

Draft Environmental Assessment Home Basing of the MQ-25A Stingray Carrier-Based Unmanned Air System at Naval Base Ventura County, Point Mugu, California



October 2020

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DRAFT
ENVIRONMENTAL ASSESSMENT
for
**Home Basing of the MQ-25A Stingray Carrier-based Unmanned Air
System**
at
Naval Base Ventura County, Point Mugu, California

October 2020



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Abstract

Designation:	Environmental Assessment
Title of Proposed Action:	Home Basing of the MQ-25A Stingray Carrier-based Unmanned Air System
Project Location:	Naval Base Ventura County (NBVC), California
Lead Agency for the EA:	U.S. Department of the Navy
Cooperating Agency:	None
Affected Region:	Ventura County, California
Action Proponent:	United States Fleet Forces
Point of Contact:	Jeffery Butts, Code EV21 NAVFAC Atlantic 6506 Hampton Blvd Norfolk, VA 23508
Date:	October 2020

The Department of the Navy has prepared this Environmental Assessment in accordance with the National Environmental Policy Act, as implemented by the Council on Environmental Quality regulations and Navy regulations for implementing the National Environmental Policy Act. The Proposed Action would establish facilities and functions at Naval Base Ventura County (NBVC) Point Mugu, California to support West Coast home basing and operations of the MQ-25A Stingray Carrier-based Unmanned Air System (CBUAS). Under the Proposed Action, the Navy would home base 20 Stingray CBUAS; construct a hangar, training facilities, and supporting infrastructure; perform air vehicle (AV) maintenance; provide training for air vehicle operators (AVOs) and maintainers; conduct approximately 960 Stingray CBUAS annual flight operations; and station approximately 730 personnel, plus their family members. This Environmental Assessment evaluates the potential environmental impacts associated with the Proposed Action and the No Action Alternative. The environmental resource areas analyzed in this EA include: air quality, water resources, noise (qualitatively), biological resources, airspace and airfield operations, infrastructure, transportation, public health and safety, hazardous materials and wastes, socioeconomics, and cumulative impacts.



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EXECUTIVE SUMMARY

ES.1 Proposed Action

The Navy proposes to establish facilities and functions at Naval Base Ventura County (NBVC) Point Mugu, California to support West Coast home basing and operations of the MQ-25A Stingray Carrier-based Unmanned Air System (Stingray CBUAS). Under the Proposed Action, the Navy would home base 20 Stingray CBUAS; construct a hangar, training facilities, and supporting infrastructure; perform air vehicle (AV) maintenance; provide training for air vehicle operators (AVOs) and maintainers; conduct approximately 960 Stingray CBUAS annual flight operations; and station approximately 730 personnel, plus their family members.

ES.2 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to base a new West Coast squadron designed to enhance aircraft carrier capability and versatility for the Joint Forces Commander through the integration of a persistent, sea-based, multi-mission aerial refueling and intelligence, surveillance, and reconnaissance unmanned aerial system into the carrier air wing (CVW). The need for the Proposed Action is primarily to extend the range and reach of the CVW on the West Coast to meet and pace current and future threats, with secondary recovery refueling and intelligence, surveillance, and reconnaissance capabilities, in support of national defense objectives and policies.

ES.3 Alternatives Considered

In developing the proposed range of alternatives to meet the purpose of and need for the Proposed Action, the Navy considered mission characteristics; geographic requirements; logistics, operational, administrative, and facilities synergies; existing special use airspace; training requirements; and existing Navy infrastructure. Based on this review, the following factors were considered when exploring alternatives for the Proposed Action: alternatives must be in proximity to aircraft carrier-operating areas; alternatives must involve minimal potential conflicts with other aircraft within the National Airspace System; alternatives must be compatible with existing airfield operations; alternatives must accommodate the Stingray CBUAS accelerated schedule; alternatives should utilize operational and administrative synergies; alternatives must use existing runways; alternatives must provide shore sailor and family support. Based on these factors, only one action alternative, the Proposed Action, was identified and will be analyzed within this Environmental Assessment (EA). This document evaluates the No Action Alternative and the Proposed Action.

Under the Proposed Action, the West Coast home basing of the Stingray CBUAS would require new facilities and infrastructure. In particular, the Stingray CBUAS would require a new squadron hangar; parking for AVs, government vehicles, and privately-owned vehicles; taxiways; utilities and supporting infrastructure; training facilities for AV operators; and training facilities for maintainers. These construction elements are included as proposed Military Construction projects P-025 (Hangar and Battery shop), P-026 (Training facility), and Special Project RM 19-1368 (Building PM508 Renovations).

The Proposed Action would also station approximately 730 military and civilian personnel at NBVC Point Mugu to support Stingray CBUAS squadrons. Personnel would be added in phases over three to five years. Stingray CBUAS flight operations are anticipated to total approximately 960 annual operations when at full capacity. Annual operations are anticipated to begin with fewer flights and increase over several years before reaching 960. These operations would consist of departures and arrivals. Closed

pattern operations (i.e., multiple take-offs and landings without leaving the vicinity of the airfield) are not anticipated for the Stingray CBUAS.

Under the No Action Alternative, the Proposed Action would not occur. The Navy would not home base the Stingray CBUAS at NBVC Point Mugu. The infrastructure upgrades necessary to accommodate the Stingray CBUAS would not occur. The No Action Alternative would not meet the purpose and need for the Proposed Action. The No Action Alternative will be used to analyze the consequences of not undertaking the Proposed Action and will serve to establish a comparative baseline for analysis.

ES.4 Summary of Environmental Resources Evaluated in the EA

National Environmental Policy Act, Council on Environmental Quality regulations, and Navy instructions for implementing the National Environmental Policy Act, specify that an EA should address those resource areas potentially subject to impacts. In addition, the level of analysis should be commensurate with the anticipated level of environmental impact.

The following resource areas have been addressed in this EA: air quality, water resources, noise (qualitatively), biological resources, airspace and airfield operations, infrastructure, transportation, public health and safety, hazardous materials and wastes, socioeconomic, and cumulative impacts. Because potential impacts were considered to be negligible or non-existent, the following resources were not evaluated in this EA: cultural resources, geological resources, land use, visual resources, and environmental justice (refer to Section 1.5, Scope of Environmental Analysis).

ES.5 Summary of Potential Environmental Consequences of the Proposed Action and Major Mitigating Actions

Potential impacts to resources at NBVC Point Mugu are described below. The analysis contained in this EA has determined that the Proposed Action would not result in significant environmental impacts.

Air Quality. Total air pollutant emissions associated with construction activities and operations under the Proposed Action would be minimal or *de minimis*. The Proposed Action is exempt from General Conformity requirements. There would be no significant impacts to air quality.

Water Resources. Implementation of the Proposed Action would not result in significant impacts to groundwater, surface water, wetlands, or floodplains at NBVC Point Mugu. The construction of the hangar, parking apron, taxiway, vehicle parking lots and roads under P-025 would result in a 35.6 acre increase in impervious surfaces. The P-026 training facility would increase impervious surfaces by an additional 0.6 acres. With implementation of low impact development methods and best management practices in the project areas, no significant net reduction of infiltration and recharge capacity is likely to occur.

Depending on the final location of the taxiways and engineering design, the Proposed Action may impact from 0.93 to 1.40 acres of jurisdictional wetlands. Bridge deck crossings would accommodate vehicular and pedestrian crossings over the Oxnard Drainage Ditch No. 2A, which is a jurisdictional wetland. The bridges would be designed as open metal grated deck bridges to minimize impervious surfaces and to avoid wetland impacts. Consultation with the U.S. Army Corps of Engineers and California Regional Water Quality Control Board would occur, as appropriate, to obtain the necessary permits (i.e., Sections 404 and 401 of the Clean Water Act) prior to implementation of the Proposed Action.

The Proposed Action would be constructed within the 100-year floodplain. The Navy has determined that there is no practicable alternative to implementing the construction activities associated with the Proposed Action in the floodplain. There are no alternative project areas available at NBVC Point Mugu that are not within the 100-year floodplain that could meet the requirements of the Proposed Action. Measures associated with flood proofing and flood protection would be implemented at the proposed project location, such as adding material to elevate pavements and buildings above the 100-year flood elevation and stormwater management according to Section 438 of the Energy Independence and Security Act and Ventura County's stormwater management regulations. These measures, in addition to existing storm drains, retaining walls, and berms on Point Mugu, would minimize flood hazards.

Noise. Construction activities from the Proposed Action would not be expected to cause a significant increase in ambient noise levels off-base in noise sensitive areas. No significant impacts from noise related to aircraft operations would occur. Based on only a 2.4 percent increase in annual airfield operations proposed for the Stingray CBUAS, noise analysis results showing a 0.1 dB increase or less in the Navy's primary noise metric, Community Noise Equivalent Level (CNEL), and a relatively low single-event noise level. Noise sensitive receptors and existing CNEL noise contours at NBVC Point Mugu would not experience a significant change in the noise environment from existing conditions from Stingray CBUAS operations.

Biological Resources. Implementation of the Proposed Action would not result in significant impacts to biological resources at NBVC Point Mugu. The Proposed Action would have no significant impacts to vegetation, wildlife, or special-status species.

The Proposed Action may affect, but is not likely to adversely affect the least Bell's vireo (*Vireo bellii pusillus*); therefore, informal consultation with the U.S. Fish and Wildlife Service (USFWS) has been initiated. There would be no effect on other federally listed species. Removal of disturbed scrub and non-native grass habitats from a former golf course site (38.5 acres) would occur outside of the avian nesting season (March through September) to avoid impacts to nests or nesting birds, including least Bell's vireos. NBVC Point Mugu also continues to restore habitat on base for a variety of sensitive species, including least Bell's vireo. Therefore, it is likely additional and higher quality habitat would be available in the future for vireos to supplement any loss of this marginal habitat from development. Construction noise may have some minor effects if returning vireos chose to nest in habitats adjacent to the immediate project area. Any nesting pairs found in the immediate area would be monitored as part of NBVC's annual ongoing vireo monitoring efforts. Projected noise from Stingray CBUAS flight operations would be similar (0.1 dB CNEL increase or less) to existing aircraft operations at NBVC Point Mugu, and there would be no change to the existing noise contours. The additional operations would be within the typical fluctuations in aircraft operations at military airfields from one year to the next. Effects from operations to least Bell's vireo on other parts of the base, and other special-status species, would be negligible.

Similarly, based on the negligible effects from operations, and with implementation of impact minimization measures for nests and nesting birds, there would be no take of migratory birds protected under the Migratory Bird Treaty Act. Removal of three or four large pine trees on the P-025 project area would be coordinated with the NBVC Point Mugu Environmental Division to avoid impacts to tree-nesting owl species.

Although not federally listed, the western pond turtle (*Actinemys marmorata*) is currently under review for listing by the USFWS. With the implementation of conservation measures for the western pond

turtle, in coordination with the NBVC Point Mugu Environmental Division, project-related construction activities would avoid effects to turtles.

Airspace and Airfield Operations. The Proposed Action would have no significant impacts to the airfield, airspace, or civilian users of airspace from construction of facilities and 960 annual flight operations (average of an additional two take-offs and two landings per operating day). Stingray CBUAS flight operations would result in a 2.4 percent increase in total airfield operations at NBVC Point Mugu. The increase would be well within the typical fluctuations in annual operations at military airfields from one year to the next and would not be significant. Stingray CBUAS flight operations would be conducted in existing controlled airspace in the vicinity of NBVC Point Mugu. Proposed operations at the airfield would be conducted in accordance with *NBVC Air Operations Manual*, *NBVC Instruction 3710.1E*. All flight operations for Stingray CBUAS would adhere to requirements for accessing airspace using communication and positioning systems to navigate along airways and conforming to Federal Aviation Administration flight standards for navigation at NBVC Point Mugu.

Infrastructure. The Proposed Action would have no significant impacts to potable water, wastewater, stormwater, solid waste management, or energy. In general, there is excess capacity of infrastructure and utilities at the base because the existing infrastructure and utilities were originally designed to support a larger population. Therefore, the existing utility systems have sufficient capacities to support the Proposed Action. At a minimum, any new stormwater drainage infrastructure would be sized for the 10-year (10 percent chance of recurrence), 24-hour storm event flow. Low impact design technologies would be sized for the 95th percentile rainfall (used to calculate volume where volume methods are utilized). Detention would be sized for the 100-year storm event per Ventura County stormwater management requirements.

Transportation. The Proposed Action would have no significant impacts on transportation. The Proposed Action would result in a short-term, minor increase in construction delivery trucks and construction worker vehicles at NBVC Point Mugu, which would have a temporary impact on Ventura County and NBVC Point Mugu roadways. An additional 730 personnel would add 880 average daily trips, resulting in a 7 percent increase in traffic on State Route 1 in the vicinity of NBVC Point Mugu. This small increase, along with the dispersed nature of routes to the gates, would not be expected to have a significant impact on roadway levels of service.

Public Health and Safety. The Proposed Action would have no significant impacts to public health and safety. The flight operations for the Stingray CBUAS would be conducted in existing controlled airspace at NBVC Point Mugu and in adjacent Class D and Class E airspace. The 2.4 percent increase in aircraft operations with Stingray CBUAS would not necessitate changes to the airfield Accident Potential Zones (APZs) because the existing flight paths at Runway 03/21 would be used. The proposed flight paths for the Stingray CBUAS are within existing regulated airspace and pass entirely over undeveloped or agricultural areas, minimizing the population at risk from mishaps. To further minimize the potential for mishaps, Stingray CBUAS AVOs receive extensive training prior to controlling actual aircraft flights. This includes extensive practice of emergency procedures to minimize the potential for mishaps. The Stingray CBUAS is also designed with multiple, redundant safety systems to minimize the risk of mishaps. Implementation of existing Bird/Animal Aircraft Strike Hazard (BASH) avoidance procedures would minimize BASH risks to negligible levels.

The analysis determined that potential environmental impacts of the Proposed Action would be negligible, and the Proposed Action would not change NBVC Point Mugu's ability to comply with military

airfield safety procedures. Therefore, in accordance with Executive Order 13045 Protection of Children from Environmental Health Risks and Safety Risks, the EA analysis has determined that the Proposed Action would not result in environmental health risks or safety risks that may disproportionately affect children.

Hazardous Materials and Waste. The Proposed Action would have no significant impacts related to hazardous materials and wastes. Construction contractors would be required to comply with applicable federal, state, and Navy requirements concerning handling of construction-related hazardous wastes. Hazardous wastes generated by construction activities would be managed in a manner that would prevent these materials from leaking, spilling, and potentially polluting soils or ground and surface waters, and in accordance with applicable federal, state, and Navy regulations. Minor long-term increases in hazardous material use and hazardous waste generation from operations would not exceed current management and disposal capacities. Construction of bridges and culverts over Oxnard Drainage Ditch Nos. 2A and 2B would avoid potential impacts on Environmental Restoration Program site 11 or would be coordinated with the NBVC Point Mugu remedial project manager and performed in accordance with applicable federal regulations and Navy instructions.

Socioeconomics. There would be both short- and long-term minor beneficial economic impacts resulting from an increase in employment, income, and tax revenue during construction and operations under the Proposed Action. The increase in population with 730 employees and an estimated 876 family members under the Proposed Action over the course of five years would have a minor but insignificant impact to schools in Ventura County due to increased enrollment, and a minor but insignificant impact to housing due to increased demand.

Cumulative Impacts. Based on the analysis of each resource potentially impacted by the Proposed Action, implementation of the Proposed Action combined with the past, present, and reasonably foreseeable future projects, would not result in significant cumulative impacts at NBVC Point Mugu.

Coastal Consistency. The Navy has determined that implementing the Proposed Action would not have an effect on any coastal use or resource of the California Coastal Management Program. A Coastal Consistency Negative Determination was submitted to the California Coastal Commission.

Table ES-1 provides a tabular summary of the potential impacts to the resources associated with the Proposed Action and the No Action Alternative. The No Action Alternative would not meet the purpose of and need for the Proposed Action and is not a viable alternative. However, the No Action Alternative serves as reference point for describing and quantifying the potential impacts associated with the Proposed Action.

Table ES-1. Summary of Potential Impacts to Resource Areas

Resource Area	No Action Alternative	Proposed Action
Air Quality	Under the No Action Alternative, the Proposed Action would not be implemented and there would be no significant impacts to air quality.	No significant impacts to air quality would occur under the Proposed Action. Air emissions would be minimal or <i>de minimis</i> ; Proposed Action is exempt from General Conformity requirements. A Record of Non-Applicability is provided in Appendix B.
Water Resources	Under the No Action Alternative, the Proposed Action would not be implemented and there would be no significant impacts to water resources.	No significant impacts to groundwater, surface water, wetlands, or floodplains would occur under the Proposed Action. Depending on the final location of the taxiways and engineering design, they have the potential to impact from 0.93 to 1.40 acres of jurisdictional wetlands. The Proposed Action would be constructed within the 100-year floodplain.
Noise	Under the No Action Alternative, the Proposed Action would not be implemented and there would be no significant impacts to noise.	No significant impacts to noise would occur under the Proposed Action. Stingray CBUAS noise levels and number of annual operations would not significantly affect the noise environment.
Biological Resources	Under the No Action Alternative, the Proposed Action would not be implemented and there would be no significant impacts to biological resources.	No significant impacts to vegetation, wildlife or special-status species would occur under the Proposed Action. With implementation of impact minimization, there would be no take of migratory birds. May affect, but is not likely to adversely affect the least Bell's vireo; informal consultation with the USFWS has been initiated. No effect on other federally listed species.
Airspace and Airfield Operations	Under the No Action Alternative, the Proposed Action would not be implemented and there would be no significant impacts to airspace and airfield operations.	No significant impacts to airfield, airspace, or civilian users of airspace from construction of facilities and 960 annual flight operations.
Infrastructure	Under the No Action Alternative, the Proposed Action would not be implemented and there would be no significant impacts to infrastructure.	No significant impacts to potable water, wastewater, stormwater, solid waste management, or energy would occur under the Proposed Action.
Transportation	Under the No Action Alternative, the Proposed Action would not be implemented and there would be no significant impacts to transportation.	No significant impacts to transportation would occur under the Proposed Action. Estimated additional 880 average daily vehicle trips on access roads. Increase of 7 percent of traffic on State Route 1 would not be significant.

Table ES-1. Summary of Potential Impacts to Resource Areas

Resource Area	No Action Alternative	Proposed Action
Public Health and Safety	Under the No Action Alternative, the Proposed Action would not be implemented and there would be no significant impacts to public health and safety.	No significant impacts to public health and safety would occur under the Proposed Action. There would be no measurable changes to mishap risk at the airfield. The 2.4 percent increase in aircraft operations would not necessitate changes to existing airfield APZs boundaries. Implementation of existing BASH avoidance procedures would minimize BASH risks to negligible levels.
Hazardous Materials and Wastes	Under the No Action Alternative, the Proposed Action would not be implemented and there would be no significant impact related to hazardous materials and wastes.	No significant impacts related to hazardous materials and wastes would occur under the Proposed Action. Minor short- and long-term increases in hazardous material use and hazardous waste generation from construction and operations that would not exceed current management and disposal capacities. Potential impacts on Environmental Restoration Program site 11 from the construction of bridges and culverts over Oxnard Drainage Ditch Nos. 2A and 2B would be avoided or would be coordinated with the NBVC Point Mugu remedial project manager and performed in accordance with applicable federal regulations and Navy instructions.
Socioeconomics	Under the No Action Alternative, the Proposed Action would not be implemented and there would be no significant impact to socioeconomics.	No significant impacts to socioeconomics would occur under the Proposed Action. There would be minor increase in population. Minor beneficial impacts from increases in employment and income during construction and operation. Minor but insignificant impact to schools due to increased enrollment. Minor but insignificant impact to housing due to increased demand. Minor beneficial impacts to economic activity from increased spending. Minor beneficial impacts to tax revenue from increased employment and spending.

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Environmental Assessment for the Home Basing of the MQ-25A Stingray Carrier-based Unmanned Air System at Naval Base Ventura County, Point Mugu, California

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Abbreviations and Acronyms

Acronym	Definition	Acronym	Definition
$\mu\text{g}/\text{m}^3$	micrograms per cubic meter	FRS	Fleet Replacement Squadron
ACM	asbestos-containing material	FY	Fiscal Year
AFFF	Aqueous film-forming foam	GDP	gross domestic product
AICUZ	Air Installation Compatible Use Zones	GHG	greenhouse gas
APZ	Accident Potential Zone	gpd	gallons per day
AQMP	Air Quality Management Plan	gpm	gallons per minute
AV	Air Vehicle	HAP	hazardous air pollutant
AVO	Air Vehicle Operator	INRMP	Integrated Natural Resources Management Plan
BASH	Bird/Animal Aircraft Strike Hazard	IPaC	Information for Planning and Consultation
BCC	birds of conservation concern	LBP	lead-based paint
BGEPA	Bald and Golden Eagle Protection Act	Lmax	Maximum A-weighted sound level
BMP	best management practice	LOS	level of service
CAA	Clean Air Act	lpd	liters per day
CAAQS	California Ambient Air Quality Standards	LUCs	Land Use Controls
CalEEMod	California Emissions Estimator Model	MBTA	Migratory Bird Treaty Act
CBUAS	Carrier-based Unmanned Air System	MSAT	Mobile Source Air Toxics
CCD	Coastal Consistency Determination	NAAQS	National Ambient Air Quality Standards
CEQ	Council on Environmental Quality	NAS	Naval Air Station
CFR	Code of Federal Regulations	NATOPS	Naval Air Training and Operating Procedures Standardization
CNEL	Community Noise Equivalent Level	NAVAIR	Naval Air Systems Command
CO	carbon monoxide	NBVC	Naval Base Ventura County
CO ₂	carbon dioxide	NEPA	National Environmental Policy Act
COA	Certificate of Authorization	NO ₂	nitrogen dioxide
COC	contaminants of concern	NOx	Nitrogen oxides
CVW	carrier air wing	NPDES	National Pollutant Discharge Elimination System
CWA	Clean Water Act	OEA	Overseas Environmental Assessment
CZMA	Coastal Zone Management Act	OEIS	Overseas Environmental Impact Statement
dB	decibel	OPNAV	Office of the Chief of Naval Operations
dBA	A-weighted sound level	OPNAVINST	Office of the Chief of Naval Operations Instruction
DERP	Defense Environmental Restoration Program	Pb	lead
DNL	day-night average sound level	PCB	polychlorinated biphenyl
DoD	United States Department of Defense	PFAS	Polyfluoroalkyl Substances
EA	Environmental Assessment	PM ₁₀	particulate matter less than or equal to 10 microns in diameter
EIS	Environmental Impact Statement	PM _{2.5}	particulate matter less than or equal to 2.5 microns in diameter
EO	Executive Order		
ERP	Environmental Restoration Program		
ESA	Endangered Species Act		
FAA	Federal Aviation Administration		
FONSI	Finding of No Significant Impact		

Acronym	Definition	Acronym	Definition
Ppm	parts per million	U.S.	United States
Ppt	parts per thousand	U.S.C.	United States Code
PSD	Prevention of Significant Deterioration	UAS	Unmanned Aerial System
Psi	pounds per square inch	USACE	U.S. Army Corps of Engineers
PSIG	pounds per square inch gauge	USEPA	U.S. Environmental Protection Agency
ROI	Region of Influence	USFWS	U.S. Fish and Wildlife Service
RONA	Record of Non-Applicability	USGS	U.S. Geological Survey
SEL	sound exposure level	USMC	U.S. Marine Corps
SHPO	State Historic Preservation Officer	UST	Underground Storage Tank
SO ₂	sulfur dioxide	VAW	Airborne Command & Control
sq ft	square foot (feet)	VCAPCD	Ventura County Air Pollution Control District
SSHO	Site Safety and Health Officer	VOC	volatile organic compound
SUA	Special Use Airspace	W-289	Warning Area 289
SWPPP	Stormwater Pollution Prevention Plan		
TMDL	Total Maximum Daily Load		

1 Purpose of and Need for the Proposed Action

1.1 Introduction

The United States (U.S.) Navy proposes to establish facilities and functions at Naval Base Ventura County (NBVC) Point Mugu, California to support West Coast home basing and operations of the MQ-25A Stingray Carrier-based Unmanned Air System (Stingray CBUAS). Under the Proposed Action, the Navy would home base 20 Stingray CBUAS; construct a hangar, training facilities, and supporting infrastructure; perform air vehicle (AV) maintenance; provide training for air vehicle operators (AVOs) and maintainers; conduct approximately 960 Stingray CBUAS annual flight operations; and station approximately 730 personnel, plus their family members.

The Stingray CBUAS is designed to enhance aircraft carrier capability and versatility for the Joint Forces Commander through integration of an effective, sustainable, and adaptable unmanned aerial systems (UAS) into the carrier air wing (CVW). The Stingray CBUAS will be the Navy's first carrier-based unmanned aircraft to function primarily as a mission refueling AV, extending the range and reach of the CVW. The Stingray CBUAS will also provide secondary recovery tanking (refueling close to the carrier), as well as intelligence, surveillance, and reconnaissance capabilities.

Prior to the arrival of the Stingray CBUAS into the fleet by fiscal year (FY) 2024, new facilities and associated infrastructure would be constructed at NBVC Point Mugu to support Stingray CBUAS flight operations. In order to meet the requirements of the Stingray CBUAS, an increase in military personnel and contractors at NBVC Point Mugu would be necessary.

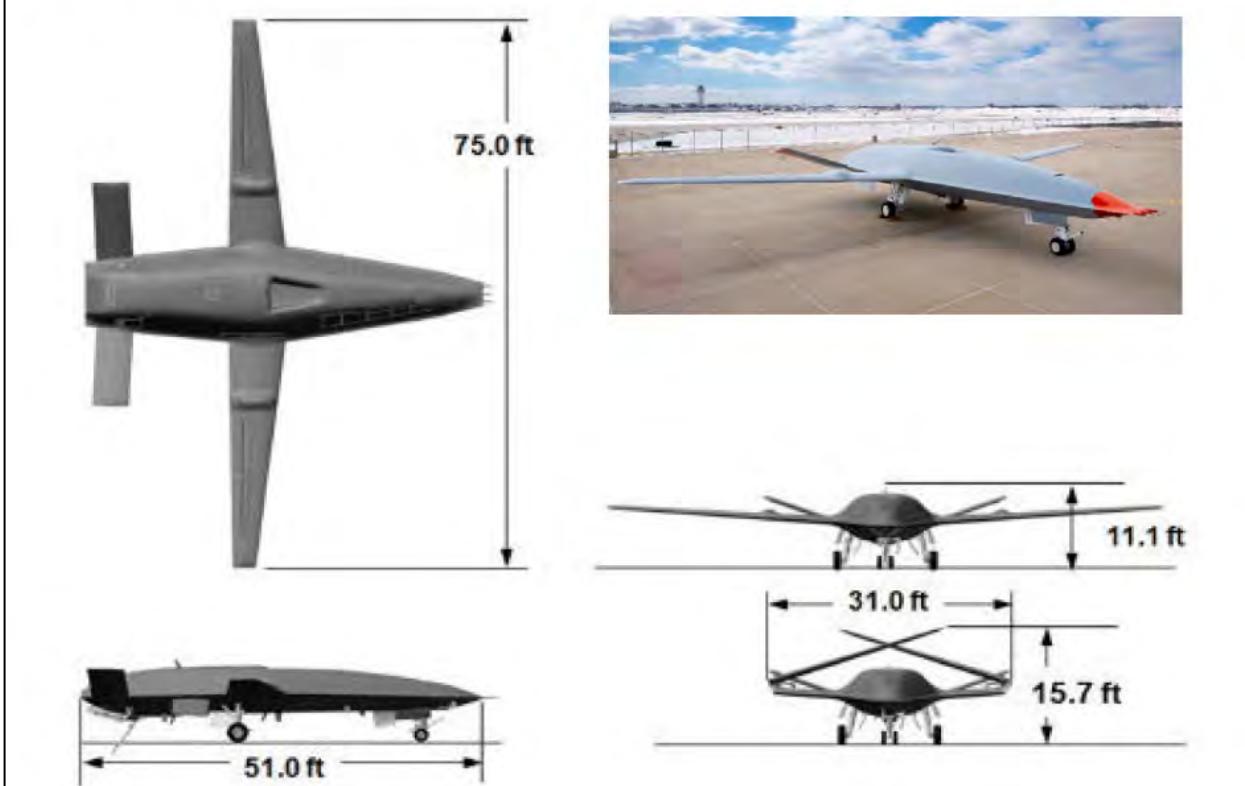
The Navy has prepared this Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA), as implemented by the Council on Environmental Quality regulations and Navy regulations for implementing NEPA.

1.2 Background

The Stingray CBUAS is an aircraft carrier-capable, aerial refueling AV. In August 2018, the Navy contracted for the design, development, testing, delivery, and support of the first operational carrier-based unmanned refueling AV. The Stingray CBUAS was specifically developed to extend the combat range of the jet aircraft F/A-18 Super Hornet, the EA-18G Growler, and the F-35C Lightning II.

The Navy anticipates establishing a home base for the Stingray CBUAS on each coast of the continental U.S. and one permanent detachment in support of the Forward Deployed Naval Forces-Japan. Based on strategic guidance, the West Coast squadron would be established before the East Coast squadron. The Fleet Replacement Squadron (FRS) must be co-located with the first operational squadron to provide initial and follow-on training. This EA focuses on the home basing for the West Coast of the continental U.S. The West Coast Stingray CBUAS Squadron would be comprised of four detachments, each intended to be deployed with an E-2C/D Hawkeye Airborne Command & Control (VAW) squadron.

The Stingray CBUAS is 51 feet in length, has a wingspan of 75 feet, and stands approximately 11 feet high. With wings folded, its wingspan is 31 feet, and it stands approximately 16 feet high (Figure 1.2-1). The Stingray CBUAS is powered by a single, 10,000 pound-thrust Rolls-Royce AE3007N turbofan engine.

MQ-25A Stingray Air Vehicle - Primary Characteristics**Figure 1.2-1. Primary Characteristics of the Stingray CBUAS Air Vehicle**

The Stingray CBUAS consists of two segments, the AV (aircraft) and the ground control station. The AV is capable of launch and recovery aboard aircraft carriers at-sea and at airfields on land. Stingray CBUAS' support and handling equipment includes the deck handling system, spares, and repair materials. An AVO uses the ground control station and its associated communication equipment in line of sight and beyond line of sight control of the AV for all phases of the mission, including engine start, taxi, take-off, mission functions, landing, and engine shutdown.

Commander, Airborne Command & Control and Logistics Wing will be assigned as the immediate superior in command of the Stingray CBUAS. At sea, detachments from the Stingray CBUAS squadron will leverage personnel and maintenance administration as well as chain of command representation of the VAW squadron with the CVW. Co-locating Stingray CBUAS squadrons with VAW squadrons ashore is important due to the synergies and efficiencies of the two codependent communities. Aircraft and personnel numbers at the 2031 end-state are provided in Section 2.3.

The Stingray CBUAS FRS would begin training the first fleet AVOs, and the Center for Naval Aviation Technical Training will begin training maintenance personnel for the first squadron at NBVC Point Mugu in FY 2024. Later in FY 2024, the program plans to conduct initial operational test and evaluation at-sea, and should achieve initial operational capability with three Stingray CBUAS and Navy personnel in the unit trained to conduct assigned missions. The first Stingray CBUAS detachment and all supporting elements will begin operation in the U.S. Pacific Fleet no later than FY 2025. The Stingray CBUAS will achieve full operational capability in approximately FY 2031.

A single Stingray CBUAS FRS will be established at the NBVC Point Mugu base to provide training for AVOs in both live and virtual training environments. Live flight training requirements are expected to be minimal; therefore, the FRS will not have AVs assigned, but will use fleet Stingray CBUAS AVs to fill live flight syllabus requirements, requiring the FRS to be co-located with one of the fleet squadrons. Undergraduate AVO training programs are not yet established, but Stingray CBUAS undergraduate AVO training will be co-located with the FRS.

1.3 Location

Naval Base Ventura County was established in 2000 by consolidating Naval Air Station (NAS) Point Mugu (which became known as NBVC Point Mugu) and the Construction Battalion Center Port Hueneme (which became known as NBVC Port Hueneme). NBVC Point Mugu and NBVC Port Hueneme are located approximately 5 miles apart, along the Pacific coast of California, in Ventura County (Figure 1.3-1). NBVC Point Mugu consists of 4,490 acres, of which approximately 2,000 acres are developed (Figure 1.3-2). As part of its mission, NBVC Point Mugu operates an airfield with two runways and a 36,000-square-mile sea test range extending more than 180 nautical miles seaward from shore. NBVC San Nicolas Island, located 60 miles offshore within the sea test range, is used for littoral warfare training, including theater warfare exercises, and includes launching facilities and a 10,000-foot runway. NBVC Point Mugu is located between the City of Oxnard to the northwest and the Point Mugu State Park to the southeast. The site is fronted by approximately 6 miles of shoreline and was initially established in the early 1940s as a place to stage, train, and supply the newly created U.S. Navy Construction Battalion (known as the Seabees).

NBVC Point Mugu activities are Research, Development, Test & Evaluation of weapons systems, providing the U.S. and allied forces maintenance and support capabilities and an area to perform actual operations and missile firings. The Sea Range provides operationally realistic climatological and physical features that closely simulate conditions in many of the primary threat regions of the world. The Sea Range is used primarily to test guided missiles and other weapons systems, as well as the ships and aircraft that serve as platforms for launching weapons/ordnance.





Figure 1.3-1. Location Map



Figure 1.3-2. NBVC Point Mugu

1.4 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to base a new West Coast squadron designed to enhance aircraft carrier capability and versatility for the Joint Forces Commander through the integration of a persistent, sea-based, multi-mission aerial refueling and intelligence, surveillance, and reconnaissance UAS into the CVW.

The need for the Proposed Action is primarily to extend the range and reach of the CVW on the West Coast to meet and pace current and future threats, with secondary recovery refueling and intelligence, surveillance, and reconnaissance capabilities, in support of national defense objectives and policies. In this regard, the Proposed Action furthers the Navy's execution of its congressionally mandated roles and responsibilities under 10 United States Code (U.S.C.) section 8062.

10 U.S.C. section 8062: "The Navy shall be organized, trained, and equipped primarily for prompt and sustained combat incident to operations at sea. It is responsible for the preparation of naval forces necessary for the effective prosecution of war except as otherwise assigned and, in accordance with integrated joint mobilization plans, for the expansion of the peacetime components of the Navy to meet the needs of war."

1.5 Scope of Environmental Analysis

This EA includes an analysis of potential environmental impacts associated with the Proposed Action and the No Action Alternative. The environmental resource areas analyzed in this EA include air quality, water resources, noise (qualitatively), biological resources, airspace and airfield operations, infrastructure, transportation, public health and safety, hazardous materials and wastes, socioeconomics, and cumulative impacts. The study area for each resource analyzed may differ due to how the Proposed Action interacts with or impacts the resource. For instance, the study area for water resources may only include the construction footprint of a building whereas the air quality study area would expand out to include areas that may be impacted by air emissions.

Some environmental resources were omitted from further detailed analysis in this EA because there would be negligible to no impacts to these resources from implementing the Proposed Action. The resources omitted from further detailed analysis are cultural resources, geological resources, land use, visual resources, emergency services, and environmental justice.

Cultural Resources: A Phase I Archaeological Survey was performed on the proposed project area in 2013 and a negative Archaeological Survey Report was issued. The report findings did not observe any prehistoric or historical cultural resources within the limits of the proposed project area (U.S. Department of the Navy, 2013a). Therefore, the Navy has omitted further detailed examination of cultural resources in this EA. In addition, in 2015 NBVC entered into a Programmatic Agreement with the California State Historic Preservation Officer (SHPO) that enables the base to internally review and legally approve undertakings that are determined to have no adverse effect on historic properties. These decisions are reviewed by the SHPO through an annual report. Undertakings determined to have an adverse effect on historic properties would require consultation with the SHPO, in accordance with Section 106 of the National Historic Preservation Act. The Programmatic Agreement expires in 2025 (Office of Historic Preservation, 2015). In the event that buried cultural resources or human remains are discovered during ground disturbing activities, the standard operating procedures for inadvertent discoveries will be followed. If human remains are identified, Naval Criminal Investigative Service will be

notified (NAVFAC SW, 2018). Given the nature of the discovered remains, the Cultural Resources Manager will consider the applicability of Native American Graves Protection and Repatriation Act and will consult with the SHPO and Santa Ynez Band of Chumash Indians to determine the appropriate next steps.

Geological Resources: The Proposed Action would largely occur in areas already covered by pavement or in areas where soils have been previously disturbed. Implementation of best management practices (BMPs) during construction and demolition activities would minimize potential impacts from erosion and sedimentation into receiving water bodies. Construction and demolition activities associated with the Proposed Action would not significantly alter the topography or geologic features of the base, and none of the project areas are currently being used for agricultural purposes nor would they be used for agricultural purposes upon completion of the Proposed Action. Therefore, no impacts on soils or topography would be expected. Accordingly, the Navy has omitted further detailed examination of soils and topography in this EA.

Land Use. Land use changes associated with the proposed home basing of Stingray CBUAS would be in compliance with the Navy Region Southwest Regional Shore Infrastructure Plan and NBVC Activity Overview Plan, including the Navy Regional Planning Policy Objectives of increasing existing capabilities and sustainability and maximizing efficiency. In addition, the Proposed Action would not introduce any new Land Use Controls or impact any existing Land Use Controls. Therefore, no impacts on land use would be expected. Accordingly, the Navy has omitted further detailed examination of land use in this EA.

Visual Resources. All construction would be within the base and consistent with the Installation Development Plan, which states that the North Airfield District will include expanded aircraft parking aprons, taxiways, and new operations and maintenance facilities to support current and future missions (Naval Base Ventura County, 2017). Moreover, military aircraft from NBVC Point Mugu have been conducting flight operations in the region since the 1940s. Therefore, no impacts to visual resources would occur.

Environmental Justice. Consistent with Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations*, it is the Navy's policy to identify and address any disproportionately high and adverse human health or environmental effects of its actions on minority and low-income populations. Construction, demolition, and renovation activities associated with the Proposed Action would occur entirely within the fence line of NBVC Point Mugu. The Proposed Action would not change the local, regional, or statewide social or environmental conditions or affect any specific population or demographic group because the impacts would be limited to the airfield. As such, the Proposed Action would not result in disproportionately high and adverse human health or environmental effects on minority populations or low-income populations. Accordingly, the Navy has omitted further detailed examination of environmental justice in this EA.

Emergency Services. NBVC Point Mugu has experienced a drawdown (i.e., decrease) in base personnel and operations. Subsequently, there is excess capacity to provide emergency services to the base and surrounding municipalities. While the influx of approximately 730 personnel could result in a small increase in demand for emergency services, the increase of personnel and family members associated with the Proposed Action is not expected to exceed the current capacity of emergency services available at NBVC Point Mugu or in the surrounding municipalities. In addition, the Proposed Action would not impact the response time or efforts of the Federal Fire Department Ventura County, NBVC Fire

Department, or force protection personnel. Therefore, no impacts on emergency services would be expected. Accordingly, the Navy has omitted further detailed examination of emergency services in this EA.

1.6 Key Documents

Key documents are sources of information incorporated into this EA. Documents are considered to be key because of similar actions, analyses, or impacts that may apply to this Proposed Action. Council on Environmental Quality guidance encourages incorporating documents by reference. Documents incorporated by reference in part or in whole include:

- **Point Mugu Sea Range Draft Environmental Impact Statement/Overseas Environmental Impact Statement (EIS/OEIS), April 2020.** This EIS/OEIS evaluated the potential environmental impacts of continuing military readiness activities in the Point Mugu Sea Range Study Area (Study Area). The Study Area is made up of air and sea space adjacent to Los Angeles, Ventura, Santa Barbara, and San Luis Obispo Counties along the Pacific Coast of Southern California and includes a 36,000-square-mile Sea Range (U.S. Department of the Navy, 2020a).
- **Final EIS for the Fallon Range Training Complex Modernization, January 2020.** This EIS evaluated the potential environmental impacts of expanding land ranges and modifying associated airspace configurations in the Fallon Range Training Complex and Special Use Airspace. A portion of Stingray CBUAS training (when other aircraft are refueling with the AV) may occur in the Fallon Range Training Complex but will not be analyzed in this EA because those training operations are covered in the EIS. A Record of Decision selecting alternative 3 was signed March 12, 2020 (U.S. Department of the Navy, 2020b).
- **Hawaii-Southern California Training and Testing EIS/OEIS, October 2018.** This EIS/OEIS evaluated the potential environmental impacts of continuing military readiness activities in the Hawaii-Southern California Training and Testing Study Area. The Study Area is made up of air and sea space off Southern California, around the Hawaiian Islands, and the transit corridor connecting them. The Study Area has the necessary proximity to homeports in San Diego and Hawaii, shore-based facilities, military families, and unique ranges. Alternative 1 reflects a representative year of training and testing to account for the natural fluctuation of training and testing cycles and deployment schedules that generally limit the maximum level of activities from occurring year after year in any 5-year period. Under the preferred alternative, the Navy assumes that some unit-level training and testing would be conducted using synthetic means (e.g., simulators). Additionally, this alternative assumes that some unit-level active sonar training will be completed through other training exercises. A Record of Decision was signed on December 18, 2018 (U.S. Department of the Navy, 2018).
- **Final EA for U.S. Coast Guard Air Station Point Mugu at NBVC, California, May 2018.** The Navy, in cooperation with the U.S. Coast Guard, evaluated the potential environmental impacts of constructing a new U.S. Coast Guard Air Station at NBVC Point Mugu, consisting of a new hangar, support facilities, an aircraft parking apron, taxiway, vehicle parking lots, and access roads. Construction of the new Air Station would take approximately three years and was expected to be operational prior to August 2021, but construction has been delayed. The new Air Station is expected to be located along the North Airfield adjacent to the proposed Stingray CBUAS hangar. A Finding of No Significant Impact was signed on June 18, 2018 (U.S. Coast Guard & U.S. Department of the Navy , 2018).

- **Naval Base Ventura County Point Mugu Air Installations Compatible Use Zones Study (AICUZ), December 2015.** An AICUZ Study is a planning document that promotes land use development around air facilities that is compatible with Department of Defense flying missions. The 2015 AICUZ Study provides background information on NBVC Point Mugu, presents noise contours and zones associated with aircraft operations, establishes Accident Potential Zones, locates areas of incompatible land uses, and recommends actions to encourage compatible land use (U.S. Department of the Navy, 2015).
- **Final EA for the West Coast Home Basing of the MQ-4C Triton Unmanned Aircraft System at Naval Base Ventura County Point Mugu, California, April 2013.** This EA evaluated the potential environmental impacts of establishing facilities and functions to support the West Coast home basing and maintaining of the MQ-4C Triton UAS at NBVC Point Mugu. Under the proposed action the Navy would home base four Triton UAS, establish a maintenance hub for the Triton UAS, supporting up to four additional Triton UAS undergoing maintenance actions at any one time; conduct an average of five Triton UAS flight operations (i.e., take-offs or landings) per day (1,825 annually); construct, demolish, and renovate facilities and infrastructure at NBVC Point Mugu; and station up to 700 personnel, plus their family members, while supporting rotational deployments to and from outside the continental United States. The new Triton UAS hangar is expected to be located along the North Airfield in proximity to the proposed Stingray CBUAS hangar. Construction of the new maintenance hangar, taxiway, and aircraft parking apron would take approximately one calendar year, and was expected to be operational prior to FY 2016, but construction has been delayed. A Finding of No Significant Impact was signed on April 22, 2013 (U.S. Department of the Navy, 2013b).

1.7 Relevant Laws and Regulations

The Navy has prepared this EA based upon federal and state laws, statutes, regulations, and policies pertinent to the implementation of the Proposed Action, including the following:

- NEPA (42 U.S.C. sections 4321–4370h)
- Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations parts 1500–1508)
- Navy regulations for implementing NEPA (32 Code of Federal Regulations part 775)
- Clean Air Act (42 U.S.C. section 7401 et seq.)
- Clean Water Act (33 U.S.C. section 1251 et seq.)
- Coastal Zone Management Act (16 U.S.C. section 1451 et seq.)
- National Historic Preservation Act (54 U.S.C. section 306108 et seq.)
- Endangered Species Act (16 U.S.C. section 1531 et seq.)
- Migratory Bird Treaty Act (16 U.S.C. sections 703–712)
- Bald and Golden Eagle Protection Act (16 U.S.C. section 668–668d)
- Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. section 9601 et seq.)
- Emergency Planning and Community Right-to-Know Act (42 U.S.C. sections 11001–11050)
- Resource Conservation and Recovery Act (42 U.S.C. section 6901 et seq.)

- Toxic Substances Control Act (15 U.S.C. sections 2601–2629)
- EO 11988, Floodplain Management
- EO 12088, Federal Compliance with Pollution Control Standards
- EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations
- EO 13045, Protection of Children from Environmental Health Risks and Safety Risks
- EO 13175, Consultation and Coordination with Indian Tribal Governments
- EO 13834, Efficient Federal Operations

A description of the Proposed Action's consistency with these laws, policies and regulations, as well as the names of regulatory agencies responsible for their implementation, is presented in Chapter 5.0 (Table 5.1-1).

1.8 Public and Agency Participation and Intergovernmental Coordination

Regulations from the Council on Environmental Quality direct agencies to involve the public in preparing and implementing their NEPA procedures.

The Navy has prepared this Draft EA to inform the public of the Proposed Action and to allow the opportunity for public review and comment. Through the public involvement process, the Navy coordinates with relevant federal, state, and local agencies and notifies them and the public of the Proposed Action. Input from the public and from regulatory agencies is incorporated into the analysis of potential environmental impacts, as appropriate.

A Notice of Availability of the Draft EA including information about where the Draft EA may be reviewed and announcing a 30-day public comment period was published in the Ventura County Star and La Vida (Appendix A). The Draft EA is available on the Navy's website, <http://www.nepa.navy.mil/stingray>.

The Navy has coordinated or consulted with the U.S. Fish and Wildlife Service regarding the Proposed Action. A Coastal Consistency Negative Determination has been prepared and submitted to California Coastal Commission.

2 Proposed Action and Alternatives

2.1 Proposed Action

The Navy proposes to establish facilities and functions at Naval Base Ventura County (NBVC) Point Mugu, California to support West Coast home basing and operations of the MQ-25A Stingray Carrier-based Unmanned Air System (Stingray CBUAS). Under the Proposed Action, the Navy would home base 20 Stingray CBUAS; construct a hangar, training facilities, and supporting infrastructure; perform air vehicle (AV) maintenance; provide training for air vehicle operators (AVOs) and maintainers; conduct approximately 960 Stingray CBUAS annual flight operations; and station approximately 730 personnel, plus their family members.

