



EXECUTIVE SUMMARY

FINAL

**ENVIRONMENTAL IMPACT STATEMENT
FIFTH GENERATION FORMAL TRAINING UNIT
OPTIMIZATION**

**JOINT BASE LANGLEY-EUSTIS, VIRGINIA
EGLIN AIR FORCE BASE, FLORIDA**



February 2021

PRIVACY ADVISORY

Any personal information provided throughout this process has been used only to identify individuals' desire to make a statement during the public comment period or to fulfill requests for copies of the Final EIS or associated documents. Private addresses were compiled to develop a mailing list for those requesting copies of the Final EIS.

This Executive Summary of the *Final Environmental Impact Statement for Fifth Generation Formal Training Unit Optimization at Joint Base Langley-Eustis, Virginia and Eglin Air Force Base, Florida* (the “EIS”) provides an overview of the in-depth analysis of the Proposed Actions that are presented in the full Final EIS.

A CD containing the Final EIS as well as this Executive Summary is provided inside the back cover of this Executive Summary. An electronic copy of the Final EIS is available at each of the public libraries listed below.

In addition, electronic copies of the Draft EIS and Final EIS are available online at <https://www.5genftueis.com/>.

Libraries Holding Copies of the Final EIS

JBLE-Langley Area	Eglin AFB Area
Hampton Public Library 4207 Victoria Blvd. Hampton, VA 23669	Fort Walton Beach Library 185 Miracle Strip Pkwy SE Fort Walton Beach, Florida 32548 Niceville Public Library 206 N Partin Drive Niceville, FL 32578

TABLE OF CONTENTS

ES.1.0 PROPOSED ACTION OVERVIEW..... ES-7

ES.1.1 PURPOSE AND NEED FOR THE PROPOSED ACTIONS..... ES-9

 ES1.1.1 F-22 Formal Training Unit Beddown ES-9

 ES1.1.2 F-35A Formal Training Unit Beddown..... ES-9

 ES1.1.3 Alternative Identification Process..... ES-9

 ES1.1.4 Public Involvement..... ES-10

 ES1.1.4.1 Stages of the Environmental Review Process ES-10

 ES1.1.4.2 Consultation and Coordination Requirements ES-11

ES.2.0 DESCRIPTION OF THE PROPOSED ACTIONS..... ES-12

ES.2.1 F-22 FTU Mission Beddown at JBLE-Langley ES-12

 ES.2.1.1 Action Elements Affecting the Installation..... ES-12

 ES.2.1.2 Action Elements Affecting Training Airspace ES-14

ES.2.2 F-35A FTU Squadron Beddown at Eglin AFB..... ES-15

 ES.2.2.1 Action Elements Affecting the Installation..... ES-15

 ES.2.2.2 Action Elements Affecting Training Airspace ES-16

ES.2.3 No Action Alternative for the F-22 FTU Mission Beddown..... ES-17

ES.2.4 The Environmental Impact Analysis Process ES-18

ES.2.5 Environmental Comparison of Alternatives ES-18

ES.2.6 Mitigation Measures..... ES-31

ES.3.0 ENVIRONMENTAL CONSEQUENCES ES-35

ES.3.1 F-22 FTU Mission Beddown at JBLE-Langley ES-35

 ES.3.1.1 Airspace Management and Operations ES-35

 ES.3.1.2 Acoustic Environment ES-36

 ES.3.1.3 Land Use..... ES-36

 ES.3.1.4 Air Quality ES-35

 ES.3.1.5 Water Resources ES-36

 ES.3.1.6 Safety and Occupational Health ES-37

 ES.3.1.7 Hazardous and Toxic Materials and Waste ES-37

 ES.3.1.8 Biological/Natural Resources..... ES-38

 ES.3.1.9 Topography, Geology, and Soils..... ES-38

 ES.3.1.10 Cultural Resources ES-38

 ES.3.1.11 Socioeconomics..... ES-39

 ES.3.1.12 Environmental Justice..... ES-39

 ES.3.1.13 Aesthetics and Visual Resources ES-39

 ES.3.1.14 Infrastructure and Utilities ES-39

 ES.3.1.15 Transportation and Circulation..... ES-40

 ES.3.1.16 No Action Alternative ES-40

ES.3.2 F-35A FTU Squadron beddown at Eglin AFB ES-40

 ES.3.2.1 Airspace Management and Operations ES-40

 ES.3.2.2 Acoustic Environment ES-40

 ES.3.2.3 Land Use..... ES-40

ES.3.2.4	Air Quality	ES-41
ES.3.2.5	Water Resources	ES-41
ES.3.2.6	Safety and Occupational Health	ES-41
ES.3.2.7	Hazardous and Toxic Materials and Waste	ES-41
ES.3.2.8	Biological/Natural Resources.....	ES-41
ES.3.2.9	Topography, Geology, and Soils.....	ES-42
ES.3.2.10	Cultural Resources	ES-42
ES.3.2.11	Socioeconomics.....	ES-42
ES.3.2.12	Environmental Justice.....	ES-42
ES.3.2.13	Aesthetics and Visual Resources	ES-42
ES.3.2.14	Infrastructure and Utilities	ES-42
ES.3.2.15	Transportation and Circulation.....	ES-43

LIST OF FIGURES

Figure ES-1	Location of Joint Base Langley Eustis	ES-7
Figure ES-2	Location of Eglin Air Force Base	ES-8

LIST OF TABLES

Table ES-1	Proposed Annual Airfield operations at Joint Base Langley Eustis	ES-13
Table ES-2	New Construction and Facility Renovations for the F-22 Formal Training Unit Mission at Joint Base Langley Eustis	ES-13
Table ES-3	Existing and Proposed Annual Airfield Operations at Eglin Air Force Base/Destin- Fort Walton Beach Airport	ES-16
Table ES-4	Existing and Proposed Training Airspace Flight Operations	ES-17
Table ES-5	Comparison of Alternatives for the Proposed Beddown of the F-22 FTU mission at JBLE-Langley	ES-19
Table ES-6	Comparison of Alternatives for the Proposed Beddown of an Additional F-35-A FTU Squadron at Eglin AFB	ES-26
Table ES-7	Mitigations.....	ES-32

LIST OF ACRONYMS AND ABBREVIATIONS

1 FW	1st Fighter Wing
1 MXS	1st Maintenance Squadron
2 FTS	2nd Fighter Training Squadron
27 FS	27th Fighter Squadron
33 FW	33rd Fighter Wing
325 FW	325th Fighter Wing
325 TRSS	325th Training Support Squadron
43 FS	43rd Fighter Squadron
43 AMU	43rd Aircraft Maintenance Unit
58 FS	58th Fighter Squadron
ACM	asbestos-containing materials
ADAIR	adversary air
AETC	Air Education and Training Command
AFB	Air Force Base
AFI	Air Force Instruction
AFMAN	Air Force Manual
AFPD	Air Force Policy Directive
AICUZ	Air Installation Compatible Use Zone
Air Force	United States Air Force
AMU	Aircraft Maintenance Unit
AOC	Areas of Concern
APZ	Accident Potential Zone
AQCR	Air Quality Control Region
ARTCC	Air Route Traffic Control Center
ATC	Air Traffic Control
ATCAA	Air Traffic Control Assigned Airspace
BAI	Backup Aerospace Vehicle Inventory
BASH	bird/wildlife-aircraft strike hazard
BCE	Before Common Era
BMP	Best Management Practice
CAA	Clean Air Act
CAF	Combat Air Forces
CE	Common Era
CDNL	C-weighted Day-Night Average Sound Level
CDC	Child Development Center
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	carbon monoxide
CO ₂	carbon dioxide
CO _{2e}	carbon dioxide equivalent
COC	Community of Comparison
CONUS	Continental United States
CWA	Clean Water Act
CZ	Clear Zone
dB	decibel(s)
dBA	A-weighted decibel(s)
DNL	Day-Night Average Sound Level
DOD	Department of Defense

EGTTR	Eglin Gulf Test and Training Range
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EO	Executive Order
ERP	Environmental Restoration Program
ESA	Endangered Species Act
ESOHC	Environmental Safety and Occupational Health Council
ESQD	explosive safety quantity distance
FAA	Federal Aviation Administration
FDEP	Florida Department of Environmental Protection
FEMA	Federal Emergency Management Agency
FL	Flight Level
FMT	Full Mission Trainers
FONPA	Finding of No Practicable Alternative
FONSI	Finding of No Significant Impact
FS	Fighter Squadron
ft ²	square foot (feet)
FTS	Fighter Training Squadron
FTU	Formal Training Unit
GAO	Government Accountability Office
GHG	greenhouse gas
HAP	hazardous air pollutant
HAZMART	hazardous material pharmacy
HQ ACC	Headquarters Air Combat Command
HTA	Heavier-than-Air
HWMP	Hazardous Waste Management Plan
Hz	hertz
IDP	Installation Development Plan
IFR	instrument flight rules
JBEMP	Joint Base Emergency Management Plan
JBLE	Joint Base Langley-Eustis
JBPHH	Joint Base Pearl Harbor-Hickam
JLUS	Joint Land Use Study
JSF	Joint Strike Fighter
km ²	square kilometer
LBP	lead-based paint
Lbs/ft ²	pounds per square foot
L _{dnmr}	Onset Rate Adjusted Monthly Day-Night Average Sound Level
L _{eq}	equivalent level
L _{eq(8)}	8-hour L _{eq}
L _{max}	Maximum Sound Level
LiMWA	Limit of Moderate Wave Action
LOA	Letter of Agreement
LO/CRF	Low Observable/Composite Repair Facility
LOS	level of service
LTA	Lighter-than-Air
MCM	minimum control measures
mi ²	square mile(s)
MILCON	Military Construction
MMPA	Marine Mammal Protection Act

MOA	Military Operations Area
MOU	Memorandum of Understanding
MS4	Municipal Separate Storm Sewer System
MSA	Munitions Storage Area
MSAT	Mobile Source Air Toxic
MSL	mean sea level
MSW	municipal solid waste
MXS	Maintenance Squadron
NA	Number of Events Above
NAAQS	National Ambient Air Quality Standards
NACA	National Advisory Committee for Aeronautics
NASA	National Aeronautics and Space Administration
NAVD88	North American Vertical Datum of 1988
Navy	U.S. Navy
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NIPTS	Noise Induced Permanent Threshold Shift
NM	nautical mile(s)
NMFS	National Marine Fisheries Service
NO ₂	nitrogen dioxide
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NO _x	nitrogen oxides
NRHP	National Register of Historic Places
NWS	National Weather Service
O ₃	ozone
OSHA	Occupational Safety and Health Administration
PAA	Primary Aerospace Vehicles Authorized
Pb	lead
PCB	polychlorinated biphenyl
pCi/L	picocurie(s) per liter
PHL	Potential for Hearing Loss
PM _{2.5}	particulate matter equal to or less than 2.5 microns in diameter
PM ₁₀	particulate matter equal to or less than 10 microns in diameter
POI	point of interest
POL	Petroleum Oil and Lubricants
PSD	Prevention of Significant Deterioration
Q-D	quantity-distance
ROAA	Record of Air Analysis
ROCA	Record of Conformity Analysis
ROD	Record of Decision
RW	Runway
SEA	Special Environmental Assessment
SEL	Sound Exposure Level
SHPO	State Historic Preservation Officer
SO ₂	sulfur dioxide
SPCC	Spill Prevention, Control, and Countermeasure
SPRP	Spill Prevention and Response Plan
SS	Selection Standard

SUA	Special Use Airspace
SWPPP	Stormwater Pollution Prevention Plan
TA	Time Above
tpy	ton(s) per year
TRSS	Training Support Squadron
TW	Test Wing
UFC	Unified Facilities Criteria
U.S.C.	United States Code
US	United States
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UST	underground storage tank
VDEQ	Virginia Department of Environmental Quality
VDGIF	Virginia Department of Game and Inland Fisheries
VFR	visual flight rules
VOC	volatile organic compound
VPDES	Virginia Pollutant Discharge Elimination System

ES.1.0 PROPOSED ACTION OVERVIEW

This Executive Summary is designed to provide an overview of the Proposed Action and alternatives and to direct the reader to the Environmental Impact Statement (EIS). This Executive Summary does not take the place of the EIS. Please review the EIS for more details on the environmental consequences that are identified in this summary.

This EIS analyzes the potential environmental impacts associated with two actions proposed by the Department of the Air Force (Air Force) involving Eglin Air Force Base (AFB), Florida. The first proposed action is to permanently beddown the F-22 Formal Training Unit (FTU) mission that is temporarily operating at Eglin AFB due to Hurricane Michael’s devastation of nearby Tyndall AFB, at Joint Base Langley-Eustis (JBLE–Langley) in Virginia (**Figure ES-1**). The second proposal is the beddown of one additional F-35A FTU squadron at Eglin AFB should the F-22 FTU permanent beddown be implemented at JBLE-Langley.

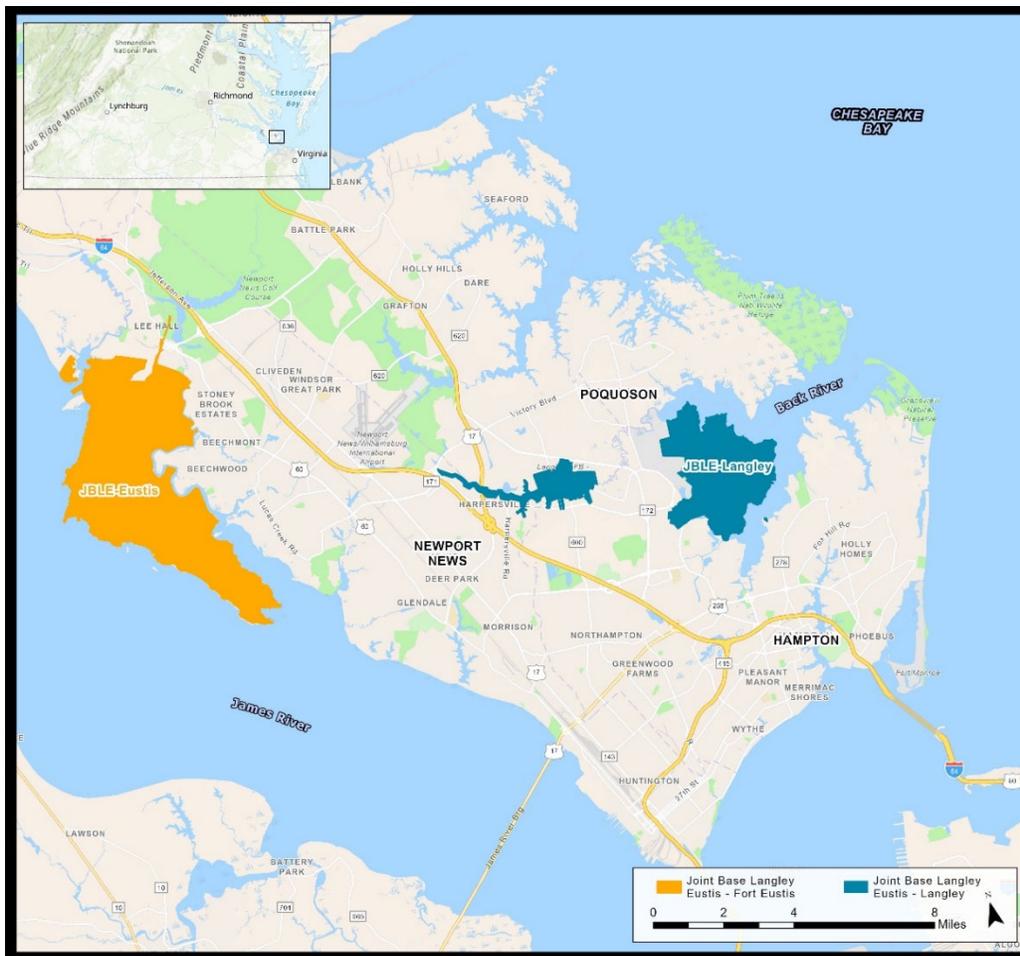


Figure ES-1. Location of Joint Base Langley-Eustis, Virginia

The Air Force evaluated two proposed beddown actions of fifth-generation fighter aircraft units to optimize pilot training operations and continue to grow the Air Force’s fighter pilot production capacity. Fifth-generation is a term applied to the newest weapons systems such as the F-22 and F-35A fighters that contain enhanced levels of stealth profiles, speed, maneuverability, and

advanced avionics and attack capabilities. These aircraft are critical to achieving and maintaining air dominance during combat operations.

The first proposal evaluated includes the permanent beddown of the F-22 FTU mission at JBLE-Langley in the wake of damage to Tyndall AFB caused by Hurricane Michael in October 2018. The hurricane displaced the Air Force's only F-22 FTU, consisting of 31 F-22 and 17 T-38 aircraft. Air Combat Command specifically uses the T-38 to represent enemy aircraft ("red air") during F-22 training exercises. A decision for the interim beddown of the F-22 FTU mission was formalized in April 2019, locating the F-22 FTU temporarily at Eglin AFB with some operations also occurring at Tyndall AFB.

The second proposal evaluated includes the beddown of a second Air Force F-35A FTU squadron at Eglin AFB (**Figure ES-2**). The proposed action to beddown the additional F-35A squadron at Eglin AFB would only be implemented if the F-22 FTU mission departed. This new training squadron would be made up of 26 F-35A aircraft (24 Primary Aerospace Vehicle Authorized (PAA) and two Backup Aerospace Vehicle Inventory (BAI)) that would join the existing F-35A FTU training squadron at Eglin AFB as part of the 33d Fighter Wing (33 FW). The PAA are those aircraft that have flying hours and personnel associated with them, and the BAI serve as backup aircraft.

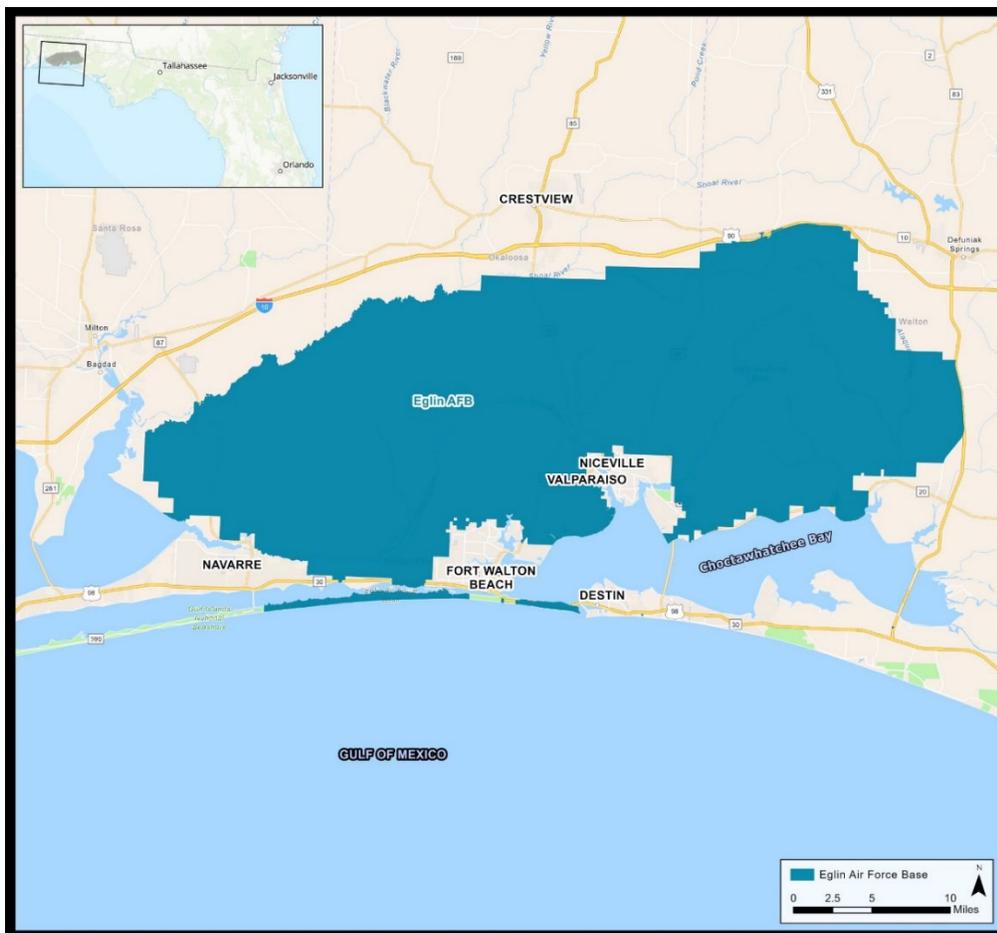


Figure ES-2. Location of Eglin Air Force Base, Florida

ES.1.1 PURPOSE AND NEED FOR THE PROPOSED ACTIONS

ES.1.1.1 F-22 Formal Training Unit Mission Beddown

The purpose of the proposed permanent beddown of the F-22 FTU mission at JBLE-Langley is to support continued training and production of combat ready F-22 fighter pilots while consolidating F-22 operations to improve readiness. The F-22 FTU mission needs to be permanently bedded down at a location that would optimize readiness and pilot production and would support the Secretary of Defense's requirement to improve F-22 Mission Capability Rates.

The need for the action is partially tied to the damage wrought by Hurricane Michael, though prior to the hurricane the Air Force was already experiencing a severe fighter pilot shortage. At the end of fiscal year 2018, the Air Force was short 1,937 pilots. Further, active duty fighter pilots are among the most stressed communities within the Air Force, with manning at only approximately 80 percent of total requirements.

Prior to Hurricane Michael, the Air Force had already recognized a need to optimize and consolidate its fifth-generation fighter training fleets to ensure FTUs have adequate training ranges, facilities, and airspace necessary to effectively produce qualified combat pilots. The permanent beddown of the F-22 FTU is needed to consolidate the F-22 fleet at a location to achieve maintenance and supply efficiencies and improve aircraft availability, which ultimately enables increased pilot production rates.

ES.1.1.2 F-35A Formal Training Unit Beddown

The purpose of establishing an additional F-35A FTU squadron at Eglin AFB is to support continued training and production of combat ready F-35A pilots while optimizing the use of training, airspace, and range capacity for fifth-generation aircraft. The F-35A warfighting missions can only be accomplished by properly trained pilots and personnel with adequate base facilities, military airspace, and military ground ranges to support the training.

In the coming decade, the Air Force anticipates that 50 percent of its fighter fleet will be comprised of F-35A aircraft. The establishment of an additional F-35A FTU squadron would enable the Air Force to produce more F-35A fighter pilots to recover from the current pilot shortage and sustain the pilot training production necessary to operate the growing F-35A fleet critical for combat capability, mission readiness, and homeland defense.

ES.1.1.3 Alternative Identification Process

Selection standards were used to identify alternatives for meeting the purpose and need for the F-22 FTU beddown component of this EIS. The Air Force identified reasonable alternatives based on selection standards which represent capabilities that each installation must have, to a reasonable degree, in order to qualify as an alternative. The selection standards for the F-22 FTU beddown are as follows:

Selection Standard (SS) 1. Training Airspace and Weather: The location must have airspace that meets F-22 FTU syllabus requirements in terms of proximity, volume, attributes and availability.

SS2. Facilities and Ramp Space for F-22: Adequate facilities and ramp space are required to accommodate a 28 PAA F-22 FTU squadron.

SS3. Facilities and Ramp Space for T-38: Adequate facilities and ramp space are required to accommodate an additional 16 PAA T-38 squadron. If existing facilities and ramp space are not adequate, there must be sufficient space to construct the necessary facilities and ramp space.

SS4. Existing F-22 Force Structure: A location must have existing permanent F-22 squadrons and infrastructure.

SS5. Continental United States (CONUS): The location must be in the CONUS.

SS6. Timing: The Air Force proposes to permanently beddown the F-22 FTU mission by the fall of 2021 in order to facilitate other proposed actions.

The following locations all met some portion of the selection standards: Eglin AFB, Florida, Joint Base Elmendorf-Richardson (JBER), Alaska; JBLE-Langley, Virginia; Joint Base Pearl Harbor-Hickam (JBPHH), Hawaii; Nellis AFB, Nevada; and Tyndall AFB, Florida. After comparing the six alternative locations to the selection standards, the following five locations: Eglin AFB, Tyndall AFB, JBER, JBPHH, and Nellis AFB were considered not reasonable alternatives for the F-22 FTU mission and were not brought forward for further analysis. The only location that met all the selection standards for the beddown of the F-22 FTU mission was JBLE-Langley which was carried forward for analysis.

ES.1.1.4 Public and Agency Involvement

CEQ regulations for implementing the NEPA (40 CFR 1500-1508), and the Air Force's implementing regulations (32 CFR 989) require the Air Force to consider potential environmental consequences of its proposed action early and concurrent with the initial project planning stages. An EIS documents the detailed study of the potential environmental consequences of the proposed action, as well as cumulative impacts. When preparing an EIS, the Air Force is required to invite review from other federal, state, and local agencies and from the public. When providing input on the EIS, the Air Force requested that comments be substantive in nature. Generally, substantive comments are regarded as those specific comments that challenge the analysis, methodologies, or information in the EIS as being factually inaccurate or analytically inadequate; that identify impacts not analyzed or developed and evaluate reasonable alternatives or feasible mitigations not considered by the Air Force; or that offer specific information that may have a bearing on the decision, such as differences in interpretations of significance, scientific, or technical conclusions, or cause changes or revisions in the proposal. All substantive comments, either written or verbal, received during the public comment period, were given full and equal consideration in the preparation of the Final EIS.

ES.1.1.4.1 Stages of the Environmental Review Process

Notice of Intent (NOI). The official public scoping period was initiated by publication of the Notice of Intent (NOI) to prepare an EIS published in the Federal Register on March 26, 2019 (Federal Register Volume 84, No. 58, page 11289-11290). The Air Force published newspaper advertisements in the *Bay Beacon* (Niceville, FL), the *Northwest Florida Daily News* (Fort Walton Beach, FL), the *Panama City News Herald* (Panama City, FL), and the *Daily Press* (Newport News, VA) announcing the intent to prepare an EIS and hold public scoping meetings in the weeks preceding each of the scheduled public scoping meetings.

Scoping. In May 2019, the Air Force held four public scoping meetings that took place near JBLE-Langley and Eglin AFB. The purpose of the public scoping meetings was to gather community-specific concerns to help focus the EIS analysis. The public scoping period ended on June 24, 2019. Substantive scoping comments were used to shape the analysis and focus the issues within this EIS. Overall, the vast majority of comments received were in support of the FTU Optimization proposed actions, while other comments identified concerns about air quality, airspace, biological resources, cultural resources, noise, transportation, socioeconomics, and water resources.

Draft EIS Notice of Availability (NOA) and Notice of Public Hearing. The NOA of the Draft EIS was published in the Federal Register on October 16, 2020 which initiated the 45-day public comment period on the Draft EIS. The Air Force also published newspaper advertisements in the Bay Beacon (Niceville, FL), the Northwest Florida Daily News (Fort Walton Beach, FL), the Panama City News Herald (Panama City, FL), and the Daily Press (Newport News, VA). The newspaper advertisements announced the availability of the draft EIS at public libraries and on the project website. The advertisements also included the date, time, and access instructions for the public hearing.

Public Hearing on the Draft EIS. Based on multiple considerations related to the COVID-19 pandemic, the Air Force made the decision to shift the format of the public hearing from in-person and in a physical meeting space to a “virtual” format. The virtual public hearing was held on November 16, 2020 through both an online and telephone platform.

Final EIS. The Final EIS has been prepared following the Draft EIS public comment period. Where applicable, the Final EIS has been revised to reflect public and agency comments and includes the proponents’ responses to all substantive comments.

Final EIS NOA. An NOA will be published in the Federal Register and local newspapers to announce availability of the Final EIS, and a 30-day waiting period will be initiated.

Record of Decision (ROD). The Air Force will prepare a concise, public ROD that will address the Air Force decisions on the two proposed actions, identify alternatives considered, specify the environmentally preferred alternatives, and state whether all practicable means to avoid or minimize environmental harm have been adopted (and if not, why they were not).

ES.1.1.4.2 Consultation and Coordination Requirements

As described more completely in the Final EIS, the Air Force coordinated and consulted with federal and state agencies and federally recognized tribes (tribes). The Air Force coordinated and consulted with federal and state agencies responsible for relevant resources (cultural, biological, etc.) early in the environmental planning process.

National Historic Preservation Act Consultation with State Historic Preservation Officers

In compliance with Section 106 of the National Historic Preservation Act (NHPA), the Air Force consulted with the Virginia State Historic Preservation Officer (SHPO) and interested parties regarding its determination of effects to historic properties for the F-22 FTU mission beddown at JBLE-Langley. The mitigation measures which would resolve adverse effects to historic properties are stipulated in a Memorandum of Agreement executed on January 19, 2021 (**Final EIS, Appendix F**).

The Air Force also consulted with the Florida SHPO and interested parties regarding its determination of effects to historic properties for the F-35A FTU squadron beddown activities at Eglin AFB. In a letter dated July 9, 2020, and a subsequent letter dated November 9, 2020, the Florida SHPO concurred with the Air Force determination that the proposed F-35A FTU squadron beddown at Eglin AFB would have no effect to historic properties listed, or eligible for listing, in the National Register of Historic Places (**Final EIS, Appendix F**).

Section 7 Consultation with the U.S. Fish and Wildlife Service

In compliance with Section 7 of the Endangered Species Act, the Air Force consulted with the U.S. Fish and Wildlife Service (USFWS) regarding impacts to federally listed threatened and endangered species.

The USFWS Raleigh Field Office provided their concurrence with the Air Force's determination of may affect, not likely to adversely affect federally listed threatened and endangered species on August 17, 2020, and the USFWS Virginia Field Office provided their concurrence with a statement of no concerns on August 21, 2020. The USFWS Panama City Field Office provided their concurrence with the Air Force's determination of may affect, not likely to adversely affect federally listed species at Eglin AFB on June 19, 2020. The NMFS provided their concurrence with the Air Force's determination of may affect, not likely to adversely affect listed species on August 4, 2020 (**Final EIS, Appendix E**).

Government-to-Government Consultation

In accordance with the NHPA, Executive Order (EO) 13175, U.S. Department of Defense Instruction 4710.02, and Department of Air Force Instruction 90-2002, the Air Force completed government-to-government consultations with potentially affected tribes. No adverse effects to tribal resources or traditional cultural properties were identified. Consultation documentation is presented in the **Final EIS, Appendix F**.

ES.2.0 DESCRIPTION OF THE PROPOSED ACTIONS

ES.2.1 F-22 FTU Mission Beddown at JBLE-Langley

The proposed action would relocate the F-22 FTU mission from Eglin AFB to JBLE-Langley. The proposal would include the relocation of the following units: 43 Fighter Squadron (43 FS), consisting of 28 PAA and 3 BAI F-22 aircraft; 43rd Aircraft Maintenance Squadron (43 AMU), which provides maintenance for the F-22s assigned to the 43 FS; 2nd Fighter Training Squadron (2 FTS), consisting of 16 PAA T-38 aircraft; and the 325th Training Support Squadron (325 TRSS) which manages training resources and conducts academic and realistic simulator training in support of the F-22 FTU.

ES.2.1.1 Action Elements Affecting the Installation

ES.2.1.1.1 Basing of the F-22 and T-38 Aircraft

The F-22 FTU aircraft would start to arrive at JBLE-Langley in approximately May - June 2021 and continue through October 2021. Construction of new facilities would begin in 2021, but the new facilities would not be completed before the F-22 FTU aircraft would arrive at JBLE-Langley.

Therefore, JBLE-Langley would accommodate the arrival of the mission with a limited amount of facility renovation work and without the completion of construction of any new facilities.

ES.2.1.1.2 Airfield Operations

Annual airfield operations at JBLE-Langley would increase to a total of approximately 114,382 (**Table ES-1**). The FTU (F-22 and T-38) represents an increase of 58,308 operations per year. Operations would predominately occur during the day and early evening (7:00 am to 10:00 pm) with approximately one percent of operations occurring after 10:00 pm.

Table ES-1. Proposed Annual Airfield operations at Joint Base Langley-Eustis

Use		Baseline Annual Airfield Operations	Proposed Steady State Annual Airfield Operations	Total Annual Airfield Operations
1 FW	F-22	22,677	26,442	49,119
	T-38	16,000	31,866	47,866
	<i>1 FW Total</i>	<i>38,677</i>	<i>58,308</i>	<i>96,985</i>
NASA		1134		1,134
CAF ADAIR		9,307		9,307
Transient		6,956		6,956
Total		56,074	58,308	114,382

ES.2.1.1.3 Facilities and Infrastructure

The proposed beddown of the F-22 FTU mission at JBLE-Langley would require sufficient facilities and infrastructure. To support the F-22 FTU mission, JBLE-Langley would require both new construction and renovations to the existing Child Development Center. **Table ES-2** describes the new facilities that would be constructed to support the F-22 FTU mission at JBLE-Langley. All construction would be located within the JBLE-Langley boundaries.

Table ES-2. New Construction and Facility Renovations for the F-22 Formal Training Unit Mission at Joint Base Langley-Eustis

Description	Estimated Area (ft ²)
Low Observable (LO)/Composite Repair Facility (CRF): three LO bays, one wash bay and a CRF for aircraft maintenance	68,000
TRSS Simulator/Academics: eight bays for F-22 full mission trainers, 16 weapons and tactics trainers, academic classrooms and office space	70,500
Hangar/Operations: six aircraft maintenance bays and sufficient office space for two aircraft maintenance squadrons, and squadron operations	76,500
Dormitory: 120-personnel dormitory	63,600
Flightline and Apron: pavement expansions/improvements	420,960
Renovate the existing Child Development Center including Buildings 60 and 61; construct new walkways and gazebo	81,600

ES.2.1.1.4 Personnel

The proposed beddown of the F-22 FTU mission at JBLE-Langley would require sufficient and appropriately skilled personnel to operate and maintain the aircraft and provide other necessary support services. The beddown of the F-22 FTU mission would result in an increase of approximately 760 personnel: 660 military, 75 civilian and 25 contract personnel. Additionally, a proportion of the newly assigned personnel would be accompanied by dependents. The 760 new personnel are estimated to have 1,672 dependents. Therefore, approximately 2,432 new persons would be added to the area surrounding JBLE-Langley.

ES.2.1.2 Action Elements Affecting Training Airspace

The F-22 and T-38 aircraft would be added to the existing F-22 force structure stationed at JBLE-Langley, resulting in an overall increase in aircraft operations and flying hours in the existing training airspace. Primary training airspace proposed for use by F-22 and T-38 aircraft assigned to JBLE-Langley includes Warning Areas W-72, W-122, and W-386. Warning Area W-386 receives approximately 90 percent of all airspace operations originating from JBLE-Langley while W-72 and W-122 each receive approximately 5 percent each. The Federal Aviation Administration (FAA) Washington Air Route Traffic Control Center (ARTCC) controls the Warning Areas, and the United States Navy (Navy), Fleet Area Control and Surveillance Facility, Virginia Capes, is responsible for scheduling and prioritizing use of each Warning Area. The Pamlico-B Military Operations Area (MOA) is controlled and scheduled by the United States Marine Corps (Marine Corps) Air Station Cherry Point Approach Control (FAA 2020a). Pamlico-B MOA is used occasionally by JBLE-Langley.

Changes would not be required to the current lateral or vertical configuration of the Warning Areas or Pamlico-B MOA, nor would it alter their scheduled times of use or procedures for scheduling the airspace. The change in annual use of Warning Area W-386 would constitute the largest change and would increase the number of annual operations from 17,154 to 24,279. Annual operations would increase by 1,900 and 475 in Warning Area W-72 and Pamlico-B MOA, respectively. There would be no additional annual operations in Warning Area W-122.

ES.2.1.2.1 Range Use

Range use is not required for the proposed beddown of the F-22 FTU mission at JBLE-Langley.

ES.2.1.2.2 Defensive Countermeasures

The deployment of chaff and flares would occur as in-air defensive countermeasures during training missions. Chaff and flares are the principal defensive countermeasures dispensed by military aircraft to avoid detection or attack by adversary defense systems. Chaff is an electronic countermeasure designed to reflect radar waves and obscure aircraft, ships, and other equipment from radar tracking sources. Chaff bundles typically consist of millions of non-hazardous aluminum-coated glass fibers. When ejected from the aircraft, these fibers disperse widely in the air, forming an electromagnetic screen that temporarily hides the aircraft from radar and forms a radar decoy, allowing the aircraft to defensively maneuver or leave the area. Flares are magnesium pellets ejected from military aircraft and provide high-temperature heat sources that act as decoys for heat-seeking weapons targeting the aircraft. These defensive countermeasures are utilized to keep aircraft from being successfully targeted by or escape from weapons such as

surface-to-air missiles, air-to-air missiles, and anti-aircraft artillery. Defensive countermeasure use occurs only in approved airspace and at altitudes designated for the airspace (ACC 2011). An estimated total annual maximum of 30,986 chaff bundles and 49,528 flares would be deployed within the Warning Areas and Pamlico-B MOA. These numbers represent moderate increases over the baseline of 20,884 chaff bundles and 33,374 flares (Warning Areas) and zero and 806 chaff bundles and 1,296 flares (Pamlico-B MOA), currently authorized to include Combat Air Forces (CAF) Adversary Air (ADAIR) operations (JBLE-Langley 2019a).

ES.2.2 F-35A FTU Squadron Beddown at Eglin AFB

ES.2.2.1 Action Elements Affecting the Installation

ES.2.2.1.1 Basing of the F-35A Aircraft

The second F-35A squadron would be assigned to the 33 FW to join the existing F-35A training squadron, the 58th Fighter Squadron (58 FS) already operating at Eglin AFB. The necessary squadron operations and maintenance facilities would be available for this second F-35A squadron if the F-22 FTU mission departs for JBLE-Langley. The beddown process would occur in phases associated with delivery of the F-35A aircraft. Delivery of the first F-35As to Eglin AFB would be in approximately October 2021, with aircraft continuing to arrive in phases through approximately November 2022, when the full complement of 24 PAA and two BAI F-35A aircraft would be based at Eglin AFB. If the Air Force decides to move forward with both proposed actions, assigning the F-22 FTU permanently to JBLE-Langley and a second F-35A training squadron to Eglin AFB, there could be a short period of overlap during which the F-35A aircraft would begin arriving at, and operating out of, Eglin AFB (late 2021) prior to the full departure of the F-22 FTU mission. Six F-22s are projected to depart Eglin AFB in May 2021 and eight F-22s would depart in August 2021. The remaining 17 F-22s and 16 T-38s are projected to depart Eglin AFB in October 2021. Three F-35As are projected to arrive at Eglin AFB in October 2021, five F-35As would arrive in November 2021, and six F-35As would arrive in December 2021. The remaining F-35As would arrive in 2022.

ES.2.2.1.2 Airfield Operations

The second F-35A training squadron would duplicate the operations of the existing F-35A training squadron, the 58 FS. This would consist of a total of approximately 16,500 operations per year by the additional F-35A training squadron. The F-35A pilots of the second squadron would perform approximately the same departure and landing procedures as those currently conducted by the existing 58 FS pilots. There would be no anticipated change to flight profiles, tracks, and flying days, which can be up to 365 days per year.

The proposed action to beddown the additional F-35A FTU squadron at Eglin AFB would only be implemented if the F-22 FTU mission departed. Therefore, there would be an approximate reduction of 30,744 F-22 aircraft operations and 11,810 T-38 aircraft operations at Eglin AFB associated with the departure of the F-22 FTU. The additional squadron of F-35As would conduct approximately 16,500 annual operations. In total, there would be a net reduction of approximately 26,054 operations at Eglin AFB as a result of the proposed action. Total airfield operations would remain below those approved by the 2014 Supplemental EIS ROD. Changes in flight patterns, local airspace use or airfield management would not be required. Existing protocols and restrictions on runway use would remain in place to ensure the continued safe and efficient use of the airspace and airfield.

Table ES-3. Existing and Proposed Annual Airfield Operations at Eglin Air Force Base/Destin-Fort Walton Beach Airport

Use	Existing Annual Airfield Operations	Proposed Annual Airfield Operations	Change in Annual Airfield Operations
Military			
Based Military Aircraft	73,276	47,222	-26,054
Transient	3,434	3,434	0
Civilian			
Commercial and General Aviation	13,150	13,150	0
Total	89,860	63,806	-26,054

Source: Cardno 2020.

ES.2.2.1.3 Facilities and Infrastructure

The second F-35A FTU squadron would leverage existing facilities and infrastructure for aircraft parking, maintenance, operations, administration and support. The second F-35A squadron would occupy space formerly occupied by the Navy and Marine Corps F-35 squadrons. Some facility renovations would be required to meet current facility standards and repair existing facility utility systems. Building 1412, recently vacated by the Navy, would be renovated for use by the second F-35A squadron. Several buildings within the 33 FW campus would also receive interior renovations to improve efficiency and support F-35A FTU operations (Buildings 1306, 1344, 1352 and 1386).

ES2.2.1.4 Personnel

The second F-35A FTU squadron would require approximately 377 additional personnel at Eglin AFB. The proposed action to beddown the additional F-35A squadron at Eglin AFB would only be implemented if the F-22 FTU mission departed. The departure of the F-22 FTU mission would include the departure of approximately 760 personnel from Eglin AFB. Therefore, there would be an overall reduction of 383 personnel at Eglin AFB. Additionally, a proportion of the departing personnel would be accompanied by dependents. The reduction of 383 personnel from Eglin AFB is estimated to result in a reduction of 843 dependents. Therefore, there would be an overall reduction of approximately 1,226 persons from the area surrounding Eglin AFB.

ES.2.2.2 Action Elements Affecting Training Airspace

The primary training airspace used by the F-35A is comprised primarily of the Eglin E and Rose Hill MOAs, the overlying Air Traffic Control Assigned Airspace (ATCAA) and Warning Area W-151. The Eglin E MOA/ATCAA overlies all of the Eglin restricted areas and the Valparaiso, Florida Terminal Area, 14 CFR Part 93 airspace. The Eglin E MOA can only be used for those missions that are not classified as hazardous. The Eglin E ATCAA overlays the North-South Corridor and that part of the East-West Corridor not under restricted airspace (Air Force 2016b). The Rose Hill MOA/ATCAA lies to the north of Eglin AFB east of Andalusia, Alabama. The Rose Hill MOA is also controlled by the Jacksonville ARTCC and scheduled and used by aircraft assigned to Eglin AFB.

Warning Areas are located over the Gulf of Mexico. Warning Area W-151 is part of the Eglin Gulf Test and Training Range (EGTTR) that is under the authority of the FAA but scheduled and managed by Eglin AFB. The FAA’s controlling agency for Warning Area W-151 is the Jacksonville ARTCC. The additional F-35As would be expected to operate at the same altitudes and in the same manner as the existing F-35As. Existing and proposed annual training airspace flight operations are provided in **Table ES-4**.

Table ES-4. Existing and Proposed Training Airspace Flight Operations

Airspace Type	Name	Existing Annual Operations	Proposed Annual Operations	Change in Annual Operations
Military Operating Areas	Eglin E MOA	3,596	5,970	2,374
	Rose Hill MOA	744	1,271	527
Air Traffic Control Assigned Airspace	Eglin E-ATCAA	3,596	5,970	2,374
	Rose Hill ATCAA	744	1,271	527
Warning Area	W-151A	10,493	9,683	(810)

Source: Cardno 2020.

Legend: ATCAA=air traffic control assigned airspace; MOA=military operating area, W=Warning Area.

ES.2.2.2.1 Range Use

The F-35A has the requirement and capability to perform air-to-ground missions. While most air-to-ground training would be simulated, where nothing is released from the aircraft, there is a need to conduct realistic ordnance delivery at ranges previously approved for ordnance use. No changes to range target configurations or types are needed to accommodate the additional F-35A squadron. The new F-35A FTU squadron would duplicate the ordnance activities of the existing F-35A FTU squadron. Additionally, the establishment of the additional F-35A squadron would backfill the F-35 spaces vacated by the Marine Corps F-35B squadron in late 2014 and vacated by the Navy F-35C squadron in 2019. The use of ordnance would remain at previously established levels authorized in the 2014 Final Supplemental EIS for F-35 Beddown at Eglin Air Force Base.

ES.2.2.2.2 Defensive Countermeasures

The additional F-35A FTU squadron would duplicate the defensive countermeasure activities of the existing F-35A squadron, the 58 FS, that were analyzed and approved with the 2009 EIS for the initial F-35 beddown at Eglin AFB. The MJU-61 flares used by the F-35A provide an infrared countermeasure to counter homing, heat-seeking surface-to-air and air-to-air missiles. Flares are used only in approved airspace and at times and altitudes specifically designated for each airspace unit. The use of flares would double from the current level with the establishment of the second F-35A squadron. Currently there is no chaff approved for use by the F-35A.

ES.2.3 No Action Alternative for the F-22 FTU Mission Beddown at JBLE-Langley

The analysis of a No Action Alternative in an EIS is required by 40 CFR 1502.14(d) of the CEQ’s regulations for implementing NEPA to provide a benchmark and enable decisionmakers to compare the magnitude of the environmental effects to a proposed action and alternatives. No

action means that an action would not take place and the resulting environmental effects from taking no action would be compared with the effects of allowing the proposed activity to go forward.

The No Action Alternative would result in the F-22 FTU mission remaining at Eglin AFB while the academics, simulators, low observable maintenance, and some flight training would continue to be conducted at Tyndall AFB. There would be no F-22 FTU related personnel or facility renovation or construction at JBLE-Langley. With the No Action Alternative there would be no establishment of a second F-35A FTU squadron at Eglin AFB.

ES.2.4 The Environmental Impact Analysis Process

This EIS was prepared in accordance with NEPA (42 U.S.C. 4321-4347), the CEQ regulation of 1978 (40 CFR Parts 1500-1508), and 32 CFR Part 989. Title 32 CFR Part 989 establishes the Environmental Impact Analysis Process (EIAP), which addresses the Air Force's implementation of NEPA, and AFI 32-1015 directs Air Force officials to consider the environmental consequences of any proposed action prior to implementation. The EIAP involves several steps. The EIAP reviews all information pertinent to the proposed action and alternatives and the No Action Alternative and provides a full and fair discussion of potential consequences to the natural and human environment resulting from implementing the following proposed actions:

- (1) The beddown of the Air Force's F-22 FTU mission at JBLE-Langley
- (2) The beddown of an additional F-35A FTU squadron at Eglin AFB

Environmental resources and/or issues of concern that have the potential for impacts include airspace management and operations, acoustic environment, land use, air quality, water resources, safety and occupational health, hazardous and toxic materials and waste, biological/natural resources, topography, geology, and soils, cultural resources, socioeconomics, environmental justice, aesthetics and visual resources, infrastructure and utilities, and transportation and circulation.

ES.2.5 Environmental Comparison of Alternatives

Table ES-5 provides a summary comparison of the proposed F-22 FTU mission beddown at JBLE-Langley and the No Action Alternative. **Table ES-6** provides a summary comparison of the F-35A FTU squadron beddown at Eglin AFB with the No Action Alternative. Each alternative is compared for each of the environmental resources evaluation in Chapter 4 of the Final EIS.

Table ES-5 Comparison of Alternatives for the Proposed Beddown of the F-22 FTU mission at JBLE-Langley.

Environmental Resource	F-22 FTU Beddown at JBLE-Langley	No Action Alternative
<p>Airspace Management and Operations</p>	<p>Adverse impacts to the airfield airspace environment would occur; however, the impacts would not be considered significant. There would be an approximate increase of 58,308 annual airfield operations. No required changes would occur to the current lateral or vertical configuration of the Pamlico-B MOA or Warning Areas, nor would it alter their scheduled times of use or procedures for scheduling the airspace. The use of Warning Areas would continue to be coordinated with the Navy. The additional F-22 and T-38 pilots would be expected to operate at the same altitudes and in the same manner as the existing F-22s and T-38s. There would be no adverse impacts on airspace management and operations throughout the region. Potential impacts to civil aviation traffic could occur as a result of increased F-22 and T-38 operations in the Warning Areas and Pamlico-B MOA, but effects would be minimal.</p>	<p>The F-22 FTU mission would remain at Eglin AFB. Annual airfield flight operations (56,074), annual training airspace operations (17,154), and the percentage of use within the airfield and training airspace would remain unchanged resulting in no significant impact anticipated.</p>
<p>Acoustic Environment</p>	<p>Aircraft operations would substantially increase at JBLE – Langley. The off base land area exposed to 65 decibel A-weighted Day-Night Average Sound Level (dBA DNL) or greater would increase 34 percent to 9,026 acres. As such, an estimated 10,292 housing units and 24,286 people would be exposed to 65 dBA DNL or greater, a 48 percent and 40 percent increase, respectively, when compared to the baseline. The supplemental metric analysis of representative noise sensitive locations of school, residential areas, hospitals, and places of worship found increases for all metrics. Representative points of interest identified in Table 4.2-7 of the Final EIS would experience an increase in noise from 1 to 4 dBA DNL greater than current conditions. The proposed increase in aircraft operations would increase noise at JBLE-Langley.</p>	<p>The F-22 FTU mission would remain at Eglin AFB. Annual airfield flight operations would not increase. The off base land area exposed to 65 dB DNL or greater would remain at approximately 6,722 acres. Approximately 6,967 housing units and 17,407 people would continue to be exposed to 65 dBA DNL or greater. The supplemental metric analysis of representative noise sensitive locations of school, residential areas, hospitals, and places of worship would not be expected to increase.</p>

Environmental Resource	F-22 FTU Beddown at JBLE-Langley	No Action Alternative
Land Use	No significant impacts would occur. Proposed development would conform to existing land uses. Potential constraints to residential land use on the installation resulting from increase in personnel would be considered minor. Temporary and minor indirect impacts (e.g., annoyance) on existing land uses would result from construction and renovation activities. The off-base land use within the JBLE-Langley noise contours would cover 9,026 acres, an increase from the baseline of 2,304 acres	The beddown of the F-22 FTU mission would not occur at JBLE-Langley. No personnel increases or new construction associated with the F-22 FTU mission beddown would occur. There would be no change to the affected environment and no impact on land use.
Air Quality	Criteria pollutant emissions would increase as a result proposed aircraft operations and building construction. The proposed net changes would be less than the initial indicators of significance for sulfur dioxide (SO ₂), particulate matter less than or equal to 2.5 microns (PM _{2.5}) and particulate matter less than or equal to 10 microns (PM ₁₀). The increases in these pollutant emissions would not be significant. The proposed net change in emissions would exceed the initial indicator of significance for carbon monoxide (CO). The increase of 482.65 tons is due to the additional airfield operations. The estimated increase in annual CO emissions would result in an increase of 3.5 percent for the Hampton Roads region's total CO emissions, based on 2017 data in the National Emission Inventory (EPA 2020b). The increase is not anticipated to generate a significant impact such as violation of the National Ambient Air Quality Standards for CO. The assessment of impacts to regional air quality for all of the criteria pollutants would be less than significant based on the available information on construction and aircraft operation activities. Volatile organic compounds (VOC) and nitrogen oxides (NO _x) emissions would increase. The proposed net changes would be less than the de minimis thresholds for VOCs and NO _x ; therefore, the requirements of the General Conformity Rule are not applicable.	The F-22 FTU mission would remain at Eglin AFB, therefore there would be no F-22 FTU airfield operations or related personnel or facility renovation or construction projects at JBLE-Langley.

Environmental Resource	F-22 FTU Beddown at JBLE-Langley	No Action Alternative
Water Resources	<p>There would be no significant impacts to water resources. Adverse impacts to floodplains from construction would be considered permanent and minor. For proposed new building construction and new pavement adjacent to the flightline, net increases in impermeable surface would be minimal. There would be minor, temporary to permanent adverse impacts to less than approximately 0.5 acres of wetlands adjacent to the proposed Child Development Center improvements. Construction activities and training operations would be consistent to the maximum extent practicable with the enforceable policies of the Virginia Coastal Zone Management Program. The Virginia Department of Environmental Quality provided their concurrence with the Air Force's federal consistency determination on November 19, 2020. Their response and comments are provided in the Final EIS, Appendix A.</p>	<p>The F-22 FTU mission would remain at Eglin AFB, therefore there would be no F-22 FTU related personnel or facility renovation or construction at JBLE-Langley. There would be no impacts to water resources at JBLE-Langley including surface water, groundwater, floodplains, wetlands, or a coastal use or resource of Virginia's coastal zone, beyond the affected environment.</p>
Safety and Occupational Health	<p>There would be no significant impacts to safety and occupational health. Negligible, temporary adverse impacts to ground safety would be anticipated. No impacts to explosives safety would be anticipated. Implementation of the proposed action would not require the creation of new weapons storage, maintenance and/or loading areas, and new explosive safety quantity distances would not be required. Negligible impacts associated with the use of chaff and flares during training operations is anticipated. Minor, permanent adverse impacts to flight safety would be expected. An overall increase in aircraft operations and flying hours would increase the risk of aircraft mishaps and bird/wildlife-aircraft strike hazard (BASH) events.</p>	<p>The beddown of the F-22 FTU mission would not occur at JBLE-Langley. No personnel increases or new construction associated with the F-22 FTU mission beddown would occur. All aspects of ground safety and safety in the airspace would continue as described in the Final EIS, Section 3.2.6 including the implementation of health and safety plans (i.e. BASH plans, emergency response plans).</p>
Hazardous and Toxic Materials and Waste	<p>There would be no significant impacts to hazardous and toxic materials and waste. Negligible, temporary, adverse impacts may occur from the use of hazardous materials, Petroleum, Oil, and Lubricants (POLs), and the generation of hazardous wastes during</p>	<p>Under the No Action Alternative, the F-22 FTU mission would not relocate to JBLE-Langley. As such, hazardous and toxic materials and waste use</p>

Environmental Resource	F-22 FTU Beddown at JBLE-Langley	No Action Alternative
	<p>proposed construction and renovation. Construction and demolition would generate negligible quantities of hazardous wastes. There would be no new types of waste generated, just an increase in quantity for existing waste streams. The increases in waste generation would not impact JBLE-Langley's status as a large quantity generator. Minor, temporary, adverse impacts from Asbestos-Containing Material (ACM) and Lead-Based Paint (LBP) may occur; however, appropriate measures would be taken to reduce potential exposure to, and release of, these hazards. No adverse impacts would occur from the presence of Environmental Restoration Program (ERP) sites proximate to the Action Area. Minor, permanent, beneficial impacts would occur from reducing the potential for future human exposure to Polychlorinated Biphenyls at JBLE-Langley.</p>	<p>and generation would remain at levels described in the affected environment, Final EIS, Section 3.2.7. There would be no change in use of hazardous and toxic materials and waste and therefore, no significant impacts would occur.</p>
<p>Biological/ Natural Resources</p>	<p>There would be no significant impacts to biological/natural resources. Minor, temporary to permanent adverse impacts to vegetation at JBLE-Langley would occur as a result of new construction which would occur in previously disturbed areas. Impacts to wildlife resulting from construction would be negligible. Aircraft operations would have minor, temporary to permanent adverse impacts on biological resources from aircraft movement, the use of defensive countermeasures, noise, or the increase in BASH potential resulting from the increased number of operations. Potential negligible, permanent adverse impacts on biological resources from training activities include the deposition of residual plastic materials from chaff and flare use and potential ingestion by marine organisms. However, the likelihood of an organism encountering and ingesting residual materials is low. The Air Force has determined that the proposed action may affect, but is not likely to adversely affect the following listed species under the</p>	<p>The No Action Alternative would result in the F-22 FTU mission remaining at Eglin AFB, therefore there would be no F-22 FTU related personnel, facility renovation, or construction at JBLE-Langley. There would be no proposed increase in F-22 training operations in the Warning Areas. As such, there would be no additional impacts to biological resources beyond the affected environment as described in the Final EIS, Section 3.2.8.</p>

Environmental Resource	F-22 FTU Beddown at JBLE-Langley	No Action Alternative
	<p>jurisdiction of the U.S. Fish and Wildlife Service (USFWS) including the Bermuda petrel, the piping plover, the roseate tern, and the red knot. The USFWS Raleigh Field Office provided their concurrence with the Air Force's determination on August 17, 2020 and the USFWS Virginia Field Office provided their concurrence on August 21, 2020 (Final EIS, Appendix E). Additionally, the Air Force has determined that the Action Alternative may affect, but is not likely to adversely affect the following listed species under the jurisdiction of the National Marine Fisheries Service (NMFS) including the North Atlantic right whale, fin whale, blue whale, sperm whale, leatherback turtle, loggerhead turtle, green turtle, Kemp's ridley turtle, Atlantic sturgeon, and shortnose sturgeon. The NMFS provided their concurrence with the Air Force's determination on August 4, 2020 (Final EIS, Appendix E).</p>	
<p>Topography, Geology, and Soils</p>	<p>There would be no significant impacts to topography, geology, and soils. Land disturbance associated with new construction and pavement expansions adjacent to the airfield would not change the existing topography at JBLE-Langley. Temporary to permanent, minor adverse impacts to soils would occur as the result of new building construction and airfield pavement expansion to accommodate the beddown of the F-22 FTU mission, including the conversion of existing pervious areas to impervious areas.</p>	<p>The No Action Alternative would result in the F-22 FTU mission remaining at Eglin AFB, therefore there would be no F-22 FTU related personnel, facility renovation, or construction at JBLE-Langley. There would be no effects to geological resources beyond the affected environment as described in the Final EIS, Section 3.2.9.</p>
<p>Cultural Resources</p>	<p>There would be significant impacts to cultural resources due to the adverse effects on historic properties associated with the demolition of Hangar 753, a contributing property to the Langley Field Historic District, and the introduction of visual elements from new construction that could potentially diminish the integrity of the Langley Field Historic District. No impacts to archeological resources would be anticipated. Proposed F-22 and T-38</p>	<p>The No Action Alternative would result in the F-22 FTU mission remaining at Eglin AFB, therefore there would be no F-22 FTU related increases in personnel, facility renovation, or construction at JBLE-Langley. There would be no effects to cultural resources beyond</p>

Environmental Resource	F-22 FTU Beddown at JBLE-Langley	No Action Alternative
	<p>aircraft operations would be operating in the same areas and manner as existing aircraft and would have no adverse effects on historic properties. The mitigation measures which would resolve adverse effects to historic properties are stipulated in a Memorandum of Agreement executed on January 19, 2021 (Final EIS, Appendix F).</p>	<p>the affected environment as described in the Final EIS, Section 3.2.10.</p>
<p>Socioeconomics</p>	<p>There would be no significant impacts to socioeconomic conditions. Increased expenditures from the addition of 2,432 persons, including 760 military personnel, to the local community would provide a minor, permanent beneficial impact on the Hampton Roads region through increased payroll tax revenue. Substantial investments in infrastructure including new building construction and site improvements at JBLE-Langley to accommodate the F-22 FTU mission would result in minor, temporary beneficial impