 : 1.00	0	21	21
NET TRIP GENERATION =				**4,526**			**548**	**0**	**548**			**213**	**211**	**424**			**0**	**479**	**479**

Notes:
1. Rates of 2.5 daily trips per active personnel and 3 daily trips per truck are assumed.
2. Peak hour rates are based on traffic counts at the gates conducted by Field Data Services on October 4, 2006.
3. For all new personnel, In:Out Ratios are assumed to be 100% in during the AM peak, 100% out during the PM peak, and split 50% in and 50% out during the Mid-Day peak.

NAWS CHINA LAKE BRAC EA

Ridgecrest, California

Table 4.7-1

TRIP GENERATION SUMMARY

Date: 12/06/2006

Drawn by:

Table 4.7-2 BRACON Projects and Personnel Summary

BRACON Project	Description	Personnel	Year [a]
P-700V	Construction of a weapons fabrication and test facility with laboratory offices.	15	2011
P-701V	Construction of a Type II modular hangar	182	2008
P-704V	Renovations of Buildings 11510, 10690, 12143, 15560, 31562, 12042, 12170, 11570, 10520, 15800, 16079, 15790	--	2010
P-710V	Construction of the hardwire-in-the-loop system (laboratory space)	--	2008
P-712V	Construction of multiple ordnance magazines, parking areas, access road, and supporting appurtenances	--[b]	2009
P-719V	Construction of laboratory facilities, administrative offices, and parking area	250	2009
P-732V	Renovation of Michelson Laboratory (Building 00005)	450	2009
P-745V	Construction of Weapons and Armament Technology Center	678	2007
P-747V	Construction of a public works warehouse and fenced compound	--	2010
P-749V	Construction of a missile fuze test facility Renovation of Buildings 10170 and 10173 (China Lake Propulsion Lab)	57	2008
P-754V	Renovations of Buildings 01028, 01025, 02477, and 20210	84	2007
P-755V	Renovations of Buildings 00001, 00466, and 31567 Construction of a Support Equipment Storage Facility/Support Equipment Storage Yard	80	2007
P-759V	Renovations of three buildings previously used as general bulk warehouses	--	2010
P-777V	Construction of a Weapons Dynamic Research, Development, Test, and Evaluation (RDT&E) center	--	2010
P-778V	Construction of a medium-weight shipboard shock environmental testing facilities	--	2010
	TOTAL	**1,796**	

Notes:
Shaded rows represent BRACON projects that would increase the number of personnel.
[a] Refers to the Fiscal Year of implementation.
[b] P-712V would result in no additional personnel but would result in an increase of 12 trucks visiting the site daily.

4.7.2 Proposed Action

4.7.2.1 Impacts

Intersection Analysis

Table 4.7-3 displays the LOS analysis results for the study intersections under the near-term baseline and near-term with project conditions. As shown in the table, with the addition of the project traffic, all study intersections would operate at LOS C or better except for the following intersections:

- Lauritsen Road and Sandquist Road (LOS E in the morning peak hour); and
- East Inyokern Road and Bullard Road (LOS F in the morning peak hour, LOS D in the midday peak hour, and LOS E in the evening peak hour).

It should be noted that the Lauritsen Road and Sandquist Road intersection would decrease to LOS E during the morning peak hour with the addition of traffic from the Proposed Action. At the East Inyokern Road and Bullard Road intersection, traffic operations decrease to an unacceptable LOS for all peak hours. It should be noted that the unacceptable LOS is related to the minor street approach on Bullard Road because vehicles would have to wait longer to find gaps before turning onto East Inyokern Road.

Roadway Segment Analysis

Table 4.7-4 displays the roadway segments analysis under the near-term baseline conditions and near-term with project activity conditions. As shown in the table, all roadway segments in the study area would function at LOS C or better.

4.7.2.2 Mitigation Measures

Two intersections would function at LOS D or worse during the peak periods if the Proposed Action is implemented:

- Lauritsen Road/Sandquist Road; and
- East Inyokern Road/Bullard Road.

At the Lauritsen Road/Sandquist Road intersection, the movement that causes the intersection to operate at LOS E during the morning peak hour is the westbound movement. The proposed mitigation for the Lauritsen Road/Sandquist Road intersection would consist of the following improvement:

- Separating the shared westbound left-through lane into an exclusive left-turn and through lane.

With this improvement, the Lauritsen Road/Sandquist Road intersection would operate at LOS D. Although this mitigation does not improve the operations of the minor street (Lauritsen Road) to LOS C or better, the delay and queue length are improved. In order to achieve LOS C or better, a traffic signal would be required.

TABLE 4.7-3

NEAR TERM WITH PROJECT

PEAK-HOUR INTERSECTION LOS SUMMARY

	INTERSECTION	PEAK HOUR	2011 BASELINE		2011 BASELINE WITH PROJECT		
			DELAY (a)	LOS (b)	DELAY (a)	LOS (b)	Δ IN DELAY
1	Lauritsen Rd & Sandquist Rd	AM	**26.6**	**D**	**38.3**	**E**	11.7
		MD	14.9	B	16.2	C	1.3
		PM	16.2	C	17.1	C	0.9
2	Nimitz Ave & Lauritsen Rd	AM	11.7	B	13.5	B	1.8
		MD	10.5	B	11.1	B	0.6
		PM	12.2	B	13.2	B	1.0
3	Blandy Ave & Knox Rd	AM	10.5	B	18.0	C	7.5
		MD	9.0	A	10.7	B	1.7
		PM	9.7	A	12.3	B	2.6
4	Blandy Ave & Lauritsen Rd	AM	8.6	A	8.8	A	0.2
		MD	8.9	A	8.8	A	-0.1
		PM	9.5	A	10.0	A	0.5
5	Blandy Ave & N Richmond Rd	AM	8.4	A	8.3	A	-0.1
		MD	8.2	A	8.0	A	-0.2
		PM	8.2	A	8.1	A	-0.1
6	E Inyokern Rd & Bullard Rd	AM	**37.4**	**E**	**75.5**	**F**	38.1
		MD	20.3	C	**30.6**	**D**	10.3
		PM	18.4	C	**44.9**	**E**	26.5
7	E Inyokern Rd & Knox Rd	AM	4.0	A	6.0	A	2.0
		MD	4.3	A	6.0	A	1.7
		PM	4.1	A	4.5	A	0.4
8	E Inyokern Rd & Lauritsen Rd	AM	7.9	A	8.6	A	0.7
		MD	7.8	A	8.6	A	0.8
		PM	8.1	A	9.2	A	1.1
9	E Inyokern Rd & N Richmond Rd	AM	8.5	A	11.0	B	2.5
		MD	8.7	A	9.7	A	1.0
		PM	9.7	A	10.7	B	1.0

Notes:

Bold values indicate intersections operating at LOS D, E, or F.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the *2000 Highway Capacity Manual* and performed using Synchro 6.0.

TABLE 4.7-4

NEAR TERM WITH PROJECT

ROADWAY SEGMENT LOS SUMMARY

ROADWAY SEGMENT	ROADWAY CLASSIFICATION	CAPACITY	2011 BASELINE PLUS PROJECT		
			ADT	V/C RATIO (a)	LOS
Lauritsen Rd					
west of Sandquist Rd	2 Lane Collector	10,000	2,353	0.24	A
Security Access Gate to Blandy Ave	2 Lane Collector	10,000	2,357	0.24	A
Blandy Ave to E Inyokern Rd	2 Lane Collector	10,000	2,233	0.22	A
Blandy Ave					
Bullard Rd to Knox Rd	2 Lane Collector	10,000	1,448	0.14	A
Knox Rd to Lauritsen Rd	2 Lane Collector	10,000	2,473	0.25	A
Lauritsen Rd to N Richmond Rd	2 Lane Collector	10,000	2,824	0.28	A
E Inyokern Rd					
Main Gate to Bullard Rd	4 Lane Collector	30,000	12,442	0.41	B
Bullard Rd to Knox Rd	4 Lane Collector	30,000	11,151	0.37	B
Knox Rd to Lauritsen Rd	2 Lane Collector	10,000	3,428	0.34	A
Lauritsen Rd to N Richmond Rd	2 Lane Collector	10,000	3,194	0.32	A
Sandquist Rd					
Security Access Gate to E Inyokern Rd	2 Lane Collector	10,000	5,200	0.52	B
Bullard Rd					
Blandy Ave to E Inyokern Rd	2 Lane Collector	10,000	2,303	0.23	A
Knox Rd					
Nimitz Ave to Blandy Ave	2 Lane Collector	10,000	3,610	0.36	A
Blandy Ave to E Inyokern Rd	2 Lane Collector	10,000	5,838	0.58	C
N Richmond Rd					
Blandy Ave to E Inyokern Rd	2 Lane Collector	10,000	3,599	0.36	A
just north of Richmond Gate	2 Lane Collector	10,000	5,032	0.50	B

Notes:

(a) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

However, this location does not meet any of the warrants needed for a traffic signal. As such, a traffic signal would not be recommended.

At the East Inyokern Road/Bullard Road intersection, the movements that cause the intersection to operate at LOS D or worse in all peaks are the northbound and southbound movements of Bullard Road. Vehicles traveling along Bullard Road would have to stop and wait for an acceptable gap before turning on East Inyokern Road. The proposed mitigation for the East Inyokern Road/Bullard Road intersection would consist of the following improvements:

- Converting the inside eastbound through-lane into a left-turn pocket;
- Separating the southbound shared left-through-right lane into an exclusive left-turn and right-turn lane;
- Restricting the northbound approach along Bullard Road to right-in, right-out movements only by constructing a "pork chop" raised median; and
- Adding an acceleration lane for the southbound to eastbound movement along East Inyokern Road.

With these improvements, the East Inyokern Road/Bullard Road intersection would operate at LOS C or better in all peak periods. It should be noted that the vehicles that would be restricted on the south leg of Bullard Road would be able to access the parking lot via Byrd Street, which is located farther east of this intersection.

All intersections on NAWS China Lake would therefore be operating at LOS C or better in all peak periods, except one intersection operating at LOS D during the morning peak period. Consequently, given that only one intersection would be operating at LOS C, at only one level below LOS C and for only part of the day, and given that this intersection could be improved to at least LOS C through use of a traffic signal if desired, any impacts the Proposed Action would have on traffic and circulation would be mitigated to below a level of significance. With respect to any off-base traffic-related impacts, the traffic study performed prior to preparation of the EA indicates that, as a result of the influx of new workers that would be associated with the Proposed Action, queues could form at gates entering NAWS China Lake during morning peak hour, as follows: 13 vehicles at the Sandquist Gate; 6 vehicles at the Richmond Gate; and 5 vehicles at the Inyokern Gate. Vehicles would potentially wait in such queues up to approximately one minute, which would represent an increase in time required to access the installation compared to current conditions. However, the increased wait time would be relatively minimal, and the traffic study also indicates that adequate storage exists for such queues, meaning that any increase in queues would not impact flow on or in surrounding streets and intersections. Therefore, traffic flowing on roads adjacent to the installation without entering the installation would not be impacted by any increase in vehicles entering NAWS

China Lake as a result of the Proposed Action, and would either not be impacted or at most minimally impacted by any increase in vehicles exiting NAWS China Lake as a result of the Proposed Action, since roads adjacent to the installation have greater capacity than roads on/exiting the installation, and since the Navy does not anticipate that any queues will form in exiting the installation as a result of the Proposed Action. Additionally, as noted elsewhere in the EA (see 3.6.1), overall population in the vicinity of NAWS China Lake has decreased substantially since 1990, indicating that existing roadways and other infrastructure near the installation are capable of handling an overall increase in traffic associated with an influx of new workers/residents. Therefore, the Proposed Action would not significantly impact traffic or circulation outside NAWS China Lake.

4.7.3 Alternative 1 - Redesign of BRACON P745V

4.7.3.1 Impacts

Impacts from the implementation of Alternative 1 would be similar to those resulting from the implementation of the Proposed Action, i.e., without mitigation the intersections of Lauritsen Road/Sandquist Road and East Inyokern Road/Bullard Road would operate at LOS D.

4.7.3.2 Mitigation Measures

Implementation of Alternative 1 would not result in any impacts different from those of the Proposed Action, and therefore no additional mitigation measures are proposed.

4.7.4 Alternative 2-BRACONS P-745V and P719V Combined

4.7.4.1 Impacts

Impacts from the implementation of Alternative 2 would be similar to those resulting from the implementation of the Proposed Action, i.e., without mitigation the intersections of Lauritsen Road/Sandquist Road and East Inyokern Road/Bullard Road would operate at LOS D.

4.7.4.2 Mitigation Measures

Implementation of Alternatives 1 or 2 would not result in additional impacts than would be experienced under the Proposed Action, therefore no additional mitigation measures are proposed.

4.7.5 No Action Alternative

4.7.5.1 Impacts

Under the No Action Alternative, the realignment of personnel and functions to NAWS China Lake would not occur and the 14 BRACONs would not be constructed. Implementation of the No Action Alternative would not introduce additional personnel and vehicles onto the NAWS China Lake roadway system. No impacts to traffic would occur.

4.7.5.2 Mitigation Measures

Implementation of the No Action Alternative would not result in significant impacts, and therefore, no mitigation measures are proposed.

4.8 Air

4.8.1 Approach to Analysis

The analysis of potential impacts to air quality considers whether implementation of the Proposed Action or an alternative would create any of the following conditions:

- Cause a net increase in pollutant or pollutant precursor emissions that exceeds the CAA conformity rule *de minimis* levels or other established impact significance thresholds;
- Produce emissions that would cause or contribute to new or more frequent violations of state or federal ambient air quality standards;
- Create new land uses that would expose people to localized (as opposed to regional) air pollutant concentrations that violate state or federal ambient air quality standards;
- Conflict with specific air quality management plan policies or programs; or
- Foster or accommodate growth and development in excess of levels assumed by the applicable air quality management plan.

Air quality issues associated with implementation of the Proposed Action and the alternatives have been evaluated in terms of predicted changes in air pollutant emissions.

4.8.2 Proposed Action

Emissions Evaluation

NAWS China Lake is located within an area classified under the federal CAA as "non-attainment" for PM_{10}. The General Conformity Rule applies to actions that generate emissions in non-attainment or maintenance areas. Therefore, the General Conformity Rule is applicable at the project location.

The General Conformity Rule requires analysis of emissions of criteria pollutants and their precursors for which an area is designated non-attainment or that are covered by a maintenance plan. Each alternative would include construction equipment and mobile sources that would emit particulate matter. Therefore, the General Conformity Rule is applicable to the project emissions of PM_{10}. In addition, since other districts within the region are in non-attainment for ozone and the region has historically had non-attainment status for the 1-hour O_3 standard, this analysis will also compare VOC and NO_X emissions to the General

Conformity Rule *de minimis* levels to ensure no impact of regional O_3 related SIPs.

Particulates (dust, PM_{10}, and $PM_{2.5}$) are the pollutants of greatest concern with respect to construction activities. PM_{10} emissions can result from a variety of activities, including demolition, excavation, grading, vehicle travel on paved and unpaved surfaces, and vehicle and equipment exhaust. Construction-related emissions, particularly site grading, can substantially increase localized concentrations of dust and PM_{10}. Particulate matter emissions from construction can lead to adverse health effects and nuisance concerns, such as reduced visibility. Dust control procedures would be implemented to reduce PM_{10} emissions from construction. $PM_{2.5}$ emissions are included within the PM_{10} analysis below. However, since the China Lake area is in attainment for $PM_{2.5}$, $PM_{2.5}$ is not addressed specifically within this analysis, or within the RONA included in Appendix C.

In addition to new construction, the action includes the renovation of several structures. The renovations may require the abatement of ACM or LBP. This abatement would be conducted in accordance with applicable state and federal regulations for the abatement, handling, and disposal of such materials, which would minimize potential for release to the atmosphere. Therefore, it is assumed that such emissions would not be significant.

Methodology

The USEPA has determined specific federal actions, or portions thereof, to be exempt from a formal conformity determination. Actions are exempt where the total net increase of all reasonably foreseeable direct and indirect emissions: (1) would be less than specified emission rate thresholds, known as *de minimis* limits, and (2) would be less than 10 percent of the area's annual emission budget. Therefore, total annual emissions resulting from project construction will be calculated to determine if the project is exempt and therefore would have no impacts.

Emissions have been calculated using emission rates and assumptions from Air Quality Thresholds of Significance (Sacramento Metropolitan Air Quality Management District [SMAQMD] 1994), the CEQA Air Quality Handbook, (SMAQMD April 1993), and Compilation of Air Pollutant Emission Factors (USEPA AP-42). See Appendix D for a detailed description of the emission assumptions and calculations. Estimated building square footages were based on data provided in Chapter 2. Assumptions related to paved areas and disturbed acreage was assumed using values also provided in Chapter 2.

Emission Calculations for FY 2007

Construction activities that are planned for FY 2007 include BRACONs P-745V, P-754V, and 755V. These BRACONs involve the construction of a one-story Weapons and Armament Technology Center surrounded by new lawn, sidewalks, and parking areas; renovation of several buildings to improve operational

efficiency, and the construction of a Support Equipment Storage Facility. For purposes of this air quality evaluation, it is assumed that 22,147 square meters (238,397 square feet) of space would be constructed or renovated, 2,694 square meters (29,000 square feet) would be paved, and 4.85 hectares (12 acres) would be disturbed. Appendix D provides a detailed breakdown and the assumptions made related to the assessment of air emissions from the construction of these facilities. Emission totals are summarized in Table 4.8-1.

Table 4.8-1 Construction Emissions: 2007

Activity	VOCs	NO_X	SO_2	CO	PM_{10}
Grading Equipment	0.45	4.23	0.28	0.91	0.36
Material Hauling	0.64	9.32	0.62	2.02	0.66
Fugitive Dust Emissions	0.00	0.00	0.00	0.00	4.82
Total Emissions from Construction (Tons)	**1.09**	**13.54**	**0.90**	**2.93**	**5.83**

Key:
CO = carbon monoxide.
NO_X = nitrogen oxides.
PM_{10} = particulate matter of less than 10 microns.
SO_2 = sulfur dioxide.
VOCs = volatile organic compounds.

Emission Calculations for FY2008

Construction activities that are planned for FY 2008 include BRACONs P-701V, P-710V, and 749V. These BRACONs involve the construction of a Type II modular hangar, concrete parking apron, taxiway, and associated support services, a hardware-in-the-loop system for the Modeling and Simulation Branch, a fuze test facility, and renovation of buildings in the China Lake Propulsion Laboratory. For purposes of this air quality evaluation, it is assumed that 9,547 square meters (102,765 square feet) of space would be constructed or renovated, 106,940 square meters (1,151,100 square feet) would be paved or surfaced, and 11.74 total hectares (29 total acres) would be disturbed. Appendix D provides a detailed breakdown and assumptions related to the assessment of air emissions from the construction of these facilities. Emission totals are summarized below in Table 4.8-2.

Table 4.8-2 Construction Emissions: 2008

Activity	VOCs	NO_X	SO_2	CO	PM_{10}
Grading Equipment	1.05	9.91	0.66	2.14	0.83
Material Hauling	1.51	21.84	1.45	4.73	1.55
Fugitive Dust Emissions	0.00	0.00	0.00	0.00	9.39
Total Emissions from Construction (Tons)	**2.56**	**31.75**	**2.11**	**6.87**	**11.78**

Key:
CO = carbon monoxide.
NO_X = nitrogen oxides.
PM_{10} = particulate matter of less than 10 microns.
SO_2 = sulfur dioxide.
VOCs = volatile organic compounds.

Emission Calculations for FY2009

Construction activities that are planned for FY 2009 include BRACONs P-712V, P-719V, and P-732V. These BRACONs involve the construction of an Ordnance Storage Facility with associated access road and parking areas, of laboratory and administrative space, and associated parking areas, and renovation of buildings for use as the Weapons and Armaments functions. For purposes of this air quality evaluation, it is assumed that 27,397 square meters (294,901 square feet) of space would be constructed or renovated, 929 square meters (10,000 square feet) would be paved or surfaced, and 5.6 hectares (14 acres) would be disturbed. Appendix D provides a detailed breakdown and assumptions related to the assessment of air emissions from the construction of these facilities. Emission totals are summarized below in Table 4.8-3.

Table 4.8-3 Construction Emissions: 2009

Activity	VOCs	NO_X	SO_2	CO	PM_{10}
Grading Equipment	0.51	4.82	0.32	1.04	0.41
Material Hauling	0.73	10.62	0.71	2.30	0.75
Fugitive Dust Emissions	0.00	0.00	0.00	0.00	5.29
Total Emissions from Construction (Tons)	**1.24**	**15.44**	**1.03**	**3.34**	**6.45**

Key:
CO = carbon monoxide.
NO_X = nitrogen oxides.
PM_{10} = particulate matter of less than 10 microns.
SO_2 = sulfur dioxide.
VOCs = volatile organic compounds.

Emission Calculations for FY 2010

Construction activities that are planned for FY 2010 include BRACONs P-747V, P-704V, P-759V, P-777V, and P-778V. These BRACONs involve the construction of a public works warehouse, a W&ARD&AT&E Center, Shipboard Shock Test Facility, associated access roads and parking areas, and additional renovation of buildings for Weapons and Armaments functions. For purposes of this air quality evaluation, it is assumed that 7,760 square meters (83,535 square feet) of space would be constructed or renovated, 464 square meters (5,000 square feet) would be paved or surfaced, and 1.62 total hectares (4 total acres) would be disturbed. Two small structures would also be demolished in FY 2010. Appendix D provides detailed breakdown and assumptions related to the assessment of air emissions from the construction of these facilities. Emission totals are summarized below in Table 4.8-4.

Table 4.8-4 Construction Emissions: 2010

Activity	VOCs	NO_X	SO_2	CO	PM_{10}
Grading Equipment	0.16	1.48	0.10	0.32	0.12
Material Hauling	0.23	3.26	0.22	0.71	0.23
Fugitive Dust Emissions					2.60

Table 4.8-4 Construction Emissions: 2010

Activity	VOCs	NO_X	SO_2	CO	PM_{10}
Total Emissions from Construction (Tons)	**0.38**	**4.74**	**0.32**	**1.03**	**2.95**

Key:
CO = carbon monoxide.
NO_X = nitrogen oxides.
PM_{10} = particulate matter of less than 10 microns.
SO_2 = sulfur dioxide.
VOCs = volatile organic compounds.

Final Annual Emissions

The permanent changes that would result in increased air emissions include the operation of privately owned vehicles (POVs), operation of one track loader, heating and cooling of new built space, and new aircraft emissions. Emissions from automobiles were calculated using data collected for the NAWS China Lake Traffic Impact Study (U.S. Navy 2006), and built space emissions estimates were based on new built space, average natural gas use for built space, and USEPA emission factors. Emissions from aircraft operations; including the increased arrivals, departures, and maintenance run up testing of C-130 and P-3 aircraft (Appendix D) were calculated using data from the *Final Environmental Impact Statement for the Proposed Military Operations Increases and Implementation of Associates Comprehensive Land Use and Integrated Natural Resources Management Plans* (U.S. Navy 2004). The final annual emissions are summarized in Table 4.8-5. Since the full implementation of the relocation would not occur until after construction activities are complete, this increase in emissions would occur annually after 2010.

Table 4.8-5 Estimated Final Annual Increases in Emissions

Activity	VOCs	NO_X	SO_2	CO	PM_{10}
POV	9.8	10.6	0.0	115.21	0.19
Track loader	0.08	0.83	0.04	0.45	0.04
Heating and Cooling	0.09	1.45	0.01	0.62	0.12
New aircraft emissions	**8.59**	**7.10**	**0.41**	**12.63**	**11.76**
Total Emissions (Tons)	**18.53**	**20.03**	**0.46**	**128.9**	**12.11**

Key:
CO = carbon monoxide.
NO_X = nitrogen oxides.
PM_{10} = particulate matter of less than 10 microns.
POV = privately owned vehicle.
SO_2 = sulfur dioxide.
VOCs = volatile organic compounds.

4.8.2.1 Impacts

Total annual emissions resulting from project construction within each year of activity have been estimated. The highest annual emissions of PM_{10}, VOC, and NO_X would occur in FY 2008 (11.78 tons per year, 2.56 tons per year, and 31.75 tons per year, respectively). Once construction is complete, final annual emissions

are estimated to result in an increase in annual emissions as shown in Table 4.8-5. These annual emission increases would not result in an impact to air quality.

Since no calendar year would see an annual emission of PM_{10} that exceeds the 100 TPY *de minimis* threshold, the project is exempt from the General Conformity regulation and does not require a Conformity Determination. Additional detail related to this is found in Appendix C in the RONA.

For P-701V, expected combined fuel use of the four new VX-30 aircraft ranges from 4.9 to 6.4 million liters (1.3 to 1.7 million gallons) per year of JP 8 and would not exceed the NAWS fuel farm permit limit of 4.5 million liters (12 million gallons) per year. Maintenance operations for these aircraft would be consistent with established airfield procedures and would continue to use NESHAP-compliant solvents for all related operations. These operations would be supported with exiting air/ground equipment.

For P-749V, test events at this facility are not expected to result in the generation of additional air pollution or hazardous wastes.

For P-712V, a modest increase in air pollution emissions is expected as a result of increased forklift operations associated with the movement of ordinance items. There would be no other operational impacts to air quality from any of the BRACONs.

For P-777, test events at this facility are not expected to result in the generation of additional air pollution.

For P-778, test events at this facility are not expected to result in the generation of additional air pollution.

Air quality impact-avoidance and minimization measures for the Proposed Action would be focused on controlling and reducing air quality impacts from construction-related activities. The following mitigations should be employed to reduce potential particulate emissions:

- Using water for controlling dust during construction operations, grading roads, or clearing land;
- Applying water on dirt roads, materials stockpiles, and other surfaces that could create airborne dust;
- Installing and using hoods, fans, and fabric filters to enclose and vent the handling of dusty material, including implementing of adequate containment methods during sandblasting or other similar operations;
- Covering open equipment for conveying or transporting material likely to create objectionable air pollution when airborne; and

- Promptly removing spilled or tracked dirt or other materials from paved streets.

4.8.2.2 Mitigation Measures

Since there would be no significant impacts to air quality, no mitigation measures would be proposed.

4.8.3 Alternative 1: Redesign of BRACON P-745V

4.8.3.1 Impacts

Under this alternative, construction activities would be reduced because implementation would involve smaller projects and the use of existing facilities. It is assumed that air emissions under this alternative would be similar or less than those described under the Proposed Action, and therefore is exempt from the General Conformity regulation and does not require a Conformity Determination.

4.8.3.2 Mitigation Measures

Implementation of Alternative 1 would not result in impacts other than those of the Proposed Action, and therefore no mitigation measures would be proposed.

4.8.4 Alternative 2: BRACONs P-745V and P-719V Combined

4.8.4.1 Impacts

Under this alternative, construction activities would be reduced because implementation would involve smaller projects and the use of existing facilities. It is assumed that air emissions under this alternative would be similar or less than those described under the Proposed Action, and therefore is exempt from the General Conformity regulation and does not require a Conformity Determination.

4.8.4.2 Mitigation Measures

Implementation of Alternative 2 would not result in additional impacts other than those of the Proposed Action, and therefore no mitigation measures would be proposed.

4.8.5 No Action Alternative

4.8.5.1 Impacts

Under this alternative, the BRAC recommendations would not be implemented and the 14 BRACONs would not be constructed. Thus, there would be no impacts to air quality from construction. Since air emissions under this alternative would be less than those described under the Proposed Action, it would also be exempt from the General Conformity regulation and does not require a Conformity Determination.

4.8.5.2 Mitigation Measures

Implementation of the No Action Alternative would not result in any significant impacts, therefore, no additional mitigation measures are proposed.

4.9 Noise

4.9.1 Approach to Analysis

Factors considered in identifying the significance of potential effects included a determination of whether a Navy activity would generate sufficient noise to adversely affect on- and off-Station noise-sensitive receptors.

4.9.2 Proposed Action

4.9.2.1 Impacts

Construction of the Proposed Action would take place during daytime hours and would result in increased ambient daytime noise levels in the vicinity of the project site. However, this noise would be temporary and occur only during construction. The various BRACONs identified in the Proposed Action would occur at a variety of locations and times between FY 2007 and FY 2010. Construction equipment noise levels vary widely as a function of the equipment used and the activity level or duty cycle (Table 4.9-1). In a typical construction project, the loudest short-term noise levels – for a few minutes during each cycle – are those of earth-moving equipment (i.e., dump trucks) under full load, which are on the order of 91 dBA at a distance of 15 meters (50 feet) from the source. Construction equipment noise is usually considered a point source, with attenuation within short distances at a rate of 6 dBA per doubling of distance (e.g., a noise level of 90 dBA at 15 meters [50 feet] will be 84 dBA at 30 meters [100 feet], 78 dBA at 60 meters [200 feet], and 72 dBA at 120 meters [400 feet]). The nature of construction projects, with equipment moving from one point to another, work breaks, and idle time, is such that long-term noise averages are less than short-term noise levels.

In addition to grading and hauling equipment, activities include the demolition of some concrete sidewalks and minor roadways. Pavement breaking requires the use of hoe-rams, jackhammers, and similar tools. Impact equipment generally produces louder maximum noise levels than diesel engines, and the character of the noise is different.

Table 4.9-1 Construction Equipment Noise Levels

Construction Equipment	SPL At 15 meters (50 Feet) (dBA)
Jack Hammer	88
Concrete Joint Cutter	78
Bulldozer	80
Front End Loader	79
Truck	91

Source: USEPA 1971.
Key: SPL = Sound pressure level.

Although the Navy does not have standards for noise impacts during construction, a noise level exceeding 80 dBA L_{eq} is often considered a threshold of significance by Federal agencies such as the Federal Transportation Administration (FTA

2006) and is incorporated herein by the Navy not as a standard indicating significance *per se* but as a screening criterion tied to discussion of potentially sensitive receptors. Primary sensitive receptors to noise for these construction projects would be individuals working on such projects and other individuals (military personnel, DoD civilians, and contractors) working in relative proximity to such projects on NAWS China Lake. While a number of construction-related activities associated with the Proposed Action exceed 80 dBA at 15 meters (50 feet), these activities would occur on an intermittent basis, and, as noted above, average sound levels during construction should be significantly lower. Individuals working on these construction projects would be equipped with appropriate protective gear and would follow appropriate occupational health and safety guidance concerning exposure to noise. Additionally, with respect to individuals working in the vicinity in non-construction capacities, noise levels associated with construction activities would be experienced on a temporary and intermittent basis. Moreover, such construction-related noise levels are expected to attenuate prior to being experienced by such individuals—based on distance from the noise-generating activity and the fact that non-construction personnel will be inside other structures the majority of the time—so that dBA levels would then be well below potentially significant levels. Other potential sensitive receptors would be avian and mammalian species in relative proximity to construction projects; however, due to the likely non-occurrence or limited occurrence of species at the various project sites, it is likely that noise associated with the Proposed Action would adversely affect at most individual members of such species, and that any such adverse effect would be less than significant. It is unlikely that any noise-related impact could rise to the level of significance with respect to a species *per se*.

Noise would be generated off-site by construction vehicle traffic, including the delivery of equipment and materials, the removal of spoils, and the crew commuting to and from work. The disturbances would be intermittent and would occur only during selected construction activities. Therefore, the impact would be less than significant.

With respect to potential noise impacts generated by operations after construction has been completed, C-130s and P-3s are turboprop aircraft. Per noise modeling guidance provided in OPNAVINST 11010.36A and noise impact analysis contained in the Station's 2004 Final EIS, the projected operations of these aircraft are not expected to significantly impact the Station's operational noise environment either on- or off-Station.

4.9.2.2 Mitigation Measures

Implementation of the Proposed Action would not result in significant impacts to noise, therefore, no mitigation measures are proposed.

4.9.3 Alternative 1: Redesign of BRACON P-745V

4.9.3.1 Impacts

With implementation of Alternative 1, noise disturbances would be intermittent and would occur only during selected construction activities. Impacts would not differ from the Proposed Action. Therefore, the impact would be less than significant.

4.9.3.2 Mitigation Measures

Implementation of Alternative 1 would not result in significant impacts to noise and therefore no mitigation measures are proposed.

4.9.4 Alternative 2: BRACONs P-745V and P-719V Combined

4.9.4.1 Impacts

For this alternative, noise disturbances would be intermittent and would occur only during selected construction activities. Impacts would not differ from the Proposed Action. Therefore, the impact would be less than significant.

4.9.4.2 Mitigation Measures

Implementation of Alternative 2 would not result significant impacts to noise, and therefore no mitigation measures are proposed.

4.9.5 No Action Alternative

4.9.5.1 Impacts

Under the No Action Alternative, the realignment of personnel and functions to NAWS China Lake would not take place. No construction activity supporting the BRACONs would occur; therefore, no impacts to noise would occur.

4.9.5.2 Mitigation Measures

Implementation of the No Action Alternative would not result in any significant impacts, therefore, no mitigation measures are proposed.

4.10 Aesthetics

4.10.1 Approach to Analysis

The assessment of aesthetic impacts focuses on how the Proposed Action sites would appear once construction and renovations are completed. Although it is likely that the proposed construction at the BRACON sites may contrast with their surroundings during construction, this would be a short-term effect and would not constitute an adverse aesthetic impact.

4.10.2 Proposed Action

4.10.2.1 Impacts

Mainsite LMU

Development of the Mainsite LMU for the Proposed Action would consist of the demolition, renovation, and construction of several buildings within the LMU, as described in detail in Chapter 2. The new buildings also would include new landscaping and recreation areas. As such, the new construction would be

expected to be compatible with the overall appearance of the existing facilities at the Mainsite LMU and no adverse visual impacts would occur. New facilities would be visually compatible with surrounding buildings in the vicinity of the proposed project locations.

Because the Mainsite LMU is already developed, the new laboratories and research facilities would not block or obstruct existing views of scenic areas. The proposed project would not obstruct designated scenic viewsheds and public views of areas of natural beauty. The proposed size, scale, and bulk of the development are not substantially different from surrounding uses within the Mainsite LMU. Therefore, no adverse impacts on aesthetics would occur.

Armitage Airfield LMU
Development of the Armitage Airfield LMU for the Proposed Action would consist of the renovation and construction of buildings (including an aircraft hanger) within the LMU, as described in detail in Chapter 2. The new buildings also would include new landscaping and, as such, the new construction would be expected to be compatible with the overall appearance of the existing facilities at the Armitage Airfield LMU and no adverse visual impacts would occur. New facilities would be visually compatible with surrounding buildings in the vicinity of the Proposed Action locations.

Since Armitage Airfield LMU is already developed, the new hanger, laboratories and research facilities would not block or obstruct existing views of scenic areas. The Proposed Action site would not obstruct designated scenic viewsheds and public views of areas of natural beauty. The proposed size, scale, and bulk of the development are not substantially different from surrounding uses within Armitage Airfield LMU. Therefore, no adverse impacts on aesthetics would occur.

4.10.2.2 Mitigation Measures
No significant impacts would occur; therefore, no mitigation measures are proposed.

4.10.3 Alternative 1-Redesign of BRACON P745V
4.10.3.1 Impacts
While Alternative 1 would result in the relocation of the Weapons and Armament Technology Center to a location closer to the proposed P-719V facility, the impact on visual resources would not be significant.

4.10.3.2 Mitigation Measures
Implementation of Alternative 1 would not result in any impacts different from those of the Proposed Action, and therefore no mitigation measures are proposed.

4.10.4 Alternative 2-BRACONs P745V and P719V Combined

4.10.4.1 Impacts

While Alternative 2 would result in the combined housing of the Weapons and Armament Technology Center with P-719V facilities within the same structure, the impacts on visual resources would not be significant. No additional impacts to vistas other than those proposed under the Proposed Action would occur.

4.10.4.2 Mitigation Measures

Implementation of Alternative 2 would not result in any impacts other than those of the Proposed Action, and therefore no mitigation measures are proposed.

4.10.5 No Action Alternative

4.10.5.1 Impacts

Under the No Action Alternative, the realignment of personnel and functions to NAWS China Lake would not take place. The 14 BRACONs would not be constructed. Thus, there would be no changes to the existing visual character of either the Mainsite or Armitage Airfield LMU. No viewsheds would be obstructed and the existing viewsheds would remain in their current state. No impacts on aesthetics would occur as a result of the No Action Alternative.

4.10.5.2 Mitigation Measures

Implementation of the No Action Alternative would not result in significant impacts, and therefore no mitigation measures are proposed.

4.11 Services and Utilities

4.11.1 Approach to Analysis

This section addresses the potential environmental consequences for police protection, fire protection, schools, water, sewer, and solid waste that would result from implementation of the proposed project and the No Action Alternative. Impacts and mitigation measures are discussed under each of these subheadings.

Impacts associated with utilities and public services generally are related to changes in the supply or demand of a particular resource. The supply of a utility or public service also is referred to as its capacity. As long as the capacity of a particular utility or service is higher than the demand for that resource, no significant impact is deemed to occur. However, if the demand exceeds the capacity or if the demand is increased beyond the resource's projected rate of increase, a significant impact would occur, and the significance of the impact is determined based on the degree to which the capacity is strained.

When evaluating impacts on a utility or service, consideration is given to whether or not implementing one of the alternatives would result in either:

- A violation of federal standards or requirements that regulate a public utility system; or

- An increase in demand that exceeds the utility system's or public service's capacity and necessitates a substantial expansion, additional facilities, or increased staffing levels.

4.11.2 Proposed Action

4.11.2.1 Impacts

Police Protection

The Proposed Action would not result in an increased demand for military police services at the BRACON sites located at the Mainsite and Armitage Airfield LMUs. Regular military police patrols would continue to patrol both areas. However, with the additional personnel and buildings additional emergency calls would likely be generated, which would be accommodated by the Military Police. Typical Military Police emergency and non-emergency response types would be maintained, and a diminished level or quality of police protection services would not be expected. Therefore, impacts on police protection at NAWS China Lake are not considered to be adverse. The expected increase in population in communities near NAWS China Lake as a result of the Proposed Action could result in an increased demand for off-Station police services; however, any such increase is not expected to significantly impact the communities' overall ability to provide such services, since even maximum potential population increases would be expected to raise the actual population only 5 percent above 1990 levels (see Section 4.6.2.1).

Fire Protection

Development of the Proposed Action would result in an increased demand for fire protection at the NAWS due to the construction of additional buildings. Because the site is under exclusive federal jurisdiction, fire service would continue to be provided by the Fire Department at China Lake. Project design features that would ensure that fire hazards are minimized include:

- Maintenance of mandatory fire flow requirements of 32 liters per second (8 gallons per second) for one-story units and 47 liters per second (12 gallons per second) for two-story units, with a sustained flow rate at this level for 90 minutes;

- Uniform Fire Code fire flow requirements of 5,678 liters per minute (1,500 gallons per minute) for at least 2 hours; and

- Current fire response times within NAWS China Lake would be maintained.

The expected increase in population in communities near NAWS China Lake as a result of the Proposed Action could result in an increased demand for off-Station fire protection services; however, any such increase is not expected to significantly impact the communities' overall ability to provide such services, since even maximum potential population increases would be expected to raise the actual population only 5 percent above 1990 levels (see Section 4.6.2.1).

Schools

The Proposed Action would result in an increased demand for school services at on-Station and/or off-Station elementary, middle, and high schools. However, any such increased demand is not expected to significantly impact the provision of school services overall. Information in the CLUMP EIS (U.S. Navy 2004) indicates that SSUSD facilities are significantly below capacity. Additionally, since realigning employees would be arriving in the area in phases, over a period of several years, on-Station and off-Station schools would likewise be able to accommodate the school-age children of such realigning employees over time. Any increased facilities costs would presumably be covered at least in part by increased tax revenues associated with local population growth and attendant economic activity.

Utilities

Water Supply

The Proposed Action would result in an increased demand for potable water. According to State of California water-use guidelines, a family of five uses approximately 1 acre-foot of water per year (Stoner 2007). Per State guidelines that would increase local water use by about 2,100 acre-feet per year if all 2,100 people that were being realigned as a result of the BRAC 2005 recommendations were married with three children. A reasonable estimate would be an increase of approximately 2,500 acre feet which would bring NAWS China Lake's annual total of water production in the valley to about 27,500 acre-feet. NAWS China Lake has produced as much as 30,000 acre-feet per year in the valley without adverse affects. Additionally, the total expected water use for P-701 (for personal use and aircraft wash-down requirements) is expected to be 755,190 liters (199,500 gallons) per year or approximately 2,896 liters (765 gallons) per day. This volume is well within the Station's water production and wastewater recycling capacity. No significant impact to water supplies would occur.

Sewer

The Proposed Action would result in an increased generation of sewage. Currently, the city of Ridgecrest wastewater treatment facility is at 68 percent of its capacity with approximately 25,000 people living within the City (Stoner 2007). An additional 2,100 personnel (8,400 including family members) coming to NAWS China Lake would not make a major impact on the efficiency of the wastewater treatment facility, nor would there be an immediate need for an increase in capacity at the existing wastewater treatment facility. Under California law, when a publicly owned wastewater treatment facility gets to 80 percent of plant capacity, it must submit an additional work plan to the regulating agencies. The City of Ridgecrest has already submitted its plan (Stoner 2007).

Electricity

The Proposed Action would result in an increased demand for electricity. Given that electrical demand is only at 50 percent of its capacity (see Section 3.11.4.3), the existing electrical system is more than capable of meeting the increased

demand for electricity according to preliminary utility studies conducted by the Navy (U.S. Navy 2005a). No impacts on electrical service would occur. No mitigation is required.

Natural Gas

The Proposed Action would result in an increased demand for natural gas. Given the current level of natural gas use versus the recent highs (see 3.11.4.4), the existing natural gas system is more than capable of meeting the increased amount of sewage according to preliminary utility studies conducted by the Navy (U.S. Navy 2005a). No impacts to the existing natural gas service would occur. No mitigation would be required.

Solid Waste

The Proposed Action would result in an increase in the production of solid waste. Specifically, BRACON P-701 would move approximately 182 personnel to NAWS China Lake with each person generating approximately 0.33 metric tons (0.36 short tons) per year for a total solid waste increase of 59.4 metric tons (65.5 short tons) per year. BRACON P-704V would cause an increase of up to 60 additional personnel that can be expected to increase solid waste generation by approximately 19.1 metric tons (21 short tons) per year. Operations associated with BRACON P-719V would involve up to 250 additional personnel. These personnel increases can be expected to increase solid waste generation of up to 81.6 metric tons (90 short tons) per year. BRACON P-732V operations would involve up to 450 additional personnel. These personnel increases can be expected to increase solid waste generation of up to 147 metric tons (162 short tons) per year. BRACON P-745V would result in an additional 680 people. That number of employees can be expected to generate approximately 222 metric tons (245 short tons) of solid waste per. BRACON P-755 will involve an increase of up to 40 additional personnel. The amount of solid waste generation for the personnel increase is expected to be approximately 13.1 metric tons (14.5 short tons) per year.

In total, the Proposed Action is expected to generate up to 542.2 metric tons (597.7 short tons) of solid waste per year once employees have been relocated (apart from any additional solid waste generated during preliminary construction and renovation work, which the Navy believes will be minimal relative to the annual figures discussed above). As of 1 January 2006 the Ridgecrest sanitary landfill has a lifespan of nine years (October 2015). The remaining capacity of the landfill is 612,570 metric tons (675,243 short tons). The Ridgecrest sanitary landfill annually receives 57,152.6 metric (63,000 short tons) (Ferguson 2007). The increased amount of waste generated on Station by the Proposed Action in the form of post-construction operations would be an increase of less than 1 percent of the current amount the landfill receives annually and would not constitute a significant impact. Off-Station solid waste generation would increase due to the general population increase in the NAWS China Lake area as a result of BRAC realignment. Realigned employees would generate additional solid

waste off Station as well as on Station, and family members of realigned employees would generate solid waste as well. Assuming that each of the maximum 2,100 realigning employees is accompanied by a spouse and two children, each such household would be expected to generate 5.6 kilograms (12.23 pounds) of solid waste per day (City of Los Angeles 2007), for a total estimated amount of 4,252 metric tons (4,687 short tons) per year, which, when combined with the estimated increase in on-Station solid waste, would represent an 8 percent increase in the amount of solid waste currently received at the Ridgrecrest Landfill and thus, would not represent a significant impact. The Navy further notes that increases in on- and off-Station solid waste associated with the arrival of realigned employees would not begin prior to 2007 and would phase in over time, so initial increases would likely represent a fraction of the estimated increase discussed herein, with the incremental growth up the total estimated increase.

4.11.2.2 Mitigation Measures

No significant impacts would occur, and therefore, no mitigation measures are proposed.

4.11.3 Alternative 1-Redesign of BRACON P745V

4.11.3.1 Impacts

While Alternative 1 would result in the relocation of the Weapons and Armament Technology Center closer to the proposed P-719V facility, the impact to public services and utilities would not be significant.

4.11.3.2 Mitigation Measures

Implementation of Alternative 1 would not result in any impacts other than those of the Proposed Action, and therefore no mitigation measures are proposed.

4.11.4 Alternative 2-BRACONs P-745V and P-719V Combined

4.11.4.1 Impacts

While Alternative 2 would result in the combined housing of the Weapons and Armament Technology Center with P-719V facilities within the same structure, the impacts to utilities would not be significant. No impacts to public services or utilities would occur as a result of Alternative 2.

4.11.4.2 Mitigation Measures

Implementation of Alternative 2 would not result in any impacts other than those of the Proposed Action, and therefore no mitigation measures are proposed.

4.11.5 No Action Alternative

4.11.5.1 Impacts

Under the No Action Alternative, the realignment of personnel and functions to NAWS China Lake would not take place. The 14 BRACON construction projects would not be implemented. The utilities and public services at NAWS China Lake would remain at their current levels. No increases in demands on utilities and services would result.

4.11.5.2 Mitigation Measures

Implementation of the No Action Alternative would not result in any significant impacts, and therefore, no mitigation measures are proposed.

4.12 Public Health and Safety

4.12.1 Approach to Analysis

Factors considered in determining whether an alternative would have a significant impact on public heath and safety include the extent or degree to which an action would significantly increase the risk to the health and safety of military personnel, the public, and property. The analysis of potential public health and safety impacts considers whether implementing an alternative would:

- Significantly increase flight safety hazards;
- Significantly increase the health and safety risks to Station and off-Station personnel or property; or
- Significantly increase safety hazards associated with explosives and ordnance use, and electromagnetic systems use.

Actions that significantly increase the hazard potential to personnel or property would be considered to have a significant impact. Actions that reduce the hazard potential to personnel or property would have a beneficial impact.

4.12.2 Proposed Action

4.12.2.1 Impacts

The BRACON sites are all on a military installation surrounded by compatible land uses. They are not open to the general public and this minimizes the potential for any members of the public to encounter health and safety hazards that would exist during construction activities. Nonetheless, operational safety procedures and precautions would be implemented to prevent potential injury such as exposure to hazardous materials or operations by workers and the public. Security fencing would be erected around the construction areas and appropriate signs would be posted to prevent unauthorized personnel from accessing the site. Operations would be contained within the restricted construction zone and would not conflict with safe public use of the surrounding areas.

Hazardous Waste

The Auto Hobby Shop, located in the southeastern corner of the proposed P-745V site, would be demolished to allow enough room for this project's parking lot. When the two buildings that make up the Auto Hobby Shop complex are demolished, disposal of construction materials containing LBP and non-friable asbestos would be required. Building materials contaminated with hazardous materials used for automobile maintenance (fuel, oil, grease, paints, etc.) may also be encountered during the demolition and require special handling and disposal. Finally, removal of the building foundations may uncover contamination from spilled hazardous materials. The extent of soil contamination and the need for any

remedial action would be investigated through NAWS China Lake's Comprehensive Environmental Response Compensation Liability Act (CERCLA) program. The alternative analysis process in the CERCLA program is functionally equivalent to the NEPA process, so a separate analysis of environmental impacts due to any soil remediation would not be necessary.

Due to the age of the structures that would be renovated or demolished, all of them have the potential to have some type of hazardous waste present within them. As with the Auto Hobby Shop, the extent of soil contamination and the need for any remedial action would be investigated through NAWS China Lake's CERCLA program. The alternative analysis process in the CERCLA program is functionally equivalent to the NEPA process, so a separate analysis of environmental impacts due to any soil remediation would not be necessary.

Under P-701V, the annual amount of hazardous waste generated at the airfield is approximately 322,300 kilograms (146,500 pounds) per year (for calendar year 2004). A 6 percent increase in airfield operations would generate about 19,360 additional kilograms (8,800 additional pounds) per year, or approximately 55 additional kilograms (25 additional pounds) per day. This amount is well within the Hazardous Waste Storage and Transfer Facility capability which is currently operating. Under P-754V, the expected cleanup requirements associated with moving the TID Photo Laboratory would need to be performed to protect employee heath and safety requirements in accordance with federal and state guidelines. Relocation of the TID photo lab would not result in an increase in hazardous waste generation for that function. Under P-777V, test events at this facility are not expected to result in the generation of hazardous wastes. For P-778, test events at this facility are not expected to result in the generation of hazardous wastes. Under P-747V, no additional hazardous waste is expected. BRACON P-749V may generate additional qualities of explosive hazardous waste; however, the on-Station Hazardous Waste Storage and Transfer Facility can easily handle this amount.

ESQD Arcs

On the NAWS, the CLPL would be affected by the introduction of a new ESQD safety arc in support of BRACON P-749V (missile fuze testing facility). Additionally, P-712V would result in the construction of several new ordnance magazines being introduced to NAWS China Lake. These magazines would be of an approved standard design and would comprise reinforced concrete flooring, walls and roofs, and would include intrusion detection systems, and lighting and communications systems. Although a risk to public safety could occur, BRACONS P-749V and P-712V are consistent with existing testing and research occurring at NAWS China Lake. Tests performed at this facility would be operated under existing NAWCWD safety protocols. Therefore, there would not be an adverse impact to safety or public health from ESQD arcs.

Munitions Storage
Ordnance used on NAWS China Lake is stored in magazines and storage lockers at several facilities within the Mainsite and Armitage Airfield LMUs. Additionally, several of the BRACONS (P-778V, P-777V, and P-712V) involve the on-site storage and use of munitions to fulfill their mission. Munitions storage would be in approved-design storage containers similar to those in existence at NAWS China Lake and would be sited to minimize health and safety risks to the public. Munitions storage in support of the Proposed Action would be consistent with existing uses occurring at both the Mainsite and Armitage Airfield LMUs. Under P-777 and P-778, tests performed at this facility would be operated under existing NAWCWD safety protocols. No impacts to public health and safety would occur.

Weapons Range Access
Access to any of the weapons ranges at NAWS would not affect any of the project sites, and thus there would be no adverse impact on safety or public health from access to weapons ranges.

EMR
None of the 14 BRACON projects would be located within any NAWS China Lake HERP-designated zones (U.S. Navy 2004), and thus there would be no conflicts with the mission objectives of the Proposed Action. Consequently, no adverse impact to public health and safety would occur from EMR.

Flight Operations
BRACON P-701V would involve the construction of a new airplane hanger to support aircraft relocated from Point Mugu to NAWS China Lake. Additionally, four aircraft would be housed within the proposed hanger and use the Armitage Airfield to support operations conducted at the Point Mugu Sea Range. Projected flight operations would include 650 take-offs and landings per year (combined) for a sortie total of 1,300 operations annually. This tempo represents an approximately 6 percent increase in annual airfield operations at NAWS China Lake and is well within the 25 percent annual increase approved in the Final EIS (U.S. Navy 2004). Although there would be a slight increase in the number of aircraft using the airfield, aircraft operations at Armitage Airfield would not result in compromises of public safety or health. All existing NAWS China Lake flight safety measures and procedures would be utilized. There would be no impact on flight operations at Armitage Airfield from the Proposed Action (specifically from BRACON P-701V), and thus there would be no impact on public health and safety from flight operations.

4.12.2.2 Mitigation Measures
No significant impacts would occur, and therefore no mitigation measures are proposed.

4.12.3 Alternative 1: Redesign of BRACON P-745V

4.12.3.1 Impacts

No impacts to public health and safety would result from the relocation of the Weapons and Armament Technology Center to a different location within the Mainsite LMU.

4.12.3.2 Mitigation Measures

No significant impacts would occur, and therefore no mitigation measures are proposed.

4.12.4 Alternative 2: BRACONS P-745V and P-719V Combined

4.12.4.1 Impacts

No impacts to public health and safety would result from the combination of BRACONS P-745V and P-719V.

4.12.4.2 Mitigation Measures

No significant impacts would occur, and therefore no mitigation measures are proposed.

4.12.5 No Action Alternative

4.12.5.1 Impacts

Under the No Action Alternative, the personnel and functions that would not be realigned to NAWS China Lake. There would be no demolition or renovations, and the 14 BRACON construction projects would not be implemented. Thus, there would be no impact to public health and safety.

4.12.5.2 Mitigation Measures

Implementation of the No Action Alternative would not result in any significant impacts, therefore, no mitigation measures are proposed.

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5 Cumulative Impacts

The CEQ regulations for implementing procedural provisions of NEPA (40 CFR Part 1500-1508) define "cumulative impact" as *impact* on the environment from incremental impacts of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such actions. Cumulative impacts can result from "individually minor but collectively significant actions taking place over a period of time" (Section 1508.7).

Regulations require an EA to address significant cumulative impacts. The discussion of cumulative impacts should reflect their potential severity and likelihood of occurrence, but it need not provide the same level of detail as discussions of environmental effects attributable solely to the project. Cumulative impacts should be addressed using standards of practicality and reasonableness. For the sake of this analysis, the ROI from the Proposed Action is defined as being the Mainsite and Armitage Airfield LMUs, as well as the surrounding Ridgecrest area for socioeconomic impacts and the Kern County APCD and the Mojave Desert AQMD for air quality.

Section 5.1 lists relevant projects with respect to potential cumulative impacts. Section 5.2 discusses any cumulative environmental effects associated with the Proposed Action and the projects discussed in Section 5.1.

5.1 Ongoing and Reasonably Foreseeable Actions

In order to assess potential cumulative impacts, NAWS China Lake staff assisted in identifying past, present, and reasonably foreseeable actions within, or in potentially significant proximity to, the Proposed Action area. Additionally, the CLUMP EIS (U.S. Navy 2004) was used to assist in determining what, if any, projects or planning efforts might have the potential to contribute to cumulative impacts in conjunction with the Proposed Action, along with information concerning current or potential projects not referenced in the EIS.

On-Station potentially cumulative projects identified in the EIS include laboratory and support facility construction, runway repairs through removal and replacement, facilities demolition, repair and upgrade of housing facilities, and a production water well repair by replacement. Of the six on-Station MILCON

projects discussed in the EIS (see Section 5.1.1 of EIS), two have since been completed (P-407, Facility Upgrades at Weapons Survivability Lab and Junction Ranch; and P-455, Construction of Propellants and Explosives Laboratory); two were never implemented and have since been cancelled (P-515, construction of Base Operating Support Facility; and P-521, Runway, Taxiway and Parking Apron Repair); and two have never received funding and remain in a potentially pending status (P-529, Construction of Bachelor Quarters; and P-513, Construction of Electronic Combat Range Threat Dispersion Facility). Two other non-MILCON projects discussed in the EIS—replacing a water well and sinking two deep test wells to test geothermal resource potential—were listed in the EIS as having been completed.

Off-Station potentially cumulative projects and/or potentially relevant planning efforts identified in the EIS include the West Mojave Coordinated Management Plan, the Northern and Eastern Mojave Planning Efforts, the Timbisha Shoshone Land Study, highway projects, an expansion of the National Training Center Fort Irwin, the Western Mojave Land Tenure Adjustment Project, and the Expansion of the Ridgecrest Wastewater Treatment Plant.

With respect to projects not listed in the EIS, the most potentially significant and reasonably foreseeable on-Station project is the development of a Weapons Survivability Complex (WSC) elsewhere on NAWS China Lake, the primary features of which would be an approximately 929 square-meter (10,000 square-foot) concrete pad, support structures, paving of an existing dirt road, and grading of a new dirt road. Construction of the WSC would, like the Proposed Action analyzed in this EA, be a project undertaken pursuant to a BRAC-mandated realignment of functions from other military installations to NAWS China Lake (in this instance, realignment of live fire test and evaluation from Wright-Patterson AFB, Ohio). Additional on-Station Navy projects with the potential to directly or indirectly interact with the Proposed Action are listed in Table 5-1. Where applicable, environmental analyses of the above-referenced projects (EIS-listed projects, WSC, and projects listed in Table 5-1) have been (or would be) conducted separately, with results of these analyses incorporated into documents prepared specifically for those actions.

Table 5-1 Current and Potential Construction Projects at NAWS China Lake

Project	Project Name	Status
P121	Advanced Sensors Integrated Lab	CATEX; Under Construction
P359	Air Traffic Control Tower	CATEX; Unfunded
P006	Rotary/Fixed Wing Aprons	CATEX; Unfunded
RM034-05	Repair Airfield Lighting Power Distribution System	NEPA pending (likely CATEX); Funded (award likely early 2008)
P0011	Construct New Auto Hobby Shop	CATEX; Unfunded

Table 5-1 Current and Potential Construction Projects at NAWS China Lake

Project	Project Name	Status
NF11-06	Construct TSPIL Lab	CATEX; Under Construction
NF20-06	Construct Weapons Model	CATEX; Under Construction
RM12-06	Reconstruct Runway 21 Concrete Approach, Taxiway, and HP Check Pad	CATEX; Unfunded
RM10-06	Repair Hanger and Roof, Wing 8	CATEX; Contract awarded
RM009-07	Repair Portion of Wing 8/Construct Mezzanine	CATEX; Funded
RM29-06	Construct Carrier Deck Av. Fire Test Facility, Bldg. 31164	CATEX; Funded
NF31-06	Construct Additions to Buildings 02669 and 02670	NEPA pending (likely CATEX); Funded
NF032-06	Construct Proximity Fuze Branch Building	NEPA pending (likely CATEX); Funded
NF001-07	Construct Electronic Warfare Integration Lab facility	NEPA pending (likely CATEX); Funded

Source: U.S. Navy memo to Ecology and Environment, September 2006.

5.2 Environmental Analysis of Cumulative Effects

NEPA only requires a discussion of potentially significant cumulative impacts with significant potential. Implementation of these projects would not conflict with the implementation of the Proposed Action in terms of construction and operation. Potential impacts associated with these projects would be (or have been) addressed on a project-specific basis via the preparation of NEPA documentation.

There are no significant impacts associated with the Proposed Action. With respect to topography/geology/soils/seismicity, hydrology/water quality, cultural resources, land use, aesthetics, or safety and environmental health, the Proposed Action would either have no impact or any impact would be essentially negligible. Where these categories are concerned, the Proposed Action therefore would not have the potential to contribute to any cumulative significant impacts in conjunction with other actions.

With respect to socioeconomics, public services and utilities, air quality, and noise, the Proposed Action would be expected to have some level of impact; however, these impacts would not in themselves be significant. Provision of services (police, fire, schools, electricity, water, and wastewater treatment) is expected to be well within current capacities, and on the whole the Proposed Action is expected to have positive impacts with respect to socioeconomics. Additionally, the non-significant impacts associated with noise and air quality would be reduced to negligible or near-negligible levels by adoption of impact avoidance and minimization measures.

The Proposed Action does present potentially significant impacts with respect to biological resources and traffic/circulation. Any potentially significant impacts associated with these categories would be mitigated to non-significant levels by the measures set forth in the impacts discussion of the EA; however, given the fact there are some impacts, these resource areas—as well as those (socioeconomics, public services and utilities, air quality, and noise) in which the Proposed Action could generate certain low-level impacts—are evaluated in regard to other projects in the area that could result in cumulative effects, with additional discussion of biological resources and traffic/circulation at the end of the chapter.

Projects/Planning Efforts Discussed in the EIS

The Moderate Expansion Alternative reflected the broadest operational increases in the EIS. In examining potential cumulative impacts in the context of the Moderate Expansion Alternative, it was determined that the projects set forth in the EIS created no cumulative impacts with respect to socioeconomics, public services and utilities, air quality, noise, biological resources, or traffic/circulation (the only categories with respect to which the Proposed Action presents any appreciable impacts). In incorporating the EIS into this EA, the Navy has considered these same projects in the context of the Proposed Action, and has concluded that they would not have the potential to create cumulative impacts in conjunction with the Proposed Action.

The socioeconomic impacts associated with these projects would be relatively minor. To some extent, such impacts would be positive insofar as they would generate temporary increases in income and employment, and they would not be expected to increase population or demand for services; therefore, they would not increase the potential significance of any socioeconomic impacts assosciated with the Proposed Action. Similarly, these projects would not lead to increased demand for utilities, apart from possible temporary demands for increased utilities in the unlikely event that all pertinent construction activities were conducted at once; however, even that increased demand would be essentially negligible, and therefore could not create a cumulative significant impact in conjunction with the Proposed Action.

The planning efforts set forth in the EIS would not generate readily identifiable air quality impacts, and the other projects would be sufficiently localized and/or would affect areas sufficiently remote from NAWS China Lake Air that they would not present a risk of cumulative significant air impacts in conjunction with the low-level impacts associated with the Proposed Action. As discussed elsewhere in the EA, air quality impacts from the construction projects would occur over a four-year period. Although regional air pollution emissions are expected to increase as a result of the Proposed Action, and will increase to a somewhat greater extent when the Proposed Action is viewed in conjunction with the other projects potentially contributing to cumulative impacts, such increases are not expected to have cumulative effects of such a magnitude or frequency as

to lead to violations of federal and/or state air quality standards in the NAWS ROI,or even to approach such levels of impact. Thus, there would be no significant cumulative air quality impacts as a result of the projects in the ROI in combination with the air quality issues discussed in Chapter 4.

Noise associated with such projects would be either of such a low level and/or sufficiently remote relative to NAWS China Lake (e.g., highway widening projects) as to present no risk of cumulative noise impacts.

A number of the projects discussed in the EIS could potentially impact biological resources (e.g., highway widening projects could impact desert tortoise habitat); however, these projects, like the Proposed Action, must be developed and implemented in accordance with applicable Federal and state ESAs and other applicable guidelines and practices. The proposed expansion of Fort Irwin National Training Center would require development of an independent EIS, which would include examination of potential adverse effects on biological resources, in accordance with the Federal ESA, both in the expansion area and in an overall regional context. Thus, these projects would not ultimately be expected to have significant impacts on biological resources, or to create such significant impacts in conjunction with the Proposed Action.

With respect to traffic/circulation, while these projects could have minor impacts, these impacts would be too remote relative to NAWS China Lake to create cumulative impacts in conjunction with the Proposed Action's traffic impacts, which would be mitigated to a very low level.

The Weapons Survivability Complex Project

With respect to the WSC, the Navy has initiated and is currently conducting a separate NEPA analysis (EA level) of potential environmental impacts associated with this BRAC action. While not finalized, this ongoing analysis indicates that air impacts associated with the WSC would, as with the Proposed Action, be negligible. The only air pollutant potentially subject to a Conformity Determination would be PM_{10}, and PM_{10} emissions from the WSC would be well below *de minimis* levels for purposes of Conformity Review, even in conjunction with emissions associated with the Proposed Action. The WSC project would be at a considerable distance from any component project under the Proposed Action (construction of magazines under the Proposed Action would be approximately 5 kilometers (3 miles) from the WSC site, with the next-closest component of the Proposed Action approximately 10 kilometers [6 miles] away); therefore, the WSC would not have the potential to create cumulatively significant impacts in conjunction with the Proposed Action with respect to geology, soils, or seismicity; hydrology and water quality; cultural resources; land use; traffic and circulation; noise; aesthetics; or public health and safety. The WSC would not involve any appreciable influx of new workers, and thus would not have the potential to create cumulative impacts with respect to availability or coverage on- or off-Station with respect to water, solid waste processing, housing, environmental justice, police and fire protection, schools, or other services or

utilities. The Navy anticipates that operations at the WSC would not have the potential to significantly impact local electricity-generating capacity. Moreover, potential biological resources issues presented by the Proposed Action (desert tortoise, burrowing owl, Le Conte's thrasher, and Mojave ground squirrel) would not be factors at the WSC site, as none of the species in question would be expected to occur in the vicinity of the site, while the USFWS BO for NAWS China Lake concerning the desert tortoise would be followed at the site to provide mitigation in the unlikely event any desert tortoises should be found. Consequently, the Navy believes the WSC project would not present any risk of cumulatively significant impacts in conjunction with the Proposed Action.

Other Current or Potential On-Station Projects

Of the projects listed in Table 5-1, only P-121, NF11-06, and NF20-06 are currently under construction. These projects qualified as Categorical Exclusions (CATEX) under the USEPA's and Navy's NEPA regulations, and thus were exempt from EA- or EIS-level NEPA analysis. Encompassed within the concept of a CATEX is the assessment that an action will not, e.g., adversely affect public health or safety; present unique or unknown risks to the human environment; threaten a violation of applicable federal, state, or local environmental laws; or have an adverse effect on Federally listed threatened or endangered species, on wetlands, or on resources eligible for listing on the NRHP (32 C.F.R. 775.6(e)). RM034-05 is considered likely to begin construction sometime next year, in light of its projected contract award date. NEPA analysis has not been concluded for RM034-05; however, preliminary screening has determined that the action is unlikely to require an EA and is therefore likely to qualify as a CATEX. Similarly, a contract has been awarded for NF10-06 and will likely begin construction in the foreseeable future; however, this project has qualified as a CATEX. With respect to the other projects listed in Table 5-1, some projects have been funded at this time while others have not; however, apart from P-121, NF11-06, NF20-06, RM-34-05, and NF10-06, the status of all projects listed in Table 5-1 remains speculative, as it is uncertain whether any of these projects will ultimately be undertaken. For certain unfunded projects, the Navy has concluded NEPA analysis in anticipation of possible funding (e.g., P-359 and P-006), and in each of these instances the proposed project has qualified as a CATEX. (MILCON P-529, discussed in the EIS but not implemented to date, has also qualified as a CATEX.) The Navy has yet to initiate and/or complete NEPA analysis for certain funded projects (as well as for MILCON P-513, discussed in the EIS but neither implemented nor funded to date), indicating that information concerning potential/foreseeable impacts of such projects is limited at this time; however, as with RM034-05, preliminary NEPA screening indicates that all listed projects for which NEPA has not yet been completed will likely qualify as CATEX's. Consequently, no current or potential projects on-Station present a risk of cumulative significant impacts in conjunction with the Proposed Action.

5.2.1 Biological Resources

For this EA, of the three federally listed threatened and endangered species, the desert tortoise is the only species to consider, as it is the only one of these species with the potential to be found in any of the project areas. The INRMP (U.S. Navy 2000) shows that the BRACON P-701V area is known to be desert tortoise habitat; however, the area is not designated critical habitat, and surveys previously conducted show no sightings or evidence of the desert tortoise. Therefore, no direct impacts to threatened and endangered species would occur.

Apart from the Fort Irwin expansion project (which would require development of an independent EIS), the only project that would have similar potential impacts with respect to biological resources would be the widening of Highway 395 through Kern County and Inyo County and the widening of State Highway 14 in Kern County. These projects could result in both temporary and permanent impacts to biological resources. Desert tortoise habitat could be permanently lost in areas needed to accommodate the new lanes. Desert tortoise habitat would be temporarily disturbed as a result of construction activity from this project. Habitat adjacent to roadways can often be of low quality for desert tortoises, but could be occupied by tortoises at times. It is expected that biological surveys and construction monitoring would be required pursuant to the state and federal ESAs prior to any project-related ground disturbance. Construction of drainage improvements along State Route 178 could result in temporary and permanent impacts to biological resources. However, it is expected that biological surveys and construction monitoring would be required prior to ground disturbance and project implementation would have to be conducted in accordance with state and federal ESAs and applicable NAWS China Lake Final EIS cumulative impacts requirements.

Because indirect impacts on the desert tortoise may occur if BRACON P-701V is implemented, mitigation measures would follow the guidance provided in the desert tortoise BO (Appendix A). These measures include: conducting a pre-construction survey within seven days of construction activities to ensure the lack of presence of desert tortoise; monitoring of construction activities; project personnel briefings; and flagging of any areas where the probability of a take is high.

Other species of concern include state sensitive species. Potential impacts could occur to state sensitive species such as the burrowing owl, which was observed within the footprint for P-701V during surveys in November 2005. Two burrowing owls were observed at the entrances to active burrows and two other active burrows were observed, though no owls were seen associated with these burrows. Therefore, the burrowing owl is known to be either present or likely to be present at the site.

Additionally, vegetation communities historically associated with Le Conte's thrasher and the Mohave ground squirrel are present at the site for P-701V. There has been one recorded occurrence of Le Conte's thrasher approximately 16

kilometers (10 miles) from the site, and six recorded occurrences of the Mohave ground squirrel within 8 kilometers (5 miles) of the site; consequently, there is a moderate potential for occurrence of these species at the site itself, and these species could potentially be impacted as well. However, the Navy believes that the Proposed Action is unlikely to have any adverse effect on any of the above-referenced state sensitive species, and that any potential adverse impact or effect would not be significant. With respect to the burrowing owl and Mojave ground squirrel, the Navy would implement impact-avoidance measures to either eliminate adverse effect or ensure that any adverse effect would be insignificant.

In sum, implementation of this EA is not expected to significantly impact any of the above-referenced species and/or biological resources at NAWS China Lake generally. As discussed in Chapter 4, mitigation measures are in place to be utilized, if necessary. Accordingly, the Proposed Action has been determined not to have the potential to contribute to any cumulative impacts in association with other, reasonably foreseeable actions.

5.2.2 Traffic

Regional planning projects, such as the West Mojave Planning Effort, Northern and Eastern Mojave Planning Effort, and the Western Mojave Land Tenure Adjustment Project, are focused primarily on improving management of resources in the planning area. As such, these projects would not generate additional local or regional traffic. Consequently, these projects would not contribute cumulatively to traffic in the project area.

The proposed National Training Center Fort Irwin expansion would result in possible dust impacts to local highways (Interstate 15 and Highway 127) and restricted access to some local roads (impacts vary depending on the alternative). However, the proposed National Training Center Fort Irwin expansion would not affect roadways in the vicinity of NAWS China Lake; therefore, this project would not contribute cumulatively to traffic in the project area.

The planned demolition, construction, and renovation of facilities at Mainsite LMU and the Propulsion Labs and the construction of the ECR Threat Dispersion Facilities and installation of underground fiber optic communication cables on the South Range at the NAWS temporarily would generate traffic from worker vehicles and trucks during the construction period. Construction vehicles typically enter and leave the construction area at different times during the day, adding a few trucks at a time to roadways accessing the area. The small addition of truck traffic would not be expected to cumulatively affect operational conditions. Expansion of the wastewater treatment plant by the City of Ridgecrest would temporarily generate traffic from worker vehicles and trucks during the construction period. This small addition of traffic would not be expected to affect roadway operational conditions and cumulative impacts would be less than significant.

Widening Highway 395 through Kern County and Inyo County and widening State Highway14 in Kern County would have minor traffic impacts associated with temporary construction activities. However, it is unlikely that these projects would be constructed at the same time and that any one of them would generate enough trips to exceed roadway capacity in the area. Temporary disturbances to traffic flow may occur because of the need to detour or stop traffic during construction activities. The highway widening projects would result in a cumulatively beneficial effect by increasing capacity of these roadways and improving traffic flow.

The 2006 Traffic Study prepared as part of this EA displays the LOS analysis results for the study intersections and roadways under existing conditions, near-term conditions (2011) and near-term with Proposed Action conditions.

In all scenarios analyzed, all roadway segments in the study area would function at LOS C or better. No mitigation would be required.

As shown below, for the Near-term with the Proposed Action scenario, all study intersections would operate at LOS C or better except for the following intersections:

- Lauritsen Road and Sandquist Road (LOS E in the AM peak); and
- East Inyokern Road and Bullard Road (LOS F in the AM peak, LOS D in the Midday peak, and LOS E in the PM peak).

It should be noted that the Lauritsen Road and Sandquist Road intersection would still remain at LOS E during the AM peak with the addition of traffic from the proposed action. At the East Inyokern Road and Bullard Road intersection, traffic operations decrease to an unacceptable LOS for all peak periods. Poor operations are related to the minor street approach on Bullard Road as vehicles would have to wait longer to find acceptable gaps before turning onto East Inyokern Road.

At the Lauritsen Road/Sandquist Road intersection, the following mitigation is proposed to improve LOS:

- Separating the shared westbound left-through lane into an exclusive left-turn and through lane.

With this improvement, the intersection would operate at LOS D. To achieve LOS C or better, a traffic signal would be required. However, this location does not meet any of the warrants needed for a traffic signal. As such, a traffic signal is not recommended.

At the East Inyokern Road/Bullard Road intersection, vehicles traveling along Bullard Road would have to stop and wait for an acceptable gap before turning on

East Inyokern Road. The proposed mitigation would consist of the following improvements:

- Converting the inside eastbound through lane into a left-turn pocket;
- Separating the southbound shared left-through-right lane into an exclusive left-turn and right-turn lane;
- Restricting the northbound approach along Bullard Road to right-in, right-out movements only by constructing a "pork chop" raised median; and
- Adding an acceleration lane for the southbound to eastbound movement along East Inyokern Road.

With these improvements, the intersection would operate at LOS C or better in all peak periods. Given the lack of significant impacts from the other projects in the area, implementation of this EA would not result in cumulative impacts to traffic.

6 Possible Conflicts with Other Existing Plans and Policies

There are several local land use plans, policies, and controls that address and guide land use for the Proposed Action on NAWS China Lake. These documents include: OPNAVINST 5090.1B, the 2005 CLUMP, the 2000 INRMP, and draft Integrated Cultural Resources Management Plan, and the Draft AICUZ Program.

As stated in Section 1.1, the Proposed Action, two action alternatives, plus the No Action Alternative consisting of 14 different BRACONS, are analyzed in this EA. No potential conflicts are anticipated between the Proposed Action sites and any of the Station plans, policies, and controls that address and guide uses within NAWS China Lake. As the 14 BRACON sites will continue to remain under federal ownership, the Proposed Action is not subject to county or city level plans or policies. The Proposed Action sites are located on Navy property within the County of Kern. No off-Station land uses would be affected by implementation of the Proposed Action.

As discussed in Chapter 1, development of all or a combination of the 14 sites for the Proposed Action would fulfill the need to accommodate the BRAC Commission's recommendations for the realignment of assets and functions from NWS Seal Beach, NB Ventura County (Point Mugu and Port Hueneme), NSWC Crane, NSWC Dahlgren, NSWC Indian Head, and NAS Patuxent River to NAWS China Lake. The commitment of the sites for accommodating additional personnel and equipment does not pose any conflict between the Proposed Action and federal land uses.

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7 Other NEPA Sections

7.1 Relationship Between Local Short-Term Uses and Long-Term Productivity

Short-term environmental impacts associated with the Proposed Action would be minimal because construction of new facilities would involve only minor topographic modification. Short-term impacts would include: dust generation, air emissions from construction equipment, construction traffic, and increased noise levels; however, these impacts would be temporary and below a level of significance.

Long-term impacts of the Proposed Action would include increased local traffic volumes, loss of habitat (though not USFWS-designated critical habitat) for the desert tortoise and degradation of local air quality. These long-term impacts also would be below a level of significance.

Implementation of the Proposed Action would enhance the productivity of the DoD by realigning assets and functions from several naval facilities located nationwide and incorporating them into one integrated W&ARD&AT&E center in one geographic location.

7.2 Irreversible or Irretrievable Commitments of Resources

Implementation of the Proposed Action would be consistent with the current uses occurring on NAWS China Lake, namely weapons research and development and training. The 14 BRACON sites are located in areas currently containing similar uses, such as laboratory and administrative buildings and aircraft and airfield support facilities.

Short-term, irreversible commitments of labor, capital, and fossil fuels would be required for construction. Irretrievable commitments of resources would result from provision of water, sewer, gas, and solid waste service to the sites. Use of new construction materials represents an irreversible commitment of resources, although some may be recyclable in the long-term. These commitments of resources are not considered unusual or unexpected and are considered necessary to achieve the benefits that would result from implementation of the Proposed Action.

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B SHPO Consultation

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Table B-1 is a summary table of all the buildings affected by the Proposed Action that are being consulted on.

Table B-1 Buildings Affected by BRACON and Status of Section 106 Consultation

BRACON	Affected Buildings (Renovation Unless Stated Otherwise)	Eligibility
P-745V	02602 (Demo) 02624 (Demo)	Ineligible Ineligible
P-754V	01028 (Renovation or Demo) 01025 20210	Ineligible Ineligible Ineligible
P-755V	00001 00466 31567	Eligible Ineligible Ineligible
P-749V	10170 10173	Eligible Eligible
P-732V	00005[A]	Eligible
P-747V – None of the buildings in P-747V will be directly affected by the Proposed Action, however, these four were consulted on as ineligible.	01482 01483 01095 02025	Ineligible Ineligible Ineligible Ineligible
P-704V	10520 10690 15800 11050[A] 15790 11570 15560 12170 11510 16079 12143,	Eligible Eligible Eligible Eligible Eligible Eligible Eligible Eligible Ineligible Ineligible Ineligible
P-759V	01040 01041 01042	Ineligible Ineligible Ineligible
P-778V	12160 (Addition)	Eligible
Alternative 1	00008	Ineligible
Alternative 2	00005[A]	Eligible

[A] Mitigation is required for these structures.

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C Record of Nonapplicability

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DEPARTMENT OF DEFENSE
DEPARTMENT OF THE NAVY

CLEAN AIR ACT - GENERAL CONFORMITY RULE
RECORD OF NON-APPLICABILITY (RONA)

For
REALIGNMENT AND DEVELOPMENT OF A NAVAL INTEGRATED WEAPONS AND ARMAMENTS RESEARCH, DEVELOPMENT, AND ACQUISTION, TEST, AND EVALUATION CENTER

NAVAL AIR WEAPONS STATION (NAWS)
CHINA LAKE, CALIFORNIA

Summary
Projected air emissions associated with the proposed action are below *de minimis* levels, are not regionally significant, and do not require further conformity analysis.

C.1 Introduction

The Clean Air Act (CAA) as amended requires federal actions to conform to an approved state implementation plan (SIP). The SIP is designed to achieve or maintain an attainment designation for air pollutants as defined by the National Ambient Air Quality Standards (NAAQSs). The General Conformity Rule (40 Code of Federal Regulations [CFR] Parts 51 and 93) implements these requirements for federal actions occurring in air quality non-attainment and maintenance areas.

The CAA designates six pollutants as criteria pollutants for which NAAQSs have been promulgated to protect public health and welfare: particulate matter (PM_{10} and $PM_{2.5}$), carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), lead (Pb), and ozone (O_3). Areas that do not meet NAAQSs are designated as "non-attainment" for those criteria pollutants exceeding their respective NAAQS. Non-attainment status is further classified by the extent to which the standard is exceeded. There are six classifications of ozone non-attainment status—transitional, marginal, moderate, serious, severe, and extreme; and two classifications of CO and PM_{10} non-attainment status—moderate and serious. An area which has been redesignated from non-attainment to attainment is referred to as a "maintenance" area.

The activities proposed under this action at NAWS China Lake are located in Kern County and San Bernardino County, California, within the Kern County Air Pollution Control District (APCD), and the Mojave Desert Air Quality Management District (MDAQMD), respectively. The MDAQMD portion of NAWS has been designated by the United States Environmental Protection Agency (USEPA) as attainment for the $PM_{2.5}$ and 8-hour O_3 standards, and non-attainment for the PM_{10} standard. The Kern County APCD portion of NAWS is also in attainment for the $PM_{2.5}$ and 8-hour O_3 standards, and is a maintenance area for the PM_{10} standard. While the NAWS is in attainment for the 8-hour O_3 standard, it was previously a

maintenance area with respect to the 1-hour O_3 standard. Therefore, this analysis will include the precursors of O_3 (NO_X, and VOCs) to ensure this action will not interfere with state wide ozone standard implementation efforts.

A federal action is exempt from applicability of the General Conformity Rule requirements if the action's total net emissions are below the *de minimis* levels specified in the rule (see Table C-1) and are not regionally significant (i.e., the emissions represent 10 percent or less of a non-attainment or maintenance area's total emission inventory of that pollutant), that are not otherwise exempt per 40 CFR 51.153. Total net emissions include direct and indirect emissions from all stationary point and area sources, construction sources, and/or mobile sources caused by the federal action that are not covered by another permitting program. To determine if an exemption is applicable to this action, emissions of PM_{10} were evaluated.

Table C-1 *De Minimis* Levels for Exemption from General Conformity Rule Requirements for Ozone and Particulate Matter Metric Tons/Year ([Tons/Year])

Pollutant	Metric Tons/Year (Tons/Year)
O3 (Volatile organic compounds [VOCs] or Nitrogen oxides [NOx])	
Serious non-attainment areas	50
Severe non-attainment areas	25
Extreme non-attainment areas	10
Marginal and moderate O3 non-attainment and ozone maintenance areas outside an O3 transport region	
VOCs	100
NO_X	100
Marginal and moderate non-attainment and ozone maintenance areas inside an O_3 transport region	
VOCs	50
NO_X	100
Particulate Matter	
Moderate non-attainment and maintenance areas	91 (100)
Serious non-attainment areas	64 (70)

Source: 40 CFR 51.

[1] Ozone does not occur directly from any source, but results from a series of reactions between NO_x and VOCs in sunlight. Therefore, *de minimis* levels of NO_x and VOCs are used to determine exemption from the General Conformity Rule for emissions that would affect ozone levels in an area of non-attainment for ozone.

C.2 Proposed Action

The Proposed Action is in response to the BRAC Commission of 2005 recommendations for the realignment of personnel and activities at seven facilities to NAWS China Lake to create a Naval Integrated Weapons and Armaments Research, Development, and Acquisition, Test and Evaluation (W&ARD&AT&E) Center. This recommendation would result in the realignment of the following activities to NAWS China Lake:

- Naval Weapons Station (NWS) Seal Beach, California, by relocating all W&ARD&AT&E functions, except underwater weapons and explosive materials.

- Naval Base (NB) Ventura County, Point Mugu, California, by relocating all W&ARD&AT&E functions.

- NB Ventura County, Port Hueneme, California, by relocating all W&ARD&AT&E functions, except weapon system integration.

- Naval Surface Warfare Center (NSWC) Crane, Indiana, by relocating all W&ARD&AT&E functions, except gun/ammo, combat system security, and explosive materials.

- NSWC Dahlgren, Virginia, by relocating all W&ARD&AT&E functions, except guns/ammo and weapon systems integration.

- NSWC Indian Head, Maryland, by relocating all W&ARD&AT&E functions, except gun/ammo, underwater weapons, and explosive materials.

- Naval Air Station (NAS) Patuxent River, Maryland, by relocating all W&ARD&AT&E functions, except the Program Executive Office and Program Management Offices in Naval Air Systems Command (NAVAIR).

This action is specific to construction and operation of facilities on NAWS China Lake.

C.3 Projected Air Emissions

Air emissions would be associated with construction of the facilities associated with the Proposed Action during the construction phase, and then operation of the buildings and increased privately owned vehicle (POV) use. The construction will take place over five years, and emissions were calculated for each year of planned construction. The annual emissions estimates for construction are provided in Table C-2. The sources of emissions are described below, and detailed emission calculation information is provided in Appendix D of the EA. No indirect emissions would be associated with this action.

C.3.1 FY 2007

Construction activities that are planed for FY 2007 include BRAC Construction Projects (BRACONs) P-745V, P-754V, and P-755V. These BRACONs involve the construction of a one story Weapons and Armament Technology Center, surrounded by new lawn, sidewalks, and parking areas, renovation of several buildings to improve operational efficiency, and the construction of a Support Equipment Storage Facility. For purposes of this air quality evaluation, it is assumed that 22,147 square meters (238,397 square feet) of space will be constructed or renovated, 2,694 square meters (29,000 square feet) will be paved, and 4.85 hectares (12 acres) will be disturbed. Appendix D provides detailed breakdown and assumptions related to the assessment of air emissions from the construction of these facilities. Emission totals are summarizes below in Table C-2.

Table C-2 Annual Emissions

Activity	VOCs	NOX	PM10
2007 Construction Emissions			
Grading Equipment	0.45	4.23	0.36
Material Hauling	0.64	9.32	0.66
Fugitive Dust Emissions			4.82
2007 Total Emissions, Tons Per Year (TPY)	**1.09**	**13.54**	**5.83**
2008 Construction Emissions			
Grading Equipment	1.05	9.91	0.83
Material Hauling	1.51	21.84	1.55
Fugitive Dust Emissions			9.39
2008 Total Emissions, TPY	**2.56**	**31.75**	**11.78**
2009 Construction Emissions			
Grading Equipment	0.51	4.82	0.41
Material Hauling	0.73	10.62	0.75
Fugitive Dust Emissions			5.29
2009 Total Emissions, TPY	**1.24**	**15.44**	**6.45**
2010 Construction Emissions			
Grading Equipment	0.16	1.48	0.12
Material Hauling	0.23	3.26	0.23
Fugitive Dust Emissions			2.60
2010 Total Emissions, TPY	**0.38**	**4.74**	**2.95**
Final Annual Operational Emissions			
Vehicle operations increase	9.86	11.48	0.23
Heating and Cooling of new buildings	0.09	1.45	0.12
Increased aircraft emissions	8.59	7.10	11.76
Final Annual Emissions, TPY	**18.53**	**20.03**	**12.11**

C.3.2 FY 2008

Construction activities that are planed for FY 2008 include BRACONs P-701V, P-710V, and P-749V. These BRACONs involve the construction of a Type II modular hangar, concrete parking apron, taxiway, and associated support services, a hardware-in-the-loop system for the Modeling and Simulation Branch, a fuze test facility, and renovation of buildings in the China Lake Propulsion Lab. For purposes of this air quality evaluation, it is assumed that 9,547 square meters (102,765 square feet) of space will be constructed or renovated, 106,940 square meters (1,151,100 square feet.) will be paved or surfaced, and 11.74 total hectares (29 total acres) will be disturbed. Appendix D provides detailed breakdown and assumptions related to the assessment of air emissions from the construction of these facilities. Emission totals are summarizes in Table C-2.

C.3.3 FY 2009

Construction activities that are planed for FY 2009 include BRACONs P-712V, P-719V, and P-732V. These BRACONs involve the construction of an Ordnance Storage Facility with associated access road and parking areas, of laboratory and administrative space, and associated parking areas, and renovation of buildings for use as the Weapons and Armaments functions. For purposes of this air quality evaluation, it is assumed that 27,397 square meters (294,901 square feet.) of space will be constructed or renovated, 929 square meters (10,000 square feet) will be paved or surfaced, and 5.6 hectares (14 acres) will be disturbed. Appendix D provides detailed breakdown and assumptions related to the assessment of air emissions from the construction of these facilities. Emission totals are summarizes in Table C-2.

C.3.4 FY 2010

Construction activities that are planed for FY 2010 include BRACONs P-747V, P-704V, P-759V, P-777V, and P-778V. These BRACONs involve the construction of a public works warehouse, a Weapons and Dynamic Research Development, Test, and Evaluation Center, Shipboard Shock Test Facility, associated access roads and parking areas, and additional renovation of buildings for Weapons and Armaments functions. For purposes of this air quality evaluation, it is assumed that 7,760 square meters (83,535 square feet) of space will be constructed or renovated, 464 square meters (5,000 square feet) will be paved or surfaced, and 1.62 total hectares (4 total acres) will be disturbed. Two small structures will also be demolished under this action. Appendix D provides detailed breakdown and assumptions related to the assessment of air emissions from the construction of these facilities. Emission totals are summarizes in Table C-2.

C.3.5 Final Annual Emissions

The permanent changes that will result in increased air emissions include the operation of POVs, one track loader, heating and cooling of new built space, and new aircraft operations. Emissions from automobiles were calculated using data collected for the *NAWS China Lake Traffic Impact Study* (U.S. Navy 2006), and built space emissions estimates were based on new built space, average natural gas use for built space, and EPA emission factors (See Appendix D). The estimated final annual emissions that will result from this action are summarized in Table C-2. Since the full implementation of the relocation would not occur until after construction activities are complete, this increase in emissions will occur annually after 2010.

C.4 Conclusion

Total direct and indirect emissions of PM_{10} for all years evaluated are below the *de minimis* threshold of 100 tons per year (TPY) for PM_{10} moderate non-attainment and maintenance areas, as well as the *de minimis* threshold of 70 tons per year for PM_{10} serious non-attainment areas. Emissions of VOCs and NO_X are also below the 100 TPY *de minimis* threshold for O_3 maintenance areas. These emission levels are also less than 10 percent of the air district's total inventory of PM_{10}, NO_x, and VOC emissions; thus, they are not regionally significant. Therefore, the proposed federal action is exempt from further analysis under the General Conformity Rule.

To the best of my knowledge, the information presented in this RONA is correct and accurate, and I concur in the finding that implementation of the proposed action will conform to the SIP.

_____ Date _____

D Emissions Calculations

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A Desert Tortoise Biological Opinion

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United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
Ventura Field Office
2493 Portola Road, Suite B
Ventura, California 93003

June 27, 1995

Carolyn A. Shepherd
Head, Environmental Project Office
Public Works Department
Department of the Navy
China Lake Naval Weapons Station
China Lake, California 93555-6001

Subject: Reinitiation of Formal Consultation for the Desert Tortoise Habitat Management Plan for the Naval Air Weapons Station, China Lake, California (5090 Ser 823EOOD C8305) (1-8-95-F-30R)

Dear Ms. Shepherd:

By letter, dated March 27, 1995, and received by us on March 30, 1995, you requested reinitiation of formal consultation with the Fish and Wildlife Service (Service), pursuant to section 7 of the Endangered Species Act of 1973, as amended (Act), regarding the referenced Management Plan. Your request was made specifically to evaluate the impacts that the Naval Air Weapons Station's (Station) Desert Tortoise Habitat Management Plan (Management Plan) may have on critical habitat designated for the desert tortoise (*Gopherus agassizii*), a federally listed threatened species. This biological opinion supersedes the non-jeopardy biological opinion on the Management Plan issued on December 3, 1992 (Service file no. 1-6-92-F-60).

This biological opinion was prepared using information: contained in your original request for consultation to the Service in 1992; obtained during informal consultation between our staffs; and in our files.

Biological Opinion

It is the opinion of the Service that the proposed action is not likely to jeopardize the continued existence of the desert tortoise or adversely modify critical habitat for the desert tortoise.

Description of the Proposed Action

The Navy proposes to continue implementation of the Station's Management Plan and administration of the Desert Tortoise Management Area established following issuance of the Service's 1992 non-jeopardy opinion on the Management Plan.

The Station occupies 1,095,680 acres in two discrete units within Kern, Inyo, and San Bernardino Counties (Kiva et al. 1991) (see Service, 1992 for maps). The north ranges are located immediately north of the residential areas of China Lake and the City of Ridgecrest. The southern ranges are approximately 20 miles southeast of China Lake.

The mission of the Station is to provide, operate, and maintain base support services for both tenant and transient organizations at China Lake, California (Navy 1992). The Station is a primary site for the Navy to research, develop, test, and evaluate missile weapons systems and electronic warfare simulation (Kiva et al. 1991). Other activities include landing of planes at back-country locations, training of paratroops, and bombing of stationary targets in the Superior Valley portion of the southern ranges. The high visibility resulting from clean air, open air space free of civilian and commercial aircraft, and seclusion make the Station a suitable site for these activities.

Some activities, such as bombing at the Superior Valley range, are located at the Station on a permanent basis and occur regularly. However, the Station also hosts many Department of Defense units and private contractors from around the nation that require the temporary use of training or testing areas with the physical attributes found at China Lake. Such programs may occur for only a short period of time with little prior notice given to the Station.

In the latter case, the Station's Environmental Project Office is required to provide guidance and support in ensuring that environmental constraints are addressed during the temporary activities. In cases where the desert tortoise could be adversely affected, the short turn-around time required by the transient users conflicts with the longer time frames needed by the Service to process section 7 consultations. As a result, Environmental Project Office and Service staff developed a programmatic approach to project review that would be consistent with section 7 guidelines and at the same time could serve as a management plan to benefit desert tortoises at the Station.

The Station's Management Plan provides guidelines for project review, standard mitigation measures, and designation of approximately 200,000 acres of the southern ranges as a management area for desert tortoises. For a detailed account of the measures proposed by the Navy see the Service's 1992 biological opinion.

Effects of the Proposed Project on the Listed Species

Species Account

The desert tortoise is a large, herbivorous reptile found in portions of the California, Arizona, Nevada, and Utah deserts. It also occurs in Sonora and Sinaloa, Mexico. In California, the desert tortoise occurs primarily within the creosote, shadscale, and Joshua tree series of Mojave

desertscrub, and the lower Colorado River Valley subdivision of Sonoran desertscrub. Optimal habitat has been characterized as creosote bush scrub in which precipitation ranges from two to eight inches, diversity of perennial plants is relatively high, and production of ephemerals is high (Luckenbach 1982, Turner and Brown 1982, Turner 1982, and Schamberger and Turner 1986). Soils must be friable enough for digging of burrows, but firm enough so that burrows do not collapse. In California, desert tortoises are typically associated with gravelly flats or sandy soils with some clay, but are occasionally found in windblown sand or in rocky terrain (Luckenbach 1982). Live desert tortoises have been found in the California desert from below sea level to an elevation of 7,300 feet, but the most favorable habitat occurs at elevations of about 1,000 to 3,000 feet (Luckenbach 1982, Schamberger and Turner 1986).

Desert tortoises are most active in California during the spring and early summer when annual plants are most common. Additional activity occurs during warmer fall months and occasionally after summer rain storms. Desert tortoises spend the remainder of the year in burrows, escaping the extreme conditions of the desert. Further information on the range, biology, and ecology of the desert tortoise can be found in Burge (1978), Burge and Bradley (1976), Hovik and Hardenbrook (1989), Luckenbach (1982), Weinstein et al. (1987), and U.S. Fish and Wildlife Service (1994).

On August 4, 1989, the Service published an emergency rule listing the Mojave population of the desert tortoise as endangered. In its final rule, dated April 2, 1990, the Service determined the Mojave population of the desert tortoise to be threatened. The Service designated critical habitat for the desert tortoise in portions of California, Nevada, Arizona, and Utah in a final rule, published February 8, 1994. A final recovery plan for the desert tortoise was published by the Service in June, 1994.

The recovery plan is the basis and key strategy for recovery and delisting of the desert tortoise (Service 1994). The plan divides the range of the desert tortoise into six distinct population segments or recovery units and recommends establishment of 14 desert wildlife management areas throughout the recovery units. Within each desert wildlife management area, the recovery plan recommends implementation of reserve level protection of desert tortoise populations and habitat, while maintaining and protecting other sensitive species and ecosystem functions. As part of the actions needed to accomplish recovery, land management within all desert wildlife management areas should restrict human activities that negatively affect desert tortoises (Service 1994).

A portion of the Station's Desert Tortoise Management Area lies within the Superior-Cronese Critical Habitat Unit (CHU), one of four CHUs designated in the Western Mojave Recovery Unit. CHUs and recovery units as defined in the final rule designating critical habitat for the desert tortoise were patterned after the desert wildlife management area and recovery unit concepts in the recovery plan. The Western Mojave Recovery Unit consists of approximately 4,753,000 acres, located entirely in California. Vegetation within this recovery unit is characterized by creosote bush scrub, big galleta-scrub steppe, desert needlegrass scrub-steppe, and blackbrush scrub (in higher elevations). Topography is varied, with flats, valleys, alluvial fans, washes, and rocky slopes. The Superior-Cronese CHU, covers approximately 766,900 acres in San Bernardino County, California.

Regulations found at 50 CFR § 402.02 define destruction or adverse modification of critical habitat as a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features (referred to as the primary constituent elements [50 CFR § 424.12]) that were the basis for determining the habitat to be critical. In the final rule designating desert tortoise critical habitat, the Service determined that desert tortoise habitat consists of the following primary constituent elements: (1) sufficient space to support viable populations within each of the six Recovery Units and provide for movements, dispersal, and gene flow; (2) sufficient quantity and quality of forage species and the proper soil conditions to provide for the growth of such species; (3) suitable substrates for burrowing, nesting, and overwintering; (4) burrows, caliche caves, and other sheltersites; (5) sufficient vegetation for shelter from temperature extremes and predators; and (6) habitat protected from disturbance and human-caused mortality (59 FR 5820).

Joshua tree woodland, creosote bush scrub, and saltbush scrub communities are the most common plant assemblages within the Station. The most common species found within these communities are Joshua trees (*Yucca brevifolia*), creosote bush (*Larrea tridentata*), and bursage (*Ambrosia dumosa*), and saltbush (*Atriplex* spp.), respectively. A large portion of the North Range of China Lake is at higher elevations than are generally occupied by desert tortoises. Additionally, a large playa which, because of its fine soils and absence of shrub cover does not support desert tortoises, occurs within the southern part of the North Range.

A discussion of the density and distribution of desert tortoises within the Station can be found in the original biological opinion for the Management Plan (Service 1992).

Analysis of Impacts

As noted in the original biological opinion for the Management Plan, numerous activities that the Navy undertakes at the Station have the potential to take desert tortoises through mortality, injury, or harassment and to disturb or eliminate desert tortoise habitat. These activities include construction of new facilities, testing of weapons and electronic warfare systems, use and maintenance of roads and utilities, bombing practice, and miscellaneous other activities. The Navy's Management Plan for the Station includes measures to minimize both the likelihood for take of individual desert tortoises and the effects of mission-related activities on desert tortoise habitat.

Key to implementation of the Management Plan is oversight by the Station's Environmental Project Office of a Desert Tortoise Management Area covering approximately 200,000 acres of the Station. As an incentive for project planners to minimize habitat loss or disturbance in this area, under the Management Plan, the maximum amount of disturbance associated with any given action will not exceed 2.5 acres without triggering an individual formal consultation. Cumulative impacts of the Management Plan are addressed through the stipulation that no more than five percent of the planning area could be developed or disturbed on a long-term basis without reinitiation of formal consultation.

The effectiveness of the Management Plan is exhibited by the impact of activities conducted within the planning area since its inception. In the 1993 annual report of actions within the planning area, the Station's Environmental Project Office noted that of 1200 projects reviewed, only 27 were proposed in or near desert tortoise habitat (Station 1993). The Environmental Project Office successfully sited 22 of the 27 projects in previously disturbed areas while the remaining five projects proceeded under the guidance provided in the Management Plan. For the 1993 reporting period, two acres of desert tortoise habitat were eliminated and two acres were disturbed (Station 1993).

At issuance of the original biological opinion on the Management Plan, the Station had removed almost 8,000 feral burros from its lands and installed over 11 miles of fence to exclude trespass livestock grazing from the south range. Under the Management Plan, the Station would continue these efforts and to pursue additional surveys of desert tortoise habitat, research, and educational programs on the desert tortoise and other biological resources of the desert.

The Service believes that the impacts described above resulting from implementation of the Management Plan will not jeopardize the continued existence of the desert tortoise or adversely modify its critical habitat. We present this conclusion for the following reasons:

1. The Navy's Management Plan includes mitigation measures which would reduce the take of individual desert tortoises and their habitat.

2. The impacts that would result from continued implementation of the Management Plan would generally disturb small amounts of land over a large area and would not result in fragmentation of desert tortoise habitat.

3. The establishment by the Navy of an approximately 200,000-acre area to be managed for the desert tortoise furthers recovery efforts in the western Mojave Desert.

Cumulative Effects

Cumulative effects are those impacts of future State and private actions that are reasonably certain to occur in the project area. Future Federal actions will be subject to the consultation requirements established in section 7 of the Act and, therefore, are not considered cumulative to the proposed project.

Many of the actions that are reasonably expected to occur within the vicinity of the project will be subject to section 7 consultations, because large portions of the desert consist of Federal lands. Numerous unauthorized actions on both Federal and non-Federal lands, such as collection and vandalism of desert tortoises and off-highway vehicle use, will continue to degrade desert tortoise populations and their habitat, particularly in areas that receive large amounts of recreational use.

The Service has contacted the counties of San Bernardino, Kern, Riverside, Inyo, and Los Angeles (and the incorporated areas within the desert) regarding the listing of the desert tortoise and its implications for city- and county-permitted activities. Many cities within the range of the desert tortoise in San Bernardino, Los Angeles, and Kern counties have expressed interest in

obtaining a section 10(a)(1)(B) incidental take permit from the Service. Regional planning efforts, such as the West Mojave Coordinated Management Plan, could serve as model habitat conservation plans for local governments. Cumulative impacts of future State and private projects will be addressed in regional plans, such as this, and in the section 10(a)(1)(B) incidental take permit process. The measures being developed by the Bureau of Land Management and other participating agencies in the Western Mojave Coordinated Management Plan are likely to be ~~with~~ compatible with management prescriptions specified in the Station's Desert Tortoise Management Plan.

Incidental Take

Section 9 of the Act prohibits the take of listed species without special exemption. Taking is defined as harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, collecting, or attempting to engage in any such conduct. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Under the terms of sections 7(b)(4) and 7(o)(2) of the Act, 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 as reasonable and prudent measures and terms and conditions in this biological opinion are nondiscretionary, and must be undertaken by the agency or made a binding condition of any grant or permit, as appropriate.

This biological opinion anticipates the following forms of take which would be associated with implementation of the reasonable and prudent measures:

1. Two (2) desert tortoises per year in the form of direct mortality during implementation of the Management Plan.

2. A total of forty (40) desert tortoises in the form of direct mortality during implementation of the Management Plan.

3. Ten (10) desert tortoises per year in the form of harassment through the excavation of burrows occupied by desert tortoises and the removal of desert tortoises found above ground in project areas during work and training activities.

This biological opinion does not authorize any form of take that is not incidental to implementation of the Desert Tortoise Management Plan at the Station, China Lake. Implementation of the plan is considered to include all activities that meet the criteria as established by the Navy in its plan and the Service in this biological opinion.

If the incidental take authorized by this biological opinion is met, the Navy shall immediately notify the Service in writing. If the incidental take authorized by this biological opinion is exceeded, the Navy shall immediately cease the activity resulting in the take and shall reinitiate formal consultation with the Service.

Reasonable and Prudent Measures

The Service believes that the following reasonable and prudent measures are necessary and appropriate to minimize the incidental taking authorized by this biological opinion:

1. Worker education programs and well-defined operational procedures shall be implemented to avoid the take of desert tortoises and minimize loss of their habitat implementation of the Desert Tortoise Management Plan.

2. Take of desert tortoises, through injury or death due to the straying of vehicles or equipment beyond project areas, shall be reduced through establishment of clearly defined work areas.

3. Take of desert tortoises, through injury or death, found within proposed project areas shall be reduced through the removal of these animals to safe, undisturbed areas adjacent to project sites.

4. Attraction of common ravens and other potential tortoise predators to project areas shall be reduced to the maximum extent possible.

5. The Station shall continue to manage for the benefit of desert tortoises the approximately 200,000 acres within the Station as described in the original biological opinion for the Management Plan.

Terms and Conditions

To be exempt from the prohibitions of section 9 of the Act, the Navy is responsible for compliance with the following terms and conditions, which implement the reasonable and prudent measures described above. With the exception of updating reference to handling protocols and ensuring that wording reflects current conditions, the terms and conditions reiterate those presented in the Service's 1992 biological opinion on the Management Plan. They are included here to avoid the necessity of referring to another document and to minimize any confusion that could arise when two documents are involved.

Terms and conditions 1a, 1f, 1h, 1i, 1j, 1l, 1m, 2, 5, and 6, are established to implement reasonable and prudent measure 1. Terms and conditions 1b and 1e are established to implement reasonable and prudent measure 2. Terms and conditions 1c, 1d, 1k, and 4 are established to implement reasonable and prudent measure 3. Term and condition 3 is established to implement reasonable and prudent measure 4. Term and condition 1g is established to implement reasonable and prudent measure 5:

1.a. All proposals for new projects (and modifications to existing project sites) shall be reviewed by the Environmental Project Office (Code 823E00D). New projects include new construction or other land disturbing activities as well as significant changes in land use activities or types at established sites. Ongoing activities that may result in take of desert tortoises shall be reviewed on an annual basis. The Station-wide educational program (discussed in measure 6) shall focus on the procedures and requirements to eliminate off-site impacts and other actions that may result in inadvertent take.

1.b. The primary means to eliminate or minimize impacts to desert tortoises or their habitat shall continue to be through the use of avoidance procedures. These methods shall include the following:

i. Consultations with project proponents by Environmental Project Office (Code 823E00D) staff early in the planning process shall try to locate proposed project sites in areas that are not in desert tortoise habitat.

ii. If projects cannot be located in areas outside desert tortoise habitat, then the Environmental Project Office shall try to influence the project design such that projects are located in previously disturbed areas or so that the amount or type of disturbance is minimized.

1.c. Surveys for desert tortoises shall be accomplished for all projects which may be located in desert tortoise habitat. Surveys shall be accomplished by qualified biologists either currently employed by the Environmental Project Office (Code 823E00D) or through the use of contractor personnel. All surveys shall be accomplished in accordance with Service protocol. Modifications to the protocol to meet the requirements of specific actions shall receive prior approval from the Service.

1.d. Whenever possible, project sites shall be selected so that they are located in previously disturbed areas. Measures to minimize take shall include modifications to project size, orientation, location and construction practices. Should projects have to be located where desert tortoises are known to exist, the desert tortoises shall be relocated in accordance with procedures in Appendix A "Desert Tortoise Handling and Overwintering Procedures" (Desert Tortoise Council 1994).

1.e. Incidental take shall be minimized by taking the following measures. Actual measures shall be based on the results of site specific field surveys and shall be implemented at the discretion of Code 823E00D personnel:

i. Regular monitoring of construction operations and active project activities;

ii. Placement of signs indicating the need to reduce speeds on roadways and the necessity for all activities to be strictly confined to the project site;

iii. Clearly delineating the project site boundaries on the ground by flagging, survey lath or wooden stakes;

iv. Placement of desert tortoise-proof fences around certain projects or portions of projects where, due to the known proximity of desert tortoises to the project site, the probability of take is high;

v. Conduct project personnel briefings for all project personnel during all project phases. At a minimum the briefings shall discuss:

- the general provisions of the Endangered Species Act;
- the necessity for adhering to the provisions of the Act;
- the penalties associated with violating the provisions of the Act;
- the specific requirements (as delineated by this office) for complying with the provisions of the Act as they relate to each project;
- the exact boundaries of the project within which the project may be accomplished;
- the procedures to be accomplished by project personnel should any problem arise with respect to complying with environmental constraints;
- general behavior and ecology of the desert tortoise; and
- its sensitivity to human activities.

vi. Pre-construction site surveys to ensure the project area has remained clear of desert tortoises since the initial site surveys were accomplished. Pre-construction surveys shall be conducted within 7 days of initiation of construction activities; and

vii. Written operations plans detailing special constraints on project activities such as surveys or sweeps of project areas immediately prior to initiation of project activities for those projects which use areas on an infrequent basis.

1.f. The Station shall conduct an environmental briefing, with emphasis on threatened/endangered species management and the existence and details of the Desert Tortoise Habitat Management Plan to all Station and contractor personnel who use areas considered desert tortoise habitat. The briefing shall be conducted by Code 823E00D biologists. The briefing shall discuss the specific element of the Plan as well as general procedures detailing compliance with the Endangered Species Act.

1.g. The Station shall administer approximately 200,000 acres of land (contiguous) on the its South Range as the Desert Tortoise Management Area. This term and condition does not preclude the use of existing developments or eliminate ongoing or previously occurring activities within these areas. All personnel who use these developments or participate in such actions within these areas shall attend the educational program prior to the onset of activities. All other applicable terms and conditions of this biological opinion shall also be implemented. Existing, developed or utilized areas within the designated Desert Tortoise Management Areas shall be clearly delineated on the ground by placement of permanent markers (wooden posts). Entry points (roads) into these areas shall be delineated by signs indicating that personnel are entering a Desert Tortoise Management Area and that all activities must be strictly confined to established roadways and project sites.

1.h. The procedure for implementing this management plan shall vary depending on the location of the proposed project within or outside of the Management Area, the proposed size (acres) of the project area and the presence or absence of desert tortoises or their sign in the area. A written summary of the procedure is presented below and in the Service's previous biological opinion (Service 1992):

For: Projects outside the Management Area
Less than 50 acres in total area

With desert tortoise sign (on or near the project site):
Implement appropriate measures to preclude take
Notify Service in Annual Report

For: Projects outside the Management Area
Less than 50 acres in total area
Without desert tortoise sign (on or near the project site):
Notify Service in Annual Report

For: Projects outside the Management Area
Greater than 50 acres in total area
Without desert tortoise sign (on or near the project site):
Notify Service in Annual Report

For: Projects outside the Management Area
Greater than 50 acres in total area
With desert tortoise sign (on or near the project site):
Notify Service of project proposal with supporting documentation and request their review
Initiate section 7 consultation on request of Service

For: Projects inside the Management Area
Greater than 2.5 acres
With or without desert tortoise sign:
Notify Service of project proposal with supporting documentation and request their review
Initiate section 7 consultation on request of Service

For: Project inside the Management Area
Less than 2.5 acres
With or without desert tortoise sign:
Implement appropriate measures to preclude take
Notify Service in Annual Report

1.i. Should the cumulative acreage developed within the Management Area exceed 5 percent of the total Management Area acreage, the Station shall reinitiate formal section 7 consultation. Should small (less than 2.5 acres) project sites be established in such a fashion that they are adjacent to or near other small projects and the actual area of effect could be considered to be greater that 2.5 acres, the small projects shall each be considered to be greater than 2.5 acres and treated as described in measure 1m.

1.j. Active or usable desert tortoise burrows located adjacent to or near construction sites shall be protected by temporary desert tortoise-proof fencing placed to completely enclose the burrow at a minimum distance of 20 feet from the burrow.

1.k. Desert tortoise burrows which cannot be avoided shall be excavated by hand either by or under the direction of the authorized biologist. Desert tortoise burrow excavation and subsequent handling of any desert tortoises shall follow guidelines established in Appendix A.

The following information shall be recorded for all desert tortoises that are handled: the location where the desert tortoise was found; the location to which it was moved; the date and time of the action; any other pertinent information, including observations on the health and condition of the desert tortoise, and whether it voided its bladder upon handling; and appropriate length measurements, descriptions of unique markings, a detailed photograph of the fourth left costal scute, and photographs of at least the desert tortoise's anterior area and carapace.

1.l. Code 823E00D shall prepare and submit to the Service for its review and comment an annual report containing:

i. a general summary of all projects that have been initiated on the Station within the one year reporting period and shall include:

- a list of projects which implemented the provisions of this agreement;
- the total number of desert tortoises that were taken, through injury, mortality, or harassment;
- the total acreage of desert tortoise habitat lost or disturbed;
- a summary of the effectiveness of the take minimization measures; and
- a discussion of any problems encountered and recommendations on how to reduce or eliminate these problems.

ii. A specific summary of each project undertaken. This report shall detail:
- the project name;
- a project description;
- the project location (map);
- the total acreage of the project;
- the total number of desert tortoises that were taken, through injury, mortality, or harassment;
- the acreage of desert tortoise habitat lost and its relative condition;
- measures taken to ensure that take has been minimized or eliminated;
- follow-up data on success of impact (take) minimization efforts;
-any problems encountered with respect to implementing the provisions of the management plan; and
- the information collected on all desert tortoises as specified in term and condition 1.k of this biological opinion.

1.m. Should unforeseen problems arise or the Station propose activities that are not compatible with the continued implementation of the Desert Tortoise Management Plan, the Station shall reinitiate the formal section 7 consultation process. In addition, reinitiation of the consultation process shall be required if the criteria promulgated at 50 CFR 402.16 are met. These criteria are stated at the conclusion of this biological opinion.

2. Only qualified personnel authorized under the auspices of this biological opinion shall handle desert tortoises. Tom Campbell, Susan Williams, and Beverly Kohfield of the Station's Environmental Project Office are hereby authorized to handle desert tortoises as described in this biological opinion. If the Station wishes to use other Navy employees or outside contractors to handle desert tortoises, the names and credentials shall be supplied to the Service for its review and approval at least 15 days prior to the onset of the activities which they are being authorized to monitor.

3. All trash and food items shall be promptly contained within raven-proof containers. These containers shall be regularly removed from the project sites to reduce the attractiveness of the area to common ravens and other desert tortoise predators.

4. The authorized biologist(s) shall follow the general handling methods contained in the guidelines in Appendix A. This biological opinion does not authorize replacement of lost fluids in any desert tortoise with a syringe, the drawing of blood, or notching of the shell to mark animals. Marking of desert tortoises using the epoxy method as described in Arizona Game and Fish Department et al. (1991) is authorized.

5. Desert tortoises moved from harm's way within the vicinity of a project site shall be marked for future identification. An identification number using the acrylic paint/epoxy covering technique shall be placed on the fourth ~~left~~ costal scute (Fish and Wildlife Service 1991). 35-mm slide photographs of the carapace, plastron, and the fourth costal scute shall be taken.

6. All personnel shall check beneath their vehicles while in desert tortoise habitat prior to moving the vehicle. If a desert tortoise is found beneath the vehicle, an authorized biologist shall move the desert tortoise as described in this biological opinion or the vehicle operator shall wait until the desert tortoise has moved away from the vehicle. The authorized biologist shall ensure that any desert tortoises moved in this manner will not be exposed to temperatures that could be harmful to the desert tortoise. All personnel shall be advised of the potential for desert tortoises to take refuge under vehicles and of the proper procedures to follow in that event. This information shall be incorporated into all educational briefings on the desert tortoise.

Disposition of Dead, Injured, or Sick Desert Tortoises

Upon locating dead, injured, or sick desert tortoises, initial notification must be made within three working days of the finding to the Service's Division of Law Enforcement in Torrance, California, at (310) 297-0062. The Service's Ventura Office should also be notified at (805) 644-1766. Written notification to both offices must be made within five calendar days and include the date, time, and location of the carcass, a photograph, and any other pertinent information. Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible state. The Station shall endeavor to place the remains of intact desert tortoises with educational or research institutions holding the appropriate State and Federal permits per their instructions. If such institutions are not available or the shell has been damaged, the information noted above shall be obtained and the

carcass left in place. The Station should consider marking the carcass in a manner that would not be toxic to other wildlife to ensure that it would not be re-recorded in the future.

Arrangements regarding proper disposition of potential museum specimens shall be made with the institution by the Station prior to implementation of the action. Injured animals should be transported to a qualified veterinarian. Should any treated desert tortoises survive, the Service should be contacted regarding the final disposition of the animals.

Conservation Recommendations

In furtherance of the purposes of the Endangered Species Act (sections 2 c and 7(a)(1)) that mandate Federal agencies to utilize their authorities to carry out programs for the conservation of listed species, we recommend implementing the following actions:

1. The Station should instruct all personnel in the appropriate procedures to follow if a desert tortoise is encountered on a road where it may be at risk from vehicle traffic. They should also be advised that these procedures may also be followed when traveling outside of Navy lands.

2. The Station should consider cooperating with the Bureau of Land Management (Bureau) in monitoring common raven use within the Station. The Bureau's Desert District Office in Riverside may be able to provide the Station with standard raven monitoring techniques.

3. The Station should attempt to coordinate any enhancement or restoration of desert tortoise habitat that is adjacent to public lands with the Bureau to maximize the beneficial effects of both agencies' efforts.

4. The Station should investigate methods of restoring disturbed habitat to more natural conditions if it can be determined that the disturbed area is unlikely to be used for future activities. Regarding restoration efforts, the Station may wish to contact Dr. Jerry Freilich of Joshua Tree National Park at (619) 347-4528. Joshua Tree National Park has implemented restoration efforts at numerous locations within its boundaries.

The Service requests notification of the implementation of any conservation recommendations so we can be kept informed of actions that either minimize or avoid adverse effects, or that benefit listed species or their habitats.

Conclusion

This concludes the reinitiation of formal consultation on the proposed Desert Tortoise Habitat Management Plan for the Station at China Lake. Reinitiation of formal consultation is required if: 1) the amount or extent of incidental take is reached; 2) new information reveals effects of the agency action that may adversely affect listed species or critical habitat in a manner or to an extent not considered in this biological opinion; 3) the agency action is subsequently modified in a manner that causes an effect to a 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 this action (50 CFR 402.16). Any questions or comments should be directed to Kirk Waln at the Ventura Field Office at (805) 644-1766.

Sincerely,

Diane K. Noda

Diane K. Noda
Field Supervisor

Literature Cited

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B SHPO Consultation

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Table B-1 is a summary table of all the buildings affected by the Proposed Action that are being consulted on.

Table B-1 Buildings Affected by BRACON and Status of Section 106 Consultation

BRACON	Affected Buildings (Renovation Unless Stated Otherwise)	Eligibility
P-745V	02602 (Demo) 02624 (Demo)	Ineligible Ineligible
P-754V	01028 (Renovation or Demo) 01025 20210	Ineligible Ineligible Ineligible
P-755V	00001 00466 31567	Eligible Ineligible Ineligible
P-749V	10170 10173	Eligible Eligible
P-732V	00005[A]	Eligible
P-747V – None of the buildings in P-747V will be directly affected by the Proposed Action, however, these four were consulted on as ineligible.	01482 01483 01095 02025	Ineligible Ineligible Ineligible Ineligible
P-704V	10520 10690 15800 11050[A] 15790 11570 15560 12170 11510 16079 12143,	Eligible Eligible Eligible Eligible Eligible Eligible Eligible Eligible Ineligible Ineligible Ineligible
P-759V	01040 01041 01042	Ineligible Ineligible Ineligible
P-778V	12160 (Addition)	Eligible
Alternative 1	00008	Ineligible
Alternative 2	00005[A]	Eligible

[A] Mitigation is required for these structures.

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5090
Ser N45NCW/206
May 17, 2006

Mr. Milford Wayne Donaldson
Office of Historic Preservation
California Department of Parks and Recreation
P.O. Box 942896
Sacramento, CA 94296-0001

Dear Mr. Donaldson:

Please find enclosed the "Evaluation of Effect for Nine Buildings China Lake BRAC Project 2005, NAWS, China Lake." The US Navy is submitting this report to your office for consultation pursuant to Section 106 of the National Historic Preservation Act and 36 CFR 800.

The Navy proposes modifications to nine buildings located on the Naval Air Weapons Station (NAWS), China Lake, in Kern and San Bernardino counties, California that were previously determined eligible for listing in the National Register of Historic Places (OHP concurrence letter #USN970409A dated 6 Aug 1997). The buildings that are part of this project and which are located in the project's Area of Potential Effect (APE) are:

- NAWS Headquarters Building (Building 00001);
- Michelson Laboratory (Building 00005);
- Three buildings that contribute to the China Lake Pilot Plant Historic District (Building 10520, Building 10690, and Building 11050); and
- Four contributing buildings of the Salt Wells Pilot Plant Historic District (Building 11570, Building 15560, Building 15790, and Building 15800).

Most of the proposed modifications to these buildings are interior alterations, and only two of the buildings, namely the Michelson Laboratory (Building 00005), and the Public Works Machine Shop (Building 11050), will undergo exterior changes. The exterior changes proposed for the Building 00005 and Building 11050 include:

- Replacement of exterior doors and frames on both buildings;
- Replacement of exterior window frames and glazing on both buildings;
- Providing new shade louvers in the existing concrete shade structures on Building 0005;
- Installing reinforced concrete walls in the place of some of the existing panels of windows on Building 0005;
- Constructing a small restroom addition on Building 11050.

As discussed in the enclosed report, the project's proposed alterations for rehabilitation of buildings in the APE will be consistent with the *Secretary's Standards for the Treatment of Historic Properties* (36 CFR Part 68), Standards for Rehabilitation. Doors and windows will be

replaced in-kind. The design of the new shade louvers will match the design of the original shade louvers, albeit in a material other than the original concrete. The new concrete wall panels will be installed for seismic safety, matching walls previously installed in the building's wings in 1987, and the restroom addition at Building 11050 will not affect the building's character-defining features.

The enclosed Evaluation of Effect report presents the analysis of effects that the China Lake BRAC Project 2005 may have on the NRHP eligible buildings listed above, based upon application of the Criteria of Adverse Effect in 36 CFR 800.5. The report follows the guidelines for documentation in 36 CFR 800.11. The evaluation concludes that the project will have no adverse effect on any of the nine buildings in the APE at NAWS, China Lake, California, and therefore the project will have no adverse effect on historic properties. The Navy thus is seeking your concurrence on finding of no adverse effect pursuant 36 CFR 800.5(b) for the China Lake Base Realignment and Closure (BRAC) Project 2005.

Please direct any questions regarding our determination of "no adverse affect" from the proposed BRAC actions to Mr. Russell Kaldenberg, Archeologist, Environmental Planning and Management Department (Code N45NCW). He can be reached at (760) 939-1350 or via e-mail at russell.kaldenberg@navy.mil.

Sincerely,

CAROLYN A. SHEPHERD
Head, Environmental Planning & Mgmt. Dept.
By direction of
the Commanding Officer

Enclosure: 1. Evaluation of Effect for Nine Buildings, China Lake BRAC Project 2005, NAWS, China Lake.

Blind copy to (w/o encl):
725000D-1018
N45NCW-4014 (file, Pennix, Kaldenberg, O'Gara)

Writer: S. Pennix, N45NCW, 939-3238
Typist: L. Esmeralda, 939-2750, 15 May 06

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STATE OF CALIFORNIA – THE RESOURCES AGENCY
ARNOLD SCHWARZENEGGER, *Governor*

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21 JUN 2006

June 15, 2006

In reply refer to: USN060519A

Carolyn Shepard
Head, Environmental Planning & Mgmt. Dept.
U.S. Department of the Navy
Naval Air Weapons Station
1 Administration Circle
China Lake, CA 94296-0001

Re: Evaluation of Effect for Nine Buildings China Lake BRAC Project 2005, Naval Air Weapons Station, China Lake, Kern and Bakersfield Counties, California

Dear Ms. Shepard:

Thank you for your letter of 17 May 2006 requesting my review and comment in regard to the proposed modifications to nine buildings located on the Naval Air Weapons Station (NAWS), China Lake that were determined eligible for listing in the National Register of Historic Places in 1997. You are consulting with me, in order to comply with Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470f), as amended, and its implementing regulation at 36 CFR Part 800. Specifically, you are seeking my concurrence with the United States Navy's finding that the above mentioned undertaking will result in No Adverse Effect to the following historic properties:

- Building 00001 (NAWS Headquarters);
- Building 00005 (Michelson Laboratory);
- Buildings 10520, 10690, 11050 (contributors to the China Lake Pilot Plant Historic District); and
- Buildings 11570, 15660, 15790, and 15800 (contributors to the Salt Wells Pilot Plant Historic District)

The proposed undertaking would include modifications to the interiors of all nine buildings along with exterior modifications to Building 00005 and Building 11050. In general, the interior work will consist of replacing floor, wall, and ceiling finishes as well as the upgrades to electrical and fire suppression systems. The exterior changes to Building 00005 and Building 11050 include:

- Replacement of exterior doors and frames (both buildings);
- Replacement of exterior window frames and glazing (both buildings);
- Installation of new shade louvers in existing frames (Building 00005);
- Replacing window panels with reinforced concrete shear wall seismic panels (Building 00005); and
- Construction of a restroom addition (Building 11050)

The Navy has applied the criteria of adverse affect (36 CFR § 800. 5(a)(1)) and has concluded that the proposed undertaking will not alter the characteristics of the individual buildings, or the historic districts to which they may contribute, that qualify the properties for listing in the NRHP. Consequently, the Navy has determined that the undertaking will have no adverse effect on historic properties and has submitted the report *An Evaluation of the Rehabilitation of Nine Buildings: China Lake BRAC Project 2005, Naval Air Weapons Station (NAWS), China Lake in Kern and San Bernardino Counties* (February 2006) to support this determination.

Regrettably, I cannot concur with this finding at this time. The Navy has stated that the undertaking will be carried out in a manner consistent with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (Standards), in particular the *Standards for Rehabilitation*. I do not believe that the Navy has submitted sufficient evidence of how the Standards are to be met.

The Navy proposes to replace doors and windows on both Buildings 00005 and 11050. Although energy efficiency is cited as one purpose and need of the undertaking, this alone does not justify the replacement of character-defining features. The Standards suggest that deteriorated features should be repaired rather than replaced, and only where the severity of deterioration requires replacement should they be replaced, and then in-kind. Consequently, I would appreciate it if the Navy could provide evidence that alternative means of providing energy efficiency, such as weather-stripping, caulking, window film, and so forth, which would allow original features to remain intact, have been studied. Furthermore, although the Navy has stated that the windows and doors will be replaced in-kind, I would appreciate the opportunity to review the plans and specifications of the proposed replacement windows and doors.

With regard to the door and window replacement proposed for Building 00005, the documentation indicates that this will take place in those portions of the building undergoing rehabilitation. Building 00005 is a large and complicated building and the description of the location of the proposed work in the submitted documentation is somewhat vague. Therefore, I request that the Navy provide me with a figure, or series of figures that illustrate the exact location of the proposed window and door replacement so that I may better understand the effects of the undertaking.

As the Navy has properly identified, the most intrusive alteration proposed on Building 00005 will be the replacement of window panels on Wings 1, 4, and 5 with new concrete panels to add seismic stability to the building. As with the other window replacement, I would like the opportunity to review a figure that indicates the exact location of the proposed shear walls. As you know, the placement of these panels would disrupt a continuous fenestration pattern, a character-defining feature of the building. Rather than mimicking the design of previous seismic panels added to the building, I suggest that the proposed work at these windows be consistent with the Standards. In general, when windows must be blocked, it is recommended that an effort should be made to convey the original patterns and rhythms of the original building. One way of doing this is to allow the window to remain in place as a blind window. Less ideal, but acceptable

nevertheless, could be by means of a recessed (3/4-inch) smooth plaster infill of the same dimensions of the missing window.

Finally, with regard to the proposed replacement and reconstruction of the exterior shade louvers on Building 00005, the Navy has indicated that the new louvers would visually match the original concrete louvers. I would appreciate the opportunity to review a plan or photograph of the replacement louvers and a figure that illustrates where the replacement components will be located.

For the proposed rehabilitation of Building 11050, I would appreciate the opportunity to review plans and specifications that further demonstrate how the work complies with the Standards. In particular, how will the new work be differentiated from the old and will it be compatible with the historic materials, features, size, scale and proportion, and massing. Moreover, I would also like to know how the new addition will be constructed in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Thank you for seeking my comments and considering historic properties as part of your project planning. I believe that if you are able to provide me with the additional documentation I have requested that I can concur with a Finding of No Adverse Effect. I look forward to continuing consultation on this undertaking with you. If you have any questions or concerns, please contact David Byrd, Project Review Unit historian, at (916) 653-9019 or at dbyrd@ca.parks.gov.

Sincerely,

Susan K Stratton for

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

MWD:db

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TO: California State Historic Preservation Office
ATTENTION: David Byrd
FROM: Russell Kaldenberg, Command Archaeologist, China Lake, NAWS

RE: USN060519A – Evaluation of Effect for Nine Buildings China Lake BRAC Project 2005, Naval Weapons Station, China Lake, Kern County and San Bernardino County, California

This memorandum documents a telephone conversation as a response to your letter of 15 June 2006 and the teleconference of 24 July 2006 between me and SHPO Historian II David Byrd and SHPO Restoration Architect Timothy Brandt, along with the Navy's architectural historian consultants Rand Herbert and Chris McMorris of JRP Historical Consulting, LLC. The purpose of this memoralization is to reiterate some of the information the Navy provided to SHPO during the teleconference and to provide SHPO with additional information and about the purpose and need for replacement of windows on the Michelson Laboratory (Building 00005) and CLPL Public Works Machine Shop (Building 11050) on the Naval Air Weapons Station, China Lake.

The Finding of Effect (FOE) report (February 2006) submitted to SHPO for the project on these buildings was not sufficiently clear that the Navy is proceeding with this undertaking using design / build contracts. The Navy intends to use the conclusions of the FOE to guide the design and construction of these projects, whereby JRP will assist the Navy with specific specifications to use in the project contracts that will ensure the Secretary of Interior's Standards for Rehabilitation are met.

David Byrd requested that the Navy submit additional information about the window replacement on Building 00005 and Building 11050. The purpose and need for replacing the windows of these building are threefold. First, the existing windows are inadequate to meet energy sufficiency needs in the harsh climate and extreme temperatures of China Lake. Studies by NAWS architects, engineers, and their consultants, have identified the need for these changes. Second, the window replacement project will address national security needs, wherein the current windows are inadequate to guard against listening devices being used to hear activities on the interior of the building. Currently, windows are blocked by panels and insulation, where

necessary, to address this concern. This aspect of the project would have the benefit of bringing back the original appearance of the windows that are now blocked. Third, the BRAC program is likely to increase staffing levels in both buildings, increasing the both the energy efficiency and security demands of the facilities. I remind you that Building 11050 is being converted from a utilitarian engineering shop into offices.

Tim Brandt requested that the Navy consider options other than complete window replacement. He suggested that the Navy could build exterior sunscreens that would be reversible. We are currently reviewing this and other options, such as additional glazing that could be placed on the interior of some inoperable windows. The Navy would be concerned that these options would not result in the necessary energy efficiencies or security required. Furthermore, exterior sunscreens, even "temporary" ones, could affect the historic integrity of design on Building 00005 and Building 11050.

In response to our discussion about the seismic panels proposed for Building 00005, and as outlined in your 24 June letter, we will specify that their design will be a three quarter inch recessed smooth plaster in-fill of the same dimensions as the windows to be removed.

We will provide some simple elevations to clarify the location of proposed work. Rand Herbert is away from his office until September 21, 2006.

It is our understanding, based on the 24 July 2006 teleconference, that SHPO could conclude a Finding of No Adverse Effect with Conditions following receipt of the additional information provided in this memorandum. The conditions would be that the Navy would submit the design plans for Building 00005 and Building 11050 to SHPO for review once those plans have been prepared.

Call me at 760 939-1350 should you have questions or if you do not remember our telephone conference as is memoralized here. Thanks.

Date September 12, 2006

STATE OF CALIFORNIA – THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
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SACRAMENTO, CA 94296-0001
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September 27, 2006 In reply refer to: USN060519A

Carolyn Shepard
Head, Environmental Planning & Mgmt. Dept.
U.S. Department of the Navy
Naval Air Weapons Station
1 Administration Circle
China Lake, CA 94296-0001

Re: Evaluation of Effect for Nine Buildings China Lake BRAC Project 2005, Naval Air Weapons Station, China Lake, Kern and Bakersfield Counties, California

Dear Ms. Shepard:

Thank you for your continuing consultation with regard to the proposed modifications to Buildings 00001, 00005, 10520, 10690, 11050, 11570, 15660, 15790, and 15800 at the Naval Air Weapons Station (NAWS), China Lake. On 17 May 2006, you wrote requesting my concurrence with the Navy's finding that proposed modifications would be consistent with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (Standards) and therefore would result in No Adverse Effect to the historic properties. On 15 June 2006, I responded to your letter saying that at that time I was not able to concur with the Navy's finding because I did not believe that the Navy had submitted sufficient evidence of how the Standards were to be met.

In a 24 July 2006 teleconference with Mr. Russell L. Kaldenberg, Command Archaeologist/Cultural Resources Manager, China Lake, NAWS, Navy consultants, and David Byrd and Timothy Brandt of my staff, it was agreed that if the Navy could provide me additional information regarding the purpose and need of the undertaking and demonstrate the means in which the Standards would be met, it would be possible for me to concur with a Finding of No Adverse Effects with Conditions pursuant to 36 CFR § 800.5(b). Based on the information Mr. Kaldenberg provided to me on 14 September 2006 and 25 September 2006, I am now able to agree with a finding of No Adverse Effects with Conditions is the appropriate finding for the undertaking. The conditions for my agreement with this finding are that the Navy will submit design plans and specifications, including the location of all work to be done, to me for review once those plans and specifications have been prepared.

Thank you for seeking my comments and considering historic properties as part of your project planning. I look forward to continuing consultation on this undertaking with you when you have developed your plans. Please be aware that your Section 106 obligations will not have been fully met until I have had the opportunity to review the

plans and specifications I have requested and the conditions stated above are met. If you have any questions or concerns, please contact David Byrd, Project Review Unit historian, at (916) 653-9019 or at dbyrd@parks.ca.gov.

Sincerely,

Susan K Stratton for

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

MWD:db

DEPARTMENT OF THE NAVY
NAVAL AIR WEAPONS STATION
1 ADMINISTRATION CIRCLE
CHINA LAKE, CALIFORNIA 93555-6100

IN REPLY REFER TO:
5090
Ser N45NCW/076
February 15, 2007

Mr. Milford Wayne Donaldson
Office of Historic Preservation
California Department of Parks and Recreation
P. O. Box 942896
Sacramento, CA 94296-0001

Dear Mr. Donaldson:

The Base Realignment and Closure (BRAC) Act was signed into law on October 24, 1988 (Public Law 101-526) and subsequently amended in November 1990 (Public Law 101-510; commonly known as the BRAC II legislation). The purpose of the BRAC legislation was to establish a procedure for the realignment and closure of Department of Defense (DOD) military installations. The most recent BRAC Commission Report was enacted into law in late 2005, and included several initiatives to realign defense functions and personnel to the Naval Air Weapons Station, China Lake. The scope of these BRAC recommendations would impact many existing buildings on China Lake by requiring interior renovation, remediation, or demolition of those facilities. A previous consultation on this project, which we initiated, with your office on May 17, 2006 (USN060519A) concluded with your letter of September 27, 2006 concurring with our determination of no adverse effect on modifications to nine eligible historic era-military buildings: 00001, 00005, 10520, 10690, 11050, 11570, 15560, 15790, and 15800.

Subsequent to our first BRAC consultation, the scope of the China Lake BRAC was further defined. It became clear that we needed to consult on additional historic-era buildings and resources that could be affected. The purpose of this consultation letter is to notify you of our "no effect" determination for proposed interior renovations to four historic district buildings, and to request the following:

a. Concurrence with our determination of "ineligible for inclusion on the National Register" for two cultural resource sites occurring in an area proposed for BRAC-related construction that were surveyed in 2006 (Enclosure 1);

b. Concurrence with our determination of "ineligible for inclusion on the National Register" for 4 buildings evaluated in 2007 (Enclosure 2);

c. Concurrence with our determination of "ineligible for inclusion on the National Register" for 13 other historic-era buildings evaluated in 1997 (Enclosure 3).

Mr. David Byrd, of your staff, has suggested that, the present consultation should be provided a new case file number and should be separated from the previous completed consultation (USN060519A) noted earlier.

Area of Potential Effect

The area of potential effect (APE) for each action in this undertaking is the "footprint" of the proposed action (such as the buildings in the case of remodeling or construction, or in the case of undisturbed lands, the edge of the aircraft runway or the edge of a road, sidewalk, or parking area). These actions and associated properties are discussed below.

Buildings Evaluated and Determined to be Eligible for Listing (Enclosure 1)

Buildings 10170, 10173, 12160, 12170 at the China Lake Propulsion Laboratory (CLPL), are contributing properties to the CLPL National Register Historic District. The importance of these buildings is in their architecture and ongoing use in support of the production and evaluation of propellants. Under the BRAC action, only the interior of each building will be modified to accommodate offices, laboratory space and increased storage. The exteriors will remain unchanged. Therefore, NAWS China Lake has determined that the interior renovations of the BRAC actions to those buildings are considered a "no effect" to those historic buildings.

Archaeological Resources at the New Hangar Site (Enclosure 2)

This location involves over 200 acres dedicated to the new hangar and associated parking and taxiway. Two sites were located. CA Ker-6838 is a sparse lithic scatter located near one of the Armitage Air Field runways. Full documentation of 109 pieces of cryptocrystalline debitage occurred during the field phase of the project. Historic site CA Ker-6839/H is a water tank basin with associated irrigation pipe and concrete footings. Scattered nails, window glass and wood fragments are the remaining types of artifacts present. Based on ASM's documentation, we have determined that neither site meets the criteria for listing in the National Register of Historic Places pursuant to 36 CFR 60. Documentation of the resources has captured any information the sites may contain. We therefore determine that these properties are ineligible for listing to the NRHP and therefore, that the construction of a new hangar will have "no effect" to these archeological sites.

Buildings Evaluated by JRP in January 2007 (Enclosure 3)

Buildings 11510 and 12143 were previously evaluated in 1997 by JRP and were reexamined in 2007 to verify their status.

Building 11510, the Engineers' Building. This structure was built in 1946 and lies within the boundaries of the Salt Wells Pilot Plant Historic District. It is an industrial building that was

evaluated by JRP in October 1997 as a Non-Contributing building due to loss of integrity (JRP 1997:7) and confirmed by JRP in January 2007. Interior renovations are proposed in fiscal year 2010 to accommodate additional personnel.

Building 12143, is the Engineering Office located within the Salt Wells Pilot Plant facility but not within the Salt Wells Pilot Plant Historic District. It is a utilitarian single story manufactured metal building constructed in 1956. It was determined to be a Non Contributing building by JRP in January 2007. Interior renovations are proposed.

Buildings 20210 and 31567 were not previously evaluated. The 2007 report by JRP found them to be ineligible.

Building 20210 is the Paraloft Building located in the Main Site. It is a manufactured steel building with a central tower. It was manufactured in 1979 by the Strand Steel Company. Parachute technology was evaluated in this structure. The building is much less than fifty years old and the work in the building was not historically significant. This building is not eligible for listing in the National Register of Historic Places. The renovations proposed for this property would be interior office space development. The building would continue to function as a parachute loft, but it will be modernized to allow an increase in occupancy.

Building 31567, the Weather Resouces/Human Factors Building, is located in Main Site. This building was initially constructed in 1953 and was modified by the addition of a western element in 1972. This site is not eligible for listing in the National Register of Historic Places. The interior of the building will be modified to accommodate additional staff and laboratory space.

Buildings Determined Ineligible for Listing in the National Register of Historic Places by JRP, February 1997 (Enclosures 1 and 4)

The following 13 buildings, proposed for modification, demolition, or interior renovations, were determined to be not eligible for listing in the National Register of Historic Places by JRP Historical Consulting in 1997. These are all unremarkable, utilitarian buildings. To assist you in understanding our determinations of ineligibility, photographs and specifications are included as Enclosure 4 for each facility.

00008 – Safety/Security Building. Built in 1946, this building has been heavily modified over the years; doors and windows were replaced with glass and vinyl doors and vinyl-clad windows. A disability service ramp was added to building. Interior renovations were considerable. (JRP 1997 Vol. 1, p. 13-14) comments: "Building 8 has been so extensively modified as to appear to be a modern building."

01028 - Supply Control/Info System Building. Built in 1945, both the exterior and the interior have been modified over the years to meet changing requirements. It has had modern steel doors added. Most windows have been replaced with aluminum frame sliders or vinyl-clad.

01040 - Warehouse 28. Built in 1945 and revamped in 1983, this warehouse is one of a dozen or more warehousing/support buildings on Mainsite. Plans are to upgrade (new roof, air handlers, etc.) it to meet storage requirements for missile systems work.

01041 - NPPS Branch Office. Standard warehouse on Mainsite, like Bldg 01040. Interior renovations planned.

01483 - Grounds Maintenance Storage. Built in 1952, this is a small Butler building in the Public Works compound.

00466 - Commercial Activity Study Office. Built in 1945, it has upgraded windows and doors, and stucco siding completely re-done in the 1980s. Interior rehab is planned for continued use as office space.

01042 - Warehouse 29/Metals. Built in 1952, this warehouse is one of a dozen or more warehousing/support buildings on Mainsite. Plans are to upgrade (new roof, air handlers, etc.) it to meet storage requirements for missile systems work.

01482 - Grounds Maintenance/Storage. Built in 1952, this is a small Butler building in the Public Works compound. It is similar to 01483.

01025 - Warehouse 14. Built in 1945 and revamped in 1983, this warehouse is one of a dozen or more warehousing/support buildings on Mainsite. Plans are to upgrade (new roof, air handlers, etc.) it to meet storage requirements for missile systems work.

01095 - Grounds Maintenance Storage. Built in 1955, this Butler building in the Public Works Compound was completely covered with foam-coated protective paint in the 1980s. Interior renovations are planned.

02025 - Public Works Storage. Built in 1950, this is a steel storage shed with cinder block bottom. Security windows were added. After some interior renovations, it will continue to be used for storage.

02602 - Auto Hobby Shop, built in 1957 and its shade structure identified as Building **02624**, built in 1963. These buildings will be demolished to accommodate a parking lot for a new laboratory complex.

5090
Ser N45NCW/076
February 15, 2007

Concurrence Requested

We would like the Office of Historic Preservation to concur with the following:

a. Cultural resource sites Ca Ker-6838 and Ker-6839/H are not eligible for listing in the National Register of Historic Places;

b. The four buildings evaluated by JRP in 2007 are ineligible for inclusion on the National Register, and;

c. Thirteen other historic-era buildings evaluated by JRP in 1997 are ineligible for inclusion on the National Register.

Since the two cultural resources sites evaluated in 2006, and all 17 buildings evaluated in 1997 and in 2007 are not eligible for listing on the NRHP, NAWS China Lake has determined that BRAC actions would result in a "no effect" determination to the archeological sites and all 17 buildings. As is stated in 36 CFR 800.3 (c) (4) Navy will consider this undertaking to have fulfilled our requirements if we have not heard otherwise within 30 days of documented receipt of this consultation package.

Please direct any questions regarding our determinations of non-eligibility for the historic-era resources and archeological sites to Mr. Russell L. Kaldenberg, Archeologist, Environmental Planning and Management Department (Code N45NCW). He can be reached at (760) 939-1350 or via e-mail at russell.kaldenberg.@navy.mil.

Sincerely,

Carolyn A. Shepherd

CAROLYN A. SHEPHERD
Head, Environmental Planning and Mgmt. Dept.
By direction of
the Commanding Officer

Enclosures:
1. Inventory and Evaluation of National Register Eligibility, V.1 and 2 (1997)
2. Archeological Survey for 2005 BRAC Tech 18 Project (2006)
3. National Register Evaluation of Tech 18 Buildings 11510, 12143, 20210 and 31567 (2007)
4. Photographs of Buildings determined ineligible in 1997

Blind copy to (w/o encl):
N03NS-1004 (Janrhett)
N45NCW-4014 (file, Kaldenberg, Shepherd)

Writer: R. Kaldenberg/Shepherd 939-1350/4053, N45NCW
Typist: L. Esmeralda, 939-2750 15 Feb 07

029

CS

STATE OF CALIFORNIA – THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
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26 MAR 2007

March 19, 2007 In reply refer to: USN070220A

Carolyn Shepard
Head, Environmental Planning & Mgmt. Dept.
U.S. Department of the Navy
Naval Air Weapons Station
1 Administration Circle
China Lake, CA 94296-0001

Re: China Lake BRAC Project 2005, Naval Air Weapons Station, China Lake, Kern and Bakersfield Counties, California

Dear Ms. Shepard:

Thank you for your letter of 15 February 2007 requesting my review and comment with regard to the referenced undertaking. You are consulting with me, in order to comply with Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470f), as amended, and its implementing regulation at 36 CFR Part 800.

In order to accommodate additional personnel and mission changes at NAWS China Lake, the Navy is proposing the modification, renovation, or demolition of existing buildings and the construction of new buildings. The Navy has determined that there are 21 buildings and two archaeological sites that have the potential to be affected by the undertaking. In 1997, four of the buildings (Buildings 10170, 10173, 12160, and 12170) were determined eligible through consensus for inclusion in the National Register as contributors to the China Lake Propulsion Laboratory Historic District (USN970409A). You are requesting my concurrence with your eligibility determinations for the other 17 buildings and two archaeological sites and have submitted the following documentation to support your conclusions:

- *Inventory and Evaluation of National Register Eligibility for Buildings and Structures, Main Site, China Lake Propulsion Laboratory, Salt Wells Propulsion Laboratory, NAWS China Lake*, volumes 1 and 2 (February 1997)
- *National Register Evaluation of Tech 18 Buildings Numbered 11510, 12143, 20210, and 31567, at the Naval Air Weapons Station, China Lake, California* (January 2007)
- *An Archaeological Survey for the 2005 BRAC Tech 08 Project at the Naval Air Weapons Station, China Lake, California* (September 2006)
- NAWS China Lake Facility Data Sheets

Two buildings (Building 11510 and 12143) were previously evaluated as being non-contributing elements of the Salt Wells Pilot Plant Historic District; however, there was no consensus determination on their National Register status as part of that consultation (USN970409A) because there was insufficient information about the buildings in the documentation submitted at that time. Based upon a review of the materials included with your 15 February 2007 letter I can now concur that Buildings 11510 and 12143 are not eligible for inclusion in the National Register.

Fifteen of the buildings are located in the Main Site of the station. Thirteen of the buildings (Buildings 00008, 01028, 01040, 01041, 01483, 0466, 01042, 01482, 01025, 01095, 02025, 02602, and 02624) were included in the 1997 consultation as being not eligible for inclusion in the in the National Register, however as in the case with Buildings 11510 and 12143, no consensus determination for these buildings was reached at that time. After reviewing the information you submitted, I can now concur with your determination that these 15 buildings are not eligible for inclusion in the National Register.

Finally, the Navy has identified two archaeological sites within the parcel dedicated for a proposed new hangar and parking lot in the Armitage Air Field area of the station. CA-KER-6838 is a sparse lithic scatter and CA-KER-6839/H is a water tank basin with associated irrigation pipe and concrete footings. The Navy has concluded that neither site is eligible for inclusion in the National Register. After reviewing your report I concur with this determination.

Because the proposed building modifications will be to the interiors of eligible buildings and any demolition and new construction would be outside any historic district, the Navy has determined that the undertaking will have "no effect" on historic properties. After reviewing the documentation you included with your 15 February 2007, I do not disagree with your conclusion; however, I would suggest that a "No Historic Properties Affected" is the appropriate finding per 36 CFR § 800.4(d)(1) of the current version of the regulation (5 August 2005).

Thank you for seeking my comments and considering historic properties as part of your project planning. Please be advised that under certain circumstances, such as unanticipated discovery or a change in project description, the Navy may have additional future responsibilities for this undertaking under 36 CFR Part 800. If you have any questions or concerns, please contact David Byrd, Project Review Unit historian, at (916) 653-9019 or at dbyrd@parks.ca.gov.

Sincerely,

Susan K Stratton for

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

MWD:db

C Record of Nonapplicability

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DEPARTMENT OF DEFENSE
DEPARTMENT OF THE NAVY

CLEAN AIR ACT - GENERAL CONFORMITY RULE
RECORD OF NON-APPLICABILITY (RONA)

For
REALIGNMENT AND DEVELOPMENT OF A NAVAL INTEGRATED WEAPONS AND ARMAMENTS RESEARCH, DEVELOPMENT, AND ACQUISTION, TEST, AND EVALUATION CENTER

NAVAL AIR WEAPONS STATION (NAWS)
CHINA LAKE, CALIFORNIA

Summary
Projected air emissions associated with the proposed action are below *de minimis* levels, are not regionally significant, and do not require further conformity analysis.

C.1 Introduction

The Clean Air Act (CAA) as amended requires federal actions to conform to an approved state implementation plan (SIP). The SIP is designed to achieve or maintain an attainment designation for air pollutants as defined by the National Ambient Air Quality Standards (NAAQSs). The General Conformity Rule (40 Code of Federal Regulations [CFR] Parts 51 and 93) implements these requirements for federal actions occurring in air quality non-attainment and maintenance areas.

The CAA designates six pollutants as criteria pollutants for which NAAQSs have been promulgated to protect public health and welfare: particulate matter (PM_{10} and $PM_{2.5}$), carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), lead (Pb), and ozone (O_3). Areas that do not meet NAAQSs are designated as "non-attainment" for those criteria pollutants exceeding their respective NAAQS. Non-attainment status is further classified by the extent to which the standard is exceeded. There are six classifications of ozone non-attainment status—transitional, marginal, moderate, serious, severe, and extreme; and two classifications of CO and PM_{10} non-attainment status—moderate and serious. An area which has been redesignated from non-attainment to attainment is referred to as a "maintenance" area.

The activities proposed under this action at NAWS China Lake are located in Kern County and San Bernardino County, California, within the Kern County Air Pollution Control District (APCD), and the Mojave Desert Air Quality Management District (MDAQMD), respectively. The MDAQMD portion of NAWS has been designated by the United States Environmental Protection Agency (USEPA) as attainment for the $PM_{2.5}$ and 8-hour O_3 standards, and non-attainment for the PM_{10} standard. The Kern County APCD portion of NAWS is also in attainment for the $PM_{2.5}$ and 8-hour O_3 standards, and is a maintenance area for the PM_{10} standard. While the NAWS is in attainment for the 8-hour O_3 standard, it was previously a

maintenance area with respect to the 1-hour O_3 standard. Therefore, this analysis will include the precursors of O_3 (NO_X, and VOCs) to ensure this action will not interfere with state wide ozone standard implementation efforts.

A federal action is exempt from applicability of the General Conformity Rule requirements if the action's total net emissions are below the *de minimis* levels specified in the rule (see Table C-1) and are not regionally significant (i.e., the emissions represent 10 percent or less of a non-attainment or maintenance area's total emission inventory of that pollutant), that are not otherwise exempt per 40 CFR 51.153. Total net emissions include direct and indirect emissions from all stationary point and area sources, construction sources, and/or mobile sources caused by the federal action that are not covered by another permitting program. To determine if an exemption is applicable to this action, emissions of PM_{10} were evaluated.

Table C-1 *De Minimis* Levels for Exemption from General Conformity Rule Requirements for Ozone and Particulate Matter Metric Tons/Year ([Tons/Year])

Pollutant	Metric Tons/Year (Tons/Year)
O3 (Volatile organic compounds [VOCs] or Nitrogen oxides [NOx])	
Serious non-attainment areas	50
Severe non-attainment areas	25
Extreme non-attainment areas	10
Marginal and moderate O3 non-attainment and ozone maintenance areas outside an O3 transport region	
VOCs	100
NO_X	100
Marginal and moderate non-attainment and ozone maintenance areas inside an O_3 transport region	
VOCs	50
NO_X	100
Particulate Matter	
Moderate non-attainment and maintenance areas	91 (100)
Serious non-attainment areas	64 (70)

Source: 40 CFR 51.

[1] Ozone does not occur directly from any source, but results from a series of reactions between NO_x and VOCs in sunlight. Therefore, *de minimis* levels of NO_x and VOCs are used to determine exemption from the General Conformity Rule for emissions that would affect ozone levels in an area of non-attainment for ozone.

C.2 Proposed Action

The Proposed Action is in response to the BRAC Commission of 2005 recommendations for the realignment of personnel and activities at seven facilities to NAWS China Lake to create a Naval Integrated Weapons and Armaments Research, Development, and Acquisition, Test and Evaluation (W&ARD&AT&E) Center. This recommendation would result in the realignment of the following activities to NAWS China Lake:

- Naval Weapons Station (NWS) Seal Beach, California, by relocating all W&ARD&AT&E functions, except underwater weapons and explosive materials.

- Naval Base (NB) Ventura County, Point Mugu, California, by relocating all W&ARD&AT&E functions.

- NB Ventura County, Port Hueneme, California, by relocating all W&ARD&AT&E functions, except weapon system integration.

- Naval Surface Warfare Center (NSWC) Crane, Indiana, by relocating all W&ARD&AT&E functions, except gun/ammo, combat system security, and explosive materials.

- NSWC Dahlgren, Virginia, by relocating all W&ARD&AT&E functions, except guns/ammo and weapon systems integration.

- NSWC Indian Head, Maryland, by relocating all W&ARD&AT&E functions, except gun/ammo, underwater weapons, and explosive materials.

- Naval Air Station (NAS) Patuxent River, Maryland, by relocating all W&ARD&AT&E functions, except the Program Executive Office and Program Management Offices in Naval Air Systems Command (NAVAIR).

This action is specific to construction and operation of facilities on NAWS China Lake.

C.3 Projected Air Emissions

Air emissions would be associated with construction of the facilities associated with the Proposed Action during the construction phase, and then operation of the buildings and increased privately owned vehicle (POV) use. The construction will take place over five years, and emissions were calculated for each year of planned construction. The annual emissions estimates for construction are provided in Table C-2. The sources of emissions are described below, and detailed emission calculation information is provided in Appendix D of the EA. No indirect emissions would be associated with this action.

C.3.1 FY 2007

Construction activities that are planed for FY 2007 include BRAC Construction Projects (BRACONs) P-745V, P-754V, and P-755V. These BRACONs involve the construction of a one story Weapons and Armament Technology Center, surrounded by new lawn, sidewalks, and parking areas, renovation of several buildings to improve operational efficiency, and the construction of a Support Equipment Storage Facility. For purposes of this air quality evaluation, it is assumed that 22,147 square meters (238,397 square feet) of space will be constructed or renovated, 2,694 square meters (29,000 square feet) will be paved, and 4.85 hectares (12 acres) will be disturbed. Appendix D provides detailed breakdown and assumptions related to the assessment of air emissions from the construction of these facilities. Emission totals are summarizes below in Table C-2.

Table C-2 Annual Emissions

Activity	VOCs	NOX	PM10
2007 Construction Emissions			
Grading Equipment	0.45	4.23	0.36
Material Hauling	0.64	9.32	0.66
Fugitive Dust Emissions			4.82
2007 Total Emissions, Tons Per Year (TPY)	**1.09**	**13.54**	**5.83**
2008 Construction Emissions			
Grading Equipment	1.05	9.91	0.83
Material Hauling	1.51	21.84	1.55
Fugitive Dust Emissions			9.39
2008 Total Emissions, TPY	**2.56**	**31.75**	**11.78**
2009 Construction Emissions			
Grading Equipment	0.51	4.82	0.41
Material Hauling	0.73	10.62	0.75
Fugitive Dust Emissions			5.29
2009 Total Emissions, TPY	**1.24**	**15.44**	**6.45**
2010 Construction Emissions			
Grading Equipment	0.16	1.48	0.12
Material Hauling	0.23	3.26	0.23
Fugitive Dust Emissions			2.60
2010 Total Emissions, TPY	**0.38**	**4.74**	**2.95**
Final Annual Operational Emissions			
Vehicle operations increase	9.86	11.48	0.23
Heating and Cooling of new buildings	0.09	1.45	0.12
Increased aircraft emissions	8.59	7.10	11.76
Final Annual Emissions, TPY	**18.53**	**20.03**	**12.11**

C.3.2 FY 2008

Construction activities that are planed for FY 2008 include BRACONs P-701V, P-710V, and P-749V. These BRACONs involve the construction of a Type II modular hangar, concrete parking apron, taxiway, and associated support services, a hardware-in-the-loop system for the Modeling and Simulation Branch, a fuze test facility, and renovation of buildings in the China Lake Propulsion Lab. For purposes of this air quality evaluation, it is assumed that 9,547 square meters (102,765 square feet) of space will be constructed or renovated, 106,940 square meters (1,151,100 square feet.) will be paved or surfaced, and 11.74 total hectares (29 total acres) will be disturbed. Appendix D provides detailed breakdown and assumptions related to the assessment of air emissions from the construction of these facilities. Emission totals are summarizes in Table C-2.

C.3.3 FY 2009

Construction activities that are planed for FY 2009 include BRACONs P-712V, P-719V, and P-732V. These BRACONs involve the construction of an Ordnance Storage Facility with associated access road and parking areas, of laboratory and administrative space, and associated parking areas, and renovation of buildings for use as the Weapons and Armaments functions. For purposes of this air quality evaluation, it is assumed that 27,397 square meters (294,901 square feet.) of space will be constructed or renovated, 929 square meters (10,000 square feet) will be paved or surfaced, and 5.6 hectares (14 acres) will be disturbed. Appendix D provides detailed breakdown and assumptions related to the assessment of air emissions from the construction of these facilities. Emission totals are summarizes in Table C-2.

C.3.4 FY 2010

Construction activities that are planed for FY 2010 include BRACONs P-747V, P-704V, P-759V, P-777V, and P-778V. These BRACONs involve the construction of a public works warehouse, a Weapons and Dynamic Research Development, Test, and Evaluation Center, Shipboard Shock Test Facility, associated access roads and parking areas, and additional renovation of buildings for Weapons and Armaments functions. For purposes of this air quality evaluation, it is assumed that 7,760 square meters (83,535 square feet) of space will be constructed or renovated, 464 square meters (5,000 square feet) will be paved or surfaced, and 1.62 total hectares (4 total acres) will be disturbed. Two small structures will also be demolished under this action. Appendix D provides detailed breakdown and assumptions related to the assessment of air emissions from the construction of these facilities. Emission totals are summarizes in Table C-2.

C.3.5 Final Annual Emissions

The permanent changes that will result in increased air emissions include the operation of POVs, one track loader, heating and cooling of new built space, and new aircraft operations. Emissions from automobiles were calculated using data collected for the *NAWS China Lake Traffic Impact Study* (U.S. Navy 2006), and built space emissions estimates were based on new built space, average natural gas use for built space, and EPA emission factors (See Appendix D). The estimated final annual emissions that will result from this action are summarized in Table C-2. Since the full implementation of the relocation would not occur until after construction activities are complete, this increase in emissions will occur annually after 2010.

C.4 Conclusion

Total direct and indirect emissions of PM_{10} for all years evaluated are below the *de minimis* threshold of 100 tons per year (TPY) for PM_{10} moderate non-attainment and maintenance areas, as well as the *de minimis* threshold of 70 tons per year for PM_{10} serious non-attainment areas. Emissions of VOCs and NO_X are also below the 100 TPY *de minimis* threshold for O_3 maintenance areas. These emission levels are also less than 10 percent of the air district's total inventory of PM_{10}, NO_x, and VOC emissions; thus, they are not regionally significant. Therefore, the proposed federal action is exempt from further analysis under the General Conformity Rule.

To the best of my knowledge, the information presented in this RONA is correct and accurate, and I concur in the finding that implementation of the proposed action will conform to the SIP.

_____ Date _____

D Emissions Calculations

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APPENDIX D

AIR EMISSIONS ASSESSMENT
REALIGNMENT AND DEVELOPMENT OF A NAVAL INTEGRATED WEAPONS AND ARMAMENTS RESEARCH, DEVELOPMENT, AND AC
NAVAL AIR WEAPONS STATION (NAWS) CHINA LAKE, CALIFORNIA

CALCULATION OF EMISSIONS: YEAR 2007

D.1 2007 Construction Emissions: Vehicle Engine Exhaust From Grading and Material Hauling Activities

Input Parameters/Assumptions:

Total Building Area:	238,397	ft^2
Total Paved Area:	29,000.00	ft^2
Total Disturbed Area:	12.28	acres
Construction Duration:	1.00	years
Annual Construction Activity:	250	days/yr
Total Demolition:	0	ft^2

Table D-1 Emission Factors For Vehicle Engine Exhaust From Construction Activities

Activity	SMAQMD Emission Factor									
	ROG[1]		NO_x		SO_2 [2]		CO [2]		PM_{10}	
Grading Equipment[3]	2.91E-01	lbs/acre/day	2.75E+00	lbs/acre/day	0.18	lbs/acre/day	0.60	lbs/acre/day	2.32E-01	lbs/acre/day
Material Hauling[4]	4.20E-01	lbs/acre/day	6.07E+00	lbs/acre/day	0.40	lbs/acre/day	1.31	lbs/acre/day	4.30E-01	lbs/acre/day

Reference: *Air Quality Thresholds of Significance* , Sacramento Metropolitan Air Quality Management District (SMAQMD), 1994 and *Compilation of Air Pollutant Emission Factors* (USEPA AP-42).

1 ROG = VOC.

2 Factors for grading equipment are calculated from AP-42 for diesel engines using ratios with the NOx factors.

3 Grading Activities assumes the use of one tracked loader, one wheeled loader, and one motor grader for each 10 acres of disturbed area, used 8 hours per day

4 Material Hauling Activities assumes the use of one loader and one haul truck for each 10 acres of disturbed area, used 8 hours per day

Table D-2 Total Daily Vehicle Engine Exhaust Emissions From Construction Actitivies[1]

	ROG	NO_x	SO_2	CO	PM_{10}
Grading Equipment	3.6	33.8	2.2	7.3	2.8
Material Hauling	5.2	74.5	5.0	16.1	5.3
Total Emissions (lbs/day):	**8.7**	**108.3**	**7.2**	**23.4**	**8.1**

1 Total Emissions (lbs/day) = Emission Factor * Affected Acres

Table D-3 Total Vehicle Engine Exhaust Emissions from Construction Activities[1]

	ROG	NO_x	SO_2	CO	PM_{10}
Grading Equipment	0.45	4.23	0.28	0.91	0.36
Material Hauling	0.64	9.32	0.62	2.02	0.66
Fugitive Emissions (from page 2)					4.82
Total Emissions(tons/yr)	**1.09**	**13.54**	**0.90**	**2.93**	**5.83**

1 Total emissions (TPY) = Total emissions (lbs/day) * days of construction / 2000 lbs per ton

APPENDIX D

D.2 2007 Construction Emissions: Fugitive Emissions From Construction Activities

Input Parameters / Assumptions			
Acres affected:	12.3	acres/yr	
Grading days/yr:	21	days/yr	
and Material Hauling Activities	21	days/yr graded area is exposed	
Grading Hours/day:	8	hr/day	
Soil percent silt, s:	15	%	
Soil percent moisture, M:	2	%	
Fraction of TSP, J:	0.5	(SCAQMD recommendation)	
Mean vehicle speed, S:	5	mi/hr	(On-site)
Dozer path width:	5	ft	
Qty construction vehicles:	3	vehicles	
On-site VMT/vehicle/day:	5	mi/veh/day	(Excluding bulldozer VMT during grading)

Reference: *CEQA Air Quality Handbook* , SCAQMD, April 1993.

Table D-4 Equation Used To Calculate Operation Parameters

Operation Parameter	Emission Factor	Units	Equation
Grading duration per acre	13.7	hr/acre	Grading days * hours per day / acres affected
Bulldozer mileage per acre	1.7	VMT/acre	Miles traveled by bulldozer, based on dozer path width
Construction VMT per day	15	VMT/day	Number of vehicle * VMT per vehicle per day
Construction VMT per acre	25.7	VMT/acre	Construction VMT * days of construction / acres affected (Travel on unpaved surfaces within site)

Table D-1 Emission Factors For Vehicle Engine Exhaust From Construction Activities

Operation	Empirical Equation	Units	AP-42 Section (4th Edition)
Bulldozing	0.75(s^1.5)/(M^1.4)	lbs/hr	8.24, Overburden
Grading	(0.60)(0.051)S^2.0	lbs/VMT	8.24, Overburden
Vehicle Traffic	(3.72/(M^4.3))*.6	lbs/VMT	8.24, Overburden

Reference: *Compilation of Air Pollutant Emission Factors,* USEPA AP-42: Section 8.24, Western Surface Coal Mining (4th Edition)

Table D-6 Emission Factors For Fugitive Emissions From Construction Activities[1]

Table D-2 Total Daily Vehicle Operation	Emission Factor (mass/ unit)		Operation Parameter		Emission Factor (lbs/acre)	
Bulldozing	16.51	lbs/hr	13.7	hr/acre	226.2	lbs/acre
Grading	0.77	lbs/VMT	1.7	VMT/acre	1.3	lbs/acre
Vehicle Traffic	0.11	lbs/VMT	25.70	VMT/acre	2.8	lbs/acre

1 Emission Factor (lbs/acre) = Emission Factor (lbs per hour or VMT) * Operation Parameter (hours of VMT per acre)

Table D-7 Calculation of Annual Fugitive Emissions from Construction Activities

Table D-3 Total Vehicle Engi	Emission Factor		Graded Acres/yr	Exposed days/yr	Emissions lbs/yr	Emissions tons/yr
Bulldozing[1]	226.2	lbs/acre	12.28	NA	2,777	1.39
Grading[1]	1.3	lbs/acre	12.28	NA	16	0.01
Vehicle Traffic[1]	2.8	lbs/acre	12.28	NA	34	0.02
Erosion of Graded Surface[2]	26.4	lbs/acre/day[3]	12.28	21	6,807	3.40
TOTAL					**9,634**	**4.82**

1 Total annual emissions (TPY) = Emission Factor (lbs/acre) * affected acres * 2000 lbs per ton
2 Total annual emissions (TPY) from erosion = Emission Factor (lbs/acre) * days of construction * 2000 lbs per ton
3. Reference: CEQA Air Quality Handbook, SCAQMD, April 1993.

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REALIGNMENT AND DEVELOPMENT OF A NAVAL INTEGRATED WEAPONS AND ARMAMENTS RESEARCH, DEVELOPMENT, AND AC
NAVAL AIR WEAPONS STATION (NAWS) CHINA LAKE, CALIFORNIA

CALCULATION OF EMISSIONS: YEAR 2008

D.1 2007 Construction Emissions: Vehicle Engine Exhaust From Grading and Material Hauling Activities

Input Parameters/Assumptions:

Total Building Area:	102,765	ft^2
Total Paved Area:	1,151,100	ft^2
Total Disturbed Area:	28.78	acres
Construction Duration:	1.00	years
Annual Construction Activity:	250	days/yr
Total Demolition:	0	ft^2

Table D-1 Emission Factors For Vehicle Engine Exhaust From Construction Activities

Activity	SMAQMD Emission Factor									
	ROG[1]		NO_x		SO_2 [2]		CO [2]		PM_{10}	
Grading Equipment[3]	2.91E-01	lbs/acre/day	2.75E+00	lbs/acre/day	0.18	lbs/acre/day	0.60	lbs/acre/day	2.32E-01	lbs/acre/day
Material Hauling[4]	4.20E-01	lbs/acre/day	6.07E+00	lbs/acre/day	0.40	lbs/acre/day	1.31	lbs/acre/day	4.30E-01	lbs/acre/day

Reference: *Air Quality Thresholds of Significance* , Sacramento Metropolitan Air Quality Management District (SMAQMD), 1994 and *Compilation of Air Pollutant Emission Factors* (USEPA AP-42).

1 ROG = VOC.

2 Factors for grading equipment are calculated from AP-42 for diesel engines using ratios with the NOx factors.

3 Grading Activities assumes the use of one tracked loader, one wheeled loader, and one motor grader for each 10 acres of disturbed area, used 8 hours per day

4 Material Hauling Activities assumes the use of one loader and one haul truck for each 10 acres of disturbed area, used 8 hours per day

Table D-2 Total Daily Vehicle Engine Exhaust Emissions From Construction Actitivies[1]

	ROG	NO_x	SO_2	CO	PM_{10}
Grading Equipment	8.4	79.3	5.3	17.2	6.7
Material Hauling	12.1	174.7	11.6	37.8	12.4
Total Emissions (lbs/day):	**20.5**	**254.0**	**16.9**	**55.0**	**19.1**

1 Total Emissions (lbs/day) = Emission Factor * Affected Acres

Table D-3 Total Vehicle Engine Exhaust Emissions from Construction Activities[1]

	ROG	NO_x	SO_2	CO	PM_{10}
Grading Equipment	1.05	9.91	0.66	2.14	0.83
Material Hauling	1.51	21.84	1.45	4.73	1.55
Fugitive Emissions (from page 2)					9.39
Total Emissions(tons/yr)	**2.56**	**31.75**	**2.11**	**6.87**	**11.78**

1 Total emissions (TPY) = Total emissions (lbs/day) * days of construction / 2000 lbs per ton

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D.2 2008 Construction Emissions: Fugitive Emissions From Construction Activities

Input Parameters / Assumptions			
Acres affected:	28.8	acres/yr	
Grading days/yr:	21	days/yr	
and Material Hauling Activities	21	days/yr graded area is exposed	
Grading Hours/day:	8	hr/day	
Soil percent silt, s:	15	%	
Soil percent moisture, M:	2	%	
Fraction of TSP, J:	0.5	(SCAQMD recommendation)	
Mean vehicle speed, S:	5	mi/hr	(On-site)
Dozer path width:	5	ft	
Qty construction vehicles:	3	vehicles	
On-site VMT/vehicle/day:	5	mi/veh/day	(Excluding bulldozer VMT during grading)

Reference: *CEQA Air Quality Handbook* , SCAQMD, April 1993.

Table D-4 Equation Used To Calculate Operation Parameters

Operation Parameter	Emission Factor	Units	Equation
Grading duration per acre	5.8	hr/acre	Grading days * hours per day / acres affected
Bulldozer mileage per acre	1.7	VMT/acre	Miles traveled by bulldozer, based on dozer path width
Construction VMT per day	15	VMT/day	Number of vehicle * VMT per vehicle per day
Construction VMT per acre	10.9	VMT/acre	Construction VMT * days of construction / acres affected (Travel on unpaved surfaces within site)

Table D-1 Emission Factors For Vehicle Engine Exhaust From Construction Activities

Operation	Empirical Equation	Units	AP-42 Section (4th Edition)
Bulldozing	0.75(s^1.5)/(M^1.4)	lbs/hr	8.24, Overburden
Grading	(0.60)(0.051)S^2.0	lbs/VMT	8.24, Overburden
Vehicle Traffic	(3.72/(M^4.3))*.6	lbs/VMT	8.24, Overburden

Reference: *Compilation of Air Pollutant Emission Factors,* USEPA AP-42: Section 8.24, Western Surface Coal Mining (4th Edition)

Table D-6 Emission Factors For Fugitive Emissions From Construction Activities[1]

Table D-2 Total Daily Vehicle Operation	Emission Factor (mass/ unit)		Operation Parameter		Emission Factor (lbs/acre)	
Bulldozing	16.51	lbs/hr	5.8	hr/acre	95.8	lbs/acre
Grading	0.77	lbs/VMT	1.7	VMT/acre	1.3	lbs/acre
Vehicle Traffic	0.11	lbs/VMT	10.90	VMT/acre	1.2	lbs/acre

1 Emission Factor (lbs/acre) = Emission Factor (lbs per hour or VMT) * Operation Parameter (hours of VMT per acre)

Table D-7 Calculation of Annual Fugitive Emissions from Construction Activities

Table D-3 Total Vehicle Engi	Emission	Factor	Graded Acres/yr	Exposed days/yr	Emissions lbs/yr	Emissions tons/yr
Bulldozing[1]	95.8	lbs/acre	28.78	NA	2,758	1.38
Grading[1]	1.3	lbs/acre	28.78	NA	37	0.02
Vehicle Traffic[1]	1.2	lbs/acre	28.78	NA	35	0.02
Erosion of Graded Surface[2]	26.4	lbs/acre/day[3]	28.78	21	15,958	7.98
TOTAL					**18,788**	**9.39**

1 Total annual emissions (TPY) = Emission Factor (lbs/acre) * affected acres * 2000 lbs per ton
2 Total annual emissions (TPY) from erosion = Emission Factor (lbs/acre) * days of construction * 2000 lbs per ton
3. Reference: CEQA Air Quality Handbook, SCAQMD, April 1993.

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NAVAL AIR WEAPONS STATION (NAWS) CHINA LAKE, CALIFORNIA

CALCULATION OF EMISSIONS: YEAR 2009

D.1 2007 Construction Emissions: Vehicle Engine Exhaust From Grading and Material Hauling Activities

Input Parameters/Assumptions:

Total Building Area:	294,901	ft^2
Total Paved Area:	10,000	ft^2
Total Disturbed Area:	14.00	acres
Construction Duration:	1.00	years
Annual Construction Activity:	250	days/yr
Total Demolition:	0	ft^2

Table D-1 Emission Factors For Vehicle Engine Exhaust From Construction Activities

Activity	SMAQMD Emission Factor									
	ROG[1]		NO_x		SO_2 [2]		CO [2]		PM_{10}	
Grading Equipment[3]	2.91E-01	lbs/acre/day	2.75E+00	lbs/acre/day	0.18	lbs/acre/day	0.60	lbs/acre/day	2.32E-01	lbs/acre/day
Material Hauling[4]	4.20E-01	lbs/acre/day	6.07E+00	lbs/acre/day	0.40	lbs/acre/day	1.31	lbs/acre/day	4.30E-01	lbs/acre/day

Reference: *Air Quality Thresholds of Significance* , Sacramento Metropolitan Air Quality Management District (SMAQMD), 1994 and *Compilation of Air Pollutant Emission Factors* (USEPA AP-42).

1 ROG = VOC.

2 Factors for grading equipment are calculated from AP-42 for diesel engines using ratios with the NOx factors.

3 Grading Activities assumes the use of one tracked loader, one wheeled loader, and one motor grader for each 10 acres of disturbed area, used 8 hours per day

4 Material Hauling Activities assumes the use of one loader and one haul truck for each 10 acres of disturbed area, used 8 hours per day

Table D-2 Total Daily Vehicle Engine Exhaust Emissions From Construction Actitivies[1]

	ROG	NO_x	SO_2	CO	PM_{10}
Grading Equipment	4.1	38.6	2.6	8.3	3.2
Material Hauling	5.9	85.0	5.7	18.4	6.0
Total Emissions (lbs/day):	**10.0**	**123.5**	**8.2**	**26.7**	**9.3**

1 Total Emissions (lbs/day) = Emission Factor * Affected Acres

Table D-3 Total Vehicle Engine Exhaust Emissions from Construction Activities[1]

	ROG	NO_x	SO_2	CO	PM_{10}
Grading Equipment	0.51	4.82	0.32	1.04	0.41
Material Hauling	0.73	10.62	0.71	2.30	0.75
Fugitive Emissions (from page 2)					5.29
Total Emissions(tons/yr)	**1.24**	**15.44**	**1.03**	**3.34**	**6.45**

1 Total emissions (TPY) = Total emissions (lbs/day) * days of construction / 2000 lbs per ton

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D.2 2009 Construction Emissions: Fugitive Emissions From Construction Activities

Input Parameters / Assumptions			
Acres affected:	14.0	acres/yr	
Grading days/yr:	21	days/yr	
and Material Hauling Activities	21	days/yr graded area is exposed	
Grading Hours/day:	8	hr/day	
Soil percent silt, s:	15	%	
Soil percent moisture, M:	2	%	
Fraction of TSP, J:	0.5	(SCAQMD recommendation)	
Mean vehicle speed, S:	5	mi/hr	(On-site)
Dozer path width:	5	ft	
Qty construction vehicles:	3	vehicles	
On-site VMT/vehicle/day:	5	mi/veh/day	(Excluding bulldozer VMT during grading)

Reference: *CEQA Air Quality Handbook* , SCAQMD, April 1993.

Table D-4 Equation Used To Calculate Operation Parameters

Operation Parameter	Emission Factor	Units	Equation
Grading duration per acre	12	hr/acre	Grading days * hours per day / acres affected
Bulldozer mileage per acre	1.7	VMT/acre	Miles traveled by bulldozer, based on dozer path width
Construction VMT per day	15	VMT/day	Number of vehicle * VMT per vehicle per day
Construction VMT per acre	22.5	VMT/acre	Construction VMT * days of construction / acres affected (Travel on unpaved surfaces within site)

Table D-1 Emission Factors For Vehicle Engine Exhaust From Construction Activities

Operation	Empirical Equation	Units	AP-42 Section (4th Edition)
Bulldozing	0.75(s^1.5)/(M^1.4)	lbs/hr	8.24, Overburden
Grading	(0.60)(0.051)S^2.0	lbs/VMT	8.24, Overburden
Vehicle Traffic	(3.72/(M^4.3))*.6	lbs/VMT	8.24, Overburden

Reference: *Compilation of Air Pollutant Emission Factors,* USEPA AP-42: Section 8.24, Western Surface Coal Mining (4th Edition)

Table D-6 Emission Factors For Fugitive Emissions From Construction Activities[1]

Table D-2 Total Daily Vehicle Operation	Emission Factor (mass/ unit)		Operation Parameter		Emission Factor (lbs/acre)	
Bulldozing	16.51	lbs/hr	12	hr/acre	198.1	lbs/acre
Grading	0.77	lbs/VMT	1.7	VMT/acre	1.3	lbs/acre
Vehicle Traffic	0.11	lbs/VMT	22.50	VMT/acre	2.5	lbs/acre

1 Emission Factor (lbs/acre) = Emission Factor (lbs per hour or VMT) * Operation Parameter (hours of VMT per acre)

Table D-7 Calculation of Annual Fugitive Emissions from Construction Activities

Table D-3 Total Vehicle Engi	Emission Factor		Graded Acres/yr	Exposed days/yr	Emissions lbs/yr	Emissions tons/yr
Bulldozing[1]	198.1	lbs/acre	14.00	NA	2,773	1.39
Grading[1]	1.3	lbs/acre	14.00	NA	18	0.01
Vehicle Traffic[1]	2.5	lbs/acre	14.00	NA	35	0.02
Erosion of Graded Surface[2]	26.4	lbs/acre/day[3]	14.00	21	7,761	3.88
TOTAL					**10,588**	**5.29**

1 Total annual emissions (TPY) = Emission Factor (lbs/acre) * affected acres * 2000 lbs per ton
2 Total annual emissions (TPY) from erosion = Emission Factor (lbs/acre) * days of construction * 2000 lbs per ton
3. Reference: CEQA Air Quality Handbook, SCAQMD, April 1993.

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NAVAL AIR WEAPONS STATION (NAWS) CHINA LAKE, CALIFORNIA

CALCULATION OF EMISSIONS: YEAR 2010

D.1 2007 Construction Emissions: Vehicle Engine Exhaust From Grading and Material Hauling Activities

Input Parameters/Assumptions:

Total Building Area:	83,535	ft^2
Total Paved Area:	5,000	ft^2
Total Demolition:	5,000	ft^2
Total Disturbed Area:	4.29	acres
Construction Duration:	1.00	years
Annual Construction Activity:	250	days/yr

Table D-1 Emission Factors For Vehicle Engine Exhaust From Construction Activities

Activity	SMAQMD Emission Factor									
	ROG[1]		NO_x		SO_2 [2]		CO [2]		PM_{10}	
Grading Equipment[3]	2.91E-01	lbs/acre/day	2.75E+00	lbs/acre/day	0.18	lbs/acre/day	0.60	lbs/acre/day	2.32E-01	lbs/acre/day
Material Hauling[4]	4.20E-01	lbs/acre/day	6.07E+00	lbs/acre/day	0.40	lbs/acre/day	1.31	lbs/acre/day	4.30E-01	lbs/acre/day

Reference: *Air Quality Thresholds of Significance* , Sacramento Metropolitan Air Quality Management District (SMAQMD), 1994 and*Compilation of Air Pollutant Emission Factors* (USEPA AP-42).

1 ROG = VOC.

2 Factors for grading equipment are calculated from AP-42 for diesel engines using ratios with the NOx factors.

3 Grading Activities assumes the use of one tracked loader, one wheeled loader, and one motor grader for each 10 acres of disturbed area, used 8 hours per day

4 Material Hauling Activities assumes the use of one loader and one haul truck for each 10 acres of disturbed area, used 8 hours per day

Table D-2 Total Daily Vehicle Engine Exhaust Emissions From Construction Actitivies[1]

	ROG	NO_x	SO_2	CO	PM_{10}
Grading Equipment	1.3	11.8	0.8	2.6	1.0
Material Hauling	1.8	26.1	1.7	5.6	1.8
Total Emissions (lbs/day):	**3.1**	**37.9**	**2.5**	**8.2**	**2.8**

1 Total Emissions (lbs/day) = Emission Factor * Affected Acres

Table D-3 Total Vehicle Engine Exhaust Emissions from Construction Activities[1]

	ROG	NO_x	SO_2	CO	PM_{10}
Grading Equipment	0.16	1.48	0.10	0.32	0.12
Material Hauling	0.23	3.26	0.22	0.71	0.23
Fugitive Emissions (from page 2)					2.60
Total Emissions(tons/yr)	**0.38**	**4.74**	**0.32**	**1.03**	**2.95**

1 Total emissions (TPY) = Total emissions (lbs/day) * days of construction / 2000 lbs per ton

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D.2 2010 Construction Emissions: Fugitive Emissions From Construction Activities

Input Parameters / Assumptions			
Acres affected:	4.3	acres/yr	
Grading days/yr:	21	days/yr	
and Material Hauling Activities	21	days/yr graded area is exposed	
Grading Hours/day:	8	hr/day	
Soil percent silt, s:	15	%	
Soil percent moisture, M:	2	%	
Fraction of TSP, J:	0.5	(SCAQMD recommendation)	
Mean vehicle speed, S:	5	mi/hr	(On-site)
Dozer path width:	5	ft	
Qty construction vehicles:	3	vehicles	
On-site VMT/vehicle/day:	5	mi/veh/day	(Excluding bulldozer VMT during grading)

Reference: *CEQA Air Quality Handbook* , SCAQMD, April 1993.

Table D-4 Equation Used To Calculate Operation Parameters

Operation Parameter	Emission Factor	Units	Equation
Grading duration per acre	39.1	hr/acre	Grading days * hours per day / acres affected
Bulldozer mileage per acre	1.7	VMT/acre	Miles traveled by bulldozer, based on dozer path width
Construction VMT per day	15	VMT/day	Number of vehicle * VMT per vehicle per day
Construction VMT per acre	73.3	VMT/acre	Construction VMT * days of construction / acres affected (Travel on unpaved surfaces within site)

Table D-1 Emission Factors For Vehicle Engine Exhaust From Construction Activities

Operation	Empirical Equation	Units	AP-42 Section (4th Edition)
Bulldozing	0.75(s^1.5)/(M^1.4)	lbs/hr	8.24, Overburden
Grading	(0.60)(0.051)S^2.0	lbs/VMT	8.24, Overburden
Vehicle Traffic	(3.72/(M^4.3))*.6	lbs/VMT	8.24, Overburden

Reference: *Compilation of Air Pollutant Emission Factors,* USEPA AP-42: Section 8.24, Western Surface Coal Mining (4th Edition)

Table D-6 Emission Factors For Fugitive Emissions From Construction Activities[1]

Table D-2 Total Daily Vehicle Operation	Emission Factor (mass/ unit)		Operation Parameter		Emission Factor (lbs/acre)	
Bulldozing	16.51	lbs/hr	39.1	hr/acre	645.5	lbs/acre
Grading	0.77	lbs/VMT	1.7	VMT/acre	1.3	lbs/acre
Vehicle Traffic	0.11	lbs/VMT	73.30	VMT/acre	8.1	lbs/acre

1 Emission Factor (lbs/acre) = Emission Factor (lbs per hour or VMT) * Operation Parameter (hours of VMT per acre)

Table D-7 Calculation of Annual Fugitive Emissions from Construction Activities

Table D-3 Total Vehicle Engi	Emission Factor		Graded Acres/yr	Exposed days/yr	Emissions lbs/yr	Emissions tons/yr
Bulldozing[1]	645.5	lbs/acre	4.29	NA	2,772	1.39
Grading[1]	1.3	lbs/acre	4.29	NA	6	0.00
Vehicle Traffic[1]	8.1	lbs/acre	4.29	NA	35	0.02
Erosion of Graded Surface[2]	26.4	lbs/acre/day[3]	4.29	21	2,381	1.19
TOTAL					**5,193**	**2.60**

1 Total annual emissions (TPY) = Emission Factor (lbs/acre) * affected acres * 2000 lbs per ton
2 Total annual emissions (TPY) from erosion = Emission Factor (lbs/acre) * days of construction * 2000 lbs per ton
3. Reference: CEQA Air Quality Handbook, SCAQMD, April 1993.

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Table D-8 POV Emission Factors

Fleet Year	Type of Vehicle	EPA Category	Emission Factor (g/mile) NOx	CO	PM	VOC
1995	Cars	LDGV	1.22	13.2	0.022	1.12
	Pickups	LDGT1	1.63	18.49	0.022	1.63
hicle Engine Exhaust From C	Trucks (5 axles)	HDDV	10.81	11.22	1.652	2.16
	Trucks (3 axles)	LDDT	1.21	1.52	0.26	0.6

Note:

Emission factors from Calculation Methods for Criteria Air Pollutant Emission Inventories (Armstrong Laboratory,1994).

Key:

LDGV = Light-duty gasoline-fueled vehicles designated for transport of up to 12 people.

LDGT1 = Light-duty gasoline-fueled trucks with a gross vehicle weight (GVW) rating of 6,000 pounds or less.

LDDT = Light-duty diesel-powered trucks with a GVW of 8,500 pounds or less.

HDDV = Heavy-duty diesel-powered vehicles with a GVW exceeding 8,500 pounds.

Table D-9 Projected Criteria Air Pollutant Emissions From Privately Owner Vehicles

Group	Vehicle Type	EPA Category	Daily Vehicles (/day)	Daily Travel - Per Vehicle On-Base (VMT)	Off-Base (VMT)	Total (VMT)	Travel Days (days/yr)	Annual Travel (VMT/yr)	Annual Emissions (lb/yr)* NOx	CO	PM	VOC
	Cars	LDGV	1,247	3	15	18	247	5542828.2	14908.0	161299.233	268.832	13686.0
	Pickups/Light Trucks	LDGT	534	3	15	18	247	2375497.8	6389.1	69128.243	115.214	5865.4
	Pickups/Light Trucks	LDDT	0	3	15	18	247	0.0	0.0	0.000	0.000	0.0
Increase in Personnel	Heavy Trucks	HDDV	0	3	15	18	247	0.0	0.0	0.000	0.000	0.0
1,781	**Total**	-	**1,781**	-	-	-	-	-	**21297.1**	**230427.476**	**384.046**	**19551.4**
								TOTAL TPY	**10.6**	**115.214**	**0.192**	**9.8**

Table D-1 Emission Factors For Vehicle Engine Exhaust From Construction Activities

Average Daily Travel estimated based on location of residential areas surrounding NAWS China Lake

Table D-10 Projected Criteria Air Pollutant Emissions From P710V Track Loader

Equipment List	Equipment quantity	Days Used	Emission Factors (lb/day)(1) NOx	VOC	CO	SO_x(2)	PM_{10}	Emissions (lbs/year) NOx	VOC	CO	SO2	PM10
Track Loader	1	250	6.66	0.65	3.56	0.31	0.34	1665.00	162.50	890.00	77.35	85.00
							TOTAL TPY	**0.83**	**0.08**	**0.45**	**0.04**	**0.04**

(1) El Dorado County APCD CEQA Guide, February 2002.

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TABLE D-11: Emissions from Space Heating and Cooling Use

Total sq ft new built space	719,598
Average cubic feet Nat gas per sq ft[1]	43
Total projected cu ft nat gas for new built space	30942714.00
Total in 10^6 ft nat gas	30.943

Criteria Pollutants[2]	Emission Factors (lb/10^6 ft^3 nat fuel)	Emissions (lbs/year)	Emissions from new housing (TPY)
D.1 2007 Construction Emissions: Vehicle Engine Exhaust From Grading and Material Hauling Activities			
NO_x	94.00	2908.62	1.45
VOC	5.50	170.18	0.09
CO	40.00	1237.71	0.62
SO_2	0.60	18.57	0.01
$PM_{2.5}$	7.60	235.16	0.12
PM_{10}	7.60	235.16	0.12
PM	7.60	235.16	0.12

Notes:

1. Average value for all buildings, *Energy Information Administration 2003 Commercial Buildings Energy Consumption Survey: Consumption and Expenditures Tables http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set11/2003pdf/c24.pdf*
2. Emission factors for natural gas from AP-42, 5th Edition, Section 1.4, Tables 1.4-1 and 1.4-2.

Table D-3 Total Vehicle Engine Exhaust Emissions from Construction Activities[1]

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			pounds/event					tons/year				
Aircraft	event	events/yr	ROG	NOx	CO	SOx	PM10	ROG	NOx	CO	SOx	PM10
P-3	departure	325	18.22	12.56	27.21	0.86	19.25	2.96	2.04	4.42	0.14	3.13
	arrival	325	5.51	9.19	8.04	0.44	13.69	0.90	1.49	1.31	0.07	2.22
Maint	High level test	5	19.57	17.61	27.33	0.92	31.92	0.05	0.04	0.07	0.00	0.08
Run ups	Low, 2 eng	48	13.86	2.23	18.85	0.25	10.62	0.33	0.05	0.45	0.01	0.25
D.1 2007	Low, 1 eng test	22	6.93	1.14	9.5	0.13	5.31	0.08	0.01	0.10	0.00	0.06
	APU test	2	0	0.04	0.16	0	0	0.00	0.00	0.00	0.00	0.00
C130	departure	325	18.01	11.18	33.82	0.8	20.49	2.93	1.82	5.50	0.13	3.33
	arrival	325	5.5	9.4	8.66	0.45	14.1	0.89	1.53	1.41	0.07	2.29
Maint	High level test	5	19.57	17.61	27.33	0.92	31.92	0.05	0.04	0.07	0.00	0.08
Run ups	Low, 2 eng	48	13.86	2.23	18.85	0.25	10.62	0.33	0.05	0.45	0.01	0.25
	Low, 1 eng test	22	6.93	1.14	9.5	0.13	5.31	0.08	0.01	0.10	0.00	0.06
	APU test	2	0	0.04	0.16	0	0	0.00	0.00	0.00	0.00	0.00
	Total							**8.59**	**7.10**	**13.88**	**0.43**	**11.76**

Notes:

Emissions rates and run upp estimates from "Final Environmental Impact Statement for the Proposed Military Operations Increases and Implementation of Associates Comprehensive Land Use and Integrated Natural Resources Management Plans" February 2004

P-3 Run up emissions estimated based on C-130 emission rates

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Table 2 Annual Emissions

Activity	VOCs	NOX	PM10
2007 Construction Emissions			
Grading Equipment	0.45	4.23	0.36
Material Hauling	0.64	9.32	0.66
Fugative Emissions			4.82
2007 Total Emissions, TPY	**1.09**	**13.54**	**5.83**
Material Hauling Activities			
Grading Equipment	1.05	9.91	0.83
Material Hauling	1.51	21.84	1.55
Fugative Emissions			9.39
2008 Total Emissions, TPY	**2.56**	**31.75**	**11.78**
2009 Construction Emissions			
Grading Equipment	0.51	4.82	0.41
Material Hauling	0.73	10.62	0.75
Fugative Emissions			5.29
2009 Total Emissions, TPY	**1.24**	**15.44**	**6.45**
2010 Construction Emissions			
Grading Equipment	0.16	1.48	0.12
Material Hauling	0.23	3.26	0.23
Fugative Emissions			2.60
2010 Total Emissions, TPY	**0.38**	**4.74**	**2.95**
Final Annual Operational Emissions			
Vehicle operations increase	9.86	11.48	0.23
Heating and Cooling of new buildings	0.09	1.45	0.12
Increased aircraft emissions	8.59	7.10	11.76
Final Annual Emissions, TPY	**18.53**	**20.03**	**12.11**

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Table 2-2 FY 2007 BRACONs

BRACON	Location	Footprint (Square Meters / Square Feet)	Type
P-745V	W&A Research Offices	11,817 / 127,197	New
P-745V	W&ARDT&E Lab Space	3,552 / 38,233	New
P-745V	W&ARDT&E SCIF	966 / 10,400	New
D.1 2007 Construction Emissions: Vehicle Engine Exhaust From Grading and Material Hauling Activities	NMCI Infrastructure	163 / 1,755	New
P-745V	Total	16,498 / 177,585	All
P-754V	Building 01028	604 / 6,505	Renovation[1]
P-754V	Building 01025	121 / 1,307	Renovation
P-754V	Building 02477	220 / 2,424	Renovation/New
P-754V	Building 20210	1,069 / 11,509	Renovation
P-754V	NMCI Infrastructure	18 / 196	New
P-754V	Total	1,841 / 19,817	All
P-755V	1	298 / 3,208	Renovation
P-755V	Building 00466	323 / 3,477	Renovation
P-755V	Building 31567 (Missile RDT&E Lab)	279 / 3,000	Renovation
P-755V	Building 31567 (Research Lab)	1,115 / 12,000	Renovation
P-755V	Support Equipment Storage	864 / 9,300	New
P-755V	Support Equipment Storage Yard	901 / 9,699	New
P-755V	NMCI Infrastructure	29 / 312	New
P-755V	Total	3,809 / 40,995	All
All	**Grand Total**	**22,148 / 238,397**	

Table 2-3 FY 2008 BRACONs

Table D-1 Emission Factors For Vehicle Engine Exhaust From Construction Activities	LOCATION	FOOTPRINT (SQUARE METERS / SQUARE FEET)	TYPE
P-701V	Aircraft Parking Apron	611,764	New
P-701V	Taxiway, Surfaced	321,367	New
P-701V	Aircraft Pavement Shoulder	217,969	New
P-701V	Aviation Equipment Warehouse	16,835	New
P-701V	Aircraft Maintenance Hangar	53,529	New
P-701V	NMCI Infrastructure	108	New
P-710V	High Bay Lab	8,094	New
P-710V	Missile Integration Lab	8,902	New
P-710V	Telecommunications Room	89	New

Table D-2 Daily Total Vehicle Engine Exhaust Emissions From Construction Actitivies[1]	LOCATION	FOOTPRINT (SQUARE METERS / SQUARE FEET)	TYPE
P-749V	Fuze Test Facility	12,870	New
P-749V	Building 10170	1,410	Renovation
P-749V	Building 10173	928	Renovation
All	Grand Total	116,488 / 1,253,865	All
	Paved total	1,151,100	
	building total	102,765	

Table 2-4 FY 2009 BRACONs

Table D-3 Total Vehicle Engine Exhaust Emissions from Construction Activities[1]	LOCATION	FOOTPRINT (SQUARE METERS / SQUARE FEET)	TYPE
P-712V	Ordnance Storage Facility	77,113	New
P-719V	Lab Space	20,000	New
P-719V	Administrative Space	48,400	New
P-719V	Telecommunications Room	330	New
P-732V	Renovate Building 00005 Main	66,058	Renovation
P-732V	Renovate Building 00005 Wings	81,515	Renovation
P-732V	NMCI Infrastructure	1,485	New
P-732V	Total	294,901	All
All	Grand Total (from table--error?)	228,843	All
	total new space	147,328	
	paved total	0	

Table 2-5 FY 2010 BRACONs

BRACON	LOCATION	FOOTPRINT (SQUARE METERS/SQUARE FEET)	TYPE
P-747V	Public Works Warehouse	9,505	New
P-704V	Building 10520	3,541	Renovation
P-704V	Building 16079	4,101	Renovation
P-704V	Building 15800	4,176	Renovation
P-704V	Building 11050	3,401	Renovation
P-704V	Building 15790	2,756	Renovation
P-704V	Building 11570	990	Renovation
P-704V	Building 10690	3,358	Renovation
P-704V	Building 12143	118	Renovation
P-704V	Building 15560	1,550	Renovation
P-704V	Building 31562 and 91042	1,098	Renovation
P-704V	Building 11570	958	Renovation
P-704V	Building 11050	301	Renovation
P-704V	Building 11510	13,929	Renovation
P-704V	Building 12042	786	Renovation
P-704V	Building 12170	2,454	Renovation
P-704V	NMCI Infrastructure	431	New
P-759V	Building 01040	6,496	Renovation
P-759V	Building 01041	6,604	Renovation
P-759V	Building 01042	6,240	Renovation
P-777V	RDT&E Building	7,201	New
P-777V	Telecommunications Room	75	New
P-778V	Shipboard Shock Test Facility	3000	New
P-778V	Control Room Addition	432	New
P-778V	Concrete Test Pad	718	New
P-778V	Telecommunications Building	34	New
All	**Grand Total**	**7,827/84,253**	**All**
	total paved	718	
	total building	83,535	