2.2 Development of the Range of Reasonable Alternatives

National Environmental Policy Act's (NEPA's) implementing regulations provide guidance on the consideration of alternatives to a federally proposed action and require rigorous exploration and objective evaluation of reasonable alternatives. Only those alternatives determined to be reasonable and to meet the purpose and need require detailed analysis. In developing the proposed range of alternatives to meet the purpose of and need for the Proposed Action, the Navy considered mission characteristics; geographic requirements; logistics, operational, administrative, and facilities synergies; existing special use airspace (SUA); training requirements; and existing Navy infrastructure. Based on this review, the following factors were considered when exploring alternatives for the Proposed Action:

- Alternatives must be in proximity to aircraft carrier-operating areas. Since the Stingray CBUAS conducts its mission primarily from the aircraft carrier, the shore-based location must be proximate to the center of the Southern California Operating Area. This proximity allows the Stingray CBUAS to fly to the aircraft carrier and provide aerial refueling services to other aircraft while retaining enough fuel to land on the aircraft carrier with required fuel reserves.
- Alternatives must involve minimal potential conflicts with other aircraft within the National Airspace System. Coastal basing in Department of Defense (DoD)-delegated airspace adjacent to overwater SUA allows AV launch from the home base, climb and transit into the Southern California Operating Area, and approach and landing back at the home base with minimal Federal Aviation Administration (FAA) coordination and air traffic deconfliction, maximizing operational flexibility and minimizing operational costs.
- Alternatives must be compatible with existing airfield operations. Stingray CBUAS basing must impart minimal impact on existing airfield operations, and existing airfield operations should not inhibit efficient operations of the Stingray CBUAS AV. Home basing where other carrier air wing (CVW) aircraft operate provides the least disruption to other airfield operations and ensures pilots are accustomed to operating in the same airspace as the Stingray CBUAS.
- Alternatives must accommodate the Stingray CBUAS accelerated schedule. The Stingray CBUAS is an accelerated acquisition program. The West Coast home base must have the capacity to accommodate, either through existing infrastructure or new construction, a hangar and ramp by fiscal year (FY) 2024.

- Alternatives should utilize operational and administrative synergies: In order to support fleet readiness and ensure efficient use of resources, the following operational and administrative synergies must be considered:
 - Co-location with Airborne Command & Control (VAW) squadrons provides operational and administrative efficiencies and reduces span of control challenges for Commander, Airborne Command & Control and Logistics Wing.
 - Co-location with large concentrations of fixed-wing CVW squadrons provides operational efficiencies associated with having aerial refueling AV and receiving aircraft originating from the same location.
 - Co-location with existing Fleet Readiness Centers reduces need to generate a new Fleet Readiness Center footprint for intermediate/depot level maintenance.
 - Co-location with other Navy Unmanned Aerial Systems (UAS) enables potential synergies and efficiency in sharing AVO workload for launch and recovery. Concentrating UASs at a single location where airfield operations and Air Traffic Control are accustomed to unmanned flight operations reduces airfield and airspace integration risks.
- Alternatives must use existing runways. The Stingray CBUAS requires a runway with a minimum length of approximately 8,000 feet. The use of existing runways maximizes the use of the Navy's infrastructure and is necessary to meet the accelerated schedule. Constructing a new runway would not support the program timelines.
- Alternatives must provide shore sailor and family support. The West Coast home base must support sailor and family readiness, medical, and housing needs commensurate with Navy standards for deployable units. A home base operating with the support available to absorb personnel and mission growth maximizes the use of the Navy's infrastructure and helps meet the accelerated schedule.

2.3 Alternatives Carried Forward for Analysis

Based on the considerations detailed above and meeting the purpose of and need for the Proposed Action, only one action alternative, the Proposed Action, was identified and will be analyzed within this Environmental Assessment (EA). This document evaluates the No Action Alternative and the Proposed Action.

2.3.1 No Action Alternative

The Council on Environmental Quality regulations (40 Code of Federal Regulations (CFR) Section 1502.14[d]) require NEPA documents to evaluate the No Action Alternative. The No Action Alternative provides a benchmark that typically enables decision makers to compare the magnitude of potential environmental effects of the Proposed Action with conditions in the affected environment.

Under the No Action Alternative, the Proposed Action would not occur. The Navy would not home base the Stingray CBUAS at NBVC Point Mugu. The infrastructure upgrades necessary to accommodate the Stingray CBUAS would not occur. The No Action Alternative would not meet the purpose and need for the Proposed Action; however, as required by NEPA, the No Action Alternative is carried forward for analysis in this EA. The No Action Alternative will be used to analyze the consequences of not undertaking the Proposed Action and will serve to establish a comparative baseline for analysis.

2.3.2 Proposed Action

The Proposed Action is the only alternative considered by the Navy to meet the purpose and need for the West Coast home basing and operations of the Stingray CBUAS at NBVC Point Mugu. The Proposed Action meets all the screening factors described in Section 2.2.

The following sections provide details on three aspects of the Proposed Action: facility and infrastructure requirements, personnel changes, and AV operations.

2.3.2.1 Facility and Infrastructure Requirements

Under the Proposed Action, the West Coast home basing of the Stingray CBUAS would require new facilities and infrastructure. In particular, the Stingray CBUAS would require:

- A new squadron hangar; parking for AVs, government vehicles, and privately-owned vehicles; taxiways; and associated utilities and infrastructure
- Training facilities for AV operators and training facilities for maintainers.

These major construction elements are further described in proposed Military Construction projects P-025 (Hangar), P-026 (Training facility), and Special Project RM 19-1368 (Building PM508 Renovations).

P-025: The primary function of the squadron hangar is to support maintenance, repair, inspection, servicing, and flight preparation. The high bay area in hangar allows for AV maintenance in a controlled environment. The hangar would also provide the necessary support spaces, including two ground control rooms, flight planning, briefing and debriefing areas, and communications equipment rooms. The hangar would be a standard Type I hangar based on United Facilities Criteria 4-211-01, *Aircraft Maintenance Hangars* and Unified Facilities Criteria 2-000-05N, *Facility Planning For Navy And Marine Corps Shore Installations*. The hangar, located along the flight-line, would be two-stories, 50 feet high and approximately 90,000 square feet (sq ft) and accommodate up to seven Stingray CBUAS. The hangar, aircraft apron (approximately 710,000 sq ft of concrete), taxiways (approximately 43,000 sq ft each), 1,000 sq ft radio communications facility, 16,000 sq ft antenna platform, personnel parking break shelter, and access roads would be built within the approximate 93-acre project area shown in Figure 2.3-1. The overall project footprint would be approximately 38.5 acres (NAVFAC, 2020), and the exact location of the various project elements would be determined during project design. Two taxiway connections from the hangar to existing Taxiway B (each 75 feet wide) would be constructed over the drainage ditch on the north side of the apron via culverts. One of the two taxiways would be constructed by the Navy as part of this project, and the other taxiway would be constructed by the U.S. Coast Guard and used jointly by U.S. Coast Guard and the Navy. Each taxiway would be approximately 43,000 sq ft. Vehicular and pedestrian access to a 380-space personnel parking area would likely consist of two metal grated bridges over the drainage ditch located south of the proposed hangar site. With implementation of standard BMPs, the access road to the hangar from 7th Street, which parallels Oxnard Drainage Ditch No. 2A, would have no impacts to Oxnard Drainage Ditch No. 2A. Access to 7th Street would be via a metal grated bridge across the drainage ditch. 7th Street would be realigned, and the existing bridge would be removed. The stormwater management system would include pervious pavement for parking and walkways and



Figure 2.3-1. P-025 Proposed Stingray CBUAS Squadron Hangar Project Area

subsurface detention chambers to prevent ponding (NAVFAC, 2020). Stormwater management strategies would also include disconnecting impervious areas by providing landscaped areas, discharging roof drainage to grade, and providing biofiltration swales in the open landscape areas to capture and filter stormwater. A notional hangar site plan is shown in Figure 2.3-2. This project also includes the construction of a Radio Communication facility (including two 95-foot antenna towers) at the hangar site. The proposed hangar site was previously developed as a base golf course in 1964 (U.S. Department of the Navy, 2013a). The notional design would be adapted to allow for the future integration of the Navy Triton and U.S. Coast Guard hangars in the North Airfield area, which are currently in the design phase (see Section 1.6 *Key Documents* and Section 4, *Cumulative Impacts*) (U.S. Department of the Navy, 2020). The design would also protect existing improvements and infrastructure to the maximum extent practical.

- **Building PM385 Battery Shop:** An approximately 2,000 sq ft addition to the existing aircraft battery shop on the installation in Building PM385 is proposed for lithium-ion battery maintenance and storage (Figure 2.3-3).
- **P-026:** The proposed Stingray CBUAS maintenance training facility would be two-stories and approximately 26,000 sq ft. The facility would accommodate a throughput of approximately 270 students per year. The facility would include spaces for student classrooms, instructor work spaces, part task trainers, and administrative support. The training facility would be located on the corner of 13th Street and Photo Road across the street from Building PM508. The proposed project development area is approximately 1.6 acres (Figure 2.3-3) and is currently a vacant and largely impervious surface (NAVFAC, 2020).
- **Special Project RM 19-1368:** Renovation is proposed for Building PM508 (Figure 2.3-3). RM 19-1368 renovations would support Stingray CBUAS AVO simulator training. Renovations include:
 - Repairs to interior walls and doors
 - Repairs to raised flooring
 - Repairs to mechanical, electrical, and lighting systems
 - Repairs to communications and security systems
 - Seismic upgrades.

Renovations to Building PM508 would occur within the building's interior, and there would be no construction outside of the building. Therefore, renovation of Building PM508 under Special Project RM 19-1368 would not result in environment impacts and is not addressed further in this EA.

- **Hangar 365:** This existing hangar would be used for some intermediate maintenance events (Figure 2.3-3). Additionally, Fleet Replacement Squadron (FRS) VUQ-10 would operate out of Hangar 365, in addition to some intermediate depot level maintenance events. However, no major renovations are anticipated for this hangar. Minor renovation of Hangar 365 would not result in environment impacts and is not addressed further in this EA.

The estimated construction period for these facilities would begin in March 2023 and continue through March 2025.

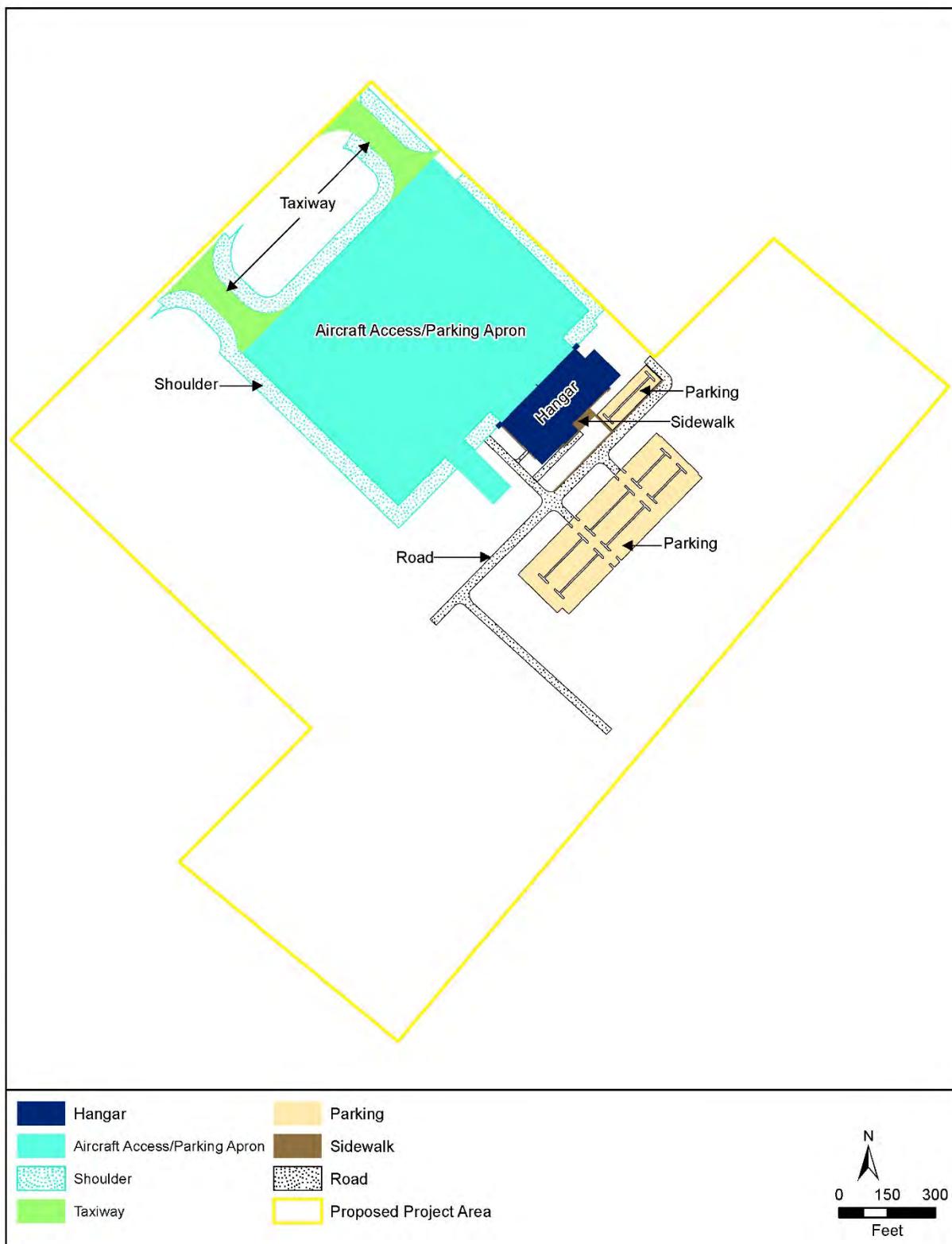


Figure 2.3-2. P-025 Notional Stingray CBUAS Squadron Hangar Layout

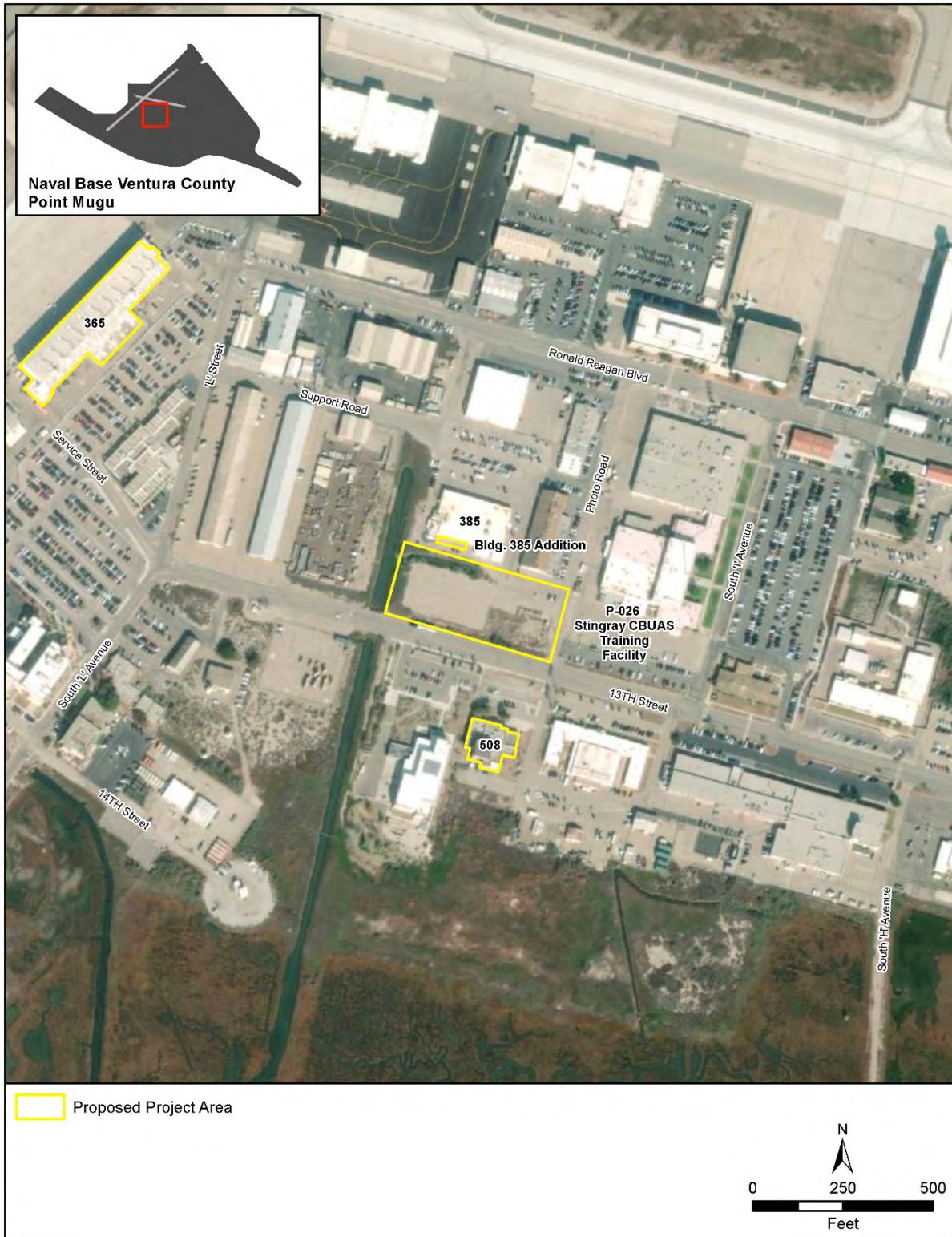


Figure 2.3-3. P-026 Proposed Stingray CBUAS Training Facility and other Key Buildings Project Area

2.3.2.2 Personnel Changes

The Proposed Action requires military, civilian, and contractor personnel to perform Stingray CBUAS operational, maintenance, and training functions. Approximately 730 military and civilian personnel would be stationed at NBVC Point Mugu to support Stingray CBUAS squadrons. Personnel would be added in phases over three to five years.

It is estimated that personnel associated with the Proposed Action would be accompanied by an average of about 1.2 family members. This planning factor is applied based on a United States DoD demographic survey and profile of the military community (Department of Defense, 2018). Active duty members include both married and single members, and family members include spouses, children, and adult dependents. Personnel and family members would locate to NBVC Point Mugu and the surrounding areas of Ventura County, California.

2.3.2.3 Air Vehicle Operations

AVO training in the fleet and FRS is expected to take place largely in virtual environments. Virtual training is supplemented with live flight training. The Stingray CBUAS will perform conventional take-offs and landings ashore and will also have the ability to perform an arrested landing in the event of AV malfunction or when conditions warrant a precautionary arrested landing. AVO proficiency training will include some live flight training; however, the number of expected flights and airfield operations are significantly less than that of other manned carrier squadrons. A limited number of aircraft acceptance inspection and maintenance-related live flights are also anticipated. These functional check flights are conducted when it is not possible to determine proper aircraft system operation by ground checks. Stingray CBUAS flight operations are anticipated to total approximately 960 annual operations. These operations would consist of departures and arrivals. Closed pattern operations (i.e., multiple take-offs and landings without leaving the vicinity of the airfield) are not anticipated for the Stingray CBUAS. Annual operations are anticipated to begin with fewer flights and increase over several years before reaching 960 when at full capacity.

Proposed Stingray CBUAS airfield operations at NBVC Point Mugu would be generally similar in nature to the current airfield operations, but the quantity of operations and flight patterns would be slightly different. Actual operations can vary somewhat depending on specific training missions or need at any given time. An operation represents a single movement or individual flight in the home base airfield or airspace environment. For example, one AV departing and returning would represent two airfield flight operations. The Stingray CBUAS would conduct the airfield operations at NBVC Point Mugu similar to those performed by fixed-wing aircraft at the airfield as described below.

- **Departure.** This involves an AV taking off and equates to one operation. Departures would occur on Runway 03/21 (Figure 2.3-4).
- **Arrival.** This involves an AV returning and landing and equates to one operation. Such landings would occur on Runway 03/21. The AV will use a Straight-in/Full-stop Arrival. When performing this operation, an AV lines up 6 to 10 nautical miles from the airfield on the runway centerline, descends gradually, lands, and then taxis off the runway.

Stingray CBUAS would conduct offshore flight operations primarily in Warning Area 289 (W-289) (see Figure 2.3-5). During offshore flight operations, Stingray CBUAS may conduct its aerial refueling mission at altitudes between 5,000 and 25,000 feet. As unmanned aircraft operations typical of Stingray CBUAS offshore operations have been previously evaluated in the Point Mugu Sea Range Draft Environmental



Figure 2.3-4. NBVC Point Mugu Runways

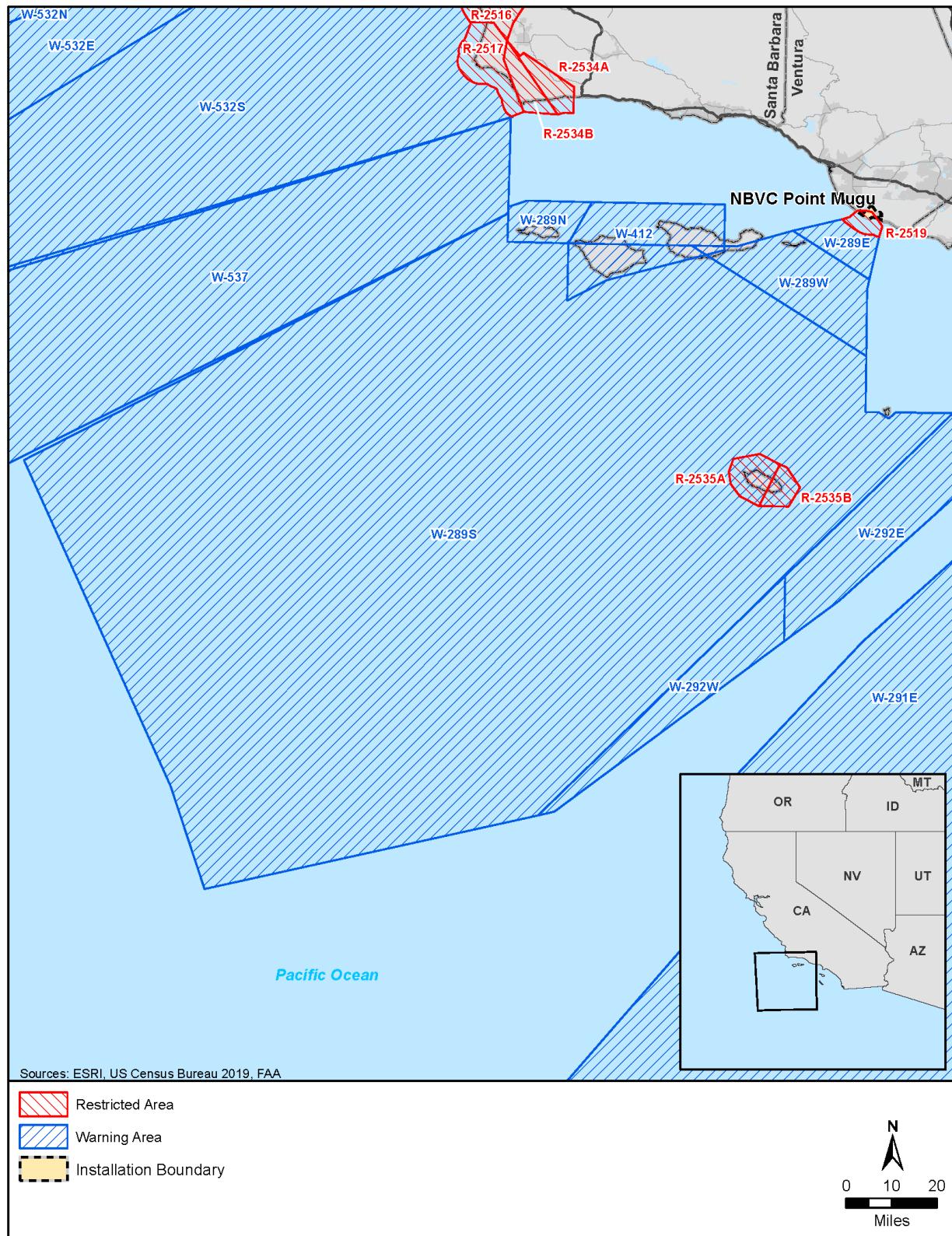


Figure 2.3-5. Offshore Airspace in the Vicinity of NBVC Point Mugu

Impact Statement/Overseas (EIS/OEIS) Environmental Impact Statement (see Section 1.6, Key Documents), they are not further evaluated in this EA.

2.4 Alternatives Considered but not Carried Forward for Detailed Analysis

2.4.1 Site at Other Locations at NBVC Point Mugu

This alternative supports the purpose of and need for the Proposed Action, as well as meets the considerations in Section 2.2, but was not carried forward for detailed analysis in this EA because it would not appreciably change the potential environmental impacts of the action.

The Navy considered an alternative that would accommodate the Stingray CBUAS infrastructure requirements at other locations on NBVC Point Mugu, including re-use of existing facilities. Specifically, the re-use of PM553, PM365, and PM34 were evaluated. Because these locations are not able to accommodate aircraft parking and could require relocation of current users, development of the North Airfield area would still be required to accommodate the Stingray CBUAS. All feasible scenarios involved a similar level of site disturbance in the undeveloped North Airfield area. As a result, this alternative would result in environmental impacts that are similar to the proposed action, and this alternative is, therefore, not carried forward in this document for detailed analysis.

The following additional options were not considered viable alternatives as they either do not support the purpose of and need for the Proposed Action, or do not meet the considerations in Section 2.2.

2.4.2 Home Basing at Other Navy Airfields

Based on the considerations in Section 2.2, other Navy airfields that were considered include: Naval Air Station (NAS) Lemoore, NAS North Island, Naval Air Facility El Centro, and Naval Air Weapons Station China Lake in California, as well as NAS Whidbey Island in Washington and NAS Fallon in Nevada. None of these airfields fully meet the requirements in Section 2.2. NAS Whidbey Island and NAS Fallon are both too distant from the aircraft carrier-operating areas. Naval Air Facility El Centro does not have sufficient operational or shore support capacity needed to meet the requirements for the Stingray CBUAS program and frequently hosts incompatible operations in the form of training command detachments. With the exception of NAS North Island, the remaining locations, although near enough to the aircraft carrier-operating area, are not adjacent to overwater SUA and would require extensive transits within FAA airspace resulting in complex coordination requirements. NAS North Island, although immediately adjacent to over water SUA, lacks available real estate for construction and offers no synergies with other CVW squadrons that require refueling, or with the VAW squadrons with whom they will share maintenance personnel and facilities at sea.

2.4.3 Home Basing at Other DoD Airfields (Joint Bases)

The Navy considered an alternative that would home base the Stingray CBUAS at a Joint Base or non-Navy installation. This alternative was considered but is not being carried forward for detailed analysis in the EA because the Stingray CBUAS has no commonality with other service's UASs, and Joint Bases or non-Navy installations offer no operational or administrative synergies, such as the co-location with VAW squadrons or with existing Fleet Readiness Centers. Stingray CBUAS operations could also be incompatible with existing airfield operations at non-Navy installations, disrupting Joint Service operations. As a result, this alternative is not carried forward in this EA for detailed analysis.

2.4.4 Home Basing at Other Federal, Non-DoD Airfields

Other Federal, non-DoD airfields, such as National Aeronautics and Space Administration-operated airfields, would offer minimal or no sailor and family readiness, medical, or housing support commensurate with Navy standards for the deployable units needed to support the Stingray CBUAS program and, therefore, would not meet the shore support requirement. Operational and administrative synergies, such as the co-location with VAW squadrons and with existing Fleet Readiness Centers, would also not occur at non-DoD airfields. As a result, this alternative is not carried forward in this document for detailed analysis.

2.4.5 Home Basing at Civilian Airfields

Commander, Naval Air Forces policy is to avoid UAS operations at civil airports due to safety concerns. Instruction M-3710.7 specifically states that “Naval UAS should utilize non-joint-use military airfields.” Additionally, like other Federal, non-DoD airfields, civilian airfields would not offer sailor and family readiness support or provide operational synergies, and Stingray CBUAS operations could be disruptive to civilian aircraft operations. As a result, this alternative is not carried forward in this document for detailed analysis.

2.4.6 Construction of a New Navy Airfield

Constructing a new airfield would not support the Stingray CBUAS program timeline of initial operational capability on the West Coast no later than the fourth quarter of FY 2024 and have full operational capability by 2031. As a result, this alternative is not carried forward in this document for detailed analysis.

2.5 Best Management Practices Included in the Proposed Action

This section presents an overview of the best management practices (BMPs) that are incorporated into the Proposed Action in this document. BMPs are existing policies, practices, and measures that the Navy uses to reduce the environmental impacts of designated activities, functions, or processes. Although BMPs mitigate potential impacts by avoiding, minimizing, or reducing/eliminating impacts, BMPs are distinguished from potential mitigation measures because BMPs are (1) existing requirements for the Proposed Action, (2) ongoing, regularly occurring practices, or (3) not unique to this Proposed Action. In other words, the BMPs identified in this document are inherently part of the Proposed Action and are not potential mitigation measures proposed as a function of the NEPA environmental review process for the Proposed Action. Table 2.5-1 includes a list of BMPs. Mitigation measures are discussed separately in Chapter 3.

Table 2.5-1. Best Management Practices

BMP	Description	Impacts Reduced/Avoided
General Construction Best Management Practices	These requirements are incorporated into the construction contract and include adherence to construction permit requirements, stormwater management, erosion control, maintenance of construction equipment, spill containment, and spill response.	Reduces potential water quality impacts.
Bird/Animal Aircraft Strike Hazard (BASH) Plan Implementation	BASH Plan implementation minimizes aircraft risks from potentially hazardous wildlife strikes. The program establishes methods to decrease the attractiveness of the airfield/nearby areas to birds and animals and provides guidelines for dispersing birds and animals when they compromise the safety of operations on the airfield.	Reduces impacts to biological resources and airfield safety related to aircraft strikes.
Airfield Operating Procedures	Management of procedures for aircraft approach and departure patterns.	Reduces potential for impacts to safety.
Air Installations Compatible Use Zones (AICUZ)	Balance the need for military aircraft operations and community concerns over aircraft noise and accident potential.	Protects the public's health, safety, and welfare and prevents encroachment from degrading the operational capability.
Encroachment Partnering	Programs such as Readiness and Environmental Protection Integration and Joint Land Use Studies protect these military missions by helping remove or avoid land use conflicts near installations and addressing regulatory restrictions that inhibit military activities.	Protects the public's health, safety, and welfare and prevents encroachment from degrading the operational capability.
Community Outreach	Open lines of communication with the surrounding community and stakeholders through noise complaint hotlines, public meetings, and newspaper advertisements.	Prevents encroachment from degrading the operational capability.
Low Impact Development	The term Low Impact Development refers to systems and practices that use or mimic natural processes that result in the infiltration, evapotranspiration or use of stormwater in order to protect water quality and associated aquatic habitat.	Provides flood protection, cleaner air and cleaner water. Low Impact Development practices aim to preserve, restore, and create green space using soils, vegetation, and rainwater harvest techniques.

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3 Affected Environment and Environmental Consequences

This chapter presents a description of the environmental resources and baseline conditions that could be affected from implementing either of the alternatives (Proposed Action and No Action Alternative) and an analysis of the potential direct and indirect effects of each alternative.

All potentially relevant environmental resource areas were initially considered for analysis in this Environmental Assessment (EA). In compliance with the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ), and Department of Navy guidelines; the discussion of the affected environment (i.e., existing conditions) focuses only on those resource areas potentially subject to impacts. Additionally, the level of detail used in describing a resource is commensurate with the anticipated level of potential environmental impact. This section includes air quality, water resources, biological resources, airspace and airfield operations, noise, infrastructure, transportation, public health and safety, hazardous materials and wastes, and socioeconomics.

The potential impacts to the following resource areas are considered to be negligible or non-existent so they were not analyzed in detail in this EA: cultural resources, geological resources, land use, visual resources, emergency services, and environmental justice (refer to Section 1.5, Scope of Environmental Analysis).

3.1 Air Quality

This discussion of air quality includes criteria pollutants, standards, sources, permitting, and greenhouse gases. Air quality in a given location is defined by the concentration of various pollutants in the atmosphere. A region's air quality is influenced by many factors, including the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions.

Most air pollutants originate from human-made sources, including mobile sources (e.g., cars, trucks, buses) and stationary sources (e.g., factories, refineries, power plants), as well as indoor sources (e.g., some building materials and cleaning solvents). Air pollutants are also released from natural sources such as volcanic eruptions and forest fires.

3.1.1 Regulatory Setting

3.1.1.1 Criteria Pollutants and National Ambient Air Quality Standards

The principal pollutants defining the air quality, called "criteria pollutants," include carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), ozone, particulate matter less than or equal to 10 microns in diameter (PM₁₀), particulate matter less than or equal to 2.5 microns in diameter (PM_{2.5}), and lead (Pb). CO, SO₂, Pb, and some particulates are emitted directly into the atmosphere from emissions sources. Ozone, NO₂, and some particulates are formed through atmospheric chemical reactions that are influenced by weather, ultraviolet light, and other atmospheric processes.

Under the Clean Air Act (CAA), the U.S. Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS) (40 Code of Federal Regulations [CFR] part 50) for these pollutants. NAAQS are classified as primary or secondary. Primary standards protect against adverse health effects; secondary standards protect against welfare effects, such as damage to farm crops and vegetation and damage to buildings. Some pollutants have long-term and short-term

standards. Short-term standards are designed to protect against acute, or short-term, health effects, while long-term standards were established to protect against chronic health effects.

Areas that are and have historically been in compliance with the NAAQS are designated as attainment areas. Areas that violate a federal air quality standard are designated as nonattainment areas. Areas that have transitioned from nonattainment to attainment are designated as maintenance areas and are required to adhere to maintenance plans to ensure continued attainment.

The CAA requires states to develop a general plan to attain and maintain the NAAQS in all areas of the country and a specific plan to attain the standards for each area designated nonattainment for a NAAQS. These plans, known as State Implementation Plans, are developed by state and local air quality management agencies and submitted to USEPA for approval.

Under the California Clean Air Act, the California Air Resources Board establishes California Ambient Air Quality Standards (CAAQS) for the criteria pollutants as well as sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. The CAAQS are generally more stringent than the NAAQS. Similar to the federal designations of attainment and nonattainment areas with respect to the NAAQS, the California Air Resources Board designates areas with respect to the CAAQS.

In addition to the NAAQS for criteria pollutants, national standards exist for hazardous air pollutants (HAPs), which are regulated under Section 112(b) of the 1990 CAA Amendments. The *National Emission Standards for Hazardous Air Pollutants* regulate HAP emissions from stationary sources (40 CFR part 61).

3.1.1.2 Mobile Sources

HAPs emitted from mobile sources are called Mobile Source Air Toxics (MSATs). MSATs are compounds emitted from highway vehicles and non-road equipment that are known or suspected to cause cancer or other serious health and environmental effects. In 2001, USEPA issued its first MSAT Rule, which identified 201 compounds as being HAPs that require regulation. A subset of six of the MSAT compounds was identified as having the greatest influence on health and included benzene, butadiene, formaldehyde, acrolein, acetaldehyde, and diesel particulate matter. More recently, USEPA issued a final rule establishing the Tier 3 Motor Vehicle Emission and Fuel Standards program (79 Federal Register 23414). The Tier 3 program is part of a comprehensive approach to reducing the impacts of motor vehicles on air quality and public health. The program considers the vehicle and its fuel as an integrated system, setting new vehicle emission standards and a new gasoline sulfur standard beginning in 2017.

Unlike the criteria pollutants, there are no NAAQS for benzene and other HAPs. The primary control methodologies for these pollutants for mobile sources involves reducing their content in fuel and altering the engine operating characteristics to reduce the volume of pollutant generated during combustion. MSAT would be the primary HAPs emitted by mobile sources during construction and during flight operations. The equipment used during construction would likely vary in age and have a range of pollution reduction effectiveness, but must meet the annual performance standards and idling restrictions that are required under the California Air Resources Board's Regulation for In-Use Off-Road Diesel-Fueled Fleets (California Air Resources Board, 2016). Construction equipment, however, would be operated intermittently for the duration of construction and would produce negligible ambient HAPs in a localized area. HAP emissions from aircraft are classified as speciated organic gas emissions. These emissions are primarily emitted during taxi/idle engine modes before take-off and after landing (FAA, 2009), which represents a minor portion of the aircraft activity. Because of the low number of proposed Stingray CBUAS operations, and the limited period in which these emissions could occur during each

operation, the impacts to air quality would be negligible. As a result, MSAT emissions are not considered further in this analysis.

3.1.1.3 General Conformity

The USEPA General Conformity Rule applies to federal actions occurring in nonattainment or maintenance areas when the total direct and indirect emissions of nonattainment pollutants (or their precursors) exceed specified thresholds. The emissions thresholds that trigger requirements for a conformity analysis are called *de minimis* levels. *De minimis* levels (in tons per year) vary by pollutant and also depend on the severity of the nonattainment status for the air quality management area in question.

A conformity applicability analysis is the first step of a conformity evaluation and assesses if a federal action must be supported by a conformity determination. This is typically done by quantifying applicable direct and indirect emissions that are projected to result due to implementation of the federal action. Indirect emissions are those emissions caused by the federal action and originating in the region of interest, but which can occur at a later time or in a different location from the action itself and are reasonably foreseeable. The federal agency can control and will maintain control over the indirect action due to a continuing program responsibility of the federal agency. Reasonably foreseeable emissions are projected future direct and indirect emissions that are identified at the time the conformity evaluation is performed. The location of such emissions is known and the emissions are quantifiable, as described and documented by the federal agency based on its own information and after reviewing any information presented to the federal agency. If the results of the applicability analysis indicate that the total emissions would not exceed the *de minimis* emissions thresholds, then the conformity evaluation process is completed.

3.1.1.4 Permitting

3.1.1.4.1 New Source Review (Pre-construction Permit)

New major stationary sources and major modifications at existing major stationary sources are required by the CAA to obtain an air pollution permit before commencing construction. This permitting process for major stationary sources is called New Source Review and is required whether the major source or major modification is planned for nonattainment areas or attainment and unclassifiable areas. In general, permits for sources in attainment areas and for other pollutants regulated under the major source program are referred to as Prevention of Significant Deterioration (PSD) permits, while permits for major sources emitting nonattainment pollutants and located in nonattainment areas are referred to as nonattainment new source review permits. In addition, a proposed project may have to meet the requirements of nonattainment new source review for the pollutants for which the area is designated as nonattainment and PSD for the pollutants for which the area is attainment. Additional PSD permitting thresholds apply to increases in stationary source greenhouse gas (GHG) emissions. PSD permitting can also apply to a new major stationary source (or any net emissions increase associated with a modification to an existing major stationary source) that is constructed within 6.2 miles of a Class I area, and which would increase the 24-hour average concentration of any regulated pollutant in the Class I area by 1 microgram per cubic meter ($\mu\text{g}/\text{m}^3$) or more. Navy installations shall comply with applicable permit requirements under the PSD program per 40 CFR section 51.166.

3.1.1.4.2 Title V (Operating Permit)

The Title V Operating Permit Program consolidates all CAA requirements applicable to the operation of a source, including requirements from the State Implementation Plan, pre-construction permits, and the air toxics program. It applies to stationary sources of air pollution that exceed the major stationary source emission thresholds, as well as other non-major sources specified in a particular regulation. The program includes a requirement for payment of permit fees to finance the operating permit program whether implemented by USEPA or a state or local regulator. Navy installations subject to Title V permitting shall comply with the requirements of the Title V Operating Permit Program, which are detailed in 40 CFR Part 70 and all specific requirements contained in their individual permits.

3.1.1.5 Greenhouse Gases

GHGs are gas emissions that trap heat in the atmosphere. These emissions occur from natural processes and human activities. Scientific evidence indicates a trend of increasing global temperature over the past century due to an increase in GHG emissions from human activities. The climate change associated with this global warming is predicted to produce negative economic and social consequences across the globe.

Many scientific studies correlate the observed rise in global annual average temperature and the resulting change in global climate patterns with the increase in GHGs in the Earth's atmosphere from human (anthropogenic) activity. The primary driver of climate change is thought to be emissions of GHGs, which are the result of the burning of fossil fuels for energy, deforestation, emissions released by landfills, the production of certain industrial products, the application of agricultural fertilizers, and the raising of livestock. These GHGs include carbon dioxide (CO₂), methane, nitrogen oxide (NO_x), hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and other fluorinated gases including nitrogen trifluoride and hydrofluorinated ethers.

Each GHG is assigned a global warming potential, which refers to the ability of a gas or aerosol to trap heat in the atmosphere. The GHGs with larger global warming potentials cause more heat to be retained per unit mass. This additional heat can disrupt the natural balance of global energy inputs, which leads to various changes in long-term atmospheric conditions (i.e., climate), depending on the resulting environmental feedback mechanisms (e.g., changes in snow and ice cover) (Intergovernmental Panel on Climate Change, 2013). The global warming potential rating system is standardized to CO₂, which has a value of one. The equivalent CO₂ rate of various GHGs is calculated by multiplying the emissions of each GHG by its global warming potential and adding the results together to produce a single, combined emissions rate representing all GHGs, referred to as the CO₂ Equivalent, abbreviated as CO₂e. In the United States, federal agencies and state governments have implemented programs and policies in an attempt to reduce GHG emissions to mitigate the extent of climate change and adapt to the impacts that are likely to occur. The State of California has developed strategies for adapting to future climatic effects (California Natural Resources Agency, 2018; Governor's Office of Emergency Services, 2020).

Executive Order (EO) 13834, *Efficient Federal Operations*, requires federal agencies to track and report on GHG emissions and other appropriate performance measures.

3.1.1.5.1 Federal Policies Related to Climate Change

Legislation includes the Energy Policy Act of 2005, which addresses energy efficiency, renewable energy, energy tax incentives, and ethanol in motor fuels, and the Energy Independence and Security Act of 2007, which reinforces energy reduction goals for federal agencies. Under the CAA, the USEPA has

developed and implemented GHG emission standards for stationary sources through the Greenhouse Gas Tailoring Rule and the Greenhouse Gas Reporting Program.

The regulation of GHG emissions under PSD and Title V permitting programs was initiated by a USEPA rulemaking issued on June 3, 2010 known as the GHG Tailoring Rule (75 Federal Register 31514). GHG emissions thresholds for permitting of stationary sources are an increase of 75,000 tons per year of CO₂e at existing major sources and facility-wide emissions of 100,000 tons per year of CO₂e for a new source or a modification of an existing minor source. The 100,000 tons per year of CO₂e threshold defines a major GHG source for both construction (PSD) and operating (Title V) permitting, respectively. These regulations do not apply if GHGs are the only pollutant that the source emits or has the potential to emit above the major source thresholds, or for which there is a significant emissions increase and a significant net emissions increase from a modification.

EO 13834, *Efficient Federal Operations*, requires federal agencies to meet statutory requirements in a way that increases efficiency, optimizes performance, eliminates unnecessary use of resources, and protects the environment. Agencies prioritize reduction of waste, cutting costs, and enhancing resilience of federal infrastructure and operations when implementing this policy. Agencies also track and report energy management activities, performance improvements, cost reductions, GHG emissions, energy and water savings, and other appropriate performance measures.

3.1.1.5.2 Department of Defense Policies Related to Climate Change

In accordance with 10 United States Code (U.S.C) Section 101(e)(8), military installation resilience refers to the capability of a military installation to avoid, prepare for, minimize the effect of, adapt to, and recover from extreme weather events, or from anticipated or unanticipated changes in environmental conditions, that do, or have the potential to, adversely affect the military installation or essential transportation, logistical, or other necessary resources outside of the military installation that are necessary in order to maintain, improve, or rapidly reestablish installation mission assurance and mission-essential functions.

The Department of Defense (DoD) and the Navy have established various directives pertaining to climate change, including DoD Directive 4715.21, from January 2016, which integrates climate change considerations into all aspects of the department. DoD components are charged with assessing and managing risks, and mitigating the effects of climate change on natural and cultural resource management, force structure, basing, and training and testing activities in the field environment.

Additionally, the DoD 2016 Operational Energy Strategy sets forth plans to reduce the demand for energy and secure energy supplies. This policy also directs DoD components to reduce GHG emissions from operational forces. Other recent policies, updates, and/or directives include the Fiscal Year 2015 DoD Sustainability Performance Plan and the 2014 Climate Change Adaptation Roadmap, which focus on various actions DoD is taking to increase its resilience to the impacts of climate change. The Secretary of the Navy set goals to improve energy security, increase energy independence, and reduce the reliance on petroleum by increasing the use of alternative energy (U.S. Department of the Navy, 2010). The Climate Change, Installation Adaptation and Resilience, Planning Handbook (NAVFAC, 2017) provides the analytical framework, tools, and guidance to help planners understand how to consider climate change in their plans and projects for installation infrastructure, including assessing possible adaptation alternatives.

3.1.2 Affected Environment

California is divided into 15 distinct air basins for monitoring and management purposes. The project site is within the South Central Coast Air Basin, which consists of San Luis Obispo County, Santa Barbara County, and Ventura County. California consists of 35 air quality control districts and Naval Base Ventura County (NBVC) Point Mugu is located in the Ventura County Air Pollution Control District (VCAPCD), which comprises all of mainland Ventura County and extends 3 miles off the mainland shore, but excludes Anacapa and San Nicolas Islands. Ventura County is designated by USEPA as serious nonattainment for both the 2008 and 2015 ozone standards (USEPA, 2020a).

The California Air Resources Board also designates areas of the state that are in attainment or nonattainment of the CAAQS. An area is in nonattainment for a pollutant if its CAAQS has been exceeded more than once in 3 years. Presently, the VCAPCD is in nonattainment of the CAAQS for ozone and PM₁₀ (California Air Resources Board, 2020).

The VCAPCD is responsible for regulating stationary sources of air emissions within Ventura County and has prepared numerous air quality planning documents to meet state and Federal clean air mandates. The most important of these are the air quality management plans (AQMPs). These documents outline the VCAPCD's long-range strategy for providing clean, healthful air to the citizens and businesses of Ventura County. The AQMPs are not one-time documents, but periodically get updated and revised in accordance with changes in governing law and air pollution control science and technology. Moreover, each successive AQMP builds on its predecessor. The last major Ventura County AQMP was the 2016 AQMP (Ventura County Air Pollution Control District, 2017). It was prepared to satisfy requirements of the CAA for the 2008 Federal 8-hour ozone standard. At this time, the VCAPCD has not released an AQMP that addresses the 2015 Federal 8-hour ozone standard.

The most recent annual air emissions inventory data available for Ventura County is shown in Table 3.1-1.

Table 3.1-1. 2017 Emission Inventory for Ventura County (excluding wildfire emissions)

Geographic Area	Criteria and Precursor Air Pollutant Emissions (tons/year)					
	VOCs	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Ventura County	10,684	34,974	7,391	233	5,669	1,927

Source: (USEPA, 2020b).

Notes: VOCs = volatile organic compounds, NO_x = nitrogen oxides, CO = carbon monoxide, SO_x = sulfur oxides, PM₁₀ = suspended particulate matter less than or equal to 10 micrometers in diameter, and PM_{2.5} = fine particulate matter less than or equal to 2.5 micrometers in diameter. VOCs and NO_x are precursors to the formation of ozone.

3.1.3 Environmental Consequences

Effects on air quality are based on estimated direct and indirect emissions associated with the action alternatives.

The region of influence (ROI) for assessing air quality impacts is the air basin in which the project is located, the Ventura County, in the South Central Coast Air Basin.

Under NEPA, estimated emissions from a proposed federal action are typically compared with the relevant national and state standards to assess the potential for increases in pollutant concentrations. For this Proposed Action, nitrogen oxides (NO_x) and volatile organic compound (VOC) emissions are also compared to the CAA General Conformity *de minimis* threshold of 50 tons per year for each pollutant because the area is designated as serious nonattainment under the federal standards for ozone and NO_x and VOCs are precursors for ozone formation.

3.1.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to existing air emissions at NBVC. Therefore, no significant impacts to air quality or air resources would occur with implementation of the No Action Alternative.

3.1.3.2 Proposed Action

The Navy proposes to establish facilities and functions at NBVC Point Mugu, California to support West Coast home basing and operations of the MQ-25A Stingray Carrier-based Unmanned Aircraft System (Stingray CBUAS). Under the Proposed Action, the Navy would home base 20 Stingray CBUAS, conduct approximately 960 annual flight operations, and station approximately 730 personnel and their families. Infrastructure requirements include the construction of a training facility (P-026), battery shop storage (addition to Building PM385), a hangar with a radio communications facility, two antenna towers, an aircraft parking apron, taxiways to the runway (P-025), and roadway construction and improvements in the immediate vicinity. Construction activities would be completed prior to Stingray CBUAS operations and personnel commuting.

3.1.3.2.1 Potential Impacts

Potential air quality impacts are evaluated for the years in which construction activities would occur, and are also evaluated for the steady-state scenario when Stingray CBUAS aircraft operations and personnel commuting would occur. Construction is anticipated to occur starting in March 2023 and continue through March 2025. During this time, a 26,000 square foot (sq ft) training facility, 2,000 sq ft battery shop, an approximately 90,000 sq ft hangar, personnel parking areas, an approximately 710,000 sq ft aircraft parking area with two approximately 43,000 sq ft each taxiways would be built. F Street would undergo improvements and a frontage road and other access would be constructed at and near the new hangar. Construction emissions were estimated using the California Emissions Estimator Model (CalEEMod), developed by the California Air Pollution Officers Association. CalEEMod is the current comprehensive tool for estimating criteria pollutant emissions from land use projects in California. The

Air Quality Potential Impacts:

- No Action: The Proposed Action would not be implemented and there would be no significant impacts to air quality.
- Proposed Action: Air emissions would be minimal or *de minimis*; Proposed Action is exempt from General Conformity requirements. A Record of Non-Applicability is provided in Appendix B. No significant impacts to air quality.

model includes default data (e.g., emission factors, trip lengths, meteorology, source inventory) that have been provided by the various California air districts to account for local requirements and conditions. For this analysis, default data were overridden in the model by project-specific data (as provided in Chapter 2), when available.

Based on industry standards, CalEEMod calculates estimates of the total number of days each piece of equipment would be used and the number of hours per day each type of equipment would be used. Assumptions and model inputs are located within the modeling calculations provided in Appendix B. Estimated annual air pollutant emissions from construction activities under the Proposed Action are presented in Table 3.1-2.

Table 3.1-2. Estimated Annual Air Pollutant Emissions from Construction Activities under the Proposed Action

<i>Component</i>	<i>Air Pollutant Emissions (tons/year)</i>					
	<i>VOCs</i>	<i>CO</i>	<i>NO_x</i>	<i>SO_x</i>	<i>PM_{2.5}</i>	<i>PM₁₀</i>
2023	0.39	3.55	4.54	0.02	0.42	0.97
2024	0.43	3.94	3.62	0.01	0.27	0.78
2025	1.83	1.13	0.90	0.00	0.07	0.18
<i>De Minimis Thresholds</i>	50	NA	50	NA	NA	NA
Exceedance?	No	NA	No	NA	NA	NA

Notes: Emissions estimated using California Emissions Estimator Model 2017, (California Air Pollution Officers Association, 2020). 2023 includes minor emissions associated with vegetation clearing that may be performed prior to 2023. NA = Not Applicable, VOCs = volatile organic compounds, CO = carbon monoxide, NO_x = nitrogen oxides, SO_x = sulfur oxides, PM₁₀ = suspended particulate matter less than or equal to 10 micrometers in diameter, and PM_{2.5} = fine particulate matter less than or equal to 2.5 micrometers in diameter. VOCs and NO_x are precursors to the formation of ozone.

Emissions from construction activities would be minimal, with all emissions less than 5 tons per year. None of the estimated air pollutant emissions would result in significant air quality impacts in Ventura County for the years when Proposed Action construction activities would occur. The new buildings, once operational, would also be sources of air pollution, though the emissions are likely to be minor. Possible stationary sources in the new hangar would be similar to equipment installed in Building PM553, which includes a 288 brake horsepower emergency diesel-fired generator for runway lighting backup, two 900,000 British thermal unit/hour natural gas-fired boilers, and one 250,000 British thermal unit/hour natural gas-fired water heater. Based on emissions from the equipment used in PM553, only the generator would likely require permitting, and the boilers and heater would be exempt, as would solvent use at levels similar to PM553. Exempt equipment, while not permitted, are still listed in Section 5 of the installation's Title V permit. Once specific equipment for the hangar and the training facility are known, they would require evaluation to verify exemption and/or inclusion as a permitted source in the base's Title V permit. Stationary sources undergoing New Source Review under the CAA are exempt from General Conformity requirements, as listed in the General Conformity Rule exemptions.

Stingray CBUAS flight operations and personnel would increase in phases over a period of a few years to the maximum anticipated 960 annual operations at the airfield and 730 personnel. Table 3.1-3 presents estimated annual air pollutant emissions from Stingray CBUAS for the steady-state 960 operations per year and commuting emissions from the associated 730 additional personnel. Aircraft emissions were estimated using data from the U.S. Navy Aircraft Environmental Support Office.

Table 3.1-3. Estimated Annual Air Pollutant Emissions from Stingray CBUAS Aircraft and Commuters under the Proposed Action (Steady-State)

<i>Component</i>	<i>Air Pollutant Emissions (tons/year)</i>					
	<i>VOCs</i>	<i>CO</i>	<i>NO_x</i>	<i>SO_x</i>	<i>PM_{2.5}</i>	<i>PM₁₀</i>
Total Annual Aircraft Emissions	0.46	7.99	9.74	0.12	0.05	0.05
Total Annual Commuter Emissions	0.02	1.19	0.07	0.00	0.00	0.00
Total Annual Emissions	0.49	9.18	9.82	0.13	0.05	0.05
<i>De Minimis</i> Thresholds	50	NA	50	NA	NA	NA
Exceedance?	No	NA	No	NA	NA	NA

Notes: Emissions estimated using California Air Resources Board EMFAC2011 vehicle categories for commuter emissions

NA = Not Applicable, VOCs = volatile organic compounds, CO = carbon monoxide, NO_x = nitrogen oxides,

SO_x = sulfur oxides, PM₁₀ = suspended particulate matter less than or equal to 10 micrometers in diameter, and

PM_{2.5} = fine particulate matter less than or equal to 2.5 micrometers in diameter. VOCs and NO_x are precursors to the formation of ozone.

Emissions from the steady-state Stingray CBUAS airfield operations and commuter emissions would be minimal, with all emissions less than 10 tons per year. None of the estimated air pollutant emissions from the steady-state scenario of the Proposed Action would result in significant air quality impacts in Ventura County.

As presented in Tables 3.1-2 and 3.1-3, emissions of VOCs and NO_x would not exceed the 50 tons per year *de minimis* threshold for General Conformity for either construction activities or subsequent Stingray CBUAS operations. As a result, the Proposed Action is exempt from Conformity.

The Navy has determined that the potential emissions of the Proposed Action would not cause or contribute to a violation of any NAAQS or CAAQS. Emissions would be below the applicable General Conformity *de minimis* thresholds. A General Conformity Record of Non-Applicability has been completed and can be found in Appendix B, along with associated air quality calculations and documentation indicating that the VOCs and NO_x emissions would not have a significant impact on air quality in Ventura County.

3.1.3.2.1.1 Greenhouse Gases

Implementation of the Proposed Action would contribute directly to emissions of GHGs from the combustion of fossil fuels. GHG emissions under the Proposed Action would be minimal, as is the case with other pollutant emissions. These emissions, while small, would increase the atmosphere's concentration of GHGs, and, in combination with past and future emissions from all other sources, contribute incrementally to the global warming that produces the adverse effects of climate change.

3.2 Water Resources

This discussion of water resources includes groundwater, surface water, marine waters, wetlands, and floodplains. Water resources include both natural and human-created sources of water that allow both human and environmental benefits.

Groundwater is water that flows or seeps downward and saturates soil or rock, supplying springs and wells. Groundwater can be used for water consumption, agricultural irrigation, and industrial applications. Groundwater properties include depth to aquifer, aquifer or well capacity, water quality,

and surrounding geologic composition. Sole source aquifer designation provides limited protection of groundwater resources which serve as drinking water supplies.

Surface water resources generally consist of wetlands, lakes, rivers, and streams. Surface water contributes to the economic, ecological, recreational, and human health of a community or locale. A Total Maximum Daily Load (TMDL) is the maximum amount of a substance that can be assimilated by a water body without causing impairment. A water body is determined impaired when water quality analyses conclude that water quality standards are exceeded.

Marine waters typically include estuaries, waters seaward of the historic height of tidal influence, and offshore high salinity waters. Marine water quality is described as the chemical and physical composition of the water and how it is affected by natural events and human influence. Additionally, marine waters include areas within a National Marine Sanctuary that require an action proponent to avoid water quality contamination and to avoid potential damage to sensitive resources within the sanctuary.

Wetlands are jointly defined by USEPA and United States Army Corps of Engineers (USACE) as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” Wetlands generally include “swamps, marshes, bogs and similar areas.”

Floodplains are areas of low-level ground present along rivers, stream channels, large wetlands, or coastal waters. Natural moderation of floods, flood storage and conveyance, groundwater recharge, and nutrient cycling are vital floodplain ecosystem functions. Additionally, floodplains provide natural water filtration to maintain water quality and are comprised of a diverse array of plants and animals. In their natural vegetated state, floodplains regulate flooding by slowing the rate at which the incoming overland flow reaches the main water body. Floodplain boundaries are most often referred to by the frequency that they are inundated; for instance the 100-year and 500-year flood. Floodplain delineation maps are produced by the Federal Emergency Management Agency and provide a basis for comparing the locale of the Proposed Action to the floodplains.

3.2.1 Regulatory Setting

The Safe Drinking Water Act is the federal law that ensures safe water quality for public drinking water supplies throughout the nation. The USEPA regulates groundwater quality and quantity under several statutes and regulations, including the Safe Drinking Water Act.

The Clean Water Act (CWA) establishes federal limits, through the National Pollutant Discharge Elimination System (NPDES) program, on the amounts of specific pollutants that can be discharged into surface waters to restore and maintain the chemical, physical, and biological integrity of the water. The NPDES program regulates the discharge of point (i.e., end of pipe) and nonpoint sources (e.g., stormwater) of water pollution.

The California NPDES stormwater program requires construction site operators engaged in clearing, grading, and excavating activities that disturb one acre or more to obtain coverage under an NPDES Construction General Permit for stormwater discharges. Construction or demolition that necessitates an individual permit also requires preparation of a Notice of Intent to discharge stormwater and a Stormwater Pollution Prevention Plan (SWPPP) that is implemented during construction. As part of the

2010 Final Rule for the CWA, titled *Effluent Limitations Guidelines and Standards for the Construction and Development Point Source Category* (as modified by the 2014 Final Rule for the CWA titled Revision to the Construction and Development Effluent Guidelines), activities covered by this permit must implement non-numeric erosion and sediment controls and pollution prevention measures.

Wetlands are currently regulated by the USACE under Section 404 of the CWA as a subset of all “Waters of the United States.” Waters of the United States are defined as (1) the territorial seas and traditional navigable waters; (2) tributaries; (3) certain lakes ponds, and impoundments; and (4) adjacent wetlands, and are regulated by USEPA and the USACE. The CWA requires that California establish a Section 303(d) list to identify impaired waters and establish TMDLs for the sources causing the impairment.

Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredge or fill into wetlands and other Waters of the United States. Any discharge of dredge or fill into Waters of the United States requires a permit from the USACE. (USEPA and USACE, 2020).

Section 438 of the Energy Independence and Security Act establishes stormwater design requirements for development and redevelopment projects. Under these requirements, federal facility projects larger than 5,000 sq ft must “maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow.”

The Coastal Zone Management Act of 1972 (CZMA) provides assistance to states, in cooperation with federal and local agencies, for developing land and water use programs in coastal zones. Actions occurring within the coastal zone commonly have several resource areas that may be relevant to the CZMA. The CZMA regulatory setting discussion is discussed in Section 5, Other Considerations Required by NEPA, and Appendix C.

EO 11990, *Protection of Wetlands*, requires that federal agencies adopt a policy to avoid, to the extent possible, long- and short-term adverse impacts associated with destruction and modification of wetlands and to avoid the direct and indirect support of new construction in wetlands whenever there is a practicable alternative.

EO 11988, *Floodplain Management*, requires federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development unless it is the only practicable alternative. Flood potential of a site is usually determined by the 100-year floodplain, which is defined as the area that has a one percent chance of inundation by a flood event in a given year.

3.2.2 Affected Environment

The following discussions provide a description of the existing conditions for each of the categories under water resources at NBVC Point Mugu.

3.2.2.1 Groundwater

NBVC Point Mugu lies in the Oxnard Plain located in Ventura County. The three aquifers occurring at NBVC Point Mugu, including the project areas, are the Semi-Perched aquifer, Mugu aquifer, and the Oxnard aquifer. The Semi-Perched aquifer is the shallowest groundwater source with water table depth ranging from 2 to 10 feet and extending vertically to a depth of about 75 feet. Groundwater in this

aquifer flows generally toward Mugu Lagoon. The water within the Semi-Perched aquifer is generally of poor quality and does not provide water for domestic or agricultural use (U.S. Department of the Navy, 2019a).

Ventura County relies on the Mugu and Oxnard aquifers as its major source for municipal, agricultural, and commercial uses since they provide the region with high quality water (U.S. Department of the Navy, 2019a). The Mugu and Oxnard aquifers lie below the Semi-Perched aquifer. They are separated by a clay aquitard at a depth of approximately 125 to 175 feet below the ground surface. Direction of flow in these aquifers are generally toward the Pacific Ocean.

3.2.2.2 Surface Water

NBVC Point Mugu is located in the Oxnard Plain watershed, which is the lower drainage area of the Santa Clara River Valley Basin. Surface water features at NBVC Point Mugu include Mugu Lagoon, Calleguas Creek, its tributaries, seven primary drainage ditches, intertidal marsh, and tidal flats (Figure 3.2-1) (U.S. Department of the Navy, 2019a). Oxnard Drainage Ditch No. 2B is on the northwest boundary of the P-025 project area and Oxnard Drainage Ditch No. 2A is on the southeast side of the proposed hangar site. Oxnard Drainage Ditch No. 2A and 2B drain into Oxnard Drainage Ditch No. 2 along the west side of the project area. The Oxnard drainage ditches located on the base are under the jurisdiction of the Oxnard Drainage District. Drainage Ditch No. 5 borders the P-026 and Building PM385 project areas (Figure 3.2-1).

Calleguas Creek is located along the east side of NBVC Point Mugu and is the main source of fresh water to Mugu Lagoon. The Calleguas Creek watershed has TMDLs for nitrogen compounds, salts, metals, trash, organochlorine pesticides, and polychlorinated biphenyls; sediment toxicity and siltation are also identified as impairments (U.S. Department of the Navy, 2019a). Other surface water bodies on NBVC Point Mugu include a system of channelized drainage ditches, culverts, and small streams that drain the base and surrounding areas. Mugu Lagoon is tidally influenced and collects freshwater from Calleguas Creek and the several other drainage features located on NBVC Point Mugu (U.S. Department of the Navy, 2019a).

Approximately half of the Base is composed of impermeable building and pavement surfaces, resulting in large volumes of runoff during rain events. A network of catch basins and outfalls funnel runoff into the several drainage features which lead to Mugu Lagoon. In addition, Calleguas Creek and many of the drainage ditches originate in irrigated and industrial lands upstream of NBVC Point Mugu, leading to off-base stormwater and irrigation water discharge into Mugu Lagoon (U.S. Department of the Navy, 2019a).

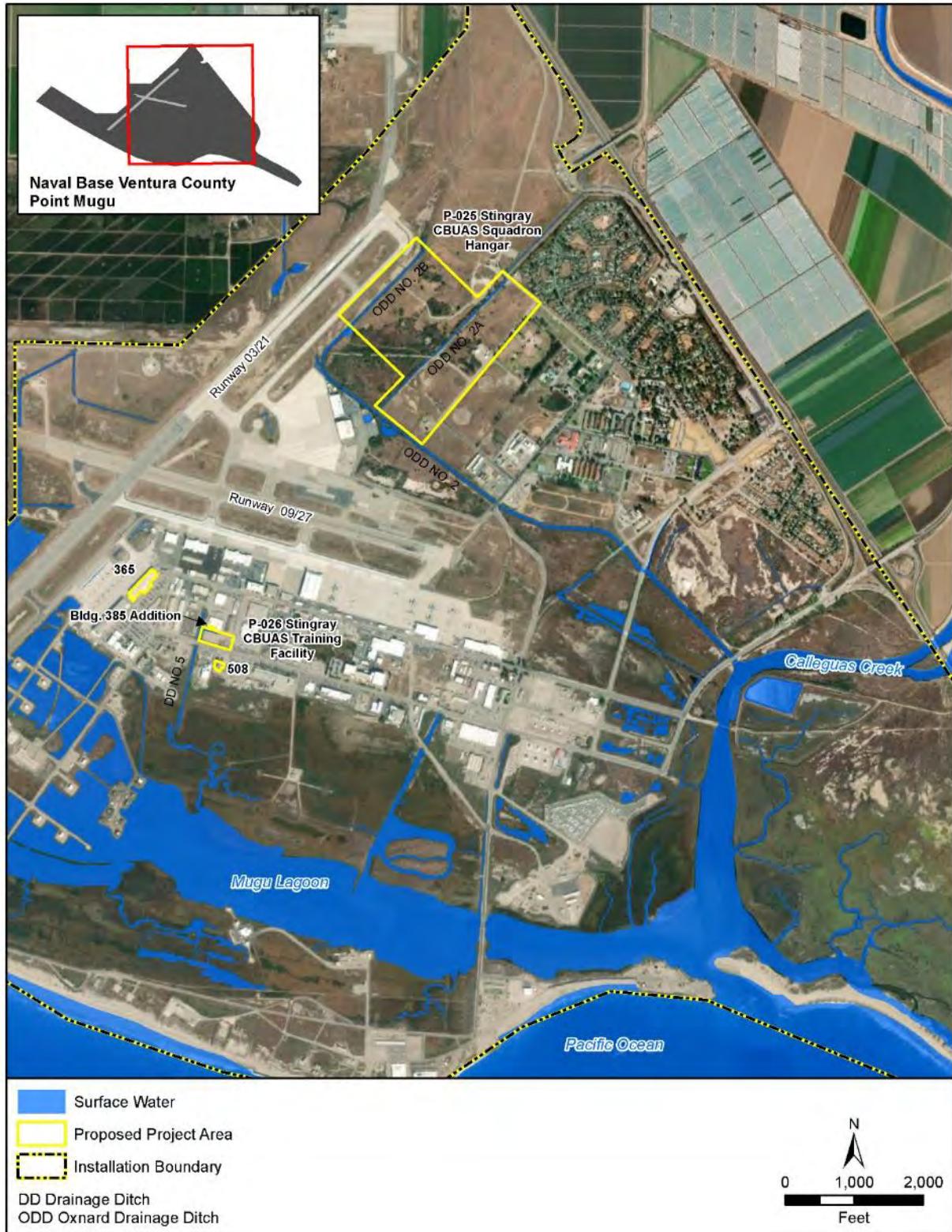


Figure 3.2-1. Surface Water Features at NBVC Point Mugu

3.2.2.3 Marine Waters

Mugu Lagoon is a large tidal estuary of the Pacific Ocean consisting of east and west arms that project from a broader central basin. Topography of the Mugu Lagoon has been historically affected by large storm events altering its barrier and mouth. In addition, Mugu Lagoon has experienced alteration since the development of agriculture upstream and the creation of the military base (U.S. Department of the Navy, 2019a). Special-status plants and animals on NBVC Point Mugu rely upon the specific habitat elements of Mugu Lagoon. It is currently on the CWA 303(d) list for sediment and tissue toxicity (State Water Resources Control Board, 2016). As mentioned above, surface runoff at NBVC Point Mugu is transported to Calleguas Creek and Mugu Lagoon, and eventually to the Pacific Ocean, via a system of drainage ditches and natural channels; therefore, urban runoff is not mechanically treated before being discharged off-base.

Drainage Ditch Nos. 2, 2A, 2B, and 5 receive drainage from the P-025, P-026, and Building PM385 project areas that ultimately drain to Mugu Lagoon.

3.2.2.4 Wetlands

Wetlands play a vital role in the environment, ecologically, and physically. Ecologically wetlands provide food, spawning habitat and nursing grounds, and habitat for several species. Physically, wetlands absorb floodwater runoff and naturally treat water, filtering out nutrients and waterborne pollutants, providing filtered water to its region (U.S. Department of the Navy, 2019a). There are approximately 2,139 acres of wetlands on NBVC Point Mugu, 48 percent of its total area (4,490 acres); (U.S. Department of the Navy, 2019a).

Wetlands in the project area were delineated in 2016 by USACE and have been incorporated into the NBVC Point Mugu geographic information systems (GIS) database (NBVC Point Mugu, 2020a). Wetlands in the project area were assessed and verified for their jurisdictional status due to the definitional changes implemented by the 2020 Navigable Waters Protection Rule in 2020 (Cardno, 2020). Mapped wetlands and their jurisdictional status under the Navigable Waters Protection Rule in the project area are depicted in Figures 3.2-2 and 3.2-3, and the Wetland Delineation Verification Report is provided in Appendix D. There are a total of 10.63 acres of jurisdictional wetlands and 2.25 acres of non-jurisdictional wetlands in the project areas.

Wetlands in the project survey area are primarily salt marshes with tidal influence and/or palustrine emergent wetlands dominated by halophytic plant species. They are largely dominated by coastal salt marsh plant species, such as pickleweed (*Salicornia pacifica*), salt grass (*Distichlis spicata*), alkali heath (*Frankenia salina*), and alkali weed (*Cressa truxillensis*). All jurisdictional wetlands in the project survey area have surface water connection with Calleguas Creek, which flows into Mugu Lagoon and the Pacific Ocean.

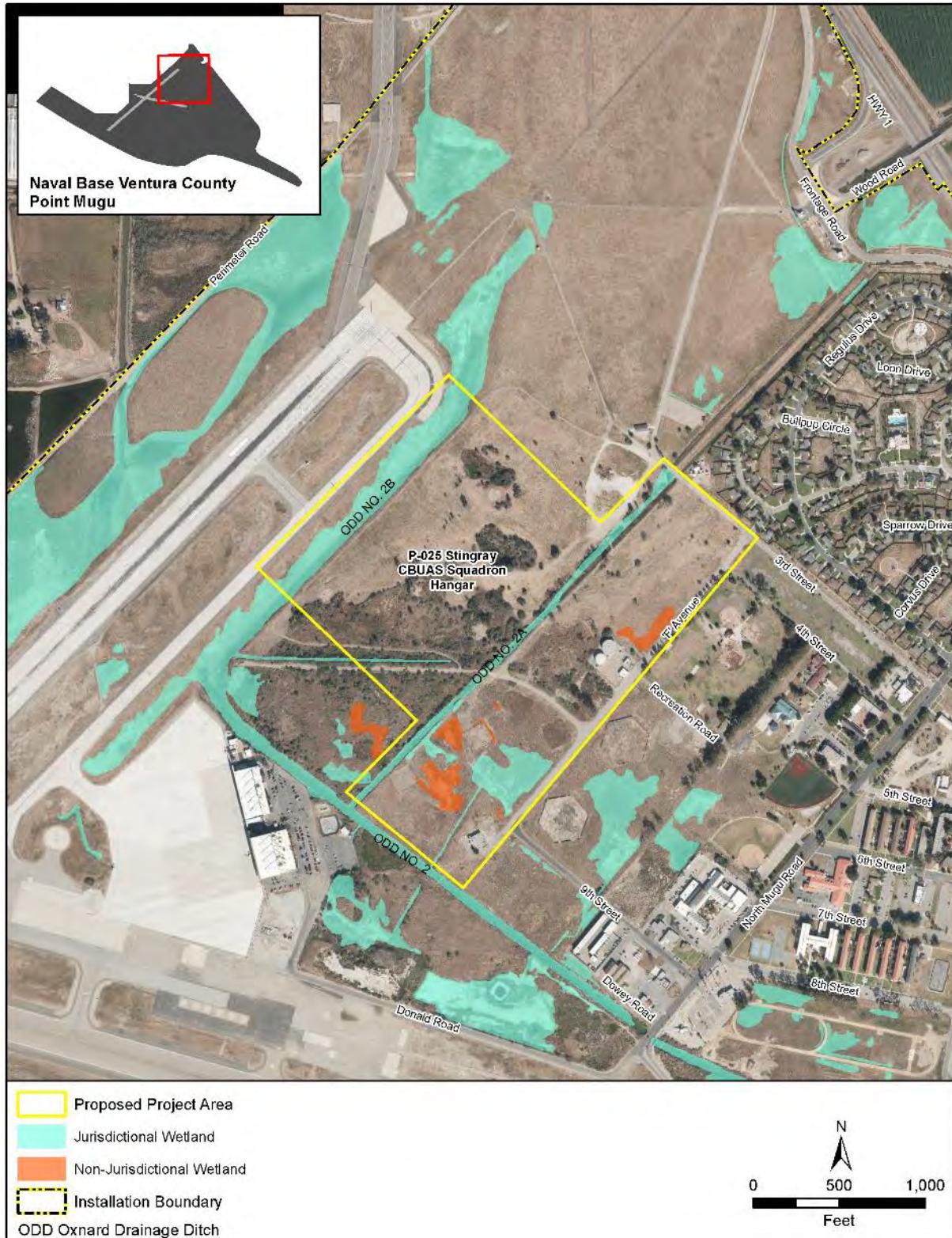


Figure 3.2-2. Wetlands and Drainage in the Stingray CBUAS P-025 Project Area

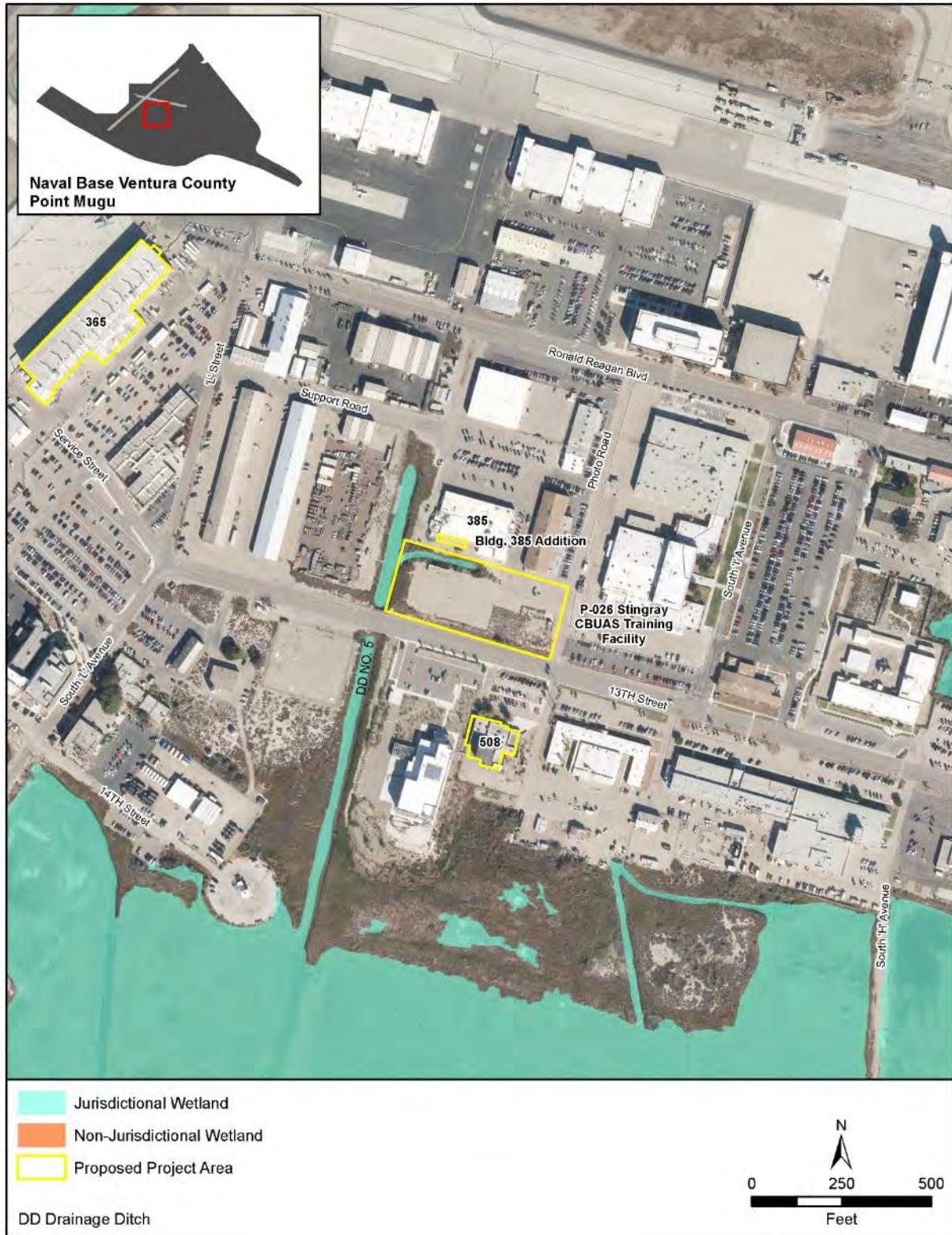


Figure 3.2-3. Wetlands and Drainage in the Stingray CBUAS P-026 Project Area

3.2.2.5 Floodplains

NBVC Point Mugu lies within the 100-year floodplain of Calleguas Creek. Poor drainage and runoff characteristics of soils present at NBVC Point Mugu contribute to frequent flooding during rain events (U.S. Department of the Navy, 2019a). A system of tide gates, storm drains, and retaining walls and berms have been constructed around the northern and eastern perimeter of the base to divert floodwater and mitigate flood hazards. In addition, two primary drainage ditches (Oxnard Drainage Ditch Nos. 2 and 3) exist on the base and drain into Mugu Lagoon, adding additional flood protection support.

The project locations associated with the construction of the new P-025 hangar building, the P-026 facility, Building PM385 battery shop, and the associated utilities and infrastructure occur within the 100-year floodplain of Calleguas Creek.

3.2.3 Environmental Consequences

This analysis of water resources includes the potential impacts on groundwater, surface water, marine waters, wetlands, and floodplains. Groundwater analysis focuses on the potential for impacts to the quality, quantity, and accessibility of the water. The analysis of surface water quality considers the potential for impacts that may change the water quality, including both improvements and degradation of current water quality. Marine waters analysis includes potential changes to physical and chemical characteristics. The impact assessment of wetlands considers the potential for impacts that may change the local hydrology, soils, or vegetation that support a wetland. The analysis of floodplains considers if any new construction is proposed within a floodplain or may impede the functions of floodplains in conveying floodwaters.

3.2.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to existing water resources. Therefore, no significant impacts to water resources would occur with implementation of the No Action Alternative.

3.2.3.2 Proposed Action

The study area for the analysis of effects to water resources associated with the Proposed Action includes waters within the project area as well as any adjacent or downstream water resources that may be affected by the Proposed Action.

Water Resources Potential Impacts:

- **No Action:** The Proposed Action would not be implemented and there would be no significant impacts to water resources.
- **Proposed Action:** No significant impacts to groundwater, surface water, wetlands, or floodplains. Depending on the final location of the taxiways and engineering design, they have the potential to impact from 0.93 to 1.40 acres of jurisdictional wetlands.
- **Proposed Action:** would be constructed within the 100-year floodplain with flood proofing and flood protections implemented.

3.2.3.2.1 Potential Impacts

3.2.3.2.1.1 Groundwater

The construction of the new P-025 hangar, the P-026 training facility, and associated utilities and infrastructure associated with implementation of the Proposed Action would add to the existing impervious area located on NBVC Point Mugu. The P-025 project footprint would be 38.5 acres, consisting of 35.6 acres of impervious surface (hangar, aprons, taxiway, antenna and control station, and access road) and 2.9 acres of pervious surface (parking lot and pedestrian walkways). The P-026 project would increase impervious surface by 0.6 acres. The Building PM385 battery shop site is currently paved and would not increase impervious surface. The addition of impervious surfaces on NBVC Point Mugu would cause localized infiltration capacity to decrease, leading to an increase in runoff. However, stormwater management, landscaping zones, and low impact development methodologies, such as pervious pavements, would be implemented to reduce the final impervious cover of the Proposed Action. Stormwater best management practices (BMPs) would be implemented to maintain existing runoff rates at the project site. Stormwater management strategies would also include disconnecting impervious areas by providing landscaped areas, discharging roof drainage to grade, and providing biofiltration swales in the open landscape areas to capture and filter stormwater. Because the P-026 and Building PM385 project areas are currently paved, an increase in 0.6 acre of impervious surface would be negligible. With implementation of low impact development methods and BMPs in the project areas, no significant net reduction of infiltration and recharge capacity is likely to occur.

None of the construction activities associated with the Proposed Action would extend below ground surface to a depth that would affect the underlying aquifer. Although fuel or other chemicals could be spilled during construction, construction contractors would adhere to appropriate BMPs to prevent any potential spills from affecting ground water. If a spill occurs, Navy Standard Operating Procedures, procedures identified in Office of the Chief of Naval Operations (OPNAV) M-5090.1, and BMPs identified in NBVC Point Mugu's SWPPP for industrial activities would be implemented to contain the spill and minimize the potential for contamination.

No impacts to aquifers or any other form of groundwater would be expected to occur from the Proposed Action. Therefore, implementation of the Proposed Action would not result in significant impacts to groundwater.

3.2.3.2.1.2 Surface Water

During construction activities, runoff associated with site improvements would likely increase local turbidity. Local turbidity would be reduced with implementation of general construction BMPs (e.g., wetting soils, silt fencing, and detention basins) and with strict adherence to the Navy's erosion control and stormwater management practices. In addition, the stormwater management system would include pervious pavement for parking and walkways and subsurface detention chambers to prevent ponding. Construction activities associated with the Proposed Action are not expected to influence water quality nor affect uses of surface water. Under the Proposed Action, pre-construction hydrologic connectivity could potentially be impacted; however, impacts would be minimized by the use of culverts and/or bridges and other measures deemed appropriate.

The Navy would be required to obtain permit coverage under the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit; NPDES Permit No. CAS0000002) prior to implementation of construction activities associated

with the Proposed Action. Effective erosion- and sediment-control measures as outlined by the Construction General Permit would be selected, installed, and maintained by the Navy (USEPA, 2019). In addition, under the Construction General Permit, the Navy is required to develop and implement a SWPPP for the proposed construction activities prior to implementation of the Proposed Action. In the SWPPP, practices that would reduce pollutants in stormwater discharge associated with the proposed construction activities would be outlined to ensure compliance with the Construction General Permit. In addition, the Navy would require a Water Quality Permit (per Section 401 of the CWA) and a wetland permit (per Section 404 of the CWA) prior to constructing the new hangar, taxiway connections, and metal bridges over the Oxnard Drainage Ditch No. 2A located southeast of the proposed hangar site.

Under the Proposed Action, impervious surfaces would increase on NBVC Point Mugu by 35.6 acres. The Navy is required to maintain predevelopment hydrology according to Section 438 of the Energy and Independence Security Act (see Section 3.2.1); therefore, stormwater facilities would be designed, to the maximum extent technically feasible, to maintain predevelopment hydrology and prevent any net increase in stormwater runoff. In addition, the Construction General Permit post-construction requirement calls for the hydrology conditions of areas not developed with impermeable surfaces be restored to the condition of predevelopment site hydrology. Stormwater runoff due to increased impervious surface area would be managed by NBVC Point Mugu's SWPPP for industrial activities, and there would be no downstream impacts.

All construction equipment (e.g., bulldozers, backhoes, dump trucks, and cranes) would be stored at the project areas. In addition, fuels, hydraulic fluids, oils, and lubricants would be stored at the project areas to support vehicles and machinery during construction activities. Construction contractors would adhere to appropriate BMPs to prevent any potential petroleum and hazardous material spills from affecting surface water on NBVC Point Mugu. If a spill occurs, Navy Standard Operating Procedures, procedures identified in OPNAV M-5090.1, and BMPs identified in NBVC Point Mugu's SWPPP for industrial activities would be implemented to contain the spill and minimize the potential for contamination. Therefore, no significant impacts on water quality or surface water bodies would be expected from implementation of the Proposed Action.

3.2.3.2.1.3 Marine Waters

Construction activities associated with the Proposed Action are not expected to influence marine water quality nor affect uses of surface water. Implementation of the measures outlined above relative to permitting and BMPs identified in NBVC Point Mugu's SWPPP for surface waters would prevent sedimentation and the introduction of pollutants to Calleguas Creek, Mugu Lagoon, and the Pacific Ocean and would prevent violations of applicable regulations and standards. Therefore, implementation of the Proposed Action would not result in significant impacts to marine waters.

3.2.3.2.1.4 Wetlands

Construction of the new hangar building and associated utilities has the potential to impact up to a maximum of 1.40 acres of jurisdictional wetlands. Two taxiway connections from the hangar to the existing Taxiway B (each 75 feet wide with 50-foot shoulders) would be constructed over Oxnard Drainage Ditch No. 2B on the northwest side of the apron via culverts. Depending on the final location of the taxiways within the project area, and the engineering design, the taxiways would have the potential to impact from approximately 0.93 to 1.40 acres of jurisdictional wetlands. The actual impact would vary based on the exact location of the drainage ditch crossing and the type of culvert. Impacts to the adjacent drainage ditch at the southeast side of the proposed hangar (Oxnard Drainage Ditch No. 2A)

from the construction of the access to 7th Street and the 380-space personnel parking area would be avoided by constructing three open metal grated deck bridges over the drainage ditch. With implementation of standard BMPs, the access road to the hangar from 7th Street, which parallels Oxnard Drainage Ditch No. 2A, would have no impacts to Oxnard Drainage Ditch No. 2A. The P-026 training facility, Building PM385 addition, and associated utilities would be constructed to avoid any impacts to wetlands. Short-term impacts to wetlands would be minimized by implementation of BMPs and the management strategies outlined in the NBVC Point Mugu Integrated Natural Resources Management Plan (INRMP).

Consultation with the USACE and California Regional Water Quality Control Board would occur, as appropriate, to obtain the necessary permits (i.e., Sections 404 and 401 of the CWA) prior to implementation of the Proposed Action. All potential impacts to wetlands and Waters of the United States would be mitigated by the Navy. Details regarding the specific impacts expected on wetlands, the wetland types that would be impacted, and the required mitigation measure ratio for impacts on wetlands would be determined during the Section 404 and 401 CWA permitting process.

3.2.3.2.1.5 Floodplains

The project areas for the proposed P-025 hangar building, Building PM385 addition, and the P-026 facility occur within the 100-year floodplain of Calleguas Creek. The Navy has determined that there is no practicable alternative to implementing the construction activities associated with the Proposed Action in the floodplain. There are no alternative project areas available at NBVC Point Mugu that are not within the 100-year floodplain that could meet the requirements of the Proposed Action.

The poor drainage and runoff qualities characteristic of NBVC Point Mugu's soils contribute to flooding issues during storm events. Implementation of the Proposed Action would be consistent with regulations associated with EO 11988, *Floodplain Management*. Measures associated with flood proofing and flood protection would be implemented at the proposed project location, such as adding material to elevate pavements and buildings above the 100-year flood elevation and stormwater management according to Section 438 of the Energy Independence and Security Act and Ventura County's stormwater management regulations (refer to Section 3.6.3, Stormwater). These measures in addition to existing storm drains, retaining walls, and berms on Point Mugu would minimize flood hazards. Therefore, no significant impacts to floodplains would occur with the implementation of the Proposed Action.

In conclusion, impacts to groundwater, surface water, marine waters, wetlands, and floodplains associated with implementation of the Proposed Action would not be significant, and all impacts and potential impacts to wetlands and Waters of the United States would be mitigated. Therefore, implementation of the Proposed Action would not result in significant impacts to water resources.

3.3 Noise

This discussion of noise includes the types or sources of noise and the associated sensitive receptors in the human environment. Noise in relation to biological resources and wildlife species is discussed in the Biological Resources section.

Sound is a physical phenomenon consisting of minute vibrations that travel through a medium, such as air or water, and are sensed by the human ear. Sound is all around us. The perception and evaluation of sound involves three basic physical characteristics:

- Intensity – the acoustic energy, which is expressed in terms of sound pressure, in decibels (dB)
- Frequency – the number of cycles per second the air vibrates, in Hertz
- Duration – the length of time the sound can be detected

Noise is defined as unwanted or annoying sound that interferes with or disrupts normal human activities. Although continuous and extended exposure to high noise levels (e.g., through occupational exposure) can cause hearing loss, the principal human response to noise is annoyance. The response of different individuals to similar noise events is diverse and is influenced by the type of noise, perceived importance of the noise, its appropriateness in the setting, time of day, type of activity during which the noise occurs, and sensitivity of the individual. While aircraft are not the only sources of noise in an urban or suburban environment, they are readily identified by their noise output and are given special attention in this EA.

3.3.1 Basics of Sound and A-Weighted Sound Level

The loudest sounds that can be detected comfortably by the human ear have intensities a trillion times greater than those of sounds barely detectable. This vast range renders a linear scale impractical to represent all sound intensities. The decibel (dB) is a logarithmic unit used to represent the intensity of a sound, also referred to as the sound level. Table 3.3-1 provides a comparison of how the human ear perceives changes in loudness on the logarithmic scale. A difference of 3 dB is generally barely perceptible while a difference of 20 dB is typically experienced as a fourfold change in loudness.

Table 3.3-1. Subjective Responses to Changes in A-Weighted Decibels

<i>Change</i>	<i>Change in Perceived Loudness</i>
3 dB	Barely perceptible
5 dB	Quite noticeable
10 dB	Dramatic – twice or half as loud
20 dB	Striking – fourfold change

Figure 3.3-1 (Cowan, 1994) provides a chart of A-weighted sound levels from typical noise sources. Some noise sources (e.g., air conditioner, vacuum cleaner) are continuous sounds that maintain a constant sound level for some period of time. Other sources (e.g., automobile, heavy truck) are the maximum sound produced during an event like a vehicle pass-by. Other sounds (e.g., urban daytime, urban nighttime) are averages taken over extended periods of time. A variety of noise metrics have been developed to describe noise over different time periods, as discussed below.

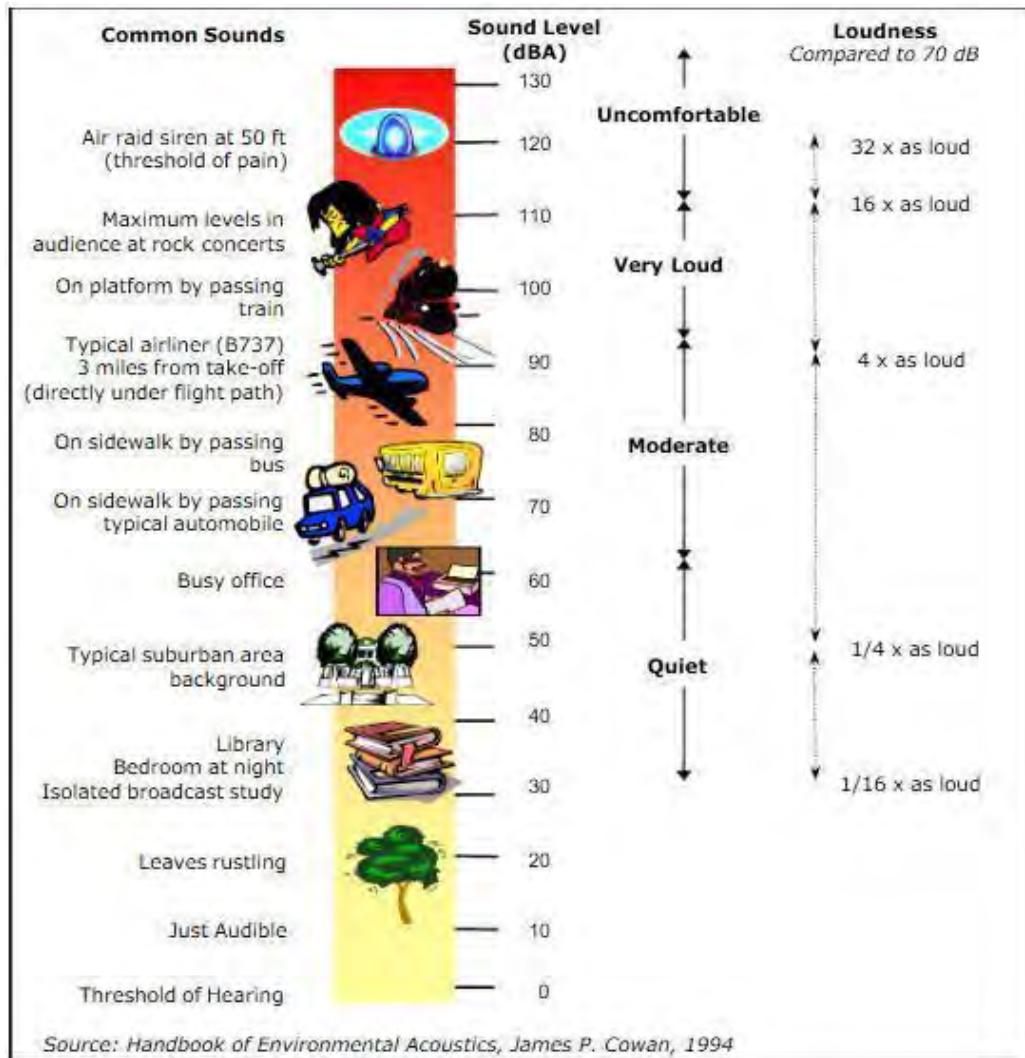


Figure 3.3-1. A-Weighted Sound Levels from Typical Sources

All sounds have a spectral content, which means their magnitude or level changes with frequency, where frequency is measured in cycles per second or Hertz. To mimic the human ear's non-linear sensitivity and perception of different frequencies of sound, the spectral content is weighted. For example, environmental noise measurements are usually on an "A-weighted" scale that filters out very low and very high frequencies in order to replicate human sensitivity. It is common to add the "A" to the measurement unit in order to identify that the measurement has been made with this filtering process (dBA). In this document, the dB unit refers to A-weighted sound levels.

Noise levels from aircraft operations that exceed background noise levels at an airfield typically occur beneath main approach and departure corridors, in local air traffic patterns around the airfield, and in areas immediately adjacent to parking ramps and aircraft staging areas. As aircraft in flight gain altitude or distance from a receptor, their noise contributions at ground level generally decrease until becoming indistinguishable from the background ambient noise.

3.3.2 Noise Metrics

A metric is a system for measuring or quantifying a particular characteristic of a subject. Since noise is a complex physical phenomenon, different noise metrics help to quantify the noise environment. While the Day-Night Average Sound Level (DNL) and Community Noise Equivalent Level (CNEL) noise metrics are the most commonly used tools for analyzing noise generated at an airfield, the DoD has been developing additional metrics (and analysis techniques). These supplemental metrics and analysis tools provide more detailed noise exposure information for the decision process and improve the discussion regarding noise exposure. The following sections summarize the noise metrics used to complete the analysis in this EA.

3.3.2.1 Day-Night Average Sound Level

The DNL metric is the energy-averaged sound level measured over a 24-hour period, with a 10-dB adjustment assigned to noise events occurring after 10 p.m. and before 7 a.m. (acoustic night) to account for the added intrusiveness of sounds occurring while people are most likely at home or sleeping. The “daytime” and “nighttime” in calculation of DNL are sometimes referred to as “acoustic day” and “acoustic night” and always correspond to the times given above independent of the “day” and “night” used commonly in military aviation, which are directly related to the times of sunrise and sunset.

DNL does not represent a sound level heard at any given time but instead represents long-term exposure. In particular, DNL values are average quantities, mathematically representing the continuous sound level that would be present if all of the variations in sound level that occur over a 24-hour period were averaged to have the same total sound energy. The DNL metric quantifies the total sound energy received and is therefore a cumulative measure, but it does not provide specific information on the number of noise events or the individual sound levels that occur during the 24-hour day.

Scientific studies have found correlation between the percentages of groups of people highly annoyed and the level of their average noise exposure measured in DNL (Schultz, 1979), (USEPA, 1978). DNL has been determined to be a reliable measure of long-term community annoyance with aircraft noise and has become the standard noise metric used by the U.S. Department of Housing and Urban Development, Federal Aviation Administration (FAA), USEPA, and DoD, Federal Interagency Committee on Noise, American National Standards Institute, and World Health Organization, among others, for measuring noise impacts. In accordance with DoD Instruction 4165.57, DNL noise contours are used for recommending land uses that are compatible with aircraft noise levels. Studies of community annoyance in response to numerous types of environmental noise show that DNL correlates well with impact assessments (Schultz, 1979); there is a relationship between DNL and the level of annoyance experienced.

DoD recommends Land Use Controls beginning at the 65 dB DNL level. Research has indicated that about 87 percent of the population is not highly annoyed by outdoor sound levels below 65 dB DNL (Federal Interagency Committee on Urban Noise, 1980). Most people are exposed to sound levels of 50 to 55 DNL or higher on a daily basis. Therefore, the 65 dB DNL noise contour is used to help determine compatibility of military aircraft operations with local land use, particularly for land use associated with airfields.

3.3.2.2 Community Noise Equivalent Level

CNEL is a noise metric adopted as a standard by the State of California. The CNEL metric is similar to the DNL metric and is also an energy-averaged sound level measurement. DNL and CNEL provide average noise levels taking into consideration and applying penalties for annoyance from intrusive events that occur during evening and nighttime hours. Both DNL and CNEL are measures of cumulative noise exposure over a 24-hour period, with adjustments to reflect the added intrusiveness of noise during certain times of the day. However, while DNL considers one adjustment period, CNEL reflects two adjustment periods. DNL includes a single adjustment period for night, in which each aircraft noise event at night (defined as 10 p.m. to 7 a.m.) is counted 10 times. CNEL adds a second adjustment period where each aircraft noise event in the evening (defined as 7 p.m. to 10 p.m.) is counted three times. The nighttime adjustment is equivalent to increasing the noise levels during that time interval by 10 dB. Similarly, the evening adjustment increases the noise levels by approximately 5 dB.

3.3.2.3 Sound Exposure Level

The Sound Exposure Level (SEL) metric is a composite metric that represents both the intensity of a sound and its duration. Individual time-varying noise events (e.g., aircraft overflights) have two main characteristics: a sound level that changes throughout the event and a period of time during which the event is heard. SEL provides a measure of total sound energy of the entire acoustic event, but it does not directly represent the sound level heard at any given time. During an aircraft flyover, SEL captures the total sound energy from the beginning of the acoustic event to the point when the receiver no longer hears the sound. It then condenses that energy into a 1-second period of time and the metric represents the total sound exposure received. The SEL has proven to be a good metric to compare the relative exposure of transient sounds, such as aircraft overflights, and is the recommended metric for sleep disturbance analysis (DoD Noise Working Group, 2009). In this EA, SEL is used in aircraft comparison and sleep disturbance analyses.

3.3.2.4 Maximum Sound Level

The highest A-weighted sound level measured during a single event where the sound level changes value with time (e.g., an aircraft overflight) is called the maximum A-weighted sound level or Lmax. During an aircraft overflight, the noise level starts at the ambient or background noise level, rises to the maximum level as the aircraft flies closest to the observer, and returns to the background level as the aircraft recedes into the distance. Lmax defines the maximum sound level occurring for a fraction of a second. For aircraft noise, the “fraction of a second” over which the maximum level is defined is generally 1/8 second (American National Standards Institute, 1988). For sound from aircraft overflights, the SEL is usually greater than the Lmax because an individual overflight takes seconds and the Lmax occurs instantaneously. In this EA, Lmax is used in the analysis of construction activities.

3.3.3 Noise Effects

An extensive amount of research has been conducted regarding noise effects including annoyance, effects on domestic animals and wildlife, property values, structures, terrain, and archaeological sites. Annoyance effects are summarized below.

3.3.3.1 Annoyance

As previously noted, the primary effect of aircraft noise on exposed communities is long-term annoyance, defined by USEPA as any negative subjective reaction on the part of an individual or group. The scientific community has adopted the use of long-term annoyance as a primary indicator of community response and there is a consistent relationship between DNL/CNEL and the level of community annoyance (Federal Interagency Committee on Noise, 1992).

Examination of the relationship between annoyance and DNL/CNEL shows high correlation between groups of people, in the range of 85 to 90 percent. However, the correlation between individuals is much lower, at 50 percent or less. This finding is not surprising, given the personal differences between individuals, with some people more sensitive to noise than others. The surveys underlying this relationship show that annoyance from noise is also affected by non-acoustical factors. The influence of non-acoustical factors is a complex interaction influencing an individual's annoyance response to noise (Brisbane Airport Corporation, 2007). Newman and Beattie (1985) divided the non-acoustic factors into the emotional and physical variables shown in Table 3.3-2.

Table 3.3-2. Non-Acoustic Variables Influencing Aircraft Noise Annoyance

<i>Emotional Variables</i>	<i>Physical Variables</i>
Feeling about the necessity or preventability of the noise	Type of neighborhood
Judgement of the importance and value of the activity that is producing the noise	Time of day
Activity at the time an individual hears the noise	Season
Attitude about the environment	Predictability of the noise
General sensitivity to noise	Control over the noise source
Belief about the effect of noise on one's health	Length of time an individual is exposed to a noise
Feeling of fear associated with the noise	

3.3.4 Noise Modeling and Methodology

Computer modeling provides a tool to assess potential noise impacts. DNL/CNEL noise contours are generated by a computer model that draws from a library of actual aircraft noise measurements. Noise contours produced by the model allow a comparison of existing conditions and proposed changes or alternative actions, even when the aircraft studied are not currently operating from the base. For these reasons, on-site noise monitoring is seldom used at military air installations, especially when the aircraft mix and operational tempo are not uniform.

The noise environment for this EA was modeled using NOISEMAP. NOISEMAP analyzes all the operational data (types of aircraft, number of operations, flight tracks, altitude, speed of aircraft, engine power settings, and engine maintenance run-ups), environmental data (average humidity and temperature), and surface hardness and terrain. The result of the modeling is noise contours; lines connecting points of equal value (e.g., 65 dB CNEL and 70 dB CNEL). Noise zones cover an area between two noise contours and are usually shown in 5-dB increments (e.g., 65–69 dB CNEL, 70–74 dB CNEL, and 75–79 dB CNEL). CNEL airfield contours comprise all aircraft events occurring during an average day, which are a function of both the sound energy of each event as well as the frequency and period of day at which each event occurs. As described in Section 3.3.2.3, SEL provides the total sound energy of an acoustic event normalized to one second allowing comparison of the energy across disparate events. Actions adding new aircraft operations to an existing airfield among existing flight activity may be

screened by comparing both the SELs of proposed aircraft and the relative number of proposed operations to determine the potential to significantly increase CNEL at the airfield. For proposed actions where new aircraft would generate SELs quieter than existing aircraft and where the number of operations, when considered equal in energy to existing flight activity, would cause a non-significant change to CNEL, the Proposed Action would not result in a significant change in the noise environment. This analysis also considers how the increase in frequency of overflight operations could affect the noise environment. This EA utilizes the NOISEMAP software to conduct such an analysis.

3.3.5 Regulatory Setting

Under the Noise Control Act of 1972, the Occupational Safety and Health Administration established workplace standards for noise. The minimum requirement states that constant noise exposure must not exceed 90 A-weighted decibels (dBA) over an 8-hour period. The highest allowable sound level to which workers can be constantly exposed is 115 dBA and exposure to this level must not exceed 15 minutes within an 8-hour period. The standards limit instantaneous exposure, such as impact noise, to 140 dBA. If noise levels exceed these standards, employers are required to provide hearing protection equipment that will reduce sound levels to acceptable limits. These standards are for workplace noise and do not apply to community noise generated by military aircraft.

The joint instruction, OPNAVINST 11010.36C and Marine Corps Order 11010.16, *Air Installations Compatible Use Zones (AICUZ) Program*, provides guidance administering the AICUZ program which recommends land uses that are compatible with aircraft noise levels. Per OPNAVINST 11010.36C, NOISEMAP is to be used for developing noise contours for fixed-wing aircraft.

3.3.6 Affected Environment

Many sources may generate noise and warrant analysis as contributors to the total noise impact. At NBVC Point Mugu, the dominant source of noise is from aircraft operations. Other components such as construction, aircraft ground support equipment for maintenance purposes, and vehicle traffic produce noise, but such noise generally represents a transitory and negligible contribution to the average noise level environment. Response to noise varies, depending on the type and characteristics of the noise, distance between the noise source and whoever hears it (the receptor), receptor sensitivity, and time of day. A noise sensitive receptor is defined by the FAA as an area where noise interferes with normal activities associated with its use. Common noise sensitive uses include residential, educational, health, and religious (FAA Order 1050.1F). Sensitive receptors may also include noise sensitive cultural practices or certain wildlife species. These receptors are discussed in this section as well as in *Biological Resources*.

3.3.6.1 NBVC Point Mugu Noise Environment

The 2015 AICUZ Study for NBVC Point Mugu (U.S. Department of the Navy, 2015) is an update to the 1992 AICUZ Study Update. The purpose of the Navy AICUZ program is to protect the public's health, safety, and welfare and to prevent encroachment, while allowing the military to fulfill its mission of maintaining national security. The 2015 AICUZ Study addresses aircraft noise, aircraft safety, and land use compatibility in the vicinity of NBVC Point Mugu, and addresses safe land use planning through demarcation of clear zones and Accident Potential Zones (APZs). For land use planning purposes, the noise exposure from aircraft operations at NBVC Point Mugu is divided into the following three noise zones:

- Noise Zone 1 (less than 65 dBA CNEL) is the area of minimal impact, where sound attenuation or noise level reduction is not suggested in most cases.
- Noise Zone 2 (65 to less than 75 dBA CNEL) is an area of moderate impact, where some Land Use Controls are needed. California state law does not allow most types of residential development in this zone. Most other land uses are acceptable, although sound attenuation is often required.
- Noise Zone 3 (greater than or equal to 75 dBA CNEL) is the most impacted area and the area that requires the greatest degree of land use compatibility. Residential uses are unacceptable in this zone, and most other land uses are incompatible or require sound attenuation measures to reduce the noise level by at least 30 dBA.

The 2013 EA, West Coast Home Basing of the MQ-4C Triton Unmanned Aircraft System at Naval Base Ventura County Point Mugu, California (Triton EA) evaluated noise impacts from aircraft at NBVC Point Mugu (U.S. Department of the Navy, 2013c). The Triton EA concluded that while other sources of noise, such as general vehicle traffic; existing operational, industrial, and developed area activities; and other maintenance and landscaping activities, are a common, ongoing occurrence on NBVC Point Mugu, these sources are relatively minor compared to the dominant aircraft-generated noise at and adjacent to the base (U.S. Department of the Navy, 2013c).

The closest noise sensitive locations on base include military housing along the eastern side of NBVC Point Mugu. The nearest noise sensitive locations off-base are several residences west of the base boundary adjacent to Runway 03/21. Figure 3.3-2 depicts these noise sensitive locations in relation to the AICUZ projected 2020 noise contours, which show on-base housing exposed to CNEL of 60 to 65 dB while the off-base residences experience 65 to 70 dB CNEL.

3.3.6.2 Aircraft Noise

As shown in Figure 3.3-2, NBVC Point Mugu is surrounded by lands designated primarily as agriculture as well as residential. NBVC Point Mugu is home to the Airborne Command, Control, and Logistics Wing, which supports the Pacific Fleet; the Naval Test Wing Pacific, and Fleet Logistics Support Squadron 55 (VR-55). Table 3.3-3 lists the types of based military aircraft, transient military aircraft, general aviation, and aircraft from other governmental agencies that operate at NBVC Point Mugu. Aircraft operations vary year by year and the AICUZ projected 39,454 annual operations for 2020 (U.S. Department of the Navy, 2015). Based E-2C and C-130 aircraft operations account for approximately 47 and 11 percent of the total annual aircraft operations, respectively, as detailed in Table 3.3-3. However, jet operations generate the majority of noise complaints at NBVC Point Mugu (U.S. Department of the Navy, 2013b).



Figure 3.3-2. Noise Sensitive Locations and AICUZ Projected 2020 CNEL Contours

Table 3.3-3. 2020 Projected Annual Aircraft Operations at NBVC Point Mugu

<i>Category</i>	<i>Group</i>	<i>Aircraft Type</i>	<i>Operations</i>
Based	Military	E-2C	18,488
		C-130 (Navy)	2,538
		C-20 / C-37	1,143
		MK-58	872
		F-21	620
		MQ-8B/C	500
		F-4 / F-16	200
		MQ-4C	1,824
		C-130 (Air National Guard)	1,881
	Air Carrier	G-159 / E-120	3,144
	General Aviation	C-182, C-206, C-208, C-210	1,446
	Based Total		32,656
Transient	Fighter / Trainer	F/A-18, F-16, F-15, F-35, T-34	1,147
	Rotary-Wing / Tilt-Rotor	AH1, UH1, H65/60, H53, AH64, V-22	3,457
	Military Other	E-2C, HU16, C-2, P-3, C-130	1,266
	Large Jet Cargo / Passenger	B737, -707, -744, -752, C-9, C17	182
	Small Turbo-Prop Passenger	BE20, B-206, P-68	528
	Single Engine Prop Passenger	C-172, PA28	218
	Transient Total		6,798
Grand Total			39,454

Source: (U.S. Department of the Navy, 2015).

Note: Rotary-Wing H-65/60 used by U. S. Coast Guard were considered as transients in the AICUZ and are now considered based at NBVC Point Mugu.

As previously described in Section 3.3.2.3, SEL provides a measure of the total sound energy of a noise event normalized to a one second duration, which allows comparison of disparate events. Based on NOISEMAP calculations of 2020 projected aircraft operations from the AICUZ, Table 3.3-4 presents SEL for departure operations of commonly operated aircraft accounting for more than 80 percent of annual operations. Departure operations were selected for comparison because aircraft require greater power settings during departures, which create greater noise levels. Table 3.3-4 used the speeds and power settings from the AICUZ flight profiles where aircraft reach 1,000 feet above the ground because this is the typical altitude as aircraft cross the base boundary. The E-2C, P-3, and C-130 each generate SELs of approximately 94 dB on departures while fighter aircraft like the F/A-18E/F and the MK-58 produce SELs of approximately 117 and 106 dB, respectively.

Table 3.3-4. Noise Levels for Departures of Commonly Operated Aircraft At NBVC Point Mugu

Aircraft Type	SEL (dB)
F/A-18E/F	117
MK-58	106
S-3	96
E-2C	94
P-3	94
C-130	94
General Aviation Single Engine Propeller	90
Rotary-Wing	90

Note: Based on AICUZ speeds and power settings for departures at 1,000 ft above the ground and NBVC weather conditions.

3.3.7 Environmental Consequences

Analysis of potential noise impacts includes estimating likely noise levels from the Proposed Action and determining potential effects to sensitive receptor sites. The potential impacts of the Proposed Action at NBVC Point Mugu were assessed by considering CNEL, which is the approved standard measure of noise exposure in California (see Section 3.3.2), and SEL, a single-event metric.

3.3.7.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and the Navy would not home base or operate Stingray CBUAS at NBVC Point Mugu. There would be no change to baseline noise levels. Therefore, the No Action Alternative would not result in significant impacts to the noise environment.

3.3.7.2 Proposed Action

The study area for noise for the Proposed Action includes the noise sensitive locations within the noise zones shown in Figure 3.3-2.

3.3.7.2.1 Potential Impacts

3.3.7.2.1.1 Construction Activity

Construction activity associated with the Proposed Action in support of Stingray CBUAS operations at NBVC Point Mugu would include a new hangar, radio communications facility, two antenna towers, aircraft parking apron, taxiways to the runway, and parking (P-025) located southeast of Runway 03/21, as shown in Figures 2.3-2. Additionally, a new maintenance training building (P-026) and battery shop addition (Building PM385) would be constructed at the corner of 13th Street and Photo Road, as shown in Figure 2.3-3.

Noise Potential Impacts:

- No Action: Noise levels would not change from baseline, and therefore, would not result in significant impacts.
- Proposed Action: No significant impacts, Stingray CBUAS noise levels and number of annual operations would not significantly affect the noise environment.

As previously described in Section 3.3.2.4, the highest A-weighted sound level measured during a single event is called Lmax. Construction noise varies by type of equipment and ranges from an Lmax of 70 to 95 dB when measured at 50 feet (FHWA, 2006). That range of noise levels includes pile driving equipment creating the greatest sound levels, which likely would not be necessary for the Proposed Action. Noise levels at other distances without obstructions can be estimated using this formula provided by Federal Highway Administration (FHWA, 2006):

$$(1) L_2 = L_1 + 20 * \log(D_1/D_2),$$

Where D₁ and D₂ represent the known and target distances, respectively. L₁ refers to the known sound level and L₂ results in the estimated sound level at distance D₂.

The nearest on-base noise sensitive receptor (military housing) is located adjacent to the proposed hangar site to the east roughly 200 feet from where construction equipment would operate and would be exposed to intermittent periods of increased noise from Lmax 58 to 83 dB. These construction noise levels may be noticeable and could potentially interfere with speech and cause annoyance. However, noise levels inside the nearby residences would be attenuated by the structure of the houses themselves, by approximately 15 dB depending on the housing construction (USEPA, 1974). Military housing is located near the departure end of Runway 03/21 and already experiences elevated noise levels due to aircraft departures. Although the AICUZ does not provide Lmax for departure events, it does provide the cumulative metric CNEL. Figure 3.3-2 depicts the housing area currently exposed to 60 to 65 dB CNEL, which can be thought of as a weighted average of noise rather than the noise levels at any specific moment in time. The 60 to 65 dB CNEL noise level represents an area currently exposed to increased noise so the additional construction noise would not be significantly more intense within that context. Construction noise associated with implementation of the Proposed Action would be temporary and sporadic throughout the two year development period and, to the extent practical, would be performed during daytime hours.

The nearest off-base noise sensitive locations are several residences west of the base boundary and 1,600 feet from the project site. This off-base residential area would experience noise levels from Lmax 40 to 65 dB due to intermittent construction equipment activity. The AICUZ does not provide Lmax for the off-base noise sensitive receptor but does show that location to be within the 65 to 70 dB CNEL, as shown in Figure 3.3-2. The 65 to 70 dB CNEL cumulative metric for this off-base residential area indicates that this area already experiences noise levels that may cause annoyance and interference with speech. Considering the existing noise generated by departures on Runway 03/21, situated between the project and the off-base noise sensitive receptors, construction activities from the Proposed Action would not be expected to cause a significant increase in ambient noise levels off-base in noise sensitive areas.

Under the Proposed Action, no significant impacts from construction-related noise would occur. Both on- and off-base noise sensitive receptors would be exposed to intermittent periods of increased noise during construction activities occurring sporadically over a period of two years. Noise levels from proposed construction may be noticeable and could potentially interfere with speech and cause annoyance but would not be expected to cause significant changes to the existing noise conditions.

3.3.7.2.1.2 Operational Activity

The Proposed Action would add 960 annual Stingray CBUAS flight operations to NBVC Point Mugu. The Stingray CBUAS operations would represent an average of approximately four additional operations per

day (two take-offs and two landings) and equates to a 2.4 percent increase in airfield operations (refer to Section 3.5.3). The formula provided below (Kinsler, Frey, Coppens, & Sanders, 1999) is used to estimate changes in noise levels due to changes in number of operations; it is related to formula (1) discussed above in the Construction Activity section:

$$(2) L_2 = L_1 + 10 * \log(N_2/N_1),$$

Where N_1 and N_2 represent the initial and target number of operations, respectively, L_1 refers to the known sound level and L_2 the resulting estimated sound level at the same distance for a change in operations. The initial number of operations refers to the total aircraft operations of 39,454 described in the AICUZ and the target number is 40,414, which is the AICUZ total combined with the proposed Stingray CBUAS operations. In this case, the input sound level metric is CNEL so the output results for L_2 is also CNEL.

Using formula (2), the 2.4 percent increase in airfield operations would result in an estimated increase of 0.1 dB CNEL due to the proposed Stingray CBUAS at NBVC Point Mugu. This estimation assumes the new operations are the same in noise level and frequency spectra. As the existing CNEL is comprised of multiple aircraft types, the Stingray CBUAS operations are further compared to existing aircraft at NBVC to better understand anticipated changes in noise levels.

As described in Section 3.3.4, NOISEMAP software is used to calculate aircraft noise levels. Because the Stingray CBUAS is in development and its noise levels have not yet been measured, it cannot currently be modeled directly with the NOISEMAP software. For this EA, a conservative representative surrogate aircraft is used to analyze potential impacts from the Stingray CBUAS. The Citation X aircraft includes sufficient noise data and is equipped with two AE3007C engines, a variant of the type used in the MQ-25. The Stingray CBUAS would be capable of 10,000 pounds of thrust while the Citation X includes two engines capable of a total of 13,000 pounds of thrust. Noise levels are primarily dependent upon thrust among similar types of engines. Given the similarities, the Citation X can serve as a conservative surrogate for the purpose of modeling the Stingray CBUAS. The Citation X, during departure operations at NBVC Point Mugu, would generate SEL of 85 dB when at 1,000 feet above the ground while using the same thrust as the Stingray CBUAS. For reference, the full thrust take-off power of the Citation X generates SEL of approximately 90 dB for the same altitude. When compared with existing aircraft responsible for creating the existing noise zones (see Table 3.3-3 and Figure 3.3-2) the Stingray CBUAS would be quieter than six of the aircraft currently operating at NBVC Point Mugu, and roughly equivalent to two. When compared with existing fighter aircraft (F/A-18E/F) operating at NBVC Point Mugu, which generate the majority of noise complaints, the Stingray CBUAS would be 16 to 27 dB quieter in terms of SEL. Therefore, the formula (2) calculation of an increase of 0.1 dB CNEL likely overestimates the potential increase in noise from the Proposed Action, which would be expected to be less than 0.1 dB CNEL given the comparison with multiple aircraft types.

The 960 additional annual aircraft overflights that would be generated by the Stingray CBUAS would be an average of approximately four operations per day and equate to a 2.4 percent increase from existing conditions of 39,454 annual aircraft operations. As with other Navy airfields, the volume of annual airfield operations at NBVC Point Mugu fluctuates from year-to-year based on training needs. A historic scenario described in the AICUZ involved 69,160 annual operations, while a five-year average was 29,493 annual operations. As a result, the proposed change of 960 additional operations would be within the typical fluctuations in aircraft operations at military airfields from one year to the next.

Under the Proposed Action, no significant impacts from noise related to aircraft operations would occur. Given the 2.4 percent increase in annual operations proposed for the Stingray CBUAS, the 0.1 dB increase in CNEL predicted by formula (2), and the relatively low single-event noise level SELs. Noise sensitive receptors and CNEL noise contours at NBVC Point Mugu would not experience a significant change from existing conditions due to Stingray CBUAS operations.

3.4 Biological Resources

Biological resources include plant and animal species and the habitats within which they occur. Plant associations are referred to generally as vegetation, and animal species are referred to generally as wildlife. Habitat can be defined as the resources and conditions present in an area that support plants and wildlife.

Within this EA, biological resources are divided into three categories: (1) vegetation, (2) wildlife, and (3) special-status species.

3.4.1 Regulatory Setting

Special-status species, for the purposes of this assessment, are those species listed as threatened or endangered under the Endangered Species Act (ESA) and species afforded federal protection under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA).

The purpose of the ESA is to conserve the ecosystems upon which threatened and endangered species depend and to conserve and recover listed species. Section 7 of the ESA requires action proponents to consult with the U.S. Fish and Wildlife Service (USFWS) or National Marine Fisheries Service to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened and endangered species, or result in the destruction or adverse modification of designated critical habitat. Critical habitat cannot be designated on any areas owned, controlled, or designated for use by the DoD where an INRMP has been developed that, as determined by the Department of Interior or Department of Commerce Secretary, provides a benefit to the species subject to critical habitat designation.

Birds, both migratory and most native-resident bird species, are protected under the MBTA, and their conservation by federal agencies is mandated by EO 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds). Under the MBTA it is unlawful by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, [or] possess migratory birds or their nests or eggs at any time, unless permitted by regulation. The 2003 National Defense Authorization Act gave the Secretary of the Interior authority to prescribe regulations to exempt the Armed Forces from the incidental taking of migratory birds during authorized military readiness activities. The final rule authorizing the DoD to take migratory birds in such cases includes a requirement that the Armed Forces must confer with the USFWS to develop and implement appropriate conservation measures to minimize or mitigate adverse effects of the proposed action if the action will have a significant negative effect on the sustainability of a population of a migratory bird species.

Bald and golden eagles are protected by the BGEPA. This act prohibits anyone, without a permit issued by the Secretary of the Interior, from taking bald eagles, including their parts, nests, or eggs. The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."

3.4.2 Affected Environment

3.4.2.1 Vegetation

The NBVC Point Mugu ecosystem includes marine, wetland, and terrestrial communities. Vegetation communities were mapped and classified in 2012 (HDR, 2013) based on *A Manual of California Vegetation* and in accordance with National Vegetation Classification Systems Standards, as required by the Federal Geographic Data Committee (Sawyer, J.O., T. Keeler-Wolf, and J. Evens, 2009). The 2019 NBVC Point Mugu INRMP addresses terrestrial plant communities, and includes a detailed discussion of vegetation communities at NBVC Point Mugu (NBVC Point Mugu, 2019a). There are approximately 3,200 acres of undeveloped habitat on NBVC Point Mugu.

The P-025 project area was previously disturbed when developed as a golf course in 1964. The majority of the P-025 project area is classified as California Annual and Perennial Grassland with intermixed Western Semi-Desert/Mediterranean Alkali-Saline Wetlands (NBVC Point Mugu, 2019a), and has a high amount of disturbance. Wetlands in the P-025 project area are largely associated with drainage ditches and open areas of salt panne habitat.

The grassland community at NBVC Point Mugu is dominated by invasive non-native grasses found in upland and transitional areas. Species composition changes along the elevation gradient, with more wetland plant species occurring at the low end and upland plant species in higher areas (NBVC Point Mugu, 2019a). The wetland plants are primarily composed of saltgrass (*Distichlis spicata*) and very small remnant populations of pickleweed (*Salicornia* spp.), whereas the upland plant species are dominated by invasive exotics such as: black mustard (*Brassica nigra*); annual grasses such as bromes (*Bromus diandrus*, *B. hordeaceus*, *B. madritensis*), perennial ryegrass (*Festuca perennis*), barley (*Hordeum* spp.), wild oats (*Avena barbata*), and Bermuda grass (*Cynodon dactylon*); iceplant (*Carpobrotus edulis*); Australian saltbush (*Atriplex semibaccata*); fat-hen (*Atriplex prostrata*); and curly dock (*Rumex crispus*) (NBVC Point Mugu, 2019a).

Within the P-025 project area, and interspersed among the non-native grass and salt panne habitats, are areas of sparse shrubs and small trees, including mulefat (*Baccharis salicifolia*), coyote brush (*Baccharis pilularis*), willows (*Salix* spp.), myoporum (*Myoporum laetum*), and tamarisk (*Tamarix* spp.). In addition, there are a number of trees that were likely planted as windrows or as part of the old golf course, including gum trees (*Eucalyptus* spp.), pines (*Pinus* spp.), and fan palms (*Washingtonia robusta*).

Other non-native habitats in the P-025 project area such as drainage ditches and developed areas are generally highly disturbed and contain non-native or invasive weedy species. Invasive plant species include pampas grass (*Cortaderia* spp.), sweet fennel (*Foeniculum vulgare*), castor bean (*Ricinus communis*), tamarisk, and bull thistle (*Cirsium vulgare*).

The P-026 project area contains a drainage ditch and is largely composed of impervious surface with invasive weeds interspersed. The dominant plant species in the drainage ditch are pickleweed and iceplant. Additional invasive plant species within the P-026 project area include black mustard (*Brassica nigra*) and bull thistle. The Building PM385 project area is impervious pavement.

3.4.2.2 Wildlife

Terrestrial mammals recorded in upland habitats at NBVC Point Mugu, and that are likely to occur in the P-025 project area, include coyote (*Canis latrans*), long-tailed weasel (*Mustela frenata*), black-tailed jackrabbit (*Lepus californicus*), desert cottontail (*Sylvilagus audubonii*), opossum (*Didelphis virginianus*),

raccoon (*Procyon lotor*), and California ground squirrel (*Spermophilus beecheyi*). Small mammals include the deer mouse (*Peromyscus maniculatus*) and western harvest mouse (*Reithrodontomys megalotis*). Bat surveys have commonly reported the Mexican free-tailed bat (*Tadarida brasiliensis mexicana*), a year-round resident that inhabits buildings and residential homes at NBVC Point Mugu. Other bat species reported either foraging or roosting at the base include Yuma myotis (*Myotis yumanensis*), hoary bat (*Lasius cinereus*), and the following state-listed Species of Special Concern: pocketed free-tailed bat (*Nyctinomops femorosaccus*), western mastiff bat (*Eumops perotis californicus*), and big free-tailed bat (*Nyctinomops macrotis*) (NBVC Point Mugu, 2019a).

Of the more than 300 bird species recorded at NBVC Point Mugu, 93 have been assigned some special-status by government or non-government agencies (i.e., federal ESA, California ESA, MBTA, DoD Partners In Flight species, and International Union for Conservation of Nature) (NBVC Point Mugu, 2019a). Within the P-025 project area, birds such as great blue heron (*Ardea herodias*), the state endangered Belding's savannah sparrow (*Passerculus sandwichensis beldingi*) (see Section 3.4.2.3), multiple waterfowl, blackbirds, and other wetland bird species utilize the salt marsh, salt panne, and excavated channel habitats. Common birds of prey that occur at NBVC Point Mugu, and that may utilize the P-025 project area include barn owl (*Tyto alba*), great horned owl (*Bubo virginianus*), red-tailed hawk (*Buteo jamaicensis*), and northern harrier (*Circus cyaneus*).

The active runways at NBVC Point Mugu and the large number of birds that use Mugu Lagoon as a migratory stopover increase the dangers for aviation operations and wildlife aircraft strikes, particularly bird species. NBVC Point Mugu operates under a Bird/Animal Aircraft Strike Hazard (BASH) Management Plan that provides guidance to minimize wildlife hazards on and around the airfield that pose a threat to aviation safety. The plan addresses procedures for effectively minimizing and communicating hazardous wildlife activity, reporting wildlife/aircraft strikes, collecting and identifying wildlife/aircraft strike remains, and improving awareness of the potential hazards to naval aviation due to wildlife (NBVC Point Mugu, 2019a). Table 3.4-1 provides the number of bird strike incidents recorded at NBVC Point Mugu between 2006 and 2018, an average of approximately 33 per year.

Table 3.4-1. NBVC Point Mugu Bird Strike Incidents (2006-2018)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
JAN	0	2	6	3	1	3	3	0	0	3	2	7	1	31
FEB	4	2	5	4	1	3	1	1	2	0	1	2	1	27
MAR	9	6	4	2	5	7	8	1	4	6	3	1	3	59
APR	5	4	2	3	4	2	2	4	5	5	2	1	2	41
MAY	0	2	4	6	3	0	2	2	3	11	1	1	1	36
JUN	5	2	1	1	4	3	4	3	1	2	2	1	1	30
JUL	6	2	1	2	3	2	1	3	0	2	0	1	4	27
AUG	1	1	1	1	1	1	4	3	5	3	3	5	2	31
SEP	2	2	5	3	0	1	7	4	4	1	3	1	3	36
OCT	4	2	2	8	3	0	1	4	3	2	8	4	6	47
NOV	1	1	3	1	5	4	2	0	5	6	8	0	0	36
DEC	0	2	4	3	2	1	1	2	2	7	6	0	2	32
Yearly Total	37	28	38	37	32	27	36	27	34	48	39	24	26	433

Source: (NBVC Point Mugu, 2019b).

Generalist wildlife species are expected to occur in the disturbed/developed areas or transitional grass habitat portions of the P-025 project area, such as mourning dove (*Zenaida macroura*), rock pigeon (*Columba livia*), northern mockingbird (*Mimus polyglottos*), house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), black rat (*Rattus rattus*), and raccoon. Developed areas of the base do not support significant invertebrate populations. There are no water bodies that support fisheries near the project area, within the developed portions of NBVC Point Mugu. Herpetofauna in areas of transitional disturbed habitat include Southern Pacific rattlesnake (*Crotalus oreganus helleri*), gopher snake (*Pituophis catenifer*), California kingsnake (*Lampropeltis getula californiae*), side-blotched lizard (*Uta stansburiana*), and western fence lizard (*Sceloporus occidentalis*) (NBVC Point Mugu, 2019a).

The P-026 and Building PM385 sites are already developed and largely or entirely impervious surface; therefore, no habitat for wildlife species exists at those sites.

Within the drainage channels at NBVC Point Mugu, the native California killifish (*Fundulus parvipinnis*) is common, as well as the non-native western mosquitofish (*Gambusia affinis*) and common carp (*Cyprinus carpio*) (NBVC Point Mugu, 2019a).

A number of terrestrial and intertidal invertebrates occur at NBVC Point Mugu, including multiple crab and snail species, as well as oligochaetes, polychaetes, amphipods, filter-feeding bivalve mollusks, and thalassinidean shrimp (NBVC Point Mugu, 2019a). Although the majority of these species occur in Mugu Lagoon, a number of them occur in the tidally influenced drainage ditches that occur in or adjacent to the P-025, Building PM385, and P-026 project areas.

3.4.2.3 Special-Status Species

A USFWS Information for Planning and Consultation (IPaC) resource list was obtained on June 11, 2020 that identifies federally listed species that have the potential to occur on NBVC Point Mugu (Appendix E) (USFWS, 2020). Based on the IPaC list and the NBVC INRMP, federally listed species known to occur at NBVC Point Mugu are listed in Table 3.4-2. The NBVC Point Mugu INRMP addresses all federally listed species on NBVC Point Mugu and their known locations and habitats (NBVC Point Mugu, 2019a). Of the federally listed species listed in Table 3.4-2, only the least Bell's vireo occurs in the P-025 project area.

Table 3.4-2. Federally Listed Species Known to Occur at NBVC Point Mugu

Common Name	Scientific Name	Federal Status	State Status	Habitat	Occurrence in Project Areas
California least tern	<i>Sternula antillarum browni</i>	E	E	Migrant that nests on coastal sandy beaches	Unlikely flyover; no nesting or foraging habitat.
Least Bell's vireo	<i>Vireo bellii pusillus</i>	E	E	Migrant that nests and forages in riparian habitat	Known to nest in sub-optimal habitat in P-025 project area.
Light-footed Ridgway's rail	<i>Rallus longirostris levipes</i>	E	E	Resident in coastal salt marsh	No; occurs in the marshes of Mugu Lagoon.
Western snowy plover	<i>Charadrius nivosus nivosus</i>	T	-	Resident on coastal sandy beaches	No; nests and occurs in the sandy beach habitats of NBVC Point Mugu.

Table 3.4-2. Federally Listed Species Known to Occur at NBVC Point Mugu

Common Name	Scientific Name	Federal Status	State Status	Habitat	Occurrence in Project Areas
Tidewater goby	<i>Eucyclogobius newberryi</i>	E	-	Estuarine waters	No; known to occur as recently as 2011 in brackish portion of Calleguas Creek.
Salt marsh bird's-beak	<i>Chloropyron maritimum</i> ssp. <i>maritimum</i>	E	E	Coastal salt marsh	No; known to occur in salt marshes of Mugu Lagoon. Primary pollinator of this species nests in salt pannes in and adjacent to the P-025 project area.

Sources: (NBVC Point Mugu, 2019a); (USFWS, 2020)

Notes: E = Endangered; T = Threatened.

At NBVC Point Mugu, salt marsh bird's-beak primarily occurs in Mugu Lagoon and its associated salt marshes. Although salt marsh bird's-beak is not known to occur in any of the project areas, surveys have shown that salt pannes in and adjacent to the P-025 project area support multiple species of ground nesting bees, which are important pollinators of salt marsh bird's-beak (NBVC Point Mugu, 2019a). The promotion of salt marsh bird's-beak pollination requires adequate nesting grounds for these ground dwelling bee species (USFWS, 2009).

The P-026 and Building PM385 sites are already developed and are largely or entirely impervious surface. No habitat for listed species exists at those sites, and none of the federally listed species in Table 3.4-2 would be expected to occur.

All other federally listed species in Table 3.4-2 are not known or expected to occur within the project areas, and as discussed in Section 3.4.3, would not be expected to be affected by flight operations or noise outside the project area; therefore, these species are not analyzed further in this EA.

The federally endangered least Bell's vireo has been recorded sporadically in low numbers in various willow and mulefat patches and other upland habitat sites at NBVC Point Mugu since 2009. Between 2016 and 2018, up to four pairs were believed to have bred on NBVC Point Mugu. In addition, surveys conducted in 2019 and 2020 observed three breeding pairs of least Bell's vireo within or near the P-025 project area. Two of the pairs were observed in sites dominated by non-native species such as myoporum and other non-native annual plant species, as well as coyote brush (NBVC Point Mugu 2020). As most natural areas at NBVC Point Mugu are dominated by salt marsh, there is little suitable least Bell's vireo habitat to support more than a few nesting pairs per year (NBVC Point Mugu, 2019a). Surveys occur at NBVC annually for least Bell's vireo and will continue, including weekly surveys when nesting activity is observed (including habitat adjacent to the proposed P-025 site).

Although not federally listed, the western pond turtle (*Actinemys marmorata*) is currently under review for listing by the USFWS. Western pond turtles nest and burrow/hibernate in the project area, and occur in the drainage ditches throughout the project area. In addition, the project area occurs in the only known nesting and wintering site at NBVC Point Mugu for western pond turtles. NBVC Point Mugu

regularly surveys for and monitors populations of western pond turtles on base (NBVC Point Mugu, 2019a).

The state endangered Belding's savannah sparrow is known to occur and nest at NBVC Point Mugu. The Belding's savannah sparrow is a resident species that occurs in Mugu Lagoon and its associated salt marsh wetlands and salt pannes (NBVC Point Mugu, 2019a). It builds nests in low growing marsh plants between March and August and likely utilizes marsh and salt panne habitat in the project area. NBVC Point Mugu conducts base-wide surveys for Belding's savannah sparrows every five years, and a management goal of the INRMP is to reduce disturbance and loss of their nests (NBVC Point Mugu, 2019a).

The bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*) are both federally protected under the BGEPA. These species are rarely observed at NBVC Point Mugu (NBVC Point Mugu, 2019a), and because of the lack of nesting habitat, would likely only utilize the project area during transient flyovers.

At least 23 species of USFWS Birds of Conservation Concern (BCC) have been recorded at NBVC Point Mugu (USFWS, 2008). Species designated as BCCs that have the potential to occur in the project area, either for foraging or as a transient include, but are not limited to, Costa's hummingbird (*Calypte costae*), Swainson's hawk (*Buteo swainsoni*), tricolored blackbird (*Agelaius tricolor*), and yellow warbler (*Setophaga petechia*). A complete list of bird species observed at NBVC Point Mugu, many of which are listed as BCCs and/or Species of Special Concern, is found in the INRMP (NBVC Point Mugu, 2019a). Birds, both migratory and most native-resident bird species, occurring at NBVC Point Mugu are protected under the MBTA, and their conservation by federal agencies is mandated by EO 13186.

Three species of tiger beetle (genus *Cicindela*) have been recorded in the salt pannes at NBVC Point Mugu, one of which is a state-listed critically imperiled special-status species (*Cicindela gabbi*). However, no abundance data are available for tiger beetles at NBVC Point Mugu (NBVC Point Mugu, 2019a).

3.4.3 Environmental Consequences

This section presents an analysis of potential direct, indirect, temporary, and permanent impacts to biological resources that could result from implementation of the Proposed Action.

Direct impacts are the immediate result of project-related activities (e.g., direct mortality or disturbance of species, or removal of vegetation and habitat during construction). Direct impacts may be either temporary (reversible) or permanent (irreversible).

Biological Resources Potential Impacts:

- No Action: The Proposed Action would not be implemented and there would be no significant impacts to biological resources.
- Proposed Action: No significant impacts to vegetation, wildlife, or special status species.
- With implementation of impact minimization measures, no take of migratory birds would occur.
- May affect, but is not likely to adversely affect the least Bell's vireo; informal consultation with the USFWS has been initiated.
- No effect on other federally listed species.

Indirect impacts are caused by or result from project-related activities but occur later in time or are spatially removed from the activities (e.g., shifts in vegetation composition or increased predation risk over time). Indirect impacts are diffuse, resource-specific, and less amenable to quantification or mapping than direct impacts, but still need to be considered. Indirect impacts typically extend beyond the immediate project footprint(s).

Potential project impacts are described as temporary or permanent based on their anticipated longevity. Project impacts are evaluated based upon an understanding of project configuration and components, and methods and equipment that would be used.

3.4.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to biological resources. Therefore, no impacts to biological resources would occur with implementation of the No Action Alternative.

3.4.3.2 Proposed Action

The study area for the analysis of effects to biological resources associated with the Proposed Action includes the Proposed Action project areas, adjacent habitats that may be exposed to noise and visual impacts during construction and operations, and any downstream habitats that have the potential to be affected by erosion, runoff, or sedimentation. As unmanned air system offshore operations have been previously evaluated in the Point Mugu Sea Range Draft Environmental Impact Statement/Overseas Environmental Impact Statement (EIS/OEIS) (see Section 1.6, Key Documents), their potential impacts to biological resources are not further evaluated in this EA.

3.4.3.2.1 Potential Impacts

3.4.3.2.1.1 Vegetation

Under the Proposed Action, temporary impacts to vegetation during construction, including increased dust generation and erosion, would be largely confined to the project footprint, and would be minimized with the incorporation of general construction BMPs including erosion control measures (e.g., hay bales, silt fencing). The incorporation of such measures would stabilize exposed slopes during and after construction, and minimize potential indirect impacts associated with dust and erosion/sedimentation downslope from the project footprint. Therefore, no impacts to downslope habitats would occur.

Under the Proposed Action, construction of the P-025 squadron hangar, radio communications facility, antenna towers, aircraft apron, taxiways, personnel parking, and access roads would permanently impact up to 38.5 acres of disturbed shrub scrub, non-native grass, wetland, and disturbed/developed habitat in the 93-acre P-025 project area (see Figure 2.3-1). The layout of the squadron hangar and associated facilities would avoid direct impacts to the salt pannes that occur in the southern portion of the P-025 project area. Grassland habitats are largely dominated by non-native invasive species at NBVC Point Mugu and the habitat type is common in the undeveloped portions of the base. This impact would represent a loss of approximately 1.2 percent of the total undeveloped habitat (3,200 acres) at NBVC Point Mugu. Such loss of disturbed scrub and non-native grass habitats would not represent a significant impact to vegetation. Impacts to wetland habitats are discussed in Section 3.2.3. Those areas within the project area that are not developed would likely experience temporary impacts during construction. However, upon completion of construction activities, temporarily impacted areas would be restored per

the standards and measures outlined in the INRMP (NBVC Point Mugu, 2019a). NBVC Point Mugu continues to restore habitat on base for a variety of sensitive species, including least Bell's vireo. Therefore, it is likely additional and higher quality habitat would be available in the future for vireos to supplement any loss of this marginal habitat from development within the old golf course.

Construction of the proposed P-026 maintenance training facility would occur on the corner of 13th Street and Photo Road across the street from Building PM508 (see Figure 2.3-3). The proposed P-026 facility would affect 1.6 acres of primarily impervious surface and weed species and would not have a significant impact on vegetation. Construction activities would not impact vegetation in the drainage ditch wetland located along the edge of the P-026 project area.

Therefore, implementation of the Proposed Action would not result in significant impacts to vegetation.

3.4.3.2.1.2 Wildlife

Up to 38.5 acres of grassland, wetland, and disturbed/developed habitat that provides habitat for wildlife would be permanently or temporarily impacted during construction of the squadron hangar. This would represent a loss of less than 1.2 percent of the total undeveloped habitat at NBVC Point Mugu. Such loss of habitat would not represent a significant impact to wildlife, as these habitats are common on NBVC Point Mugu and similar habitats occur in the immediate vicinity of the project area. Wildlife species would be expected to disperse and utilize adjacent habitats.

Implementation of the Proposed Action construction activities could eliminate or displace wildlife from the project footprints and their vicinities. Individuals of the smaller, less mobile, and burrowing species could be killed or injured by construction, whereas mobile species (e.g., birds and larger mammal species) would disperse to surrounding areas. Construction activities would be temporary, and following construction, wildlife would be able to occupy those portions of the project areas that have not been developed. Noise associated with construction activities can affect birds and other wildlife in multiple ways, including altered vocal behavior to mitigate masking, reduced abundance in noisy habitats, changes in vigilance and foraging behavior, and impacts on individual fitness (Shannon, 2016). However, bird and wildlife populations at NBVC Point Mugu are already exposed to elevated noise associated with aircraft noise and military industrial and training operations. As a result, indirect impacts from construction noise are expected to be minor because the ambient noise levels within the vicinity are elevated under existing conditions and would be unlikely to substantially increase from the relatively minor and temporary nature of the proposed construction activities.

All vegetation removal would occur outside of the avian nesting season (March through September) to avoid impacts to nesting birds. In addition, removal of three or four large pine trees would be coordinated with the NBVC Point Mugu Environmental Division to avoid impacts to tree-nesting owl species, such as barn owls and great horned owls. Therefore, the Navy has determined that construction associated with the Proposed Action would not result in take of birds protected under the MBTA. Therefore, impacts to migratory birds would not be significant.

The Proposed Action would add 960 annual Stingray CBUAS flight operations to NBVC Point Mugu. This would represent a 2.4 percent increase to airfield operations (refer to Section 3.5.3). Stingray CBUAS flight operations would increase the potential for BASH occurrences. NBVC Point Mugu maintains a BASH Management Plan to reduce the potential for collisions between aircraft and birds or other animals. The BASH Management Plan prescribes an ongoing process that involves the distribution of information and active and passive measures to control how birds use the critical areas around the

airfield. Methods outlined in the plan to reduce BASH risks include habitat management (i.e., controlling grass height, eliminating bare areas, and removing dead vegetation to maintain the runway and adjacent areas in a manner least attractive to birds), bird dispersal (e.g., horns, sirens, and bird calls used to disperse birds from the airfield), and bird avoidance. Stingray CBUAS flight operations would represent only a 2.4 percent increase in total annual airfield operations and are not expected to result in additional take of migratory birds from aircraft collisions. The proposed additional operations would be within the typical fluctuations in aircraft operations at military airfields from one year to the next. NBVC Point Mugu would continue to manage BASH in accordance with the BASH Management Plan and is expected to receive special project funding to reduce ponding in and around the runway environment further reducing BASH incidents. No significant impact to birds or other wildlife from BASH is expected.

Impacts to wildlife from aircraft noise and visual stressors can include: a startle reflex that induces running or flight, increased expenditure of energy, decreased time and energy spent on life functions such as feeding and mating, increased likelihood of predation, and interruption of breeding or nursing behavior (Larkin, 1996) (Efroymson, 2000). When compared with existing aircraft, the Stingray CBUAS would be quieter than six of the aircraft at NBVC Point Mugu and roughly equivalent to two. Stingray CBUAS operations would be quieter than existing fighter aircraft (F/A-18E/F) operating at NBVC Point Mugu (refer to Section 3.3.8). As bird and wildlife populations at NBVC Point Mugu are already exposed to elevated noise levels associated with military industrial and training/flight operations, the addition of 960 annual Stingray CBUAS airfield operations (average of four operations per day) and increase in CNEL of 0.1 dB or less would not result in a significant change in noise and would not significantly impact wildlife species. Therefore, implementation of the Proposed Action would not result in significant impacts to wildlife.

3.4.3.2.1.3 Special-Status Species

The Navy has determined that implementing the Proposed Action may affect, but is not likely to adversely affect the least Bell's vireo. The Proposed Action would have no effect on other federally listed species known to occur on NBVC Point Mugu because no other federal species are present in the project area footprints, and as discussed below, operations of the Proposed Action would not change the noise contours or have a significant impact on the noise environment at NBVC Point Mugu. Therefore, as required by Section 7 of the ESA, the Navy has initiated informal consultation with the USFWS for the least Bell's vireo; correspondence is included in Appendix E. Two to three pairs of least Bell's vireos have nested in the project area in habitat that is considered sub-optimal for the species. Removal of this potential (low-quality) nesting habitat could impact least Bell's vireos that may return to site to breed. Therefore to avoid this, vegetation removal would occur outside of the avian nesting season (March through September) to avoid impacts to nests or nesting birds, including least Bell's vireos. Given that the habitat in the proposed project area is sub-optimal, and other areas of similar or better quality habitat exist elsewhere on base and in the surrounding area, birds would likely relocate with no adverse effect on least Bell's vireo future productivity. Upon completion of construction activities, temporarily impacted areas would be restored per the standards and measures outlined in the INRMP (NBVC Point Mugu, 2019a). Construction would be coordinated with the NBVC Point Mugu Environmental Division to ensure appropriate measures are in place to avoid adverse effects to least Bell's vireo.

If least Bell's vireos return and breed near the proposed project site, they could be exposed to construction-related noise. As noted under "Wildlife," indirect impacts from construction noise are expected to be minimal because the ambient noise levels within the vicinity are elevated under existing conditions and would be unlikely to substantially increase given the relatively minor and temporary

nature of the proposed construction activities. Least Bell's vireos have also been documented at NBVC and other sites nesting successfully in areas with human disturbance, being able to tolerate more disturbance than previously suspected. At NBVC Point Mugu a pair has had a territory and successfully nested directly adjacent to a parking lot with frequent human and vehicle activity, including regular commercial 18-wheeler truck activity. Construction noise may have some minor effects if returning vireos chose to nest in habitats adjacent to the immediate project area. Any nesting pairs found in the immediate area would be monitored as part of NBVC's annual ongoing vireo monitoring efforts.

Projected noise from Stingray CBUAS flight operations would be similar (0.1 dB CNEL or less increase) to existing aircraft operations at NBVC Point Mugu, and there would be no change to the noise contours. Operations of the Proposed Action would not adversely affect the least Bell's vireo on other parts of the base. Stingray CBUAS flight operations would represent only a 2.4 percent increase in total annual airfield operations. The additional operations would be within the typical fluctuations in aircraft operations at military airfields from one year to the next. BASH would continue to be managed in accordance with the base's BASH Management Plan. Effects to least Bell's vireo and other special-status species from BASH would be negligible. Therefore, implementation of the Proposed Action would not adversely affect the least Bell's vireo.

Ground nesting bee species that are primary pollinators of salt marsh bird's-beak and that nest in salt panne habitats would not experience significant impacts from the Proposed Action, as the layout of the squadron hangar and associated facilities would be designed to largely avoid direct impacts to the salt pannes that occur in the southern portion of the P-025 project area. In addition, potential indirect impacts to salt pannes and other wetland habitats would be avoided with the incorporation of general construction BMPs including erosion control measures (e.g., hay bales, silt fencing). Therefore, impacts to ground nesting bee species would not be significant and the Proposed Action would have no effect on salt marsh bird's beak.

Western pond turtles are known to occur within the project area as they nest, burrow, and hibernate within the project area. Western pond turtles also occur in the drainage ditches within the project area. If construction activities occur in April through January, heavy equipment has the potential to crush underground nests and/or burrowing individuals. Construction would be coordinated with the NBVC Point Mugu Environmental Division to ensure measures are in place to avoid impacts to western pond turtles. Vegetation removal and project perimeter fence construction would be scheduled in coordination with NBVC Point Mugu Environmental Division. Fencing would ideally be installed in the months of February or March prior to any major site activity. In addition, the wetlands and drainage ditches within the P-025 project area would largely be avoided during construction, leaving intact available nesting habitat. With the implementation of conservation measures for the western pond turtle, project-related construction activities would avoid effects to turtles.

The state endangered Belding's savannah sparrow builds nests in low growing marsh plants between March and August and likely utilizes marsh habitat associated with the drainage ditches and salt panne habitat in the project area, at least for foraging. Therefore, loss or alteration of marsh habitat associated with the drainage ditches and/or salt panne habitat in the project area would be a direct impact to the species' foraging habitat. However, the Belding's savannah sparrow primarily uses Mugu Lagoon and associated salt marsh for breeding, and those areas would not be impacted during construction. The layout of the squadron hangar and associated facilities would be designed to largely avoid impacts to the salt pannes that occur in the southern portion of the P-025 project area. All vegetation removal would occur outside of the avian nesting season (March through September) to avoid impacts to nesting

birds, including Belding's savannah sparrows. Therefore, impacts to Belding's savannah sparrow would not be significant.

Because bald and golden eagles would not be expected to forage in the project area, vegetation loss resulting from the Proposed Action would have no or negligible effects on these species. Stingray CBUAS flight operations would represent only a 2.4 percent increase in total annual airfield operations and NBVC Point Mugu BASH would continue to be managed in accordance with the base's BASH Management Plan. Projected noise from Stingray CBUAS flight operations would be similar to existing aircraft operations at NBVC Point Mugu. Effects to eagles from operations would be negligible.

Therefore, the Proposed Action would not result in takes of bald eagle or golden eagle, as defined by the BGEPA.

Impacts to species of tiger beetle (genus *Cicindela*), including the state-listed critically imperiled special-status species, *Cicindela gabbi*, would not be significant because the salt panne habitats in the southern portion of the project area would not be directly impacted by construction, and potential indirect impacts to salt pannes would be avoided with the incorporation of general construction BMPs including erosion control measures (e.g., hay bales, silt fencing).

Therefore, implementation of the Proposed Action would not result in significant impacts to biological resources.

3.5 Airspace and Airfield Operations

This discussion of airspace includes current uses and controls of the airspace. The FAA manages all airspace within the United States and the U.S. territories. Airspace, which is defined in vertical and horizontal dimensions and also by time, is considered to be a finite resource that must be managed for the benefit of all aviation sectors including commercial, general, and military aviation.

3.5.1 Regulatory Setting

Specific aviation and airspace management procedures and policies to be used by the Navy are provided by OPNAVINST 3710.7, *Naval Air Training and Operating Procedures Standardization (NATOPS) Program*. Applicable Marine Corps aviation and airspace management procedures are provided by Marine Corps Order 3500.14D, *Aviation Training and Readiness Program Manual*. Other applicable regulations regarding special use airspace management include specific FAA Orders.

FAA Order 1050.1F (issued July 16, 2015), *Environmental Impacts: Policies and Procedures*, provides FAA policy and procedures to ensure agency compliance with the requirements set forth in the CEQ regulations for implementing the provisions of the NEPA, Department of Transportation Order 5610.1D, *Procedures for Considering Environmental Impacts*, and other related statutes and directives (FAA, 2020).

FAA Order JO 7400.2M (issued January 28, 2019), *Procedures for Handling Airspace Matters*, specifically Chapter 32, provides guidance to air traffic personnel to assist in applying the requirements in FAA Order 1050.1F to air traffic actions.

Special Use Airspace identified for military and other governmental activities is charted and published by the National Aeronautical Charting Office in accordance with FAA Order JO 7400.10B (issued February 14, 2020) and other applicable regulations and orders.

3.5.2 Affected Environment

The affected environment includes the NBVC Point Mugu airfield (Figure 2.3-4) and Special Use Airspace (SUA) in the vicinity of NBVC Point Mugu. The NBVC Point Mugu airfield is located approximately six miles south of Camarillo Airport and seven miles southeast of Oxnard Airport (Figure 3.5-1). The airfield at NBVC Point Mugu features a control tower and two runways. The control tower is located near the intersection of the two runways. The primary runway supporting most aircraft operations is Runway 03/21, which is 11,100 feet long and 200 feet wide in a southwest to northeast orientation. A second, shorter runway is Runway 09/27, which is 5,500 feet long and 200 feet wide with an orientation nearly east to west. Emergency arresting gear is available on both runways to stop aircraft in the event of an emergency situation, such as a blown tire. The airfield and control tower typically operate daily from 7 a.m. to 11 p.m. but may also operate at other times when required.

Airspace in the vicinity of NBVC Point Mugu is shown in Figure 2.3-5. Airspace, which is defined in vertical and horizontal dimensions and by time, is considered a finite resource that must be managed for the benefit of all aviation sectors, including commercial, general, and military aviation. The overall responsibility for the management and control of U.S. airspace, including that used by commercial, civil, and military aircraft, belongs to the FAA. To ensure safe and efficient airspace use, the FAA defines the types of airspace and the nature of activities that each type can accommodate. Figure 3.5-2 presents a profile view of airspace class dimensions.

The airspace within the U.S. is categorized as either regulatory or non-regulatory. Within these two categories the FAA has designated four types of airspace: controlled, uncontrolled, special use, and other airspace. The following summarizes the U.S. airspace structure:

- Regulatory: Class A, B, C, D, and E airspace areas, Restricted Areas, Prohibited Areas and Temporary Flight Restriction areas.
- Non-regulatory: Military Operations Areas, Warning Areas, Alert Areas and Controlled Firing Areas.
- Controlled: Class A, B, C, D, and E airspace where Air Traffic Control services are provided.
- Uncontrolled: Class G airspace where Air Traffic Control services are not provided.
- SUA: Prohibited Areas, Restricted Areas, Warning Areas, Military Operations Areas, Alert Areas, Controlled Firing Areas, and National Security Areas.

Other Airspace: Military Training Routes, Parachute Jump areas, and Visual Flight Rules Routes.

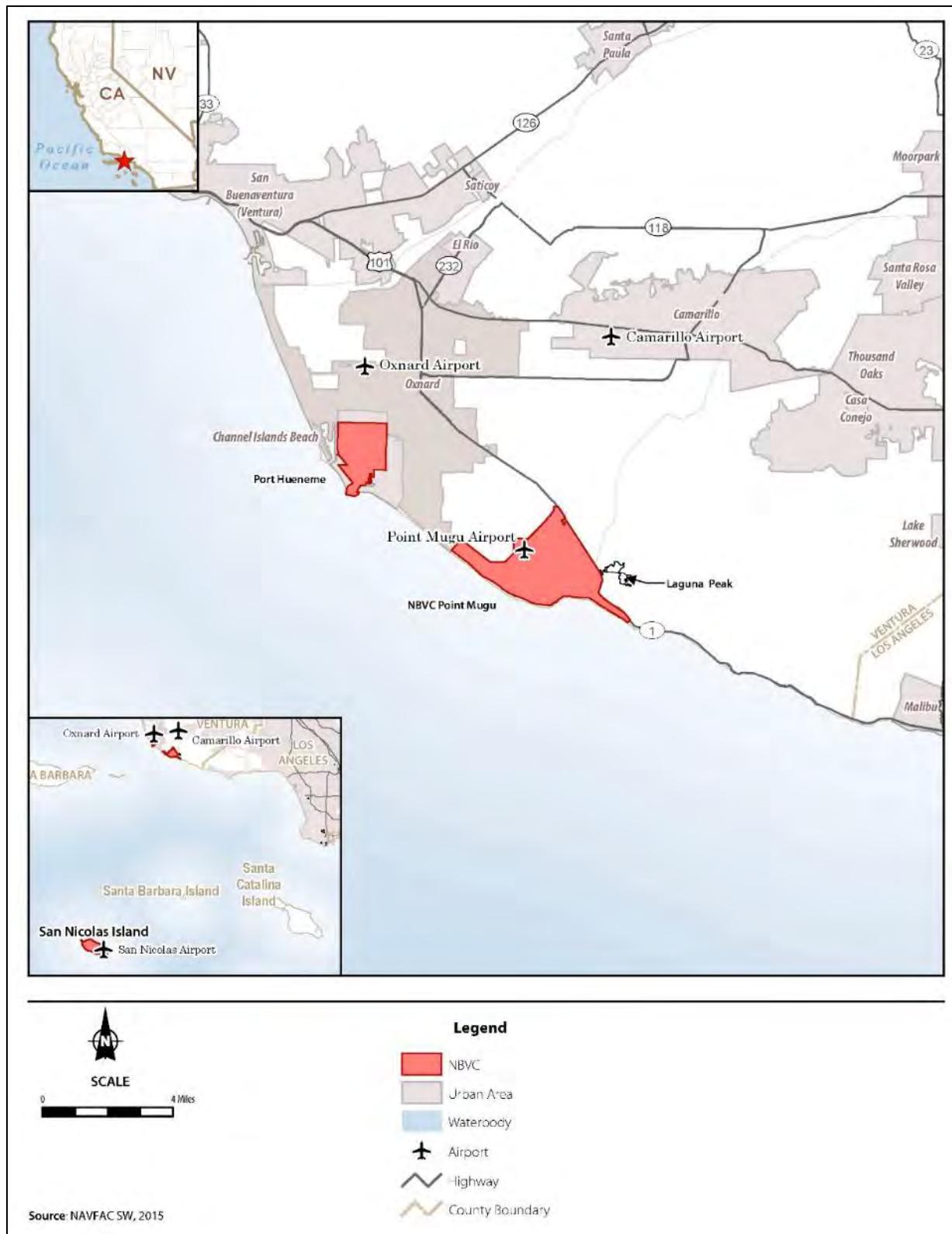
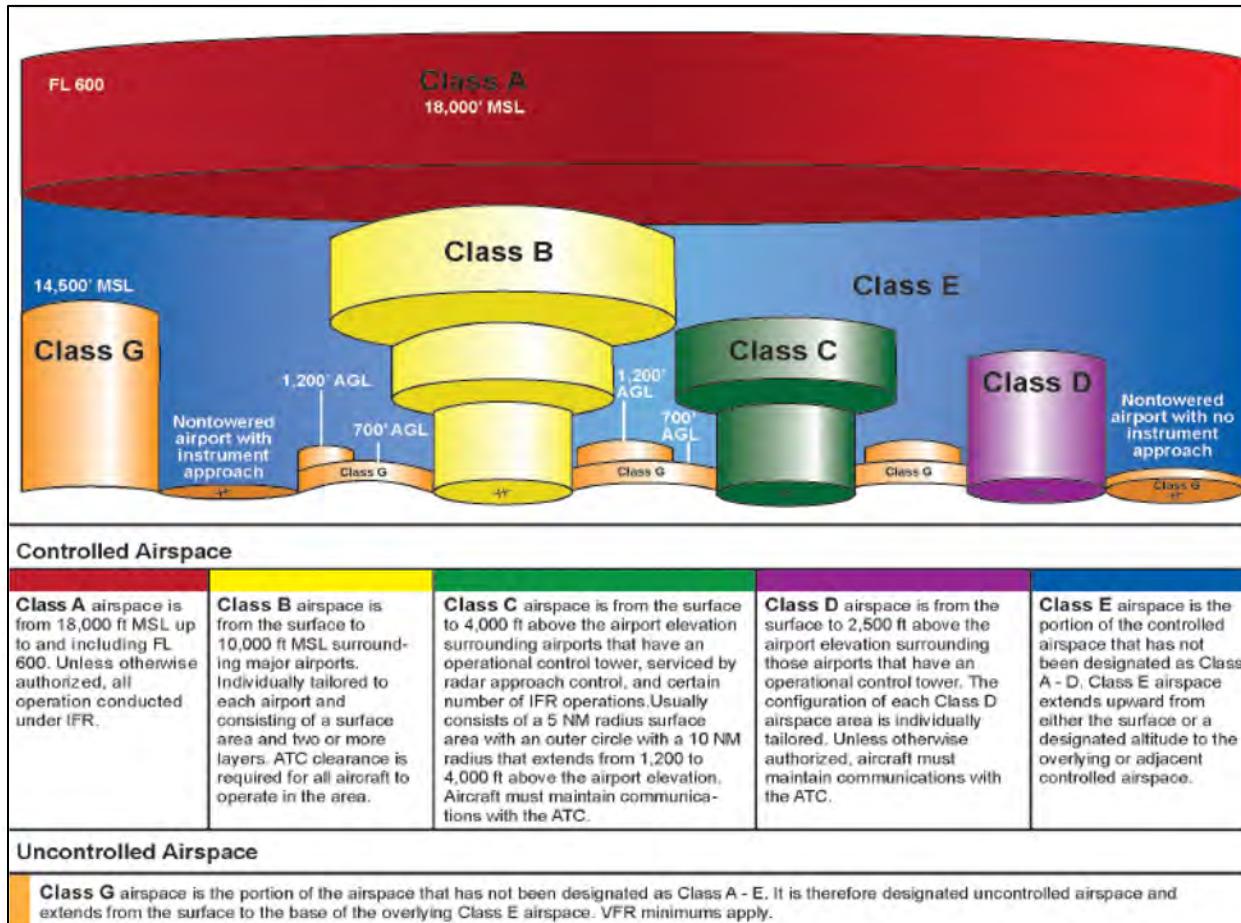


Figure 3.5-1. NBVC Point Mugu Airfield and Nearby Airports



Source: (FAA, 2016).

Figure 3.5-2. Airspace Classes

SUA and Other Airspace are defined by specific dimensions to confine activities of participating aircraft and impose limitations upon aircraft not participating. Prohibited Areas, Restricted Areas, Warning Areas, Military Operations Areas, and Alert Areas are depicted on aeronautical charts. Prohibited Areas, Restricted Areas and Temporary Flight Restrictions are regulatory areas that prevent non-participating aircraft from entering. Warning Areas, Military Operations Areas and Alert Areas are non-regulatory SUA where non-participating Visual Flight Rules aircraft may enter without Air Traffic Control clearance but are warned of potential danger or encouraged to exercise extreme caution/alertness.

NBVC Point Mugu is located within Class D airspace that surrounds the airfield and extends from the surface to 3,000 feet above mean sea level, which requires aircraft to establish two-way radio communications with air traffic control to enter or operate within. Located above this Class D airspace and extending to cover much of Los Angeles and Ventura County is Class E airspace, which provides safe control and separation of aircraft during instrument flight rules operations (FAA, 2016). Restricted airspace R-2519 extends from NBVC Point Mugu to the over water warning areas southwest of the base and represents an area where operations are considered hazardous to non-participating aircraft. Consistent with other restricted areas, NBVC Point Mugu aircraft traffic control issues a clearance that ensure aircraft avoid the airspace while in use.

NBVC Point Mugu operates a tactical air navigation system and distance measuring equipment, which allows the receiver to measure bearing to and from the beacon and slant distance between the receiver and the station. In 2019, NBVC Point Mugu control tower supported approximately 29,000 annual operations when including overflights, as documented in the Air Traffic Activity Report (NBVC Point Mugu, 2019c). An operation is defined as either a take-off or landing, and the majority occur on Runway 21 followed by Runway 27 and Runway 03. Many aircraft departing NBVC Point Mugu utilize the offshore ranges associated with the Southern California Range Complex. As unmanned air system offshore operations have been previously evaluated in the Point Mugu Sea Range Draft EIS/OEIS (see Section 1.6, Key Documents), offshore operations are not further evaluated in this EA.

3.5.3 Environmental Consequences

The analysis of airspace management and use involves consideration of many factors including the types, locations, and frequency of aerial operations, the presence or absence of already designated (controlled) airspace, and the amount of air traffic using or transiting through a given area.

3.5.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to airspace.

Therefore, no significant impacts to airspace would occur with implementation of the No Action Alternative.

3.5.3.2 Proposed Action

Under the Proposed Action, the Navy would home base 20 Stingray CBUAS at NBVC Point Mugu and conduct 960 annual flight operations at the airfield and in nearby airspace. These operations would consist of departures and arrivals in Class D airspace, R-2519, and primarily in W-289. Figure 3.5-3 shows the approximate flight paths through this controlled airspace. Factors such as the presence of other aircraft and weather conditions can combine to cause the actual path flown to vary from the approximate flight paths. Closed pattern operations (i.e., multiple take-offs and landings without leaving the vicinity of the airfield) are not anticipated for the Stingray CBUAS. The potential impacted environment includes the NBVC Point Mugu airfield and airspace and civilian aircraft users of airspace near NBVC Point Mugu.

3.5.3.2.1 Potential Construction Impacts

Construction activities associated with the Proposed Action would be conducted adjacent to, and in the vicinity of, the airfield at NBVC Point Mugu, as depicted in Figures 2.3-1 and 2.3-2. The proposed facility and infrastructure improvements would support the taxi, take-off, departure, approach, and landing operations of the Stingray CBUAS. A hangar would be constructed along the flight-line. Two taxiways would be constructed to connect the new aircraft access/parking apron to the existing Taxiway B. Construction activities would not occur on the runway.

Airspace and Airfield Operations Potential Impacts:

- No Action: The Proposed Action would not be implemented and there would be no significant impacts to airspace and airfield operations.
- Proposed Action: No significant impacts to airfield, airspace, or civilian users of airspace from construction of facilities and 960 annual flight operations.

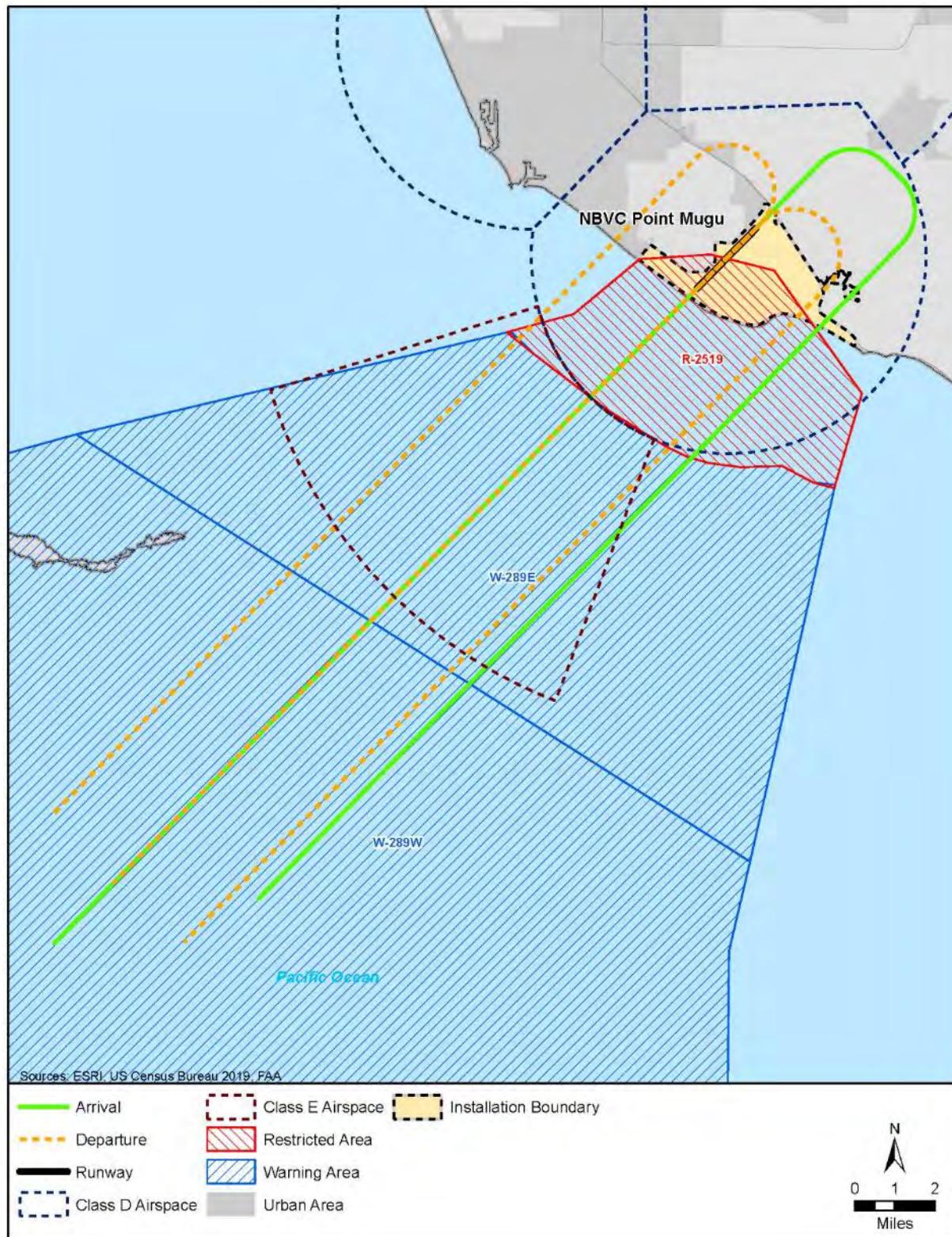


Figure 3.5-3. Proposed Stingray CBUAS Approximate Flight Paths at NBVC Point Mugu

Under the Proposed Action, the construction of facility and infrastructure improvements would not result in significant impacts to airspace or airfield operations. Although proposed construction along the flight-line would slightly alter the existing airfield, facility development and construction activities would not significantly impact existing airspace and airfield operations or capacity.

3.5.3.2.2 Potential Operational Impacts

The Proposed Action does not involve changes to controlled airspace. Stingray CBUAS flight operations would be conducted in existing controlled airspace in the vicinity of NBVC Point Mugu. Proposed operations at the airfield would be conducted in accordance with the *NBVC Air Operations Manual*, *NBVC Instruction 3710.1E*.

The addition of 960 annual Stingray CBUAS operations at NBVC Point Mugu would result in an average of approximately four additional operations per operating day (two take-offs and two landings), which equates to a 2.4 percent increase at the airfield. This increase would not impair the ability of the Radar Air Traffic Control Facility to coordinate flights from the base within the controlled airspace at NBVC Point Mugu. These additional operations would not impact civilian users of the airspace because no changes would be made to the airspace and the small number of new operations would not cause an appreciable change to air traffic congestion.

The FAA requires aircraft operators see and avoid other aircraft in accordance with 14 CFR 91.113. Because Unmanned Aircraft System (UAS) cannot comply with this requirement, an FAA-issued Certificate of Waiver or Authorization is required to operate in U.S. national airspace outside of Warning Areas, Restricted Areas, or Prohibited Areas, such as the NBVC Point Mugu Class D airspace. The certificate of waiver details airworthiness, specific routings, procedural requirements, and emergency procedures, as well as provisions for coordination, communication and flight planning requirements. All flight operations for Stingray CBUAS would adhere to requirements for accessing airspace, using communication and positioning systems to navigate along airways, and conforming to FAA flight standards for navigation at NBVC Point Mugu (U.S. Department of the Navy, 2017b). Naval Air Systems Command (NAVAIR) is the airworthiness authority for all Navy aircraft. Prior to operation, the NAVAIR flight clearance for Stingray CBUAS would provide assurance of airworthiness and safety of flight, and also support the airworthiness statement in the Certificate of Authorization (COA).

Under the Proposed Action, Stingray CBUAS operations at the NBVC Point Mugu airfield and in nearby airspace would not result in significant impacts to airspace or airfield operations. Proposed Stingray CBUAS operations would be conducted at the NBVC Point Mugu airfield and in existing airspace in accordance with all federal instructions and requirements. Operations would be conducted under FAA-issued Certificates of Waiver or Authorization. Given the small number of additional operations associated with the Proposed Action, implementation of the Proposed Action would not result in significant impacts to civilian users of airspace.

3.6 Infrastructure

This section discusses infrastructure such as utilities (including potable water, wastewater, stormwater, solid waste management, and energy). Transportation systems and traffic are addressed separately in Section 3.7.

3.6.1 Regulatory Setting

Chief of Naval Operations Instruction 4100.5E outlines the Secretary of the Navy's vision for shore energy management. The focus of this instruction is establishing the energy goals and implementing strategy to achieve energy efficiency.

Antiterrorism Force Protection Standards have been adopted by the DoD through Instruction number 2000.16 of October 2006 (and currently incorporated in DoD Instruction O-2000.16 Vol. 1). The standards require all DoD components to adopt and adhere to common criteria and minimum construction standards to mitigate antiterrorism vulnerabilities and terrorist threats.

3.6.2 Affected Environment

The following discussions provide a description of the existing conditions for each of the categories under infrastructure at NBVC Point Mugu.

The P-025, Building PM385, and P-026 project areas contain or are located near several utility lines, including water, electric, wastewater, and stormwater.

3.6.2.1 Potable Water

Both industrial and domestic water supplies are provided by the City of Oxnard (NAVFAC, 2016a). NBVC Point Mugu receives potable water from the Port Hueneme Water Agency. The water distribution system within the base is owned and maintained by NBVC. Permitting is not required for domestic water connections (NAVFAC, 2020). The existing system has a capacity of 5.8 million gallons per day (gpd). Average demand is roughly 1.6 million gpd (NAVFAC, 2016b).

In addition to several active primary water mains in the vicinity, several abandoned water mains traverse the proposed P-025 site (NAVFAC, 2020). The abandoned mains are composed of asbestos cement, transite (an asbestos-containing material [ACM]), and steel (NAVFAC, 2020).

3.6.2.2 Wastewater

Currently, no wastewater management plan exists for NBVC Point Mugu because all wastewater generated on the base is discharged to the City of Oxnard sanitary sewer system where it is conveyed to the Oxnard Regional Wastewater Treatment Plant for treatment and discharge (NAVFAC, 2016a). The Navy constitutes a small portion, approximately 5 to 6 percent, of the overall Oxnard Wastewater Treatment Plant capacity and discharges approximately 500,000 gallons or less per day (Cooper, 2020). The Oxnard Regional Wastewater Treatment Plant has a nominal average day dry weather flow of 20 million gpd with a design capacity of 31.7 million gpd (City of Oxnard, 2017). Small-scale pretreatment units, such as oil/water separators and wash racks are managed in accordance with the requirements of Regional Water Quality Control Board and the City of Oxnard. Industrial wastewater management is a critical management tool for preventing degradation of water quality. The City of Oxnard is required to meet certain standards for discharge of wastewater according to its NPDES permit.

3.6.2.3 Stormwater

P-025

The general flow of drainage on the proposed P-025 project site is from north to south. Existing drainage from the northwest portion of the proposed project site is conveyed to the existing drainage ditches/wetlands to the northwest (Oxnard Drainage Ditch No.2B) and south (Oxnard Drainage Ditch

No. 2). Existing drainage from the airfield to the north of the site does not flow over the proposed project site. Oxnard Drainage Ditch No. 2B provides a drainage barrier between the airfield and the P-025 hangar site. Oxnard Drainage Ditch No. 2A provides a drainage barrier between the P-025 hangar site and the proposed parking area. Both ditches convey stormwater to Oxnard Drainage Ditch No. 2. Oxnard Drainage Ditch No. 2 conveys water southeast, discharging into Calleguas Creek and eventually reaching the Pacific Ocean via Mugu Lagoon (NAVFAC, 2020).

Oxnard Drainage Ditch No. 2 is a “red-line” jurisdictional stream that is part of the regulated Ventura County drainage system. Red-line streams are within the jurisdiction of the Ventura County Watershed Protection District for flood control purposes. It carries a significant amount of off-base stormwater flow from agricultural and other mixed-use development from north of NBVC Point Mugu, under Runway 03/21 (NAVFAC, 2020).

P-026 and Building PM385

Storm drainage at the proposed project area flows overland, over paved surfaces, and into various catch basins or directly into existing drainage swales/wetlands. Drainage from the northwest portion of the site is conveyed to the existing wetland/swale west of the project area and to a culvert that discharges into Mugu Lagoon and eventually into the Pacific Ocean (NAVFAC, 2019).

3.6.2.4 Solid Waste Management

Solid waste from NBVC is conveyed by a private contractor to an approved landfill in Oxnard, California (NAVFAC, 2016a). NBVC has an established Qualified Recycling Program. NBVC’s Qualified Recycling Program promotes pollution prevention and elimination of waste with the goal of diverting from landfill disposal at least 50 percent of nonhazardous solid waste and at least 50 percent of construction and demolition materials and debris. The following items are recycled at NBVC and diverted from landfills: lead acid batteries (automotive), scrap metals (ferrous and nonferrous), plastics bottles types 1 and 2, cardboard, paper (color and mixed), paper shredded (white), office paper, aluminum cans, appliances, refrigerators, air conditioning units, stoves, water heaters, microwave ovens, toner cartridges, electrical wires, wood/plastic pallets, newspapers, small arms expended brass (.50 caliber or under), glass bottles, empty metals cans, office furniture or office furnishings. At NBVC, waste diversion from landfills totaled 4,023 tons in 2012 and 5,773 tons in 2013 (Naval Base Ventura County, No date).

Toland Landfill in Santa Paula and Simi Valley Landfill in Simi Valley are the two active landfills in Ventura County. Toland Landfill accepts municipal solid waste and has a remaining capacity of over 16 million cubic yards. Simi Valley Landfill accepts construction/demolition, industrial, mixed municipal, sludge (BioSolids) wastes and has a remaining capacity of over 82 million cubic yards (*CalRecycle*, 2019).

3.6.2.5 Energy

The NBVC Point Mugu electrical distribution system has a maximum capacity of 20 megawatts with 8 megawatts currently in use (Cooper, 2020). The on-site distribution system of natural gas is operated and maintained by the base.

3.6.3 Environmental Consequences

This section analyzes the magnitude of anticipated increases or decreases in public works infrastructure demands considering historic levels, existing management practices, and storage capacity, and evaluates potential impacts to public works infrastructure associated with implementation of the alternatives. Impacts are evaluated by whether they would result in the use of a substantial proportion of the remaining system capacity, reach or exceed the current capacity of the system, or require development of facilities and sources beyond those existing or currently planned.

3.6.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to the existing infrastructure of NBVC Point Mugu. Therefore, no significant impacts to infrastructure would occur with implementation of the No Action Alternative.

Infrastructure Potential Impacts:

- No Action: The Proposed Action would not be implemented and there would be no significant impacts to infrastructure.
- Proposed Action: No significant impacts to potable water, wastewater, stormwater, solid waste management, or energy.

3.6.3.2 Proposed Action

The study area is NBVC Point Mugu and the municipal systems that serve NBVC Point Mugu.

3.6.3.2.1 Potential Impacts

3.6.3.2.1.1 Potable Water

The Port Hueneme Water Agency maintains adequate water supply to meet the needs of its users, including NBVC Point Mugu. The base would plan for and assess infrastructure and utilities to ensure that the current system can adequately accommodate the specific water supply needs of each facility to be constructed under the Proposed Action. In general, there is excess capacity of infrastructure and all utilities at the base because the existing infrastructure and utilities were originally designed to support a larger population (U.S. Department of the Navy, 2013b). Based on anticipated water supply usage and projections identified in Port Hueneme Water Agency's Urban Water Management Plan (Port Hueneme Water Agency, 2016), there is adequate water supply. The on-site distribution system has an excess capacity of approximately 4 million gpd. Therefore, the existing potable water systems have sufficient capacities to support the Proposed Action, and the Proposed Action would have no adverse impacts on potable water.

3.6.3.2.1.2 Wastewater

Wastewater generation during operations would be increased over existing conditions because of the increase in facilities and personnel at NBVC Point Mugu. The Oxnard Wastewater Treatment Plant has a reserve capacity of approximately 1.2 million gpd. Therefore, the impacts to wastewater would not be significant because the existing infrastructure and treatment plants have sufficient capacity to accept the increased volumes anticipated from the Proposed Action.

3.6.3.2.1.3 Stormwater

P-025

The P-025 project footprint would increase impervious surfaces at NBVC Point Mugu by 35.6 acres (hangar, aprons, taxiway, antenna and control station, and access road). Projects with a footprint over 5,000 sq ft must maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property. The Proposed Action's stormwater design objective is to maintain the predevelopment hydrology and prevent any net increase in stormwater runoff (NAVFAC, 2020).

The project would continue to utilize overland flow methods to the extent practical and grading would be performed to support positive drainage for the new hangar and support buildings (NAVFAC, 2020).

Project stormwater management strategies proposed for the site include reducing impervious cover to the extent feasible through use of pervious concrete in parking stalls and pedestrian areas; disconnecting impervious areas by providing landscaped areas and by discharging roof drainage to grade; and by providing biofiltration swales in the open landscape areas to capture and filter stormwater in landside development areas (NAVFAC, 2020).

Bridge deck crossings would accommodate vehicular and pedestrian crossings over the Oxnard Drainage Ditch No. 2A, which is a jurisdictional wetland. The bridges would be designed as open metal grated deck bridges in order to minimize impervious surfaces and to avoid wetland impacts (NAVFAC, 2020).

Near the airfield, the project proposes enclosed drainage conveyance to a system of perforated or open-bottom subsurface detention chambers. Due to the nature of existing soils and potential shallow groundwater in the project area, infiltration itself is not expected to be a feasible stormwater management strategy; therefore, all infiltrative solutions would include a subdrain and/or overflow discharges to the existing wetland/ditches (NAVFAC, 2020).

At a minimum, any new drainage infrastructure would be sized for the 10-year (10 percent chance of recurrence), 24-hour storm event flow. Low impact design technologies would be sized for the 95th percentile rainfall (used to calculate volume where volume methods are utilized). Detention would be sized for the 100-year storm event per Ventura County stormwater management requirements. Calculations would take into account groundwater and tidal waters (NAVFAC, 2020). With the implementation of stormwater management controls, impacts from P-025 would not be significant.

P-026 and Building PM385 Addition

P-026 would increase impervious surfaces at NBVC Point Mugu by 0.6 acres and would continue to utilize current overland flow methods to the extent practical. Grading would occur to support positive drainage for the new building. The Building PM385 addition site is currently paved and the project would not increase impervious surface. Project stormwater management strategies include reducing impervious cover to the extent feasible through use of pervious concrete in parking stalls and pedestrian areas, disconnecting impervious areas by providing landscaped areas and by discharging roof drainage to grade, and by providing biofiltration swales in the open landscape areas to capture and filter stormwater. Due to the nature of existing soils and potential shallow groundwater in the proposed project area, infiltration itself is not expected to be a feasible stormwater management strategy; therefore, all infiltrative solutions would include a subdrain. Any new drainage infrastructure would be sized for the 10-year (10 percent annual chance of recurrence), 24-hour storm event flow (NAVFAC, 2019). With the implementation of stormwater management controls, impacts of P-026 and the Building PM385 addition would not be significant.

3.6.3.2.1.4 Solid Waste Management

Short-term, minor, increases in solid waste generation would be expected from construction activities. The primary solid wastes generated during construction would consist mainly of scrap building materials such as concrete, metals (conduit, piping, and wiring), and lumber, as well as excess soil. Contractors would be required to recycle demolition and renovation debris to the greatest extent possible, thereby diverting it from landfills. All clean, excess soils generated would be reused to the greatest extent possible for grading and contouring.

Solid waste generation during operations would be increased over existing conditions because of the increase in facilities and personnel at NBVC Point Mugu. However, the amount of municipal solid waste generated would be minimized through the required recycling efforts per Navy Instruction. Disposing of solid waste at area landfills would not be a significant impact because the landfills have sufficient capacity to accept operational wastes and because the waste flow resulting from the Proposed Action would be minimized through mandatory recycling practices.

Therefore, no significant impacts to solid waste management would be expected from the Proposed Action.

3.6.3.2.1.5 Energy

The Proposed Action would not have a significant impact on energy resources because the existing electric and natural gas systems have sufficient capacity to support the Proposed Action. Therefore, implementation of the Proposed Action would not result in significant impacts to energy.

Based on the analysis of infrastructure presented above, implementation of the Proposed Action would not result in significant impacts to infrastructure.

3.7 Transportation

Traffic is commonly measured through average daily traffic and design capacity. These two measures are used to assign a roadway with a corresponding level of service (LOS). The LOS designation is a professional industry standard used to describe the operating conditions of a roadway segment or intersection. The LOS is defined on a scale of A to F that describes the range of operating conditions on a particular type of roadway facility. LOS A through LOS B indicates free flow travel. LOS C indicates stable traffic flow. LOS D indicates the beginning of traffic congestion. LOS E indicates the nearing of traffic breakdown conditions. LOS F indicates stop-and-go traffic conditions and represents unacceptable congestion and delay.

3.7.1 Regulatory Setting

The California Department of Transportation manages state and federal highways, highway bridges, inter-city rail, public-use airports, and mass transportation. The Ventura County General Plan identifies goals, policies, and programs for accommodating traffic on roads, highways, transit and rail systems, and airports (Naval Base Ventura County, 2017).

3.7.2 Affected Environment

NBVC Point Mugu is located approximately 9 miles southeast of the City of Oxnard, California. The primary major roadway in the area is State Route 1 (Pacific Coast Highway) which passes north of NBVC Point Mugu and continues along the coast as the only state route through Malibu. State Route 1 is a

four-lane state highway that borders the northeastern boundary of NBVC Point Mugu and is the primary route used to access the base.

In addition to State Route 1, Ventura County roads used to access NBVC Point Mugu include Hueneme Road, Wood Road, and Las Posas Road (see Figure 1.3-2). These roads have direct access to a frontage road that runs along State Route 1 to the NBVC Point Mugu gates. There are two active gates providing access to NBVC Point Mugu: North Mugu Road Gate and Las Posas Road Gate. A third Gate at Main Road is closed. The NBVC Point Mugu Installation Development Plan discusses potential future traffic circulation improvements, such as opening and upgrading an access gate at Wood Road, along with internal roadway capacity upgrades (Naval Base Ventura County, 2017).

Over the past decade, NBVC Point Mugu has experienced a drawdown in base personnel and operations. Subsequently, there is excess capacity for transportation and vehicles at the base, because the existing transportation system was originally designed to support a larger population (U.S. Department of the Navy, 2013c). Varying work schedules, deployment schedules, ridesharing, and other traffic management initiatives are employed at NBVC Point Mugu and further reduce traffic. The base population in 2017 was approximately 4,000 military and civilian personnel (Naval Base Ventura County, 2017). The average number of commuters is approximately 640 (Naval Base Ventura County, 2018). At an average of two daily trips per commuter (one a.m. and one p.m.), the average daily traffic to NBVC Point Mugu is 1,280 trips.

Average annual daily traffic on State Route 1 in the vicinity of NBVC Point Mugu is 12,600 at Hueneme Road; 12,000 at Wood Road; and 9,300 at Las Posas Road (Caltrans, 2017). NBVC Point Mugu currently contributes between 10 and 14 percent of the daily trips in these areas. Hueneme Road has daily traffic of 11,200 near State Route 1; Wood Road has 1,700; and Las Posas Road has 6,800 (Ventura County, 2017). The Ventura County General Plan states that the existing regional roadway system in Ventura County functions at an acceptable LOS provided that development occurs as planned in the General Plan (Ventura County, 2019).

3.7.3 Environmental Consequences

Impacts to ground traffic and transportation are analyzed by considering the possible changes to existing traffic conditions and the capacity of area roadways from proposed increases in commuter and construction traffic.

3.7.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to transportation. Therefore, no significant impacts would occur with implementation of the No Action Alternative.

3.7.3.2 Proposed Action

The study area includes the access roads to the proposed facilities for the Proposed Action, including State Route 1 at the North Mugu Road Gate and Las Posas Road Gate. On-base roadway access to the North Airfield area from the North Mugu Road Gate is via 3rd Street, 9th

Transportation Potential Impacts:

- No Action: The Proposed Action would not be implemented and there would be no change to existing traffic.
- Proposed Action: Estimated additional 880 average daily vehicle trips on access roads. Increase of 7 percent of traffic on State Route 1 would not be significant.

Street, F Avenue, and 7th Street. Access to the proposed training facilities would be from the North Mugu Road Gate and 13th Street. Truck traffic would enter only at Las Posas Road Gate.

3.7.3.3 Potential Impacts

3.7.3.3.1 Construction Activities

During the construction period, there would be a short-term increase in trucks traveling to and from NBVC Point Mugu to deliver construction materials. It is estimated that there would be an average of 25 truck trips per workday (Monday through Friday) over a construction period of 24 months. There may be periods of increased truck trips followed by periods of decreased truck trips, depending on the work that is scheduled. Trucks would access the sites from State Route 1 and Las Posas Road entering the base at the Las Posas Road Gate.

There would also be construction workers traveling to the site. A portion of the construction workers would be expected to carpool; however, an average of approximately 360 construction worker vehicle trips (180 in the morning and 180 in the afternoon) could be added to the daily weekday commuter trips to and from NBVC Point Mugu over the 24 month construction period.

The additional truck and other construction vehicle traffic would be temporary and minor compared with existing daily vehicle trips on Ventura County and NBVC Point Mugu roadways, and the LOS would not be expected to change. Therefore, the temporary and minor increase in construction vehicles with implementation of the Proposed Action would not result in significant impacts to transportation.

3.7.3.3.1.2 Operational Activities

An additional 730 personnel would be added to the base population at NBVC Point Mugu under the Proposed Action. It is assumed that these personnel would commute to the base daily in personal vehicles. Preliminary project planning assumes that 60 percent of these personnel would commute in a personal vehicle on a typical day and require a parking space. This accounts for approximately 40 percent of personnel that would be expected to be deployed, on leave, temporary assigned duty, reporting to off-base locations, or using alternative transportation (e.g., bicycle, carpool). Therefore, the number of new daily commuters that would be expected to travel in personal vehicles to NBVC Point Mugu on an average day is estimated to be 440. The use of alternative transportation may increase in the future. The Gold Coast Transit District and Southern California Association of Governments are working on a First Mile Last Mile Connectivity Study for NBVC that plans future bus service to NBVC Point Mugu (Gold Coast Transit 2018).

Assuming two trips per day (one in the a.m. and one in the p.m.) for each of the 440 commuters, the estimated additional traffic on an average day resulting from the Proposed Action would be approximately 880 average daily trips. This additional traffic would represent an approximately 7 percent increase in the annual average daily traffic on State Route 1 (approximately 12,000 in 2017) traveling to the NBVC Point Mugu Gate. This small increase, along with the dispersed nature of routes to the gates, would not be expected to have a significant impact on roadway LOS. Therefore, implementation of the Proposed Action would not result in significant impacts to transportation.

3.8 Public Health and Safety

This discussion of public health and safety includes consideration for any activities, occurrences, or operations that have the potential to affect the safety, well-being, or health of members of the public. A

safe environment is one in which there is no, or optimally reduced, potential for death, serious bodily injury or illness, or property damage. The primary goal is to identify and prevent potential accidents or impacts on the general public. Public health and safety within this EA discusses information pertaining to construction activities, operations, and environmental health and safety risks to children.

Public health and safety during construction, demolition, and renovation activities is generally associated with construction traffic, as well as the safety of personnel within or adjacent to the construction zones.

Operational safety may refer to the actual use of the facility or built-out proposed project, or training or testing activities and potential risks to inhabitants or users of adjacent or nearby land and water parcels. Safety measures are often implemented through designated safety zones, warning areas, or other types of designations.

The AICUZ program, which is discussed in the Land Use section, delineates APZs, which are areas around an airfield where an aircraft mishap is most likely to happen. APZs are not predictors of accidents nor do they reflect accident probability. The DoD defines an APZ as a planning tool for local planning agencies. The APZs follow departure, arrival, and flight pattern tracks from an airfield and are based upon historical accident data.

The AICUZ program was established by the DoD to analyze operational training requirements and to address communities' concerns about aircraft noise and accident potential. The program goals are to protect the safety, welfare, and health of those who live and work near military airfields while preserving the military flying mission. The primary safety concern with regard to military training flights is the potential for aircraft mishaps to occur, which could be caused by mid-air collisions with other aircraft or objects, weather difficulties, mechanical failures, pilot error, or BASH strikes. There is no generally recognized threshold of air safety that defines acceptable or unacceptable conditions. Instead, the focus of airspace managers is to reduce risks through a number of measures. These include, but are not limited to, providing and disseminating information to airspace users, requiring appropriate levels of training for those using the airspace, setting appropriate standards for equipment performance and maintenance, defining rules governing the use of airspace, and assigning appropriate and well-defined responsibilities to the users and managers of the airspace. When these safety measures are implemented, risks are minimized, even though they can never be eliminated.

Environmental health and safety risks to children are defined as those that are attributable to products or substances a child is likely to come into contact with or ingest, such as air, food, water, soil, and products that children use or to which they are exposed.

3.8.1 Regulatory Setting

The FAA is responsible for ensuring safe and efficient use of federal airspace by military and civilian aircraft. To fulfill these requirements, the FAA has established safety regulations, airspace management guidelines, a civil/military common system, and cooperative activities with the DoD. While the chances of an accident are remote, the military also defines areas of accident potential for land use planning purposes.

Aircraft safety is based on the physical risks associated with aircraft flight. Military aircraft fly in accordance with Federal Aviation Regulations Part 91, *General Operating and Flight Rules*, which govern such things as operating near other aircraft, right-of-way rules, aircraft speed, and minimum safe

altitudes. These rules include the use of tactical training and maintenance test flight areas, arrival and departure routes, and airspace restrictions as appropriate to help control air operations. In addition, naval aviators must also adhere to the flight rules, Air Traffic Control, and safety procedures provided in Navy guidance.

Specific Navy requirements are outlined in OPNAVINST 3710.7, *NATOPS Program*, which provides processes and procedures that improve combat readiness and achieve a substantial reduction in the aircraft mishap rate thereby safeguarding people and resources. Additionally, the Naval Air Systems Command 00-80T-114, *NATOPS Air Traffic Control Manual*, provides Air Traffic Control services to aircraft using military-controlled airspace. Finally, the joint instruction OPNAVINST 11010.36C and Marine Corps Order 11010.16 provides guidance administering the AICUZ program, which recommends land uses that are compatible with noise levels, accident potential, and obstruction clearance criteria for military airfield operations.

EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, requires federal agencies to “make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children and shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.”

3.8.2 Affected Environment

3.8.2.1 Air Operations

The Navy places an extremely high priority on safety during training and operations. The Navy values the safety of its pilots and the surrounding communities. Navy pilots and air vehicle operators (AVOs) are well-trained, and their training includes extensive use of flight simulators and frequent practice in emergency procedures. In addition to training pilots and AVOs on flight safety procedures, the Navy works with communities adjacent to airfields to prevent development that would be incompatible with a military airfield. Additionally, highly trained maintenance crews perform routine inspections on each aircraft in accordance with Navy regulations, and maintenance activities are monitored by senior technicians to ensure the aircraft are equipped to withstand the rigors of training events safely.

Accident Potential Zones

The AICUZ program delineates clear zones and APZs, which are areas around an airfield where an aircraft mishap is most likely to occur, if they occur. APZs are not predictors of accidents. APZs align with departure, arrival, and pattern flight tracks, and are designed to minimize potential harm if a mishap were to occur by limiting activities in the designated APZs. There are three APZs: Clear Zone, APZ-I, and APZ-II. APZs are, in part, based on the number of operations conducted at the airfield—more specifically, the number of operations conducted for specific flight tracks. The runways at NBVC Point Mugu are Class B runways. The AICUZ Instruction defines the components of standard APZs for Class B runways as follows:

- The clear zone is immediately beyond the end of a runway and outward along the extended runway centerline for 3,000 feet fan-shaped in pattern ranging from 1,500 feet to 2,300 feet at its widest point.
- APZ-I is the rectangular area beyond the clear zone and is normally provided under flight paths that experience 5,000 or more annual operations. The zone is typically 3,000 feet wide by 5,000 feet long and may be curved to conform to the shape of flight paths.

- APZ-II is the area beyond APZ-I that has measurable potential for accidents. Normally they are provided under a flight path whenever an APZ-I is required, and the dimensions of APZ-II zones are usually 3,000 feet wide by 7,000 feet long (U.S. Department of the Navy, 2015).

APZ zones at NBVC Point Mugu are depicted in Figure 3.8-1. The Clear Zone is almost entirely contained within the base boundary. APZ-I and APZ-II extend approximately 12,000 feet off the base to the northeast (NAVFAC SW, 2015).

The Navy categorizes aircraft mishaps into three primary groups: Class A, B, or C. The classification system is based on the severity of injury to the individuals involved and the total property damage. The most severe is Class A, and the least severe is Class C (for reportable mishaps) (Naval Safety Center, 2019).

Between 2000 and 2015, six mishaps were reported at NBVC Point Mugu. Recorded mishaps include bird-strikes and structural or engine failures (NBVC Point Mugu, 2015). All of the aircraft were manned aircraft as unmanned aircraft are a relatively new platform at NBVC Point Mugu. Worldwide, only a small number of mishaps occur in hundreds of thousands of military aircraft operations each year. According to the last 30 years of data, the majority of the mishaps occurring within five miles of an airfield occur on the airfield itself or in the extended arrival and departure corridors close to the airfield.

NBVC Point Mugu maintains detailed emergency mishap response plans, which outline procedures for responding to an aircraft accident, should one occur. These plans also assign agency responsibilities and prescribe functional activities necessary for responding to mishaps, whether on- or off-base. The initial response focuses on evacuation, fire suppression, and ensuring security of the area, followed by a mishap investigation to determine the cause(s) and prevent future mishaps.

BASH

BASH is defined as the threat of aircraft collisions with birds and wildlife during aircraft operations. BASH constitutes a safety concern because of the potential for damage to aircraft, or injury to aircrews or local populations if an aircraft crash should occur in a populated area. Aircraft occasionally encounter birds at altitudes of 30,000 feet above ground level/mean sea level or higher. However, most birds fly close to the ground with over 97 percent of reported bird-strikes occurring below 3,000 feet above ground level. Approximately 30 percent of bird-strikes happen in the airport environment, and almost 55 percent of bird-strikes occur during low-altitude flight training (U.S. Air Force Safety Center (AFSC), 2010).

BASH is a safety concern at all airfields due to the frequency of aircraft operations and the possibility of encountering birds at virtually all altitudes. The Air Traffic Control and NBVC Environmental Division have primary responsibility for implementing accident-preventative measures at NBVC Point Mugu.

BASH incidents at NBVC Point Mugu, while unavoidable, are very low and pose little risk to public health and safety. From 2006 through 2018, a total of 433 BASH incidents (damaging and non-damaging) were reported at NBVC Point Mugu (Table 3.3-1). Of these, approximately 90 percent did not result in any damage to the aircraft. Strike numbers ranged between 27 and 48 per year with an average of approximately 33 strikes per year (NBVC Point Mugu, 2019d). NBVC Point Mugu supports approximately 40,000 annual airfield operations (U.S. Department of the Navy, 2015); therefore, approximately one BASH incident is reported per 1,200 airfield operations. (NBVC Point Mugu, 2019d).

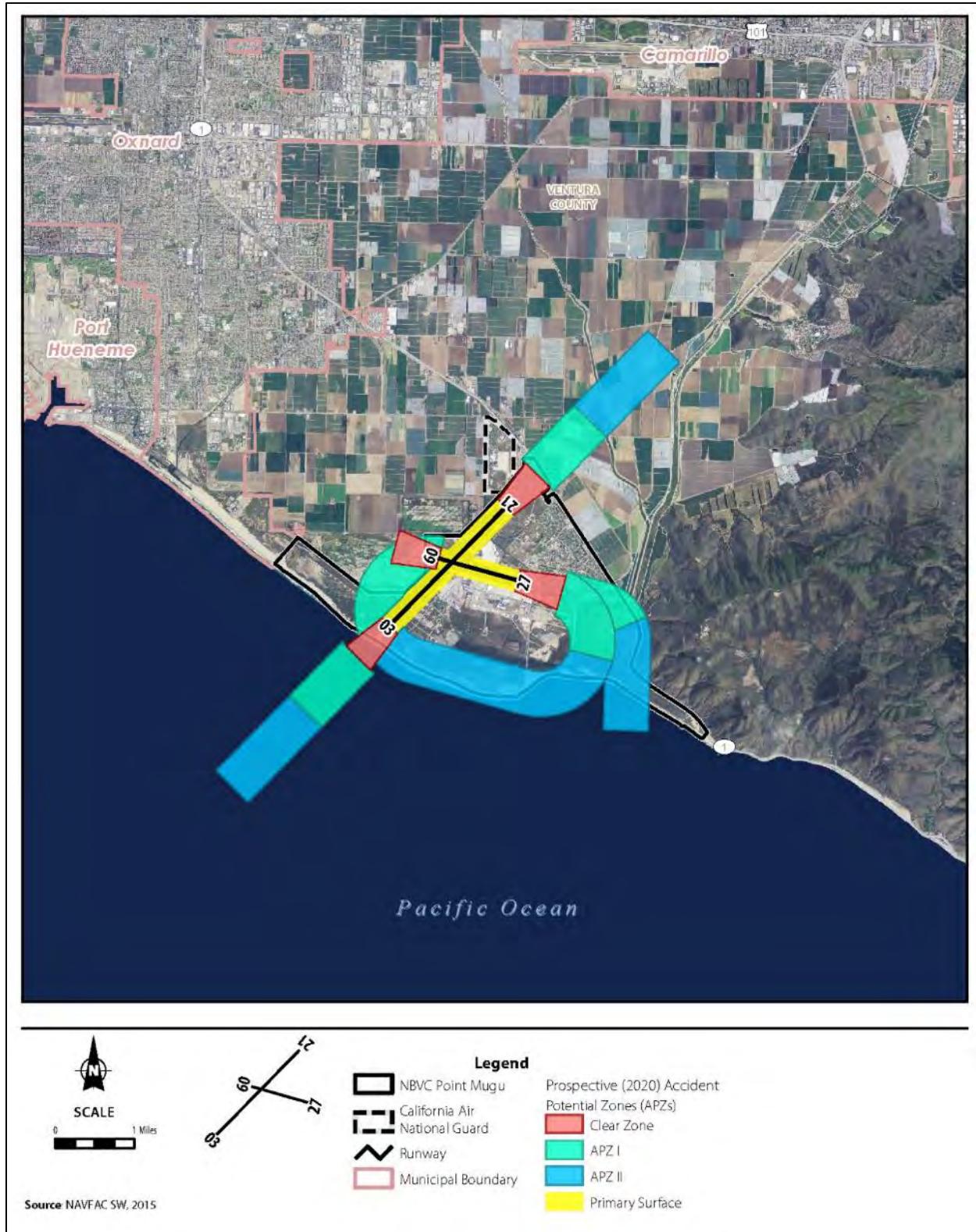


Figure 3.8-1. Accident Potential Zones at NBVC Point Mugu

NBVC Point Mugu maintains and implements a BASH Management Plan to reduce the potential for BASH at NBVC Point Mugu by creating an integrated bird control and bird hazard abatement program and by reducing wildlife presence in the airfield and attractiveness of habitat to wildlife (refer to Section 3.4.3.2 for additional BASH information). NBVC holds a depredation permit (MB-066946) to cover these activities. The base's BASH Management Plan establishes a Bird Hazard Working Group, which is responsible for collecting, compiling, and reviewing BASH data; identifying and recommending hazard-reducing activities; recommending operational changes when appropriate; preparing informational programs for aircrews; and serving as the point of contact for BASH issues.

3.8.2.2 Protection of Children

The proposed project area is located entirely within the boundaries of NBVC Point Mugu and is not readily accessible to children. No schools or day care centers are located near the proposed project areas. Children are present in military housing located along the eastern side of NBVC Point Mugu and the several residences located west of the base boundary adjacent to Runway 03/21 (Figure 3.3-2). According to the AICUZ, projected 2020 noise contours show on-base housing exposed to CNEL of 60 to 65 dB and the off-base residences exposed to 65 to 70 dB CNEL. Residences are located outside of the runway APZs and base security fencing.

3.8.3 Environmental Consequences

The safety and environmental health analysis contained in the respective sections addresses issues related to the health and well-being of and civilians living on or in the vicinity of NBVC Point Mugu. Specifically, this section provides information on hazards associated with construction of Stingray CBUAS support facilities and operation of the Stingray CBUAS. Additionally, this section addresses the environmental health and safety risks to children.

3.8.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to public health and safety. Therefore, no significant impacts would occur with implementation of the No Action Alternative.

3.8.3.2 Proposed Action

The study area for Public Health and Safety includes the limits of the proposed project area and the proposed flight pathways of the Stingray CBUAS.

3.8.3.2.1 Potential Impacts

The implementation of the Proposed Action would not result in significant impacts to public health and safety.

Public Health and Safety Potential Impacts:

- No Action: The Proposed Action would not be implemented and there would be no impacts to public health and safety.
- Proposed Action: No significant impacts to public health and safety would occur. There would be no measurable changes to mishap risk at the airfield. The 2.4 percent increase in aircraft operations would not necessitate changes to existing APZ boundaries. Implementation of existing BASH avoidance procedures would minimize BASH risks to negligible levels.

3.8.3.2.1.1 Construction Activity

There would be negligible impacts on public health and safety associated with the Proposed Action. Construction activities would be conducted in accordance with established Navy policies for ensuring the health and safety of the general public. Construction would take place entirely within the secured perimeter of NBVC Point Mugu, and construction areas would not be accessible by non-construction personnel or the public.

A well-defined work area and exclusion zone around the project area would be implemented during project construction. The work area is defined as the immediate area where work is occurring and where equipment and materials are staged, and the exclusion zone extends beyond the work area to prevent outside traffic from interfering with operations and any material from exiting the area, and to protect outside personnel not affiliated with the project.

A project-specific Health and Safety Plan would be prepared prior to the start of construction. The plan would identify the chain of command, assign roles and responsibilities, describe potential hazards and measures to minimize or avoid them, prescribe the appropriate level of personal protective equipment for each hazard, and identify emergency response procedures and hospital locations. The designated Site Safety and Health Officer (SSHO) would conduct daily safety briefings, monitor site health and safety, and determine whether site conditions require any changes to the Health and Safety Plan. Any observed health and safety related issues, such as a non-compliance or conformance occurrence or incident, would be documented by the SSHO and corrected. The SSHO would be responsible for ensuring that corrective measures have been implemented, appropriate authorities have been notified, and follow-up reports have been completed. The SSHO would also carry emergency equipment, such as a fire extinguisher and first aid kit, in his/her vehicle.

3.8.3.2.1.2 Operational Activity

There is no generally recognized threshold of air safety that defines acceptable or unacceptable conditions. The focus of airspace managers is to reduce safety risks through a number of measures, including providing and disseminating information to airspace users, requiring appropriate levels of training for those using the airspace, setting appropriate standards for equipment performance and maintenance, defining rules governing the use of airspace, and assigning appropriate and well-defined responsibilities to airspace managers and users. When these measures are implemented, safety risks are minimized, even though they cannot be completely eliminated.

The flight operations for the Stingray CBUAS would be conducted in existing controlled airspace at NBVC Point Mugu and in adjacent Class D and Class E airspace (refer to Section 3.5 and Figure 3.5-1). The size and shape of the APZs would not be affected by Stingray CBUAS operations because the existing flight paths at Runway 03/21 would be used. Therefore, there would be no change in the existing APZs. The proposed flight paths for the Stingray CBUAS are within existing regulated airspace and pass entirely over undeveloped or agricultural areas, minimizing the population at risk from mishaps (Figure 3.8-1). To further minimize the potential for mishaps, Stingray CBUAS AVOs receive extensive training prior to controlling actual aircraft flights. This includes extensive practice of emergency procedures to minimize the potential for mishaps. The Stingray CBUAS is also designed with multiple, redundant safety systems to minimize the risk of mishaps. Therefore, only negligible increases to mishaps would be introduced that would expose the public to safety risks under the Proposed Action.

UAS operations conducted in the National Airspace System require an approved COA issued from the FAA. The COA applications are submitted to the FAA through a web-based system. Once received, the FAA conducts a comprehensive operational and technical evaluation to determine if the UAS could safely operate with other airspace users. Under a COA, UAS operations can be conducted within a defined block of national airspace (typically SUA), usually with site specific provisions or limitations (e.g., requirements to fly only under Visual Flight Rules and/or only during daylight hours) and under the guidance of Air Traffic Control (U.S. Department of the Navy, 2017a).

Stingray CBUAS flight operations would be conducted in accordance with FAA regulations and directives, specific operating manuals, and DoD Flight Information Publications. All emergencies or malfunctions associated with the flight operations would be handled in accordance with established aircraft-specific procedures. In addition, existing standard operation procedures at NBVC Point Mugu would be employed to ensure appropriate airspace management by all participating aircraft, which would reduce the potential for mid-air collisions. Existing emergency response plans would be updated as necessary to account for any requirements of the Stingray CBUAS.

Stingray CBUAS flight operations would be subject to BASH threats. NBVC Point Mugu maintains a BASH Management Plan to reduce the potential for collisions between aircraft and birds or other animals (refer to Sections 3.4.3.2.1.2 and 3.8.2.1). Stingray CBUAS flight operations would increase the total annual airfield operations at NBVC Point Mugu by only 2.4 percent or 960 annual operations, and is not expected to result in additional strikes. No aspect of the Proposed Action would create attractants with the potential to increase the concentration of birds in the vicinity of the airfield. NBVC Point Mugu would continue to manage BASH in accordance with the base's BASH Management Plan and is expected to receive special project funding to reduce ponding in and around the runway environment further reducing BASH incidents. Therefore, no significant impact on safety from BASH would be expected.

The new hangar would be equipped with a foam fire suppression system and would use only fluorine-free fire-fighting agent. A waste tank would be installed to capture and contain any fire suppression system discharge. The tank would be placed adjacent to the hangar building in a location which allows convenient access by service contractors dispatched to evacuate the tank in the event of discharge. The waste tank would not connect to the project's sewer main. A diversion valve would be provided on the discharge from the trench drains that would close the connection in the event of a fire suppression system discharge. Therefore, there would be no impacts to public health and safety from fire suppression wastes.

3.8.3.2.1.3 Protection of Children

Construction noise associated with implementation of the Proposed Action would be temporary and intermittent and, to the extent practical, would be performed during daytime hours. No construction would occur near any schools, daycare centers, or other areas where children congregate. The military housing area located approximately 200 feet east from the proposed P-025 project area would be exposed to periods of increased noise ranging from Lmax of 58 to 83 dB during construction. These levels may be noticeable and could potentially interfere with speech and cause annoyance. Noise levels inside the nearby residences would be attenuated by approximately 15 dB by the structure of the houses themselves, depending on the housing construction (USEPA, 1974). Moreover, the military housing is located near the departure end of Runway 03/21 and already experiences elevated noise levels due to aircraft departures. The housing area is currently exposed to 60 to 65 dB CNEL, which is indicative of an area currently exposed to increased noise, so the additional construction noise would not be significantly more intense within that context. Impacts to residences located approximately 1,600

feet west of Runway 03/21 would be less due to the increased distance from the construction site and the existing noise generated by departures on Runway 03/21, which sits between the project and construction site. Therefore, noise levels from proposed construction would not be expected to cause significant changes to the existing noise conditions.

Operationally, flight paths would not overpass residential areas or areas where children are known to congregate such as schools and day care centers and would use established flight paths. Potential increases in noise from Stingray CBUAS operations (2.4 percent increase) are expected to be 0.1 dB CNEL or less. Noise contours modeled for the airfield would not change (refer to Section 3.3.7). The increase in operations would be within the typical fluctuations in aircraft operations at military airfields from one year to the next.

The use of fencing and barricades would prevent unauthorized persons from entering the base and the proposed project area during construction and operations. Construction and operations would be managed to ensure all hazardous materials and equipment are stored safely at all times.

Therefore, The Navy has determined that there are no environmental health and safety risks associated with the Proposed Action that would disproportionately affect children.

3.9 Hazardous Materials and Wastes

This section discusses hazardous materials, hazardous waste, toxic substances, and contaminated sites.

3.9.1 Regulatory Setting

Hazardous materials are defined by 49 CFR section 171.8 as “hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table, and materials that meet the defining criteria for hazard classes and divisions in 49 CFR part 173.” Transportation of hazardous materials is regulated by the U.S. Department of Transportation regulations.

Hazardous wastes are defined by the Resource Conservation and Recovery Act, as amended by the Hazardous and Solid Waste Amendments, as: “a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.” Certain types of hazardous wastes are subject to special management provisions intended to ease the management burden and facilitate the recycling of such materials. These are called universal wastes and their associated regulatory requirements are specified in 40 CFR part 273. Four types of waste are currently covered under the universal wastes regulations: hazardous waste batteries, hazardous waste pesticides that are either recalled or collected in waste pesticide collection programs, hazardous waste thermostats, and hazardous waste lamps, such as fluorescent light bulbs.

Special hazards are those substances that might pose a risk to human health and are addressed separately from other hazardous substances. Special hazards include ACM, polychlorinated biphenyls (PCBs), and lead-based paint (LBP). USEPA is given authority to regulate special hazard substances by the Toxic Substances Control Act. Asbestos is also regulated by USEPA under the CAA, and the Comprehensive Environmental Response, Compensation, and Liability Act.

The DoD established the Defense Environmental Restoration Program (DERP) to facilitate thorough investigation and cleanup of contaminated sites on military installations (active installations, installations subject to Base Realignment and Closure, and formerly used defense sites). The Installation Restoration Program and the Military Munitions Response Program are components of the DERP. The Installation Restoration Program requires each DoD installation to identify, investigate, and clean up hazardous waste disposal or release sites. The Military Munitions Response Program addresses nonoperational rangelands that are suspected or known to contain unexploded ordnance, discarded military munitions, or munitions constituent contamination. The Environmental Restoration Program is the Navy's initiative to address DERP.

3.9.2 Affected Environment

3.9.2.1 Hazardous Materials

A variety of hazardous materials are used at NBVC Point Mugu, including petroleum, oils, and lubricants; solvents and thinners; caustic cleaning compounds and surfactants; cooling fluids (e.g., antifreeze); adhesives; acids and corrosives; paints; herbicides; pesticides; and fungicides (U.S. Department of the Navy, 2013d).

The Navy has implemented a Hazardous Material Control and Management Program and Hazardous Waste Minimization Program for all of its facilities, including NBVC Point Mugu. These programs are governed by OPNAV M-5090.1. The Navy continuously monitors its operations to find ways to minimize the use of hazardous materials and to reduce the generation of hazardous wastes. Nonhazardous materials are substituted for hazardous materials whenever practicable, processes are changed to ones that do not employ hazardous materials, and care is taken to avoid contaminating nonhazardous materials with hazardous materials.

DoD Instruction 4150.07 (December 26, 2019) provides guidance for the DoD Pest Management Program for control of weeds, rodents, ants, and other organisms that could negatively affect ecosystems. NBVC conducts pest management activities in accordance with protocols detailed in the NBVC Integrated Pest Management Plan (NAVFAC SW, 2011). DoD policy is to establish and maintain safe, effective, and environmentally integrated pest management programs to prevent or control pests and disease vectors that could adversely impact readiness or military operations by affecting the health of personnel or damaging structures, material, or property.

NBVC Point Mugu revises its Integrated Pest Management Plan about every 5 years; the most recent revision was completed in 2011 (NAVFAC SW, 2011). NBVC Point Mugu currently implements an Integrated Pest Management Program to maintain consistency with DoD Instruction 4150.07.

3.9.2.2 Hazardous Waste

NBVC Point Mugu is classified as a large-quantity generator of hazardous waste (USEPA ID CA8170090601/CAL000072247). Under the Resource Conservation and Recovery Act, a large-quantity generator generates more than 2,200 pounds of hazardous waste, or more than 2.2 pounds of acutely hazardous waste, per month (U.S. Department of the Navy, 2013d). Activities at NBVC that generate hazardous waste include painting, solvent cleaning and degreasing, mechanical and chemical paint and rust removal, fluids change-out, electroplating, metal casting, machining, and welding or soldering. According to the USEPA, NBVC Point Mugu generated and shipped 47.7 tons of hazardous waste in 2017 (USEPA, 2020c).

The Hazardous Waste Management Plan for NBVC Point Mugu outlines procedures for the accumulation, collection, transportation, and disposal of hazardous wastes. Under the Hazardous Waste Management Plan, hazardous waste is collected, transported, and disposed of by hazardous waste service contractors (U.S. Department of the Navy, 2013b).

3.9.2.3 Special Hazards (Asbestos-Containing Materials, Lead-Based Paint, Polychlorinated Biphenyls)

ACMs and LBP have been documented in some buildings and infrastructure on the base (U.S. Department of the Navy, 2013d). Currently, there are no buildings or structures in the proposed project areas for P-025, Building PM385, and P-026. Transite (ACM) piping is believed to be present beneath the P-025 project area.

3.9.2.4 Defense Environmental Restoration Program

Environmental contamination sites at NBVC Point Mugu are investigated under the Environmental Restoration Program (ERP). Thirty-six sites identified at NBVC Point Mugu have known contamination or potential contamination. Of these 36 sites, 17 are undergoing further investigation and 19 are either closed with no further action required or are undergoing remediation (U.S. Department of the Navy, 2013b). Active ERP sites are identified on Figure 3.9-1. The ERP sites at NBVC Point Mugu consist of former industrial waste treatment waste areas, landfill or disposal areas, improper storage or maintenance areas, contaminated soil or sediment areas, underground storage tanks, aboveground storage tanks, and a former fire training area.

P-025

The proposed project site is located adjacent to drainage ditches that are hydrologically connected to and included as part of ERP Site 11 (Figure 3.9-1). These ditches, Oxnard Drainage Ditch Nos. 2A and 2B, receive runoff from the airfield and adjacent agricultural areas where it is conveyed to the southeast to Oxnard Drainage Ditch No. 2. Contaminants of concern (COC) for these ditches are DDT, DDE, DDD, PCBs, and metals (ChaduxTt, 2010). Given the proximity of the project area to the runway, per- and polyfluoroalkyl substances (PFAS) may also be a COC (refer to Section 3.9.2.5).

ERP Site 11 covers more than 1,300 acres and includes the Mugu Lagoon, salt marshes, mudflats, tidal creeks, and numerous drainage ditches at NBVC Point Mugu (U.S. Department of the Navy, 2013d). It is a receiving body for contaminated materials, not a source of contaminated materials and is subject to Land Use Controls (LUCs) prohibiting fish and shellfish collection and restrictions on recreational uses such as boating, swimming, or diving to prevent activities that could disturb or re-suspend contaminated sediments (CH2M Hill-Klienfelder, Joint Venture, 2016). Sediments within ERP Site 11 contain contaminants from nonpoint source pollution draining into Mugu Lagoon from outside the base; stormwater runoff conveyed to the lagoon through irrigation ditches that drain surrounding off-base property; and runoff from other previous ERP sites on base. The Navy has actively investigated and remediated all on-site sources of contamination into Mugu Lagoon. Additionally, the Navy is implementing a TMDL Plan in compliance with the Los Angeles Regional Water Quality Control Board's TMDL Program at the Calleguas Creek Watershed. The TMDL Plan tracks contaminants coming into the lagoon from offsite sources and is being implemented to decrease or prevent upstream contaminants from entering the lagoon system.

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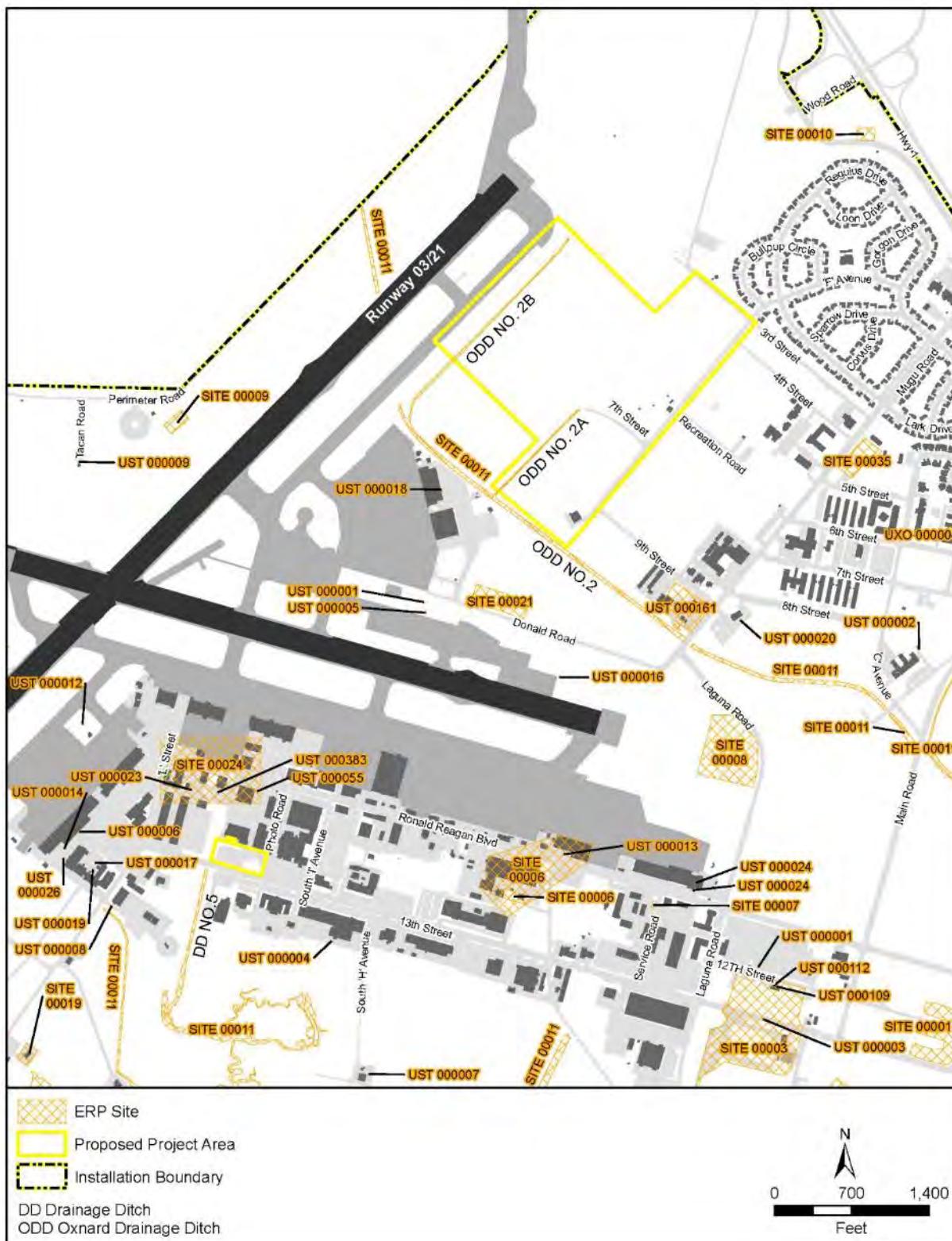


Figure 3.9-1. ERP Sites near Proposed Project Areas

P-026 and Building PM385

This proposed project site is located adjacent to Drainage Ditch No. 5 (Figure 3.9-1) (ChaduxTt, 2010) that is hydrologically connected to and included as part of ERP Site 11 and approximately 300 feet south and downgradient from ERP Site 24: Former Underground Storage Tank (UST) Sites 23 and 55.

ERP Site 11 is as described for P-025 except it drains directly into Mugu Lagoon. Due to the proximity of Drainage Ditch No. 5 to ERP Site 24, in addition to the COCs listed under P-025, COCs in Drainage Ditch No. 5 could also include VOCs and semi-volatile organic compounds like those found at found at ERP Site 24.ERP Site 24 is comprised of 2 UST sites: UST Site 23 and UST Site 55. Former UST Site 23 was a concrete vault used as an oil-water separator, and former UST Site 55 was a single 500-gallon steel UST used to store waste etching solution and washing fluids from circuit board etching and cleaning solutions in Building 352 (NAVFAC SW, 2009). The USTs were removed at both locations in 1989. The Record of Decision for multiple sites and NBVC Point Mugu, including ERP Site 24 was signed by the Navy in September 2008.The selected remedy for the Site included a combination of enhanced in-situ bioremediation, natural attenuation, LUCs, and groundwater monitoring. The LUCs prohibit the construction of hospitals, schools, or residences on the site and prohibit the use of groundwater for drinking. Remedial actions for the site are currently ongoing (Sanberg-Onieda Total Integrated Enterprises, Joint Venture, 2018).

3.9.2.5 Emerging Contaminants

The USEPA has classified PFAS as unregulated or "emerging" contaminant, which is not subject to Safe Drinking Water Act regulatory standards or routine water quality testing requirements. The USEPA is currently studying PFAS to determine whether regulation is needed (USEPA, 2020d).

PFAS is a suite of chemicals of emerging public health concern, primarily in drinking water systems. In some cases, Navy activities have resulted in the release of PFAS, which have contaminated drinking water sources. The primary Navy release of PFAS was through the use of Aqueous Film-Forming Foam (AFFF) for fire and emergency responses and during test and training activities (U.S. Department of the Navy, 2016a).

Due to USEPA's release of lifetime health advisory levels for Polyfluoroalkyl Substances (lifetime health advisory level of 70 parts per trillion) the Navy voluntarily tested drinking water wells near locations of previous AFFF usage. Of the seven wells off-base wells tested, none contained PFAS above the USEPA Lifetime Health Advisory levels (Brown, 2019).

Within NBVC Point Mugu, three areas have been identified as having the potential to be contaminated with PFAS. These areas are: Old 6 Area Shops, (ERP Site 5), Main Base Fire Training Area (ERP Site 9), and Crash Crew Oil Disposal Site (ERP Site 21) (U.S. Department of the Navy, 2016a). The Navy is conducting base-wide assessments to identify all potential PFAS release sites and would prioritize future site investigations and remediation based on potential risk to drinking water sources. The Navy has sampled all on-base drinking water systems in compliance with the USEPA Unregulated Contaminant Monitoring Rule requirements and DoD policies. All bases where testing has been conducted are currently receiving safe drinking water (Assistant Secretary of the Navy, 2020). Where DoD is the water purveyor, systems will be retested for PFAS by the end of 2020 based on recent DoD policy.

The Navy is identifying all PFAS containing AFFF for removal and destruction. The Navy is testing current AFFF (most of which were developed to comply with the USEPA 2010/2015 Perfluorooctanoic acid

Stewardship Program) to confirm chemical formulations, with the goal of identifying suitable replacements for existing stocks (Assistant Secretary of the Navy, 2020). The Navy intends to remove, dispose, and replace legacy AFFF that contains PFAS once environmentally suitable substitutes are identified and certified to meet military specifications (U.S. Department of the Navy, 2016b).

3.9.3 Environmental Consequences

The hazardous materials and wastes analysis contained in the respective sections addresses issues related to the use and management of hazardous materials and wastes as well as the presence and management of specific cleanup sites at NBVC Point Mugu.

3.9.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change associated with hazardous materials and wastes. Therefore, no significant impacts would occur with implementation of the No Action Alternative.

3.9.3.2 Proposed Action

The study area for hazardous materials and wastes is NBVC Point Mugu.

3.9.3.2.1 Potential Impacts

3.9.3.2.1.1 Hazardous Materials

Construction activities associated the Proposed Action require the use of hazardous materials that would cease when construction is complete. These materials would be largely consumed resulting in little waste generation. Hazardous materials used during construction would be used in accordance with applicable regulations as well as the Navy's Consolidated Hazardous Material Reutilization and Inventory Management Program. The operation and maintenance of Stingray CBUAS would require the use of quantities and types of hazardous materials typical of those already in use at NBVC Point Mugu. The quantity of products containing hazardous materials used to support Stingray CBUAS flight operations and maintenance activities is estimated to be less than 15,000 pounds annually (Beck, 2020). Human health, welfare, and the environment would be protected through the use of proven and effective BMPs and standard operation procedures to prevent, contain, and/or clean up spills and leaks; by providing personnel training and operational protocol and procedures; and ensuring NBVC Point Mugu's ability to properly arrange for and coordinate the disposal of anticipated hazardous materials.

Hazardous Materials and Wastes Potential Impacts:

- No Action: The Proposed Action would not be implemented and there would be no change to hazardous materials and wastes.
- Proposed Action: No significant impacts related to hazardous materials and waste would occur. Minor short- and long-term increases in hazardous material use and hazardous waste generation from construction and operations that would not exceed current management and disposal capacities.
- Potential impacts on ERP Site 11 from the construction of bridges and culverts over Oxnard Drainage Ditch Nos. 2A and 2B would be avoided or performed in accordance with applicable federal regulations and Navy instructions.

Compliance with federal regulations and Navy instructions would minimize the use of hazardous materials during construction and operations and ensure appropriate risk minimization measures are implemented; staff are properly trained; and record keeping requirements are met. Therefore, no significant impacts from hazardous materials would be expected from the Proposed Action.

3.9.3.2.1.2 Hazardous Wastes

The quantity of hazardous wastes generated from construction and maintenance activities would be minor and would not be expected to exceed the capacities of existing hazardous waste disposal facilities. All hazardous materials and wastes would be managed in accordance with federal regulations and the base's Hazardous Materials Management Plan and Hazardous Wastes Management Plan. Therefore, increases in hazardous waste generation resulting from the Proposed Action would have no significant impacts.

3.9.3.2.1.3 Special Hazards (Asbestos-Containing Materials, Lead-Based Paint, Polychlorinated Biphenyls)

Construction and Operational Activities

Transite (ACM) and asbestos concrete piping would be removed from the P-025 proposed project area by properly trained and licensed contractors to ensure compliance with applicable hazardous waste testing, handling, and disposal procedures and requirements. Adherence to the applicable regulations would ensure that the material is disposed of properly to protect human health and the environment.

3.9.3.2.1.4 Defense Environmental Restoration Program

Construction and operation of the Stingray CBUAS could impact on DERP Sites. The proposed project areas are located adjacent to ERP Site 11 and downgradient of ERP Site 24. Construction activities would avoid disturbing these sites to the extent practicable.

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P-025 could have direct impacts on ERP Site 11 from the construction of bridges and culverts over Oxnard Drainage Ditch Nos. 2A and 2B. Two taxiways would be constructed over Oxnard Drainage Ditch No. 2B and three new grated bridges are proposed across Oxnard Drainage Ditch No. 2A. The drainage ditches are part of ERP Site 11 and could contain contaminated sediment. Construction would avoid disturbing the drainage ditches to the extent practicable; however, there could be unavoidable impacts resulting from the installation of culverts and bridge abutments. If the disturbance of the ditches cannot be avoided, activities would be coordinated with USEPA; the Ventura County Resource Management Agency, the California Regional Water Quality Control Board, and the NBVC remedial project manager to ensure all work is performed in accordance with applicable federal regulations and Navy instructions and the specific requirements of the LUCs for the ERP site. Surface water, sediments and soils would be tested to ensure that contaminated materials, if present, are segregated and managed and disposed of in accordance with applicable regulations and instructions. Compliance with institutional controls and coordination with regulatory agencies for site disturbing activities would ensure that no significant adverse impacts occur to base ERP sites.

P-026 and Building PM385

P-026 and the addition to Building PM385 would have no direct impacts on ERP sites. ERP sites would be avoided by construction activities. It is not anticipated that contaminated groundwater associated with ERP Site 24 would be encountered during construction. Elevated concentrations of vinyl chloride

contamination in the groundwater at ERP Site 24 could present potential risks to human health from exposure through vapor intrusion. Currently, vinyl chloride concentrations in upgradient areas is within the acceptable range for industrial activities, in which exposure would not result in unacceptable impacts on human health. The continued bioremediation and implementation of LUCs at ERP Site 24 ensures that conditions at P-026 and Building PM385 are protective to human health and the environment. NBVC Point Mugu has established measures and programs for the management of renovation activities to ensure they are conducted in compliance with applicable environmental laws and regulations and Navy instructions. No significant impacts to ERP sites are anticipated under P-026 and Building PM385.

3.9.3.2.1.5 Emerging Contaminants

Construction and operation of the Stingray CBUAS would have no impacts on emerging contaminants. As described in Section 3.8.3.2.1, a waste tank would be installed to capture and contain any fire protection system discharges.

Therefore, implementation of the Proposed Action would not result in significant impacts with hazardous materials and wastes.

3.10 Socioeconomics

This section discusses population, employment and income, schools, housing, economic activity, tax revenue and related data providing key insights into the socioeconomic conditions that might be affected by a proposed action.

3.10.1 Regulatory Setting

Socioeconomic data shown in this section are presented at the city, county, and state, levels to characterize baseline socioeconomic conditions in the context of local, regional, and state trends. Ventura County shares the same geographical boundary with the Oxnard-Thousand Oaks-Ventura U.S. Census Bureau Metropolitan Statistical Area. A Metropolitan Statistical Area is a geographic entity defined for use by federal statistical agencies based on the concept of a core urban area with a high degree of economic and social integration with surrounding communities. Data have been collected from previously published documents issued by federal, state, and local agencies and from state and national databases (e.g., U.S. Census Bureau and U.S. Bureau of Economic Analysis).

3.10.2 Affected Environment

3.10.2.1 Population

According to the U.S. Census Bureau, the total population for Ventura County in 2019 was 846,006, of which Port Hueneme, Camarillo, and Oxnard comprised 2.6 percent, 8.3 percent, and 24.7 percent, respectively (U.S. Census Bureau, 2020). Table 3.10-1 shows that Port Hueneme, Camarillo, Oxnard, Ventura County, and the State of California have all experienced population gains from 2010 to 2019 (U.S. Census Bureau, 2020).

Table 3.10-1. Population for Port Hueneme, Camarillo, Oxnard, Ventura County, and California 2010-2019

Year	Port Hueneme	Camarillo	Oxnard	Ventura County	California
2010	21,723	65,201	197,899	823,318	37,253,956
2019	21,926	69,888	208,881	846,006	39,512,223
Percent Change	0.9%	7.2%	5.5%	2.8%	6.1%

Source: (U.S. Census Bureau, 2020).

3.10.2.2 Employment and Income Characteristics

According to the U.S. Bureau of Labor Statistics, there were 422,108 people in the work force in Ventura County, with 20,027 unemployed individuals, resulting in an unemployment rate of 4.7 percent for March of 2020 (U.S. Bureau of Labor Statistics, 2020a) (see Table 3.10-2). At the time this report was written many businesses were closed due to the coronavirus pandemic response. Businesses began to shut down in the middle of March. Unemployment data for April of 2020 were still preliminary, however, data for February, March, and April unemployment are all included in Table 3.10-2 because this time period shows a dramatic increase in the numbers of unemployed workers.

Table 3.10-2. Employment Figures: Ventura County and California

Area	Civilian Labor Force (March 2020)	Employed (March 2020)	Unemployed (March 2020)	Unemployment Rate (February 2020)	Unemployment Rate (March 2020)	Unemployment Rate (April 2020 ¹)
Ventura County	422,108	402,081	20,027	3.7%	4.7%	14.0%
California	19,167,967	18,115,804	1,052,163	3.9%	5.5%	15.5%

Source: (U.S. Bureau of Labor Statistics, 2020a) (U.S. Bureau of Labor Statistics, 2020b).

¹Unemployment data for April of 2020 was preliminary at the time this report was drafted.

Table 3.10-3 shows civilian employment by industry in California, Ventura County, Port Hueneme, Camarillo, and Oxnard. The education services, health care, and social assistance sector was the dominant civilian employment industry in Ventura County at 19.6 percent, while the professional, scientific, management, and administrative and waste management services sector accounted for 11.9 percent of employment (U.S. Census Bureau, 2018a). According to 5-year estimates for 2014 to 2018, educational services, health care, and social assistance was the largest employment industry in Camarillo, Oxnard, and Port Hueneme, accounting for 23.4 percent, 16.2 percent, and 19.7 percent of employment, respectively.

Table 3.10-3. Civilian Employment by Industry in Port Hueneme, Camarillo, Oxnard, Ventura County, and California 2018

<i>Industry</i>	<i>Port Hueneme</i>	<i>Camarillo</i>	<i>Oxnard</i>	<i>Ventura County</i>	<i>California</i>
Agriculture, forestry, fishing and hunting, and mining	446	556	14,319	23,148	419,569
Construction	596	1,376	5,880	23,744	1,132,708
Manufacturing	1,257	3,295	11,544	41,599	1,706,099
Wholesale trade	428	1,014	3,410	12,286	529,457
Retail trade	1,116	3,499	11,067	43,604	1,947,161
Transportation and warehousing, and utilities	522	1,058	3,696	13,782	941,194
Information	86	703	1,100	10,054	538,456
Finance and insurance, and real estate and rental and leasing	291	2,727	4,774	31,537	1,111,863
Professional, scientific, and management, and administrative and waste management services	1,091	3,751	8,802	49,253	2,457,308
Educational services, and health care and social assistance:	1,942	7,787	15,955	80,852	3,839,707
Arts, entertainment, and recreation, and accommodation and food services	645	3,131	8,577	40,004	1,915,998
Other services, except public administration	588	1,414	4,990	21,816	967,240
Public administration	825	2,912	4,538	20,549	802,252

Source: (U.S. Census Bureau, 2018a).

According to 5-year estimates for 2014-2018, median household income in Ventura County was \$84,017, mean household income was \$110,792, and per capita income was \$36,891 (Table 3.10-4). Median household income, mean household income, and per capita income were higher in Camarillo, \$92,913, \$116,155, and \$43,794, respectively, than in the County. Median household income, mean household income, and per capita income were lower than the County for Port Hueneme, (\$65,243, \$72,358, and \$24,054, respectively), and Oxnard, (\$68,303, \$85,356, and \$22,914, respectively). Camarillo had the lowest percentage of individuals below poverty level (7.0 percent), followed by Ventura County (9.1 percent), Port Hueneme (12.5 percent), and Oxnard (14.3 percent) (U.S. Census Bureau, 2018a).

Table 3.10-4. Income Data: Port Hueneme, Camarillo, Oxnard, and Ventura County 2014-2018, 5-Year Estimates

<i>Area</i>	<i>Median Household Income (\$)</i>	<i>Mean Household Income (\$)</i>	<i>Per Capita Income (\$)</i>
Port Hueneme	65,243	72,358	24,054
Camarillo	92,913	116,155	43,794
Oxnard	68,303	85,356	22,914
Ventura County	84,017	110,792	36,891
California	71,228	101,493	35,021

Source: (U.S. Census Bureau, 2018a).

3.10.2.3 Schools

According to data from the National Center for Education Statistics, there are a total of 281 public and private schools in Ventura County with a total of 163,032 students (see Table 3.10-5). Port Hueneme has a total of 5 schools with 2,349 students, Camarillo has 27 schools with 12,380 students, and Oxnard has 58 schools with 44,765 students.

Table 3.10-5. Public and Private Schools in Port Hueneme, Camarillo, Oxnard, and Ventura County

<i>Area</i>	<i>Public Schools</i>	<i>Public School Students</i>	<i>Private Schools</i>	<i>Private School Students</i>	<i>Total Schools</i>	<i>Total School Students</i>
Port Hueneme	4	2,292	1	57	5	2,349
Camarillo	23	11,819	4	561	27	12,380
Oxnard	48	43,302	10	1,463	58	44,765
Ventura County	226	149,632	55	13,400	281	163,032

Source: (National Center for Education Statistics, 2018); (National Center for Education Statistics, 2019).

In 2019 there were 815 total licensed child care facilities in Ventura County including 249 licensed child care centers and 566 licensed family child care homes (Kidsdata, 2019a). These facilities had a total of 22,787 spaces, 17,083 in child care centers and 5,704 in family child care homes (Kidsdata, 2019b). On-base child care facilities are currently at capacity with a substantial waiting list. NBVC Point Mugu is planning to build a new child development center for infants and to increase child care staffing for school age children.

Housing

According to 5-year estimates for 2014-2018, the total number of housing units in Ventura County was 287,498, with 7,754 units (2.7 percent) in Port Hueneme, 25,601 units (8.9 percent) in Camarillo, and 55,148 units (19.2 percent) in Oxnard (see Table 3.10-6). Vacant housing units totaled 16,272 in the County, of which 1,161 are in Port Hueneme, 804 are in Camarillo, and 3,688 are in Oxnard. The rental

vacancy rate was 3.4 percent countywide, 2.3 percent in Port Hueneme, 4.2 percent in Camarillo, and 3.1 percent in Oxnard.

Table 3.10-6. Housing Data: Port Hueneme, Camarillo, Oxnard, and Ventura County

Area	Total Housing Units (2014-2018)	Vacant Housing Units (2014-2018)	Rental Vacancy Rate (2014-2018)	Median Value of Owner-occupied Housing Units (2014-2018)	Average Rental Price (February 2020)
Port Hueneme	7,754	1,161	2.3%	\$385,900	\$1,584
Camarillo	25,601	804	4.2%	\$578,100	\$2,191
Oxnard	55,148	3,688	3.1%	\$427,900	\$1,995
Ventura County	287,498	16,272	3.4%	\$559,700	\$2,062
California	14,084,824	1,119,389	3.5%	\$475,900	-

Source: (U.S. Census Bureau, 2018b);(Rent Cafe, 2020a); (Rent Cafe, 2020b); (Rent Cafe, 2020c); (Rent Cafe, 2020d).

The four criteria the DoD uses to determine whether off-base community housing is acceptable for military households are cost, location (i.e., within the market area, which is a 60-minute commute time), adequate condition and facilities (i.e., decent, safe, and sanitary housing), and bedroom entitlements. If market area housing is not affordable for military personnel, they are more likely to reside outside the market area, live in housing of unsuitable condition or with inadequate facilities, or in units with fewer bedrooms than their entitlements. Housing on base is currently fully utilized. NBVC is in the process of conducting a Housing Market and Requirements Analysis which the base will use to assess the need for any adjustments to the amount of housing provided by the base.

3.10.2.4 Economic Activity

Table 3.10-7 lists the total gross domestic product (GDP) for Ventura County and the State of California by industry. Total GDP for Ventura County and the State of California were roughly \$59.6 billion and \$3.1 trillion respectively. The largest contributor to GDP in the State of California is the finance, insurance, real estate, rental, and leasing industry, which contributes roughly \$690.9 billion in economic output. Manufacturing is the largest contributing industry in Ventura County, contributing \$13.7 billion.

Table 3.10-7. Gross Domestic Product for Ventura County and California (Thousands of current dollars)

Industry	Ventura County (2018)	California (2019)
Agriculture, forestry, fishing, and hunting	\$1,703,659	\$38,168,800
Mining, quarrying, and oil and gas extraction	\$697,298	\$10,038,300
Utilities	\$286,842	\$35,110,400
Construction	\$1,984,866	\$118,124,400
Manufacturing	\$13,659,865	\$322,382,800
Wholesale trade	\$3,646,345	\$167,074,900

**Table 3.10-7. Gross Domestic Product for Ventura County and California
(Thousands of current dollars)**

<i>Industry</i>	<i>Ventura County (2018)</i>	<i>California (2019)</i>
Retail trade	\$3,587,193	\$159,934,800
Transportation and warehousing	\$522,939	\$88,288,700
Information	\$1,807,655	\$298,530,800
Finance, insurance, real estate, rental, and leasing	\$12,728,157	\$690,918,800
Professional and business services	\$6,131,971	\$428,841,800
Educational services, health care, and social assistance	\$3,672,700	\$231,399,800
Arts, entertainment, recreation, accommodation, and food services	\$1,871,149	\$138,599,200
Other services (except government and government enterprises)	\$1,057,440	\$59,543,000
Government and government enterprises	\$6,273,187	\$350,512,400
All industry total	\$59,631,268	\$3,137,469,000

Source: (Bureau of Economic Analysis, 2018); (Bureau of Economic Analysis, 2019).

3.10.2.5 State and Local Tax Revenue

Total revenue is shown for the State of California, Ventura County, Port Hueneme, Camarillo, and Oxnard in Table 3.10-8. Tax revenue makes up a significant portion of the overall budgets for state and local government. Other revenues include operating sources such as fees for services such as water, sewer, and waste management, or revenues from other governments such as the state or federal government. The largest sources of tax revenue for the cities and the County are sales and use taxes and property taxes. At the state level, California has a personal income tax in addition to sales and use taxes and a corporation tax.

**Table 3.10-8. Tax Revenues for Port Hueneme, Camarillo, Oxnard,
Ventura County, and California in 2018**

<i>Area</i>	<i>Total Revenue</i>	<i>Tax Revenue</i>
Port Hueneme	\$31,952,422	\$6,140,931
Camarillo	\$94,403,609	\$29,153,922
Oxnard	\$297,409,171	\$99,011,683
Ventura County	\$2,316,662,000	\$498,637,000
California (General Fund, Special Funds, and Bond Funds)	\$203 Billion	\$149 Billion

Source: (ClearGov.com, 2018); (State of California, 2020).

3.10.3 Environmental Consequences

Analysis of impacts to socioeconomics is focused on the effects of the alternatives on population, employment and income, schools, housing, economic activity, and tax revenue.

3.10.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to the socioeconomics of the local area or region. Therefore, no significant impacts would occur with implementation of the No Action Alternative.

3.10.3.2 Proposed Action

The study area for socioeconomic analyses for the Proposed Action is defined as Ventura County with a particular focus on the cities of Port Hueneme, Camarillo, and Oxnard. The northern half of Ventura County is primarily uninhabited as it consists of federal land within the Los Padres National Forest and the southern populated portion of the county is all within roughly an hour commute time of NBVC Point Mugu.

3.10.3.2.1 Potential Impacts

Under the Proposed Action, construction worker jobs and other construction spending as well as the influx of new permanent workers to the base during operations may have impacts on population, employment and income, schools, housing, economic activity, and tax revenue.

3.10.3.2.2 Population

Construction of the Proposed Action is estimated to occur over a two year period. In 2018 the construction industry in Ventura County totaled approximately \$2.0 billion (see Table 3.10-7) and employed 23,744 people (see Table 3.10-3). Due to this large number of local construction industry workers that are currently in the study area it is assumed that the project would not draw workers from outside Ventura County. Therefore, no significant impacts to population would occur due to construction of the Proposed Action.

During operation of the Proposed Action, an estimated 730 employees would be stationed at NBVC Point Mugu. Personnel would be added in phases over three to five years. Some of the employees may come from the surrounding community, however, most employees would come from outside the study area. For the purposes of this analysis, it is assumed that all the employees would move from outside the area. Using information from the 2018 U.S. DoD demographic survey and profile of the military community, it is estimated that each of the 730 new employees would bring an average 1.2 family members (0.4 adult and 0.8 child on average) (Department of Defense, 2018). This would equate to 876 family members and with the 730 new employees there could be a total of approximately 1,600 new people moving to the area at full operation of the Proposed Action. This would represent a population

Socioeconomics Potential Impacts:

- No Action: The Proposed Action would not be implemented and there would be no significant impacts to socioeconomics.
- Proposed Action: There would be minor increase in population.
- Minor beneficial impacts from increases in employment and income during construction and operation.
- Minor but insignificant impact to schools due to increased enrollment.
- Minor but insignificant impact to housing due to increased demand. Minor beneficial impacts to economic activity from increased spending.
- Minor beneficial impacts to tax revenue from increased employment and spending.

increase of 7.3 percent for the city of Port Hueneme, 2.3 percent for the city of Camarillo, or 0.8 percent for the City of Oxnard (see Table 3.10-1). The new workers and their families would likely take up residence throughout Ventura County and this would represent a population increase of 0.5 percent for the County. A population increase is usually not considered either an adverse or beneficial impact and the level of increase in the case of the Proposed Action would not be significant.

3.10.3.2.3 Employment and Income

During construction, direct temporary employment and income would be created through hiring construction workers, and indirect employment and income would be created through additional jobs associated with the purchase of construction materials and the rental or purchase of construction equipment in the study area. These would be minor beneficial impacts.

Once the Proposed Action becomes operational there would be an additional 730 permanent full-time jobs created. The additional jobs would represent approximately 0.2 percent of the Ventura County workforce (see Table 3.10-2). Because it is assumed that the jobs would be filled from outside the study area this would not have a significant impact on the unemployment level in Ventura County. The additional incomes of the new employees in the study area would induce local spending and would be a minor beneficial impact.

3.10.3.2.4 Schools

Construction workers are expected to come from the local area, and there would not be an increase in the population or the number of school aged children in the study area. There would be no impact to schools as a result of construction activities under the Proposed Action.

The 2018 U.S. DoD demographic survey showed that active duty employees averaged, 0.8 child (Department of Defense, 2018). Additionally, the report showed that 53.8 percent of the child dependents were between 6 and 18 years old and would therefore be enrolled in school. This results in an estimated 315 additional school children in the study area that would result from the 730 new employees during operation of the Proposed Action. This would represent an increase in the number of school children of 13.4 percent in Port Hueneme schools, 2.5 percent in Camarillo schools, or 0.7 percent in Oxnard schools (see Table 3.10-5). It is likely that the new families would live throughout Ventura County and the increase would result in a minor increase in the number of school children of 0.2 percent in the County. According to data from the California Department of Education, enrollment in Ventura County public schools has been declining over the past four years (Education Data Partnership, 2020). This recent declining enrollment would leave capacity at the existing schools to accommodate the additional students. Additionally, Federal Impact Aid funds are payments made to local school districts that have federally connected students or that have federal property that limits the property tax base. These payments would help to offset any impacts caused by an increase in students.

The 2018 U.S. DoD demographic survey showed that 42.1 percent of the children of active duty employees are five years old or younger (Department of Defense, 2018). The 730 new employees would therefore bring an estimated 246 new children younger than school age to the study area. This would represent 1.1 percent of the 22,787 child care spaces in Ventura County. The 315 new school age children also may require child care outside of school hours and therefore the total potential increase in demand for child care services would be up to 561 children. Until NBVC Point Mugu is able to provide child care services for the additional children, this would represent 2.5 percent of off-base Ventura County childcare spaces. Therefore, there would be a minor but insignificant impact on schools.

3.10.3.2.5 Housing

As previously mentioned, construction workers are expected to be hired from the local community; therefore, impacts to housing during construction of the Proposed Action would not be significant.

During operation of the Proposed Action, the additional 730 employees and their dependents would require housing in the study area. It is assumed that the current housing on base is fully utilized and the new positions would create a new demand for the full 730 additional housing units. The surrounding area of Ventura County is within commuting distance of the base, and it is anticipated that new employees would live throughout the County. The additional housing demand would represent 4.5 percent of the vacant housing units in Ventura County. Average rental prices in the study area range from \$1,584 in Port Hueneme to \$2,191 in Camarillo and the average rental price in Ventura County is \$2,062 (see Table 3.10-6). Military employees would be eligible for a Basic Allowance for Housing payment, which is adjusted for location and pay grade. Employees with dependents also receive a higher rate. The 2020 Basic Allowance for Housing for Ventura, California ranges from a low of \$2,037 to a high of \$3,777 (Military Benefits, 2020). The majority of the new personnel would fall on the lower end of the allowance. These amounts are in line with the average rental prices in the study area and would be sufficient to find suitable housing. NBVC is in the process of conducting an Housing Market and Requirements Analysis and updates these analyses on a regular basis in order to inform decisions on the amount of base housing required to meet demands. The increase in the demand for housing created by new workers would be a minor but insignificant impact.

3.10.3.2.6 Economic Activity

During construction, the hiring of local workers and spending on construction materials and equipment in the study area would increase economic activity. The existing construction industry in Ventura County generated approximately \$2.0 billion of GDP in 2018 (see Table 3.10-7), so as a portion of the overall construction industry, the construction activities associated with the Proposed Action would have a minor but beneficial impact.

During operations, economic activity would be stimulated through the new employees spending their earnings in the study area. Large expenses such as housing and groceries would be captured within the study area economy, and this influx of spending would be beneficial. The overall county GDP for Ventura County was \$59.6 billion in 2018 (see Table 3.10-7), so the increased economic activity associated with the 730 new employees would represent a minor but beneficial impact.

3.10.3.2.7 State and Local Tax Revenue

During construction, the purchase of construction materials and equipment in the study area would directly generate sales tax revenues for Ventura County and the State of California. Construction workers would pay income tax on their earnings, which would also provide revenue to the State. Indirect impacts would occur when the suppliers purchase goods and hire workers and induced impacts would occur when construction workers spend their earnings in the local area. The increased tax revenues associated with construction of the Proposed Action would be a minor but beneficial impact.

During operations the addition of the 730 new permanent full-time positions would expand the tax base, and the payment of income taxes by the employees would benefit the State of California. Induced impacts would occur as the employees spend their earnings in the study area, which would generate property taxes on their housing and sales and use taxes on other spending. These increased tax revenues would be a minor but beneficial impact.

3.10.3.2.8 Conclusion

Construction of the Proposed Action would have minor beneficial impacts on employment and income, economic activity, and state and local tax revenues. Construction would have no impact on population, schools, or housing.

Operation of the Proposed Action would cause an increase in population, would generate minor beneficial impacts on employment and income, economic activity, and state and local tax revenues, and would create negative but insignificant impacts on schools and housing. Therefore, implementation of the Proposed Action would not result in significant impacts to the socioeconomics of the local area or region.

3.11 Summary of Potential Impacts to Resources and Impact Avoidance and Minimization

A summary of the potential impacts associated with each of the Proposed Action and the No Action Alternative and impact avoidance and minimization measures are presented in Tables 3.11-1 and 3.11-2, respectively. Table 3.11-2 provides a comprehensive list of all mitigation requirements associated with the Proposed Action.

Table 3.11-1. Summary of Potential Impacts to Resource Areas

Resource Area	No Action Alternative	Proposed Action
Air Quality	Under the No Action Alternative, the Proposed Action would not be implemented and there would be no significant impacts to air quality.	No significant impacts to air quality would occur under the Proposed Action. Air emissions would be minimal or <i>de minimis</i> ; Proposed Action is exempt from General Conformity requirements. A Record of Non-Applicability is provided in Appendix B.
Water Resources	Under the No Action Alternative, the Proposed Action would not be implemented and there would be no significant impacts to water resources.	No significant impacts to groundwater, surface water, wetlands, or floodplains would occur under the Proposed Action. Depending on the final location of the taxiways and engineering design, they have the potential to impact from 0.93 to 1.40 acres of jurisdictional wetlands. The Proposed Action would be constructed within the 100-year floodplain.
Noise	Under the No Action Alternative, the Proposed Action would not be implemented and there would be no significant impacts to noise.	No significant impacts to noise would occur under the Proposed Action. Stingray CBUAS noise levels and number of annual operations would not significantly affect the noise environment.
Biological Resources	Under the No Action Alternative, the Proposed Action would not be implemented and there would be no significant impacts to biological resources.	No significant impacts to vegetation, wildlife or special-status species would occur under the Proposed Action. With implementation of impact minimization, there would be no take of migratory birds. May affect, but is not likely to adversely affect the least Bell's vireo; informal consultation with the USFWS has been initiated. No effect on other federally listed species.
Airspace and Airfield Operations	Under the No Action Alternative, the Proposed Action would not be implemented and there would be no significant impacts to airspace and airfield operations.	No significant impacts to airfield, airspace, or civilian users of airspace from construction of facilities and 960 annual flight operations.
Infrastructure	Under the No Action Alternative, the Proposed Action would not be implemented and there would be no significant impacts to infrastructure.	No significant impacts to potable water, wastewater, stormwater, solid waste management, or energy would occur under the Proposed Action.
Transportation	Under the No Action Alternative, the Proposed Action would not be implemented and there would be no significant impacts to transportation.	No significant impacts to transportation would occur under the Proposed Action. Estimated additional 880 average daily vehicle trips on access roads. Increase of 7 percent of traffic on State Route 1 would not be significant.

Table 3.11-1. Summary of Potential Impacts to Resource Areas

Resource Area	No Action Alternative	Proposed Action
Public Health and Safety	Under the No Action Alternative, the Proposed Action would not be implemented and there would be no significant impacts to public health and safety.	No significant impacts to public health and safety would occur under the Proposed Action. There would be no measurable changes to mishap risk at the airfield. The 2.4 percent increase in aircraft operations would not necessitate changes to existing APZ boundaries. Implementation of existing BASH avoidance procedures would minimize BASH risks to negligible levels.
Hazardous Materials and Wastes	Under the No Action Alternative, the Proposed Action would not be implemented and there would be no significant impact related to hazardous materials and wastes.	No significant impacts related to hazardous materials and wastes would occur under the Proposed Action. Minor short- and long-term increases in hazardous material use and hazardous waste generation from construction and operations that would not exceed current management and disposal capacities. Potential impacts on ERP Site 11 from the construction of bridges and culverts over Oxnard Drainage Ditch Nos. 2A and 2B would be avoided or would be coordinated with the NBVC Point Mugu remedial project manager and performed in accordance with applicable federal regulations and Navy instructions.
Socioeconomics	Under the No Action Alternative, the Proposed Action would not be implemented and there would be no significant impact to socioeconomics.	No significant impacts to socioeconomics would occur under the Proposed Action. There would be minor increase in population. Minor beneficial impacts from increases in employment and income during construction and operation. Minor but insignificant impact to schools due to increased enrollment. Minor but insignificant impact to housing due to increased demand. Minor beneficial impacts to economic activity from increased spending. Minor beneficial impacts to tax revenue from increased employment and spending.

Table 3.11-2. Impact Avoidance And Minimization Measures for the Proposed Action

Measure	Anticipated Benefit / Evaluating Effectiveness	Implementing and Monitoring	Responsibility	Estimated Completion Date
Impacts to 0.93 to 1.40 acres of wetland habitat would be mitigated at a location determined in consultation with the USACE.	Compensatory mitigation would offset wetland impacts of the Proposed Action and would achieve no net loss of wetlands in the region.	Details regarding the specific impacts expected on wetlands, the wetland types that would be impacted, and the required mitigation measure ratio for impacts on wetlands would be determined during the Section 404 and 401 Clean Water Act permitting process in consultation with the USACE.	Construction Contractor with compliance verification by NBVC Point Mugu Environmental Division.	In accordance with timeline agreed upon with the USACE.
Measures associated with flood proofing and flood protection would be implemented, such as adding material to elevate pavements and buildings above the 100-year flood elevation and stormwater management according to Ventura County's stormwater management regulations.	Reduce flood risk.	Design would comply with Section 438 of the Energy Independence and Security Act and Ventura County's stormwater management regulations.	Design Contractor with compliance verification by NBVC Point Mugu Environmental Division.	Design phase.
For P-025, impacts to the adjacent Oxnard Drainage Ditch No. 2A at the southeast side of the proposed hangar from the construction of the access to 7th Street and the 380-space personnel parking area would be avoided by constructing three open metal grated deck bridges over Drainage Ditch No. 2A. The P-026 training facility, Building PM385 addition, and associated utilities would be constructed to avoid any impacts to wetlands.	Avoid or minimize impacts to wetlands, maintain flow, avoid increasing the potential for flooding.	Short-term impacts to wetlands would be minimized by implementation of BMPs and the management strategies outlined in the NBVC Point Mugu INRMP.	Construction Contractor with compliance verification by NBVC Point Mugu Environmental Division.	BMPs would be implemented prior to the start of construction.

Table 3.11-2. Impact Avoidance And Minimization Measures for the Proposed Action

Measure	Anticipated Benefit / Evaluating Effectiveness	Implementing and Monitoring	Responsibility	Estimated Completion Date
All vegetation removal would occur outside of the avian nesting season (March through September).	Avoid impacts to migratory birds including least Bell's vireos. Avoid destruction of active bird nests, eggs, or nestlings from vegetation clearing, grubbing, or other site preparation.	Vegetation removal and construction would be scheduled in coordination with NBVC Point Mugu Environmental Division. To conduct any vegetation removal during the period March through September would require a written waiver from the NBVC Point Mugu Environmental Division and re-consultation with the USFWS.	Project Proponent or Construction Contractor with compliance verification by NBVC Point Mugu Environmental Division.	Vegetation removal would be implemented prior to the start of P-025 construction.
Removal of the three or four large pine trees would be coordinated with the NBVC Point Mugu Environmental Division to avoid impacts to tree-nesting owl species.	Avoid impacts to nesting owl species.	Pine tree removal would be scheduled in coordination with NBVC Point Mugu Environmental Division. Removal should ideally occur in October or November to avoid owl impacts.	Project Proponent or Construction Contractor with compliance verification by NBVC Point Mugu Environmental Division.	BMPs would be implemented prior to the start of construction.
Construction would be coordinated with the NBVC Point Mugu Environmental Division to ensure measures are in place to avoid impacts to western pond turtles.	Avoid impacts to western pond turtles.	Vegetation removal and project perimeter fence construction would be scheduled in coordination with NBVC Point Mugu Environmental Division. Fence should ideally be installed in the months of February or March prior to any major site activity.	Project Proponent or Construction Contractor with compliance verification by NBVC Point Mugu Environmental.	BMPs would be implemented prior to the start of construction.

Table 3.11-2. Impact Avoidance And Minimization Measures for the Proposed Action

Measure	Anticipated Benefit / Evaluating Effectiveness	Implementing and Monitoring	Responsibility	Estimated Completion Date
Construction contractors would be required to comply with applicable federal, state, and Navy requirements concerning handling of construction-related hazardous wastes. Hazardous wastes generated by construction activities would be managed in a manner that would prevent these materials from leaking, spilling, and potentially polluting soils or ground and surface waters, and in accordance with applicable federal, state, and Navy regulations.	Avoidance of impacts related to potential pollution of soils or ground and surface waters.	Construction contractor would coordinate with NBVC Point Mugu Environmental Division.	Construction Contractor with compliance verification by NBVC Point Mugu Environmental Division.	Requirements for handling of construction-related hazardous wastes would be implemented prior to the start of construction.
If the disturbance of ERP Site 11 cannot be avoided during construction of bridges and culverts over Oxnard Drainage Ditch Nos. 2A and 2B, activities would be coordinated with the NBVC remedial project manager, USEPA, the Ventura County Resource Management Agency, and the California Regional Water Quality Control Board to ensure all work is performed in accordance with applicable federal regulations and Navy instructions and the specific requirements of the LUCs for the ERP site.	Compliance with institutional controls and coordination with regulatory agencies for site disturbing activities would ensure that no significant adverse impacts occur to base ERP sites.	Construction contractor would coordinate with NBVC Point Mugu remedial project manager.	Construction Contractor with compliance verification by NBVC Point Mugu Environmental Division.	Proposed coordination would be implemented prior to the start of construction and continue until the proposed construction is complete.

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4 Cumulative Impacts

This section (1) defines cumulative impacts, (2) describes past, present, and reasonably foreseeable future actions relevant to cumulative impacts, (3) analyzes the incremental interaction the proposed action may have with other actions, and (4) evaluates cumulative impacts potentially resulting from these interactions.

4.1 Definition of Cumulative Impacts

The approach taken in the analysis of cumulative impacts follows the objectives of the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations, and CEQ guidance. Cumulative impacts are defined in 40 Code of Federal Regulations (CFR) section 1508.7 as “the impact on the environment that results from the incremental impact of the action when added to the other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”

To determine the scope of environmental impact analyses, agencies shall consider cumulative actions, which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact analysis document.

In addition, CEQ and the U.S. Environmental Protection Agency (USEPA) have published guidance addressing implementation of cumulative impact analyses—Guidance on the Consideration of Past Actions in Cumulative Effects Analysis (Council on Environmental Quality, 2005) and Consideration of Cumulative Impacts in EPA Review of NEPA Documents (USEPA, 1999). CEQ guidance entitled *Considering Cumulative Impacts Under NEPA* (1997) states that cumulative impact analyses should “...determine the magnitude and significance of the environmental consequences of the proposed action in the context of the cumulative impacts of other past, present, and future actions...identify significant cumulative impacts...[and]...focus on truly meaningful impacts.”

Cumulative impacts are most likely to arise when a relationship or synergism exists between a proposed action and other actions expected to occur in a similar location or during a similar time period. Actions overlapping with or in close proximity to the proposed action would be expected to have more potential for a relationship than those more geographically separated. Similarly, relatively concurrent actions would tend to offer a higher potential for cumulative impacts. To identify cumulative impacts, the analysis needs to address the following three fundamental questions.

- Does a relationship exist such that affected resource areas of the proposed action might interact with the affected resource areas of past, present, or reasonably foreseeable actions?
- If one or more of the affected resource areas of the proposed action and another action could be expected to interact, would the proposed action affect or be affected by impacts of the other action?
- If such a relationship exists, then does an assessment reveal any potentially significant impacts not identified when the proposed action is considered alone?

4.2 Scope of Cumulative Impacts Analysis

The scope of the cumulative impacts analysis involves both the geographic extent of the effects and the time frame in which the effects could be expected to occur. For this Environmental Assessment (EA), the study area delimits the geographic extent of the cumulative impacts analysis. In general, the study area will include those areas previously identified in Chapter 4 for the respective resource areas. The time frame for cumulative impacts centers on the timing of the proposed action.

Another factor influencing the scope of cumulative impacts analysis involves identifying other actions to consider. Beyond determining that the geographic scope and time frame for the actions interrelate to the proposed action, the analysis employs the measure of “reasonably foreseeable” to include or exclude other actions. For the purposes of this analysis, public documents prepared by federal, state, and local government agencies form the primary sources of information regarding reasonably foreseeable actions. Documents used to identify other actions include notices of intent for Environmental Impact Statements (EISs) and EAs, management plans, land use plans, and other planning related studies.

4.3 Past, Present, and Reasonably Foreseeable Actions

This section will focus on past, present, and reasonably foreseeable future projects at and near the Proposed Action locale. In determining which projects to include in the cumulative impacts analysis, a preliminary determination was made regarding the past, present, or reasonably foreseeable action. Specifically, using the first fundamental question included in Section 5.3-1, it was determined if a relationship exists such that the affected resource areas of the Proposed Action (included in this EA) might interact with the affected resource area of a past, present, or reasonably foreseeable action. If no such potential relationship exists, the project was not carried forward into the cumulative impacts analysis. In accordance with CEQ guidance (Council on Environmental Quality, 2005), these actions considered but excluded from further cumulative effects analysis are not catalogued here as the intent is to focus the analysis on the meaningful actions relevant to informed decision-making. Projects included in this cumulative impacts analysis are listed in Table 4.3-1 and briefly described in the following subsections.

Table 4.3-1. Cumulative Action Evaluation

Action	Level of NEPA Analysis Completed
Past Actions	
Point Mugu Sea Range Expansion of Unmanned Systems Operations	Environmental Assessment (EA)/Overseas EA (OEA)
Naval Base Ventura County (NBVC) Point Mugu Sea Range Countermeasures Testing and Training	EA
Shoreline Protection Repair and Enhancements	EA
Present and Reasonably Foreseeable Future Actions	
West Coast Home Basing of the MQ-4C Triton Unmanned Aircraft System at NBVC Point Mugu, California	EA
U.S. Coast Guard Air Station Point Mugu at NBVC, California	EA
Directed Energy System Integration Laboratory at NBVC, Point Mugu, California	EA

Table 4.3-1. Cumulative Action Evaluation

Action	Level of NEPA Analysis Completed
Point Mugu Sea Range	Environmental Impact Statement/Overseas Environmental Impact
Child Development Center NBVC Point Mugu	P574 Military Construction
Future Ventura County Community Growth	NBVC Joint Land Use Study

4.3.1 Past Actions

The following past actions are relevant to the cumulative impact analysis in the vicinity of NBVC Point Mugu associated with the Proposed Action.

- **Point Mugu Sea Range Expansion of Unmanned Systems Operations, July 2013** - This action proposed an expansion of unmanned systems testing and training on the Point Mugu Sea Range, which includes land areas at NBVC Point Mugu, NBVC Port Hueneme, and San Nicolas Island. Under the proposed action, the annual number of Unmanned Aircraft System (UAS) operations would increase on the Point Mugu Sea Range, utilizing the R-2519 and R-2535 restricted airspace and the SUA. Various sites at NBVC Point Mugu would be used for the launch and recovery of UASs, command and control of UASs, and maintenance of the systems and associated equipment. At NBVC Point Mugu, there would be no new construction activities and no modifications to existing facilities (temporary lodging, meals, recreation, sanitation, etc.) to accommodate the proposed action. Implementation of the proposed action would result in no significant impacts to any resource area within the U.S. territory and would not cause significant harm to the overseas environment (U.S. Department of the Navy, 2020a). A Finding of No Significant Impact (FONSI) /Finding of No Significant Harm was signed February 23, 2015.
- **NBVC Point Mugu Sea Range Countermeasures Testing and Training, July 2014** - This action proposed conducting additional types of countermeasures testing on the Point Mugu Sea Range at NBVC Point Mugu and San Nicolas Island. Implementation of the proposed action (Alternative 1, Alternative 2, or Alternative 3) would not result in significant impacts to any resource area (U.S. Department of the Navy, 2020a). A FONSI was signed in July 2014.
- **Shoreline Protection Repair and Enhancements, March 2016** - The proposed action is to provide protection from the immediate threats of coastal flooding and beach erosion through the implementation of two projects, the West Revetment Extension and the Central Revetment Repair (Figure 4.3-1). The West Revetment Extension includes extending the existing revetment to protect Building 812 and Beach Road from flooding. The extension would continue to the southeast approximately 125 linear feet and crest at approximately 18 feet high. The revetment would be constructed of armored stone and the footprint would be approximately 0.18 acre. The Central Revetment Repair would include increasing the crest elevation up to approximately 27 feet; armoring the seaward slope; and reinforcing the backside of the structure by adding larger dense stone and increasing its width. Armored stone would be used for the repairs and stabilization of the revetment. No significant impacts would occur to any resource by implementing the Proposed Action (U.S. Department of the Navy, 2012). A FONSI was signed in April 2016.



Figure 4.3-1 Past, Present, and Reasonably Foreseeable Cumulative Infrastructure Actions

4.3.2 Present and Reasonably Foreseeable Actions

The following present and reasonably foreseeable actions are relevant to the cumulative impact analysis in the vicinity of NBVC Point Mugu associated with the Proposed Action.

- **West Coast Home Basing of the MQ-4C Triton Unmanned Aircraft System at NBVC Point Mugu, California, April 2013** (U.S. Department of the Navy, 2013b) – This EA evaluated home basing four Triton UAS, establish a maintenance hub for the Triton UAS, supporting up to four additional Triton UAS undergoing maintenance actions at any one time; conduct an average of five Triton UAS flight operations per day (1,825 annually); construct, demolish, and renovate facilities and infrastructure at NBVC Point Mugu; and station up to 700 personnel, plus their family members, while supporting rotational deployments to and from outside the continental United States. A FONSI was signed on April 22, 2013. In the original timeline for this project, construction, demolition, and renovation activities would take place over a 4-year period beginning 2013 and Triton UAS flight operations would have begun in 2015. However, the project was delayed, and the original proposed construction site for the Triton hangar along Runway 03/21, is now the proposed site for the Stingray CBUAS hangar under analysis in this EA. The new proposed Triton hangar site has been shifted to a new location along Runway 03/21 (see Figure 4.3-1). Depending on the final location, the new Triton hangar project could impact up to 1 or 2 acres of wetlands. The Navy would prepare environmental planning documentation for the new proposed Triton hangar site in accordance with NEPA and CEQ and Navy regulations implementing NEPA.
- **U.S. Coast Guard Air Station Point Mugu at NBVC, California, May 2018** (U.S. Coast Guard & U.S. Department of the Navy , 2018); (U.S. Department of the Navy, 2020c). The Proposed Action would include the license, construction, and operation of a new U.S. Coast Guard Air Station at NBVC Point Mugu, California. The new Air Station would occupy up to approximately 10 acres of land adjacent to Runway 03/21 and would consist of a new hangar building, support facilities, an aircraft parking apron, a taxiway, vehicle parking lots, and access roads (Figure 4.3-1). At least four HH-65 or HH-60 helicopters would be operated at the new U.S. Coast Guard Air Station. Air operations would involve two or three sorties per day, for a yearly total of approximately 2,100 flight hours in approximately 1,300 sorties. At least 83 permanent personnel would be operating out of the new Air Station. The Navy would issue a real estate Use Agreement for use of Navy real property to the U.S. Coast Guard for the establishment of the new Air Station. This project would result in emissions of air pollutants during both construction and operations, emissions would be below *de minimis* levels. The project may potentially impact approximately 0.45 acre of jurisdictional wetlands and sensitive wetland vegetation, which would require compensatory mitigation off-base. Construction would result in temporary generation of noise and a minimal noise increase on base and the surrounding area (less than 1 decibel Community Noise Equivalent Level [CNEL]). Construction of the Air Station facilities would take approximately three years and is expected to be operational prior to August 2021. A FONSI was signed on June 18, 2018.
- **Directed Energy Systems Integration Laboratory at NBVC Point Mugu, California, July 2019** (U.S. Department of the Navy, 2019b) – This action is the construction of a 2-acre land-based 3-story facility adjacent to a capable sea range to support necessary research, development, test and evaluation of Directed Energy lasers (see Figure 4.3-1). It is needed to support the Surface Navy Laser Weapon System Program and future Navy Directed Energy Programs. This project would result in emissions of air pollutants during construction, but all emissions would be below *de minimis* levels. There were no major impacts resulting from the proposed action. Project

implementation is expected to begin in 2020 to support directed energy testing and evaluation in 2021. A FONSI was signed on August 20, 2019.

- **Point Mugu Sea Range, April 2020** –This draft Environmental Impact Statement/Overseas Environmental Impact Statement evaluated two alternatives (U.S. Department of the Navy, 2020a). Alternative 1 (Preferred Alternative) reflects the highest potential annual level of increased tempo for planned operations as identified during interviews with range test managers, test and scheduled training mission requirements, or existing NEPA documents for flight operations, vessel operations, aerial targets, surface targets, and ordnance. Alternative 1 includes activities subject to previous analysis that are currently ongoing and have historically occurred on the Point Mugu Sea Range. Alternative 2 includes all activities under Alternative 1, but with an overall decreased annual tempo from that of Alternative 1. Alternative 2 accommodates variability in tempo in any given year due to emerging technologies that need to be tested. Alternative 2 is based on actual peak (highest levels) operational tempo data between 2011 and 2018 and reflects an overall increase in annual tempo from the current baseline activity. Explosives and explosives byproducts, metals, chemicals, and other materials expended during testing and training could result in short-term impacts on sediments and water quality. Some chemical, physical, or biological changes in sediment or water quality could be measurable, but most would be negligible.
- **Child Development Center NBVC Point Mugu** – A new child development center is planned to address a deficit in on-base child care facilities. Project P574 is identified in the NBVC Installation Development Plan as a future military construction project adjacent to the housing area (Naval Base Ventura County, 2017).
- **Future Ventura County Community Growth** –Continued growth in the community surrounding NBVC Point Mugu, as generally discussed in the NBVC Joint Land Use Study (Ventura County Transportation Commission, 2015).

4.4 Cumulative Impact Analysis

Where feasible, the cumulative impacts were assessed using quantifiable data; however, for many of the resources included for analysis, quantifiable data is not available, and a qualitative analysis was undertaken. In addition, where an analysis of potential environmental effects for future actions has not been completed, assumptions were made regarding cumulative impacts related to this EA where possible. The analytical methodology presented in Chapter 3, which was used to determine potential impacts to the various resources analyzed in this document, was also used to determine cumulative impacts.

4.4.1 Air Quality

4.4.1.1 Description of Geographic Study Area

The region of influence (ROI) is the Ventura County Air Pollution Control District.

4.4.1.2 Relevant Past, Present, and Future Actions

All of the projects listed in Table 4.3-1 would contribute emissions from construction projects, and activities that would result in an increase in personnel and aircraft operations at NBVC Point Mugu include Point Mugu Sea Range Expansion of Unmanned Systems Operations, Sea Range

Countermeasures Testing and Training, West Coast Home Basing of the MQ-4C Triton Unmanned Aircraft System, and Point Mugu Sea Range.

4.4.1.3 Cumulative Impact Analysis

The projects listed in Table 4.3-1 all would contribute emissions from construction projects and mobile and stationary sources. Construction activities related to the projects listed in Table 4.3-1 would include the use of heavy equipment for site preparation and development that would result in criteria pollutant and greenhouse gas emissions within the immediate area. However, air emissions would be temporary and typical of standard construction activities. When considered cumulatively, construction activities at and within the vicinity of NBVC Point Mugu would collectively increase air emissions in the area temporarily, but variations in the timing of cumulative projects and the relatively short duration of project effects would moderate impacts over space and time, and would not be likely to have any significant impacts on regional air quality.

Present and reasonably foreseeable activities that would result in an increase in ongoing operational emissions in VCAPCD include Point Mugu Sea Range Expansion of Unmanned Systems Operations, Sea Range Countermeasures Testing and Training, West Coast Home Basing of the MQ-4C Triton Unmanned Aircraft System, and Point Mugu Sea Range. Net emissions associated with these activities and the Stingray CBUAS action are presented in Table 4.4-1.

Table 4.4-1. Net Operations Emissions from Present and Reasonably Foreseeable Activities

<i>Actions – Changes from Baseline</i>	<i>VOCs</i>	<i>CO</i>	<i>NO_x</i>	<i>SO_x</i>	<i>PM₁₀</i>	<i>PM_{2.5}</i>
West Coast Basing - Triton	5.76	27.97	29.51	1.39	3.01	2.87
Alternative 1 U.S. Coast Guard AS Point Mugu - H-65	0.47	1.38	0.51	0	0.39	0.11
DESIL EA	0.13	0.39	0.14	0	0.11	0.03
Preferred Alternative Pt Mugu Sea Range 0-3 nautical miles	13.65	33.31	0.86	0.1	0.05	0.05
Total	20.01	63.05	31.02	1.49	3.56	3.06
Proposed Stingray CBUAS Emissions	0.49	9.18	9.82	0.13	0.05	0.05
Grand Total	20.50	72.23	40.84	1.62	3.61	3.11
<i>De Minimis Thresholds</i>	50	NA	50	NA	NA	NA
Exceedance?	No	NA	No	NA	NA	NA

Notes: NA = Not Applicable, VOCs = volatile organic compounds, CO = carbon monoxide, NO_x = nitrogen oxides, SO_x = sulfur oxides, PM₁₀ = suspended particulate matter less than or equal to 10 micrometers in diameter, and PM_{2.5} = fine particulate matter less than or equal to 2.5 micrometers in diameter. VOCs and NO_x are precursors to the formation of ozone.

The estimated net increase in area emissions, when combined with the emissions estimated for the operation of the Stingray CBUAS at NBVC Point Mugu would not exceed the General Conformity Rule de minimis thresholds for the ozone precursors volatile organic compounds and nitrogen oxides. The highest emissions would be for carbon monoxide, for which the area is in attainment, at approximately 72 tons per year. As a result, the cumulative impacts from these actions combined are not expected to delay attainment of the ozone standard or result in an exceedance for any of the other criteria pollutant

standards. It is therefore reasonable to conclude that the cumulative air quality impacts would not be significant for the region.

4.4.2 Water Resources

4.4.2.1 Description of Geographic Study Area

The ROI for water resources includes the project area footprints of the Proposed Action, and the immediate surrounding areas affected by increased runoff due to the addition of impervious surface area.

4.4.2.2 Relevant Past, Present, and Future Actions

Table 4.3-1 identifies those past, present, and reasonably foreseeable projects that have the most potential to contribute to cumulative effects when combined with the Proposed Action. Projects that have the potential to contribute to cumulative water resources impacts within the ROI include construction for the Point Mugu Sea Range Expansion of Unmanned Systems Operations, West Coast Home Basing of the MQ-4C Triton Unmanned Aircraft System, U.S. Coast Guard Air Station Point Mugu at NBVC, Child Development Center, and Future Ventura County Community Growth. Other projects in Table 4.3-1 would not impact the ROI of the Proposed Action, as they involve use of the sea range airspace and/or have no geographic overlap with the ROI.

4.4.2.3 Cumulative Impact Analysis

Cumulative water resources impacts from past, present, and future actions within the ROI would be less than significant because cumulative impacts on groundwater, surface water, marine waters, wetlands, and floodplains would be minimized. Therefore, implementation of the Proposed Action combined with the past, present, and reasonably foreseeable future projects, would not result in significant impacts within the ROI.

Cumulative impacts to water resources that would occur with implementation of the Proposed Action would include an increase in turbidity associated with an increase in impervious surface area. However, potential impacts from an increase in turbidity and runoff would be minimized by implementation of best management practices (BMPs) (e.g., wetting of soils, silt fencing, and detention basins) and adherence to erosion and sedimentation controls and stormwater management practices, as determined by the Navy, to contain soil and runoff on the project areas. In addition, no significant net reduction of infiltration and recharge capacity is likely to occur. Therefore, no significant, cumulative impacts on ground water would be expected.

Construction associated with the Proposed Action is not likely to degrade the water quality or have a detrimental effect on the uses of surface water or groundwater resources. Upon completion of the Proposed Action, an increase in impervious surfaces is expected; however, an increase in stormwater runoff, would be managed in accordance with the base's Stormwater Pollution Prevention Plan for industrial activities, as required by the National Pollutant Discharge Elimination System (NPDES) General Permit Waste Discharge Requirements for Discharges of Storm Water Associated with the Industrial General Permit (NPDES Permit No. CAS000001). Therefore, no significant, cumulative impacts on surface water would be expected.

It is expected that construction of the two taxiways would result in direct impacts to 0.93 to 1.40 acres wetlands at NBVC Point Mugu. In addition, 1 to 2 acres of jurisdictional wetlands would be impacted from the proposed construction of the Triton hangar and associated facilities, and 0.45 acres of jurisdictional wetlands would be impacted from the construction of the U.S. Coast Guard hangar and associated facilities; however, all impacts to wetlands and Waters of the United States would be mitigated by the Navy. Details regarding the specific impacts expected on wetlands, the wetland types that would be impacted, and the required mitigation measure ratio for impacts on wetlands would be determined during the Clean Water Act Section 404 and 401 permitting process. Therefore, no significant, cumulative impacts on wetlands would be expected.

The new hangar facility, Building PM385 addition, P-026 training facility, and associated utilities and infrastructure lie within the 100-year floodplain of Calleguas Creek. Implementation of the Proposed Action and other present and reasonably foreseeable development projects in the 100-year floodplain at NBVC Point Mugu would result in cumulative impacts on the floodplain. However, potential impacts on the floodplain would be reduced with implementation of BMPs and the management practices outlined in the base's Integrated Natural Resources Management Plan (INRMP). Therefore, no significant, cumulative impacts on floodplains would be expected.

4.4.3 Noise

4.4.3.1 Description of Geographic Study Area

The study area for noise for cumulative noise impacts is the noise sensitive locations within the noise zones shown in Figure 3.5-2.

4.4.3.2 Relevant Past, Present, and Future Actions

The West Coast Home Basing of the MQ-4C Triton Unmanned Aircraft System, U.S. Coast Guard Air Station, Directed Energy System Integration Laboratory, Child Development Center, and Future Ventura County Community Growth actions have the potential generate noise at NBVC Point Mugu and within the surrounding area, either from construction/demolition activities or from increased aircraft operations and maintenance.

4.4.3.3 Cumulative Impact Analysis

The present and reasonably foreseeable projects at NBVC Point Mugu would include the use of construction equipment that would result in increased intermittent noise levels within the immediate area. Noise level increases would be temporary and typical of standard construction activities. Considered cumulatively, construction activities at and within the vicinity of NBVC Point Mugu would collectively increase noise levels in the area temporarily, but variations in the timing of noise generating construction activities, and the relatively short duration of noise effects, would moderate impacts over space and time. Therefore, cumulative construction noise would not be significant.

Long-term aircraft operations would continue to be the dominant sources of noise at the base. MQ-4C Triton Unmanned Aircraft System and U.S. Coast Guard Air Station Point Mugu operations are each estimated to result in a less than 1 decibel CNEL increase in the existing noise environment. This increase is not expected to significantly change noise levels within the areas currently exposed to noise from aircraft operations. The introduction of approximately 0.1 decibel CNEL by the MQ-25A Stingray Carrier-based Unmanned Air System (Stingray CBUAS), when considered in conjunction with noise levels

from reasonably foreseeable projects would not significantly change the existing noise environment within the areas currently exposed to noise from aircraft operations at NBVC Point Mugu.

Therefore, no significant cumulative impacts from noise are anticipated because the proposed action adds a negligible level of noise that is temporary, short-term, and consistent with existing ambient noise levels.

4.4.4 Biological Resources

4.4.4.1 Description of Geographic Study Area

The ROI for biological resources includes the project area footprints of the Proposed Action and immediately surrounding areas potentially exposed to noise or visual impacts during construction and operations.

4.4.4.2 Relevant Past, Present, and Future Actions

Table 4.3-1 identifies those past, present, and reasonably foreseeable projects that have the most potential to contribute to cumulative effects when combined with the Proposed Action. Projects that have the potential to contribute to cumulative biological resources impacts within the ROI include the Point Mugu Sea Range Expansion of Unmanned Systems Operations, West Coast Home Basing of the MQ-4C Triton Unmanned Aircraft System, U.S. Coast Guard Air Station Point Mugu at NBVC, and Future Ventura County Community Growth. Other projects in Table 4.3-1 would not impact the ROI of the Proposed Action, as they involve use of the sea range airspace and/or have no geographic overlap with the ROI.

4.4.4.3 Cumulative Impact Analysis

Cumulative biological resources impacts from past, present, and future actions within the ROI would be less than significant because all actions undertaken by NBVC Point Mugu are required to adhere to the requirements of the Endangered Species Act, the Migratory Bird Treaty Act, INRMP, Bird/Animal Aircraft Strike Hazard (BASH) Management Plan, the Ventura County General Plan, and other federal regulations where applicable. The projects listed in Section 4.4.4.2 have the potential to incrementally increase habitat loss, fragmentation, and visual and aural disturbance to biological resources.

Cumulatively, while any project may have the potential to impact individual species and habitats, the overall distribution or abundance of populations and habitats and ecosystem functions and values would not be significantly affected. The MQ-4C Triton Unmanned Aircraft System and U.S. Coast Guard Air Station projects would occur adjacent to the Proposed Action P-025 hangar project area and would also require the removal of low quality nesting habitat used in recent years by the federally endangered least Bell's vireo. All vegetation removal would occur outside of the avian nesting season (March through September) to avoid impacts to nesting birds, including least Bell's vireos. Given that the habitat in the proposed project areas is sub-optimal, and other areas of similar or better quality habitat exist elsewhere on base and in the surrounding area, birds would likely relocate with no adverse effect on least Bell's vireo future productivity. Construction would be coordinated with the NBVC Point Mugu Environmental Division to ensure appropriate measures are in place to avoid adverse effects to least Bell's vireo.

Construction noise may have some minor effects if returning vireos chose to nest in habitats adjacent to the immediate project areas. Any nesting pairs found in the immediate area would be monitored as part of NBVC's annual ongoing vireo monitoring efforts. Projected noise from Stingray CBUAS flight operations would be similar (0.1 dB CNEL increase or less) to existing aircraft operations at NBVC Point Mugu, and when considered in conjunction with noise levels from reasonably foreseeable projects would not significantly change the existing noise environment within the areas currently exposed to noise from aircraft operations at NBVC Point Mugu. Cumulative operations noise would not adversely affect the least Bell's vireo in the immediate area or other parts of the base.

The impacts of the Proposed Action and those of other projects would be avoided, minimized, and/or compensated to the point that significant cumulative impacts to biological resources would not occur. Therefore, when added to the impacts from other potentially cumulative actions, implementation of the Proposed Action would not result in significant cumulative impacts to biological resources.

4.4.5 Airspace and Airfield Operations

4.4.5.1 Description of Geographic Study Area

The ROI includes the NBVC Point Mugu airfield and airspace.

4.4.5.2 Relevant Past, Present, and Future Actions

Only those past, present, or reasonably foreseeable actions that involve aircraft operations at NBVC Point Mugu would have cumulative airfield and airspace impacts when considered with the Proposed Action (Point Mugu Sea Range Expansion of Unmanned Systems Operations, Sea Range Countermeasures Testing and Training, West Coast Home Basing of the MQ-4C Triton Unmanned Aircraft System; Point Mugu Sea Range). The U.S. Coast Guard Air Station Point Mugu project would relocate existing operations and, therefore, would not contribute to cumulative impacts involving airfields and airspace.

4.4.5.3 Cumulative Impact Analysis

NBVC Point Mugu supports approximately 40,000 annual airfield operations. When considered cumulatively, the projects would increase operations at NBVC Point Mugu by approximately 5,000 sorties per year or 12 percent (Table 4.4-2).

Table 4.4-2. Cumulative Air Operations

<i>Project</i>	<i>Sorties/year</i>
Proposed Action	960
Point Mugu Sea Range Expansion of Unmanned Systems Operations	1,447
Sea Range Countermeasures Testing and Training	320
West Coast Home Basing of the MQ-4C Triton Unmanned Aircraft System	1,825
Point Mugu Sea Range	1,294
Total	4,886

(Naval Air Warfare Center Weapons Division, 2013); (NAVAIR Range Sustainability Office, 2014); (U.S. Department of the Navy, 2013b); (U.S. Department of the Navy, 2020a).

When considered cumulatively, the projects would not involve the creation or modification of any SUA or military operations areas. Testing and training operations would be conducted in existing controlled airspace at NBVC Point Mugu. Currently, the airfield at NBVC Point Mugu supports more than 40,000 flight operations (i.e., take-offs or landings) annually. The addition of approximately 5,000 flight operations per day would equate to a maximum of 45,000 aircraft operations annually, which would represent a minor (12 percent) increase in existing annual operations at NBVC Point Mugu. This increase would not impair the ability of the Radar Air Traffic Control Facility to coordinate flights from the base within the controlled airspace at the base. Certificates of Authorization are currently in place with the Federal Aviation Administration (FAA) for existing operations conducted at NBVC Point Mugu. The Navy would obtain the appropriate authorizations from the FAA before flight operations associated with the future projects are conducted. Therefore, no cumulative impacts on airfield or airspace management would be expected.

4.4.6 Infrastructure

4.4.6.1 Description of Geographic Study Area

The ROI for cumulative effects on infrastructure is defined as the Proposed Action area at NBVC Point Mugu and the surrounding communities that share utilities with NBVC Point Mugu.

4.4.6.2 Relevant Past, Present, and Future Actions

Relevant actions include those that would increase the population or mission at NBVC Point Mugu and thereby affect the capacity of available infrastructure as well as those that would result in the generation of construction and demolition debris. The actions that would increase the population and mission at NBVC Point Mugu are West Coast Home Basing of the MQ-4C Triton Unmanned Aircraft System at NBVC Point Mugu, California; U.S. Coast Guard Air Station Point Mugu at NBVC, California; Directed Energy Systems Integration Laboratory at NBVC Point Mugu, California, and Child Development Center. These actions would increase the number of aircraft and personnel based at NBVC Point Mugu. The Child Development Center would increase the use of infrastructure for children. Shoreline Protection Repair and Enhancements would generate construction and demolition debris.

4.4.6.3 Cumulative Impact Analysis

When past, present, and reasonably foreseeable projects are analyzed together with the Proposed Action, there would be an overall increase in the demand for utilities that service NBVC Point Mugu and the surrounding communities. Cumulative infrastructure impacts that would occur with implementation of the Proposed Action would include potential increases in energy use, water consumption, and wastewater generation from the added population. Over the last decade, NBVC Point Mugu has experienced a drawdown in base personnel and operations. Consequently, there is some room to absorb growth within infrastructure and utilities at the base, but there would likely be a need for additional or improved facilities to fulfill physical readiness requirements, larger meal surges, and the increase in flight physicals for Air Vehicle operators and maintenance personnel. The demands on facilities and utilities (water, wastewater, stormwater facilities, solid waste management/disposal, and electricity) of the other cumulative projects on NBVC Point Mugu, in combination with the demands from the Proposed Action, would be accommodated by existing supplies and capacities (U.S. Department of the Navy, 2013b). In addition, the projects that consist of various improvements throughout the ROI, including the updating and addition of facilities and infrastructure, would generally

improve the condition, efficacy, and lifespan of the infrastructure and would comply with the Energy Independence and Security Act of 2007, Navy Low Impact Development standards, Chief of Naval Operations Instruction 4100.5E, and Executive Order 13834, *Efficient Federal Operations*, all of which set standards and goals for energy and water efficiency for federal construction and renovation projects. Therefore, cumulative impacts would not be significant.

When considered cumulatively, construction and operations would increase solid waste. The waste flow would be minimized through mandatory recycling practices, and the existing landfill capacity is sufficient to accommodate the waste. Therefore, cumulative impacts would not be significant.

The cumulative construction projects would increase impervious surface at NBVC Point Mugu. Cumulative impacts to stormwater would be mitigated through the use of engineered controls (i.e. detention chambers, biofiltration swales, oil-water separators, etc.) that would manage stormwater to ensure site hydrology is maintained. Therefore, there would be no cumulative stormwater impacts.

4.4.7 Transportation

4.4.7.1 Description of Geographic Study Area

The ROI includes vehicle traffic on the access roads to the proposed facilities for the Proposed Action, including State Route 1, Hueneme Road, Wood Road, and Las Posas Road.

4.4.7.2 Relevant Past, Present, and Future Actions

Past, present, or reasonably foreseeable future actions that might interact with traffic generated by the Proposed Action are West Coast Home Basing of the MQ-4C Triton Unmanned Aircraft System, U.S. Coast Guard Air Station, Directed Energy System Integration Laboratory, and Future Ventura County Community Growth.

4.4.7.3 Cumulative Impact Analysis

Cumulative impacts to transportation that would occur with implementation of the Proposed Action would include minor increases in traffic within the ROI from the Proposed Action and future actions. The U.S. Coast Guard, MQ-4C Triton, and Directed Energy System Integration Laboratory projects at NBVC Point Mugu would contribute minor or negligible traffic growth on State Route 1 and roadways in the ROI combined with an approximately 7 percent increase in the annual average daily traffic on State Route 1 with the Proposed Action. The minor increase, along with the dispersed nature of access routes to the base, would not result in a significant cumulative impact.

The future projects at the base and the Proposed Action would also result in temporary increases in personal vehicles and truck traffic during construction for each project. If any of the construction projects overlap in time, there would be a temporary cumulative construction traffic impact that could be experienced in the ROI for up to two years. Should cumulative impacts occur, the effect may be an inconvenience on roadways in the ROI but would not result in significant roadway capacity and congestion impacts.

Future community growth in the vicinity of NBVC Point Mugu may contribute some traffic growth on State Route 1 and other roadways in the ROI, but because of predominately agricultural and open space zoning in the vicinity of the base, and Ventura County's desire to maintain agricultural land (County of

Ventura Resource Management Agency Planning Division, 2019), the level of growth would not be expected to contribute to traffic congestion or reduced roadway levels of service.

Therefore, implementation of the Proposed Action combined with the past, present, and reasonably foreseeable future projects, would not result in significant impacts within the ROI.

4.4.8 Public Health and Safety

4.4.8.1 Description of Geographic Study Area

The ROI for cumulative effects on public health and safety is defined as the limits of the proposed project area and the proposed flight pathways of the Stingray CBUAS.

4.4.8.2 Relevant Past, Present, and Future Actions

Construction activities on NBVC Point Mugu would have no impacts on public health and safety. The base is not accessible to the general public. Therefore, only those past, present, or reasonably foreseeable actions that involve aircraft operations at NBVC Point Mugu would have cumulative impacts when considered with the proposed action (Point Mugu Sea Range Expansion of Unmanned Systems Operations, Sea Range Countermeasures Testing and Training, West Coast Home Basing of the MQ-4C Triton Unmanned Aircraft System, and U.S. Coast Guard Air Station Point Mugu).

4.4.8.3 Cumulative Impact Analysis

Implementation of the Proposed Action would not measurably affect safety at NBVC Point Mugu when considered with past, present, and reasonably foreseeable future actions because the additional aircraft operations would all occur within existing controlled airspace and would not increase the risk of mishaps. All flight and training operations would be conducted in accordance with FAA regulations and directives, specific operating manuals, and Department of Defense Flight Information Publications, and all emergencies or malfunctions associated with the flight operations would be handled in accordance with established aircraft-specific procedures. Furthermore, the Proposed Action would not require changes to the base's safety plans, Accident Potential Zones, or BASH Management Plan. Therefore, implementation of the Proposed Action combined with the past, present, and reasonably foreseeable future projects, would not result in significant impacts within the ROI.

4.4.9 Hazardous Materials and Wastes

4.4.9.1 Description of Geographic Study Area

The ROI for cumulative effects on hazardous materials and wastes is the proposed project area and waterways (i.e., ditches, Mugu Lagoon) that receive surface water flows from the Proposed Action site.

4.4.9.2 Relevant Past, Present, and Future Actions

All of the past, present, and reasonably foreseeable future actions listed in Table 4.3-1 have the potential to use hazardous materials or generate hazardous waste at NBVC Point Mugu either from construction/demolition activities or from increased aircraft operations and maintenance.

4.4.9.3 Cumulative Impact Analysis

When considered cumulatively, the projects listed in Table 4.3-1 would result in an overall increase of the amount of hazardous materials handled and amounts of hazardous wastes generated from the

construction, renovation, and demolition of facilities, and the operation and maintenance of new aircraft. The projects would not result in a significant impact to the hazardous materials and wastes management programs at NBVC Point Mugu and would not introduce new waste streams or require new Emergency Planning and Community Right-to-Know Act reporting requirements. Hazardous materials and wastes associated with the cumulative projects would continue to be collected and managed on-site in accordance with the base Hazardous Materials Management Plan and Hazardous Waste Management Plan, respectively. In addition, existing procedures for the safe handling, use, and disposal of special hazards and universal wastes (e.g. fluorescent light bulbs, batteries, etc.) would be followed. The overall cumulative increase in hazardous waste generation would not be expected to exceed the capacities of existing hazardous waste disposal facilities. Therefore, there would be no significant cumulative impact to hazardous wastes and materials.

Where occurring, the removal of asbestos-containing material (ACM), lead-based paint (LBP), or polychlorinated biphenyl (PCB)-containing materials would adhere to federal, state, and local regulations in addition to NBVC Point Mugu management plan and BMPs. Any identified ACM, LBP, or PCB-containing materials would be removed before construction/demolition by a licensed contractor. The removal of materials would result in beneficial impacts by reducing exposure potential. These impacts would not be significant.

Construction/demolition activities for all projects would avoid Environmental Restoration Program (ERP) sites to the extent practicable. If the disturbance of ERP sites cannot be avoided, activities would be coordinated with the NBVC Environmental Division, USEPA, the Ventura County Resource Management Agency, and the California Regional Water Quality Control Board to ensure all work is performed in accordance with applicable federal regulations and Navy instructions and the specific requirements of the Land Use Controls for the ERP site. As a result, there would be no significant cumulative impacts to ERP sites.

4.4.10 Socioeconomics

4.4.10.1 Description of Geographic Study Area

The ROI for cumulative socioeconomic impacts is defined as Ventura County.

4.4.10.2 Relevant Past, Present, and Future Actions

All of the past, present, and reasonably foreseeable future actions listed in Table 4.3-1 have the potential to affect socioeconomic conditions at and near NBVC Point Mugu either from construction/demolition activities or from personnel changes associated with increased aircraft operations and maintenance.

4.4.10.3 Cumulative Impact Analysis

The Proposed Action would generate short-term, beneficial impacts on socioeconomic resources through the procurement of goods and services during construction, demolition, and renovation activities and it would generate long-term, beneficial impacts through the addition of long-term employment. Other ongoing and reasonably foreseeable future projects requiring construction activities include West Coast Home Basing of the MQ-4C Triton Unmanned Aircraft System at NBVC Point Mugu, U.S. Coast Guard Air Station Point Mugu at NBVC, California, Directed Energy Systems Integration Laboratory at NBVC Point Mugu, and Child Development Center. Construction-related expenditures

would not generate any long-lasting cumulative benefits; therefore, no significant cumulative impacts on socioeconomic resources would be expected from construction activities.

The population for Ventura County was estimated at 846,006 persons in 2019. Cumulatively, 1,500 personnel, plus approximately 1,800 dependents associated with the Proposed Action, U.S. Coast Guard Air Station Point Mugu at NBVC, and West Coast Home Basing of the MQ-4C Triton Unmanned Aircraft System at NBVC Point Mugu, would represent a negligible increase (0.4 percent) in the total population of Ventura County. This cumulative impact would not be significant. Once the Proposed Action becomes operational there would be an additional 1,500 permanent full-time jobs created. The additional jobs would represent approximately 0.4 percent of the Ventura County workforce (see Table 3.10-2). Because it is assumed that the jobs would be filled from outside the study area this would not have a significant impact on the unemployment level in Ventura County. The additional incomes of the new employees in the study area would induce local spending and would be a minor beneficial impact.

The Proposed Action, when considered with the West Coast Home Basing of the MQ-4C Triton Unmanned Aircraft System at NBVC Point Mugu would result in a cumulative increase of approximately 650 school aged children and 500 children younger than school age. This would represent an approximate increase of 0.4 percent of the current public school enrollment for Ventura County and a potential increase in the demand for child care equal to 5.1 percent of the total current supply. The approximately 1,500 cumulative personnel and their family members would gradually relocate to NBVC Point Mugu and the surrounding areas in phases. Enrollment in Ventura County public schools has been declining over the past four years (Education Data Partnership, 2020). This recent declining enrollment has left capacity at the existing schools to accommodate the additional students. Future base development plans include the Child Development Center NBVC Point Mugu, which would help to meet some of the increased demand for child care facilities. Therefore, there would be no significant cumulative impacts to schools or child care.

The Navy provides on-base housing for eligible military personnel in either bachelor (i.e., officer or enlisted) quarters or family housing. The Proposed Action, when considered with the West Coast Home Basing of the MQ-4C Triton Unmanned Aircraft System at NBVC Point Mugu would result in a cumulative increase of approximately 1,500 personnel and dependents (approximately 1,800). The demand for housing would reduce the amount of vacant housing the Ventura County by approximately 9 percent. Some of the additional personnel (plus their dependents) would obtain on-base housing, which would reduce demand for off-base housing. Current and future Housing Market and Requirements Analysis will assess the need for the base to increase the supply of on-base housing in order to meet rising demand, as needed, which would further reduce the demand for off-base housing. Therefore, cumulative impacts on housing would not be significant.

The increased short- and long-term employment resulting from the projects listed in Table 4.3-1 would directly stimulate the local economy due to an increase in demand for products, services, and supplies found in the local community and have a beneficial effect. The construction of new buildings and facilities under the cumulative projects would increase payroll, taxes, and the indirect purchase of goods and services. As a result, there would be cumulative beneficial impacts to economic activity and state and local tax revenue. These impacts would not be significant.

5 Other Considerations Required by NEPA

5.1 Consistency with Other Federal, State, and Local Laws, Plans, Policies, and Regulations

In accordance with 40 Code of Federal Regulations (CFR) section 1502.16(c), analysis of environmental consequences shall include discussion of possible conflicts between the Proposed Action and the objectives of federal, regional, state and local land use plans, policies, and controls. Table 5.1-1 identifies the principal federal and state laws and regulations that are applicable to the Proposed Action, and describes briefly how compliance with these laws and regulations would be accomplished.

Table 5.1-1. Principal Federal and State Laws Applicable to the Proposed Action

<i>Federal, State, Local, and Regional Land Use Plans, Policies, and Controls</i>	<i>Status of Compliance</i>
National Environmental Policy Act (NEPA); Council on Environmental Quality (CEQ) NEPA implementing regulations; Navy procedures for Implementing NEPA	This environmental documentation has been prepared in accordance with the CEQ regulations implementing NEPA, and Navy NEPA procedures. Appropriate public participation and review are being conducted in compliance with NEPA.
Clean Air Act	The applicable regulatory setting and impact analysis is discussed in Section 3.1, <i>Air Quality</i> . Air emissions would be minimal or <i>de minimis</i> , and the Proposed Action is exempt from General Conformity requirements. A Record of Non-Applicability has been completed and is provided in Appendix B.
Clean Water Act	The applicable regulatory setting and impact analysis is discussed in Section 3.2, <i>Water Resources</i> . Depending on the final location of the taxiways and engineering design, the Proposed Action has the potential to impact from approximately 0.93 to 1.40 acres of jurisdictional wetlands. Consultation with the U.S. Army Corps of Engineers and California Regional Water Quality Control Board would occur, as appropriate, to obtain the necessary permits (i.e., Sections 404 and 401 of the Clean Water Act) prior to implementation of the Proposed Action. All potential impacts to wetlands and other Waters of the United States would be mitigated by the Navy in a manner approved by the U.S. Army Corps of Engineers.
Coastal Zone Management Act	The Navy has determined that implementing the Proposed Action would not have an effect on any coastal use or resource of the California Coastal Management Program. A Negative Determination was submitted to the California Coastal Commission and is included in Appendix C.
National Historic Preservation Act	There are no historic properties located within the area of potential effect for the site. The Proposed Action is a project covered under the 2015 Programmatic Agreement between NBVC Point Mugu and the California State Historic Preservation Officer. NBVC Point Mugu has determined that the Proposed Action can be approved with a finding of ‘No Historic Properties Affected’ consistent with Stipulation 8A of the 2015 NBVC Programmatic Agreement and 36 CFR 800.4(d)(1). The Proposed Action would be reported to the California State Historic Preservation Officer as part of NBVC Point Mugu’s annual reporting, per the 2015 Programmatic Agreement.

Table 5.1-1. Principal Federal and State Laws Applicable to the Proposed Action

<i>Federal, State, Local, and Regional Land Use Plans, Policies, and Controls</i>	<i>Status of Compliance</i>
Endangered Species Act	The applicable regulatory setting and impact analysis is discussed in Section 3.3, <i>Biological Resources</i> . The Proposed Action may affect, but is not likely to adversely affect, least Bell's vireo and would have no effect on other federally listed species. Endangered Species Act Documentation is provided in Appendix E.
Migratory Bird Treaty Act	The applicable regulatory setting and impact analysis is discussed in Section 3.3, <i>Biological Resources</i> . Impacts to Migratory Bird Treaty Act - protected species and their active nests would be avoided during construction. With implementation of impact minimization measures, the Proposed Action would have no effect on migratory birds. NBVC Point Mugu would continue to manage Bird/Animal Aircraft Strike Hazard (BASH) in accordance with the BASH Management Plan; therefore, no significant impact to birds or other wildlife from BASH is expected.
Bald and Golden Eagle Protection	The applicable regulatory setting and impact analysis is discussed in Section 3.3, <i>Biological Resources</i> . No takes or significant impacts, as defined by the Bald and Golden Eagle Protection Act, to bald and golden eagles under the Proposed Action.
Comprehensive Environmental Response, Compensation, and Liability Act	The applicable regulatory setting and impact analysis is discussed in Section 3.9, <i>Hazardous Materials and Wastes</i> . The Proposed Action has the potential to impact several Environmental Restoration Program sites (Sites 11 and 24). Construction would be conducted in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act and other federal, state, and local environmental laws, regulations, and Navy instructions.
Emergency Planning and Community Right-to-Know Act	The Proposed Action would not introduce new waste streams or require new Emergency Planning and Community Right-to-Know Act reporting requirements.
Resource Conservation and Recovery Act	The applicable regulatory setting is discussed in Section 3.9, <i>Hazardous Materials and Wastes</i> . The Proposed Action would not result in significant hazardous materials related impacts. Management protocols for hazardous substances related to the MQ-25A Stingray Carrier-based Unmanned Air System (Stingray CBUAS) program would follow existing regulations and procedures for like materials.
Toxic Substances Control Act	The applicable regulatory setting is discussed in Section 3.9, <i>Hazardous Materials and Wastes</i> . Management of any listed chemicals would be conducted in accordance with the Toxic Substances Control Act.
Executive Order (EO) 11988, Floodplain Management	The applicable regulatory setting and impact analysis is discussed in Section 3.2, <i>Water Resources</i> . The Proposed Action is located within the 100-year flood zone of Calleguas Creek, and flood protection features would be incorporated into the design of the proposed facilities, as deemed appropriate. Therefore, the Proposed Action would be in compliance with the regulations of EO 11988.

Table 5.1-1. Principal Federal and State Laws Applicable to the Proposed Action

<i>Federal, State, Local, and Regional Land Use Plans, Policies, and Controls</i>	<i>Status of Compliance</i>
EO 12088, Federal Compliance with Pollution Control Standards	The applicable regulatory setting and impact analysis is discussed in Section 3.1, <i>Air Quality</i> and Appendix B. The Proposed Action would not exceed National Ambient Air Quality Standards established by the U.S. Environmental Protection Agency under the Clean Air Act. Therefore, the Proposed Action would comply with EO 12088.
EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations	The Proposed Action would not result in disproportionately high and adverse human health or environmental effects on minority populations or low-income populations.
EO 13045, Protection of Children from Environmental Health Risks and Safety Risks	The applicable regulatory setting and impact analysis is discussed in Section 3.8, <i>Public Health and Safety</i> . The Navy concludes the Proposed Action would not result in environmental health risks or safety risks that may disproportionately affect children.
EO 13175, Consultation and Coordination with Indian Tribal Governments	The Proposed Action would not impact any known traditional cultural properties and thus, no tribal consultation is anticipated. If tribal resources are discovered, the Navy would coordinate and consult with Federally recognized tribes in compliance with EO 13175.
EO 13834, Efficient Federal Operations	The Proposed Action is consistent with the federal government's order to prioritize actions that reduce waste, cut costs, enhance the resilience of Federal infrastructure and operations, and enable more effective accomplishment of an agency's mission.
California Coastal Act of 1976	The Navy has determined that implementing the Proposed Action would not have an effect on any coastal use or resource of the California Coastal Management Program established under the California Coastal Act. A Negative Determination was submitted to the California Coastal Commission and is included in Appendix C.
23 California Code of Regulations Chapter 28 Article 4 Water Quality Certifications	Consultation with the U.S. Army Corps of Engineers and California Regional Water Quality Control Board would occur, as appropriate, to obtain water quality certification for construction of culverts and bridges prior to implementation of the Proposed Action.
23 California Code of Regulations §492.16 Stormwater Management and Rainwater Retention	Consultation with the California Regional Water Quality Control Board would occur to ensure stormwater management strategies are compliant with applicable regulations.

5.2 Irreversible or Irretrievable Commitments of Resources

Resources that are irreversibly or irretrievably committed to a project are those that are used on a long-term or permanent basis. This includes the use of non-renewable resources such as metal and fuel, and natural or cultural resources. These resources are irretrievable in that they would be used for this project when they could have been used for other purposes. Human labor is also considered an irretrievable resource. Another impact that falls under this category is the unavoidable destruction of natural resources that could limit the range of potential uses of that particular environment.

Implementation of the Proposed Action would involve human labor; the consumption of fuel, oil, and lubricants for construction vehicles; and loss of 0.93 to 1.40 acres of jurisdictional wetlands.

Implementing the Proposed Action would not result in significant irreversible or irretrievable commitment of resources.

5.3 Unavoidable Adverse Impacts

This EA has determined that the No Action Alternative and the Proposed Action would not result in any significant impacts. Implementing the Proposed Action would result in the following unavoidable, yet not significant, environmental impacts: air emissions, 0.93 to 1.40 acres of jurisdictional wetlands, temporary construction noise, vegetation and wildlife habitat removal, and a minor traffic increase.

5.4 Relationship between Short-Term Use of the Environment and Long-Term Productivity

NEPA requires an analysis of the relationship between a project's short-term impacts on the environment and the effects that these impacts may have on the maintenance and enhancement of the long-term productivity of the affected environment. Impacts that narrow the range of beneficial uses of the environment are of particular concern. This refers to the possibility that choosing one development site reduces future flexibility in pursuing other options, or that using a parcel of land or other resources often eliminates the possibility of other uses at that site.

In the short-term, effects to the human environment with implementation of the Proposed Action would primarily relate to the construction activity itself. Air quality and noise would be impacted in the short-term. In the long-term, emissions from the Stingray CBUAS steady-state airfield operations would be minimal, with all emissions below 10 tons. The construction of the facilities and operation of the Stingray CBUAS would not significantly impact the long-term natural resource productivity of the area. The Proposed Action would not result in any impacts that would significantly reduce environmental productivity or permanently narrow the range of beneficial uses of the environment.

6 References

- American National Standards Institute. (1988). *American National Standard Quantities and Procedures for Description and Measurement of Environmental Sound, ANSI S12-9-1988*. New York: Acoustical Society of America.
- Assistant Secretary of the Navy. (2020). *PFC-PFAS*. Retrieved June 4, 2020, from <https://www.secnav.navy.mil/eie/pages/pfc-pfas.aspx>
- Beck, E. (2020, May 12). Copy of MQ-25 Estimated OI Level HAZMAT for West Coast Basing NEPA.
- Brisbane Airport Corporation. (2007). New parallel runway draft environmental impact statement/major development plan. September 2007. Volume D—Airspace, Chapter 7: Human Impact Assessment.
- Brown, K. P. (2019, May 8-9). Navy PFAS Installation Restoration Update and Success Story. Presentation at the DERP Forum St, Louis, MO. *Strengthening Relationships with our Regulatory Partners*.
- Bureau of Economic Analysis. (2018). *Gross domestic product (GDP) by county and metropolitan area, CAGDP2, Ventura County, CA*. Retrieved from Bureau of Economic Analysis: <https://apps.bea.gov/itable/itable.cfm?ReqID=70&step=1>
- Bureau of Economic Analysis. (2019). *Gross domestic product (GDP) by state, SAGDP2N, California*. Retrieved from Bureau of Economic Analysis: <https://apps.bea.gov/itable/itable.cfm?ReqID=70&step=1>
- California Air Pollution Officers Association. (2020). California Emissions Estimator Model 2017. Retrieved from CalEEMod.com
- California Air Resources Board. (2016, October). In-Use Off Road Diesel-Fueled Fleets Regulation Overview, Revised.
- California Air Resources Board. (2020). Summaries of Historical Area Designations for State Standards: Ozone and PM10. Retrieved from <https://ww2.arb.ca.gov/our-work/programs/state-and-federal-area-designations/state-area-designations/summary-tables>.
- CalRecycle. (2019). *Solid Waste Information System*. Retrieved from SWIS Facility Detail (Simi Valley Landfill and Recycling Center and Toland Landfill): <https://www2.calrecycle.ca.gov/swfacilities/Directory/56-AA-0007/>
- Caltrans. (2017). *Traffic Volumes: Route 1*. Retrieved June 10, 2020, from <https://dot.ca.gov/programs/traffic-operations/census>.
- Cardno. (2020). *Wetland Delineation Verification Report for MQ-25A Stingray Unamanned Aircraft System Basing and Operations at Naval Base Ventura County Point Mugu*.
- CH2M Hill-Klienfelder, Joint Venture. (2016, August 1). ACT SHEET - NAVAL BASE VENTURA COUNTY RESTORATION ADVISORY Board (RAB) Newsletter.
- ChaduxTt. (2010, June). Watershed Contaminated Source Document, Feasibility Study for IRP Site 11 Naval Base Ventura County Point Mugu, California.

- City of Oxnard. (2017, September). Public Works Integrated Master Plan Wastewater Project Memorandum 3.7.1 Traditional Oxnard Wastewater Treatment Plant Alternatives - Upgrade In Place Revised Final Draft .
- ClearGov.com. (2018). *County and City Profiles: Ventura County, Port Hueneme, Camarillo, and Oxnard, Revenues*. Retrieved from <https://www.cleargov.com/products/insights>
- Cooper, L. (2020, June 1). EUM ENGR, NAVFAC SW, NBVC, CA. (J. Butts, Interviewer)
- Council on Environmental Quality. (1997). *Considering Cumulative Effects Under the National Environmental Policy Act*. Washington, DC.
- Council on Environmental Quality. (2005, June 24). Guidance on the Consideration of Past Actions in Cumulative Effects Analysis.
- County of Ventura Resource Management Agency Planning Division. (2019). *Ventura County General Plan. Goals, Policies and Programs*. County of Ventura California.
- Cowan, J. P. (1994). *Handbook of Environmental Acoustics*. New York: John Wiley & Sons.
- Department of Defense. (2018). *2018 Demographics Profile of the Military Community*.
- DoD Noise Working Group. (2009). *Improving Aviation Noise Planning, Analysis and Public Communication with Supplemental Metrics - Guide to Using Supplemental Metrics*.
- Education Data Partnership. (2020). *County Summary, Ventura County*. Retrieved from Education Data Partnership: <https://www.ed-data.org/county/Ventura/>
- Efroymson, R. W. (2000). *Ecological Risk Assessment Framework for Low-Altitude Overflights by Fixed-Wing and Rotary-Wing Military Aircraft*. Research sponsored by the Strategic Environmental Research and Development Program of the U. S. Department of Defense. Publication No. 5010, Environmental Sciences Division.
- FAA. (2009, September 2). Guidance for Quantifying Speciated Organic Gas Emissions from Airport Sources.
- FAA. (2016). Pilot's Handbook of Aeronautical Knowledge.
- FAA. (2020). 1050.1F Desk Reference.
- Federal Interagency Committee on Noise. (1992). *Federal Review of Selected Airport Noise Analysis Issues*.
- Federal Interagency Committee on Urban Noise. (1980). *Guidelines for Considering Noise in Land Use Planning and Control*. Washington, DC.
- FHWA. (2006, January). FHWA Roadway Construction Noise Model User's Guide Final Report.
- HDR. (2013, March). Vegetation Classification and Mapping, Naval Base Ventura County, Point Mugu, California. Prepared for NBVC Environmental Division.
- Intergovernmental Panel on Climate Change. (2013). *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Retrieved from <http://www.ipcc.ch/report/ar5/wg1/>

Kidsdata. (2019a, August 7). *Data by Topic: Licensed Child Care Facilities, by Type*. Retrieved from kidsdata.org: <https://www.kidsdata.org/topic/102/child-care-facilities/table#fmt=260&loc=363&tf=124&ch=222,223,224&sortColumnId=0&sortType=asc>

Kidsdata. (2019b, August 7). *Data by Topic: Child Care Spaces in Licensed Facilities, by Facility Type*. Retrieved from kidsdata.org: <https://www.kidsdata.org/topic/101/child-care-spaces/table#fmt=261&loc=363&tf=124&ch=222,223,224&sortColumnId=0&sortType=asc>

Kinsler, L. E., Frey, A. R., Coppens, A. B., & Sanders, J. V. (1999). *Fundamentals of Acoustics* (Fourth ed.).

Larkin, R. (1996). Effects of military noise on wildlife: a literature review. *Illinois Natural History Survey, Center for Wildlife Ecology*.

Military Benefits. (2020). *Basic Allowance for Housing, States: California*. Retrieved from Military Benefits.info: <https://militarybenefits.info/bah-rates-state/california/>

National Center for Education Statistics. (2018). *Search for Private Schools: Ventura County, CA*. Retrieved from National Center for Education Statistics.: <https://nces.ed.gov/surveys/pss/priateschoolsearch/>.

National Center for Education Statistics. (2019). *Search for Public Schools: Ventura County, CA*. Retrieved from National Center for Education Statistics.: <https://nces.ed.gov/ccd/schoolsearch/>

NAVAIR Range Sustainability Office. (2014, July). Environmental Assessment Point Mugu Sea Range Countermeasures Testing and Training.

Naval Air Warfare Center Weapons Division. (2013, July). Environmental Assessment/ Overseas Environmental Assessment Point Mugu Sea Range Expansion of Unmanned Systems Operations.

Naval Base Ventura County. (2017). *Installation Development Plan*.

Naval Base Ventura County. (2018). *2018 Point Mugu Employee Commute Survey*. Naval Base Ventura County.

Naval Base Ventura County. (No date). FY13 CHIEF OF NAVAL OPERATIONS ENVIRONMENTAL AWARD, Environmental Quality – Individual/Team.

Naval Safety Center. (2019, October 1). *Current Mishap Definitions and Reporting Criteria*. Retrieved June 16, 2020 , from <https://navalsafetycenter.navy.mil/Resources/Current-Mishap-Definitions/>

NAVFAC. (2016a). Final Environmental Assessment for Construction and Operation of Solar Photovoltaic Systems at Multiple Installations in California. January.

NAVFAC. (2016b, September). FOCUS Replacement EA/OEA NAVAIR Sea Range, Point Mugu, California.

NAVFAC. (2017, January). Climate Change Installation Adaptation and Resilience Planning Handbook.

NAVFAC. (2019, December 11). DRAFT 15% DESIGN SUBMITTAL BASIS OF DESIGN P-026 MQ-25A TRAINING FACILITY Naval Base Ventura County, Point Mugu, California.

NAVFAC. (2020, January). Final 15% Design Submittal Basis of Design P-025 MQ-25 Squadron Hangar, Naval Base Ventura County, Point Mugu, California.

NAVFAC SW. (2009, October). Internal Final Site Management Plan, Naval Base Ventura County, Point Mugu, Point Mugu, California.

- NAVFAC SW. (2011). Integrated Pest Management Plan for Naval Base Ventura County.
- NAVFAC SW. (2015, December). Naval Base Ventura County, Point Mugu. Air Installations Compatible Use Zones Study.
- NAVFAC SW. (2018, November). Final Naval Base Ventura County, Point Mugu, and Port Hueneme Integrated Cultural Resources Management Plan.
- NBVC Point Mugu. (2015, December). Naval Base Ventura County Point Mugu Air Installations Compatible Use Zones Study.
- NBVC Point Mugu. (2019a). *Final Integrated Natural Resources Management Plan, Naval Base Ventura County Point Mugu and Special Areas*.
- NBVC Point Mugu. (2019b). *NBVC Point Mugu Bird Strike Data Spreadsheet*.
- NBVC Point Mugu. (2019c). Air Traffic Activity Report.
- NBVC Point Mugu. (2019d). BASH Strike Data.
- NBVC Point Mugu. (2020a). GIS Database.
- Newman, J. S., & Beattie, K. R. (1985). *Aviation Noise Effects*. U.S. Department of Transportation, Federal Aviation Administration.
- Office of Historic Preservation. (2015). Programmatic Agreement Between the Commanding Officer, Naval Base Ventura County, and the California State Historic Preservation Officer Regarding Navy Undertakings Within Ventura County, California. Sacramento, California.
- Port Hueneme Water Agency. (2016, August). Final Port Hueneme Water Agency 2015 Urban Water Management Plan.
- Rent Cafe. (2020a, February). *Port Hueneme, CA Rental Market Trends*. Retrieved from rentcafe.com: <https://www.rentcafe.com/average-rent-market-trends/us/ca/ventura-county/port-hueneme/>
- Rent Cafe. (2020b, February). *Camarillo, CA Rental Market Trends*. Retrieved from rentcafe.com: <https://www.rentcafe.com/average-rent-market-trends/us/ca/ventura-county/camarillo/>
- Rent Cafe. (2020c, February). *Oxnard, CA Rental Market Trends*. Retrieved from rentcafe.com: <https://www.rentcafe.com/average-rent-market-trends/us/ca/ventura-county/oxnard/>
- Rent Cafe. (2020d, February). *Average Rent in Ventura County, CA*. Retrieved from rentcafe.com: <https://www.rentcafe.com/apartments-for-rent/us/ca/ventura-county/>
- Sanberg-Onieda Total Integrated Enterprises, Joint Venture. (2018, July 2). FINAL GROUNDWATER MONITORING REPORT SECOND SEMIANNUAL PERIOD 2017, SITE 24 (FORMER UNDERGROUND STORAGE TANK SITES 23 AND 55).
- Sawyer, J.O., T. Keeler-Wolf, and J. Evens. (2009). A Manual of California Vegetation. *Second*. Sacramento, CA: California Native Plant Society.
- Schultz, T. J. (1979). Sysnthesis of Social Surveys on Noise Annoyance. *Journal of the Acoustic Society of America*, 64(2), 377-406.
- Shannon, G. M. (2016). A synthesis of two decades of research documenting the effects of noise on wildlife. *Biological Reviews*, 91(4), pp.982-1005.

State of California. (2020). *California Budget 2020-2021, May Revision Detail*. Retrieved from State of California: <http://www.ebudget.ca.gov/budget/2020-21/#/BudgetDetail>

State Water Resources Control Board. (2016). Impaired Water Bodies. *Final 2014/2016 California Integrated Report (Clean Water Act Section 303(d) List / 305(b) Report)*.

U.S. Air Force Safety Center (AFSC). (2010). Bird-Aircraft Strike Hazard Team. Selected Statistics. . Retrieved from http://safety/kirtland.af.mil/AFSC/Bash/stats/web_pof_stat.html (2010)

U.S. Bureau of Labor Statistics. (2020a). *Local Area Unemployment Statistics, Labor force data by county*. Retrieved from U.S. Bureau of Labor Statistics: <https://www.bls.gov/lau/#data>

U.S. Bureau of Labor Statistics. (2020b). *Local Area Unemployment Statistics, State Employment and Unemployment*. Retrieved from U.S. Bureau of Labor Statistics: <https://www.bls.gov/lau/#data>

U.S. Census Bureau. (2018a). *American Community Survey 5-year Estimates 2014-2018, Table DP03: Selected Economic Characteristics*. Retrieved from U.S. Census Bureau: <https://data.census.gov/cedsci/advanced>

U.S. Census Bureau. (2018b). *American Community Survey, 5-year Estimates 2014-2018, Table DP04: Selected Housing Characteristics*. Retrieved from U.S. Census Bureau: <https://data.census.gov/cedsci/advanced>

U.S. Census Bureau. (2020). *QuickFacts for: Oxnard city, Camarillo city, Port Hueneme city, Ventura County, and California*. Retrieved from United States Census Bureau: <https://www.census.gov/quickfacts/fact/table/oxnardcitycalifornia,camarillocitycalifornia,porthuenemecitycalifornia,venturacountycalifornia,CA,US/PST045219>

U.S. Coast Guard & U.S. Department of the Navy . (2018, May). Draft Environmental Assessment for U.S. Coast Guard Air Station Point Mugu at Naval Base Ventura County, California.

U.S. Department of the Navy. (2010, December). Energy Program for Security and Independence.

U.S. Department of the Navy. (2012). Shoreline Protection Study Report. Prepared for Naval Facilities Engineering Command. Naval Base Ventura County, Point Mugu. Brady G2 and Moffatt & Nichol.

U.S. Department of the Navy. (2013a). U.S. Negative Archaeological Survey Report: Phase I Archaeological Survey of the former golf course Naval Base Ventura County Point Mugu, Ventura County, California.

U.S. Department of the Navy. (2013b, April). Final Environmental Assessment for the Home Basing of the MQ-4C Triton Unmanned Aircraft System at Naval Base Ventura County Point Mugu, California.

U.S. Department of the Navy. (2013c). Integrated Natural Resources Management Plan Naval Base Ventura County Point Mugu and Special Areas, California. Tetra Tech Inc. for Naval Facilities Engineering Command, Southwest.

U.S. Department of the Navy. (2013d, May). Naval Base Ventura County - Point Mugu Fact Sheet. *SSIC NO. 5090.3.A.*

U.S. Department of the Navy. (2015, December). Naval Base Ventura County Point Mugu Air Installations Compatible Use Zones Study.

- U.S. Department of the Navy. (2016a, June 20). Memorandum for Commander Naval Installations Command, Deputy Commandant of the Marine Corps (Installations and Logistics). *Perfluorinated Compounds. Perfluoroalkyl Substances (PFC/PFAS) - Identification of Potential Areas of Concern (AOCs)*.
- U.S. Department of the Navy. (2016b, June 16). Memorandum for Deputy Chief of Naval Operations (Fleet Readiness and Logistics), Deputy Commandant of the Marine Corps (Installations and Logistics), Deputy Commandant of the Marine Corps (Aviation). *Aqueous Film-Forming Foam (AFFF) control, removal, and disposal.*
- U.S. Department of the Navy. (2017a, February). Final Environmental Assessment The East Coast Home Basing of MQ-4C Triton Unmanned Aircraft System.
- U.S. Department of the Navy. (2017b, February). MQ-25A Airspace Integration Concept of Employment.
- U.S. Department of the Navy. (2018, December 18). Hawaii Southern California Training and Testing Environmental Impact Statement. Overseas Environmental Impact Statement.
- U.S. Department of the Navy. (2019a). Integrated Natural Resources Management Plan Naval Base Ventura County Point Mugu and Special Areas, California. Tetra Tech Inc. for Naval Facilities Engineering Command, Southwest.
- U.S. Department of the Navy. (2019b, July). Final Environmental Assessment for Directed Energy Systems Integration Laboratory at Naval Base Ventura County, Point Mugu, California.
- U.S. Department of the Navy. (2020). *Taxiway Access Apron Ramp for MQ-25A. Special Project Number NF20-1672*. Naval Base Ventura County Point Mugu.
- U.S. Department of the Navy. (2020a, April). Point Mugu Sea Range Draft Environmental Impact/Overseas Environmental Impact.
- U.S. Department of the Navy. (2020b, January). Fallon Range Training Complex Modernization Final Environmental Impact Statement.
- U.S. Department of the Navy. (2020c). *Taxiway Access Apron Ramp for MQ-25A. Special Project Number NF20-1672*. Naval Base Ventura County Point Mugu.
- USEPA. (1974). *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. EPA550/9-74-004. Washington, DC.
- USEPA. (1978, March). EPA Noise Control Program Progress To Date.
- USEPA. (1999, May). Consideration of Cumulative Impacts in EPA Review of NEPA Documents .
- USEPA. (2019). National Pollutant Discharge Elimination System General Permit for Discharges from Construction Activities.
- USEPA. (2020a). Nonattainment Areas for Criteria Pollutants (Green Book). Retrieved from <https://www.epa.gov/green-book>
- USEPA. (2020b). 2017 National Emission Inventory. Retrieved from <https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data>

USEPA. (2020c, August 3). *RCRAInfo Web Search Results, NBVC Point Mugu*. Retrieved from 2017 Site Listing for California, Naval Base Ventura County:
<https://rcrapublic.epa.gov/rcrainfoweb/action/modules/br/search>

USEPA. (2020d, March 11). *Per- and Polyfluoroalkyl Substances (PFAS)*. Retrieved from
<https://www.epa.gov/pfas>

USEPA and USACE. (2020, April). The Navigable Waters Protection Rule: Definition of "Waters of the United States".

USFWS. (2008). *Birds of Conservation Concern 2008*. U.S. Fish and Wildlife Service Division of Migratory Bird Management.

USFWS. (2009). *Draft Recovery Plan for Tidal Marsh Ecosystems of Northern and Central*. Region 8.

USFWS. (2020, June 11). *Information for Planning and Consultation Web Search*. Retrieved from
<https://ecos.fws.gov/ipac/location/KPINFXLEVFFZLEDTDM7ZLG2AA/resources>

Ventura County. (2017). *2017 Traffic Volumes of Ventura County Roadways*. Venture, California: Transportation Department, Public Works Agency.

Ventura County. (2019). *VENTURA COUNTY GENERAL PLAN*. Board of Supervisors.

Ventura County Air Pollution Control District. (2017). 2016 Air Quality Management Plan. Retrieved from <http://www.vcapcd.org>

Ventura County Transportation Commission. (2015). *Naval Base Ventura County Joint Land Use Plan*. Prepared by Matrix Design Group.

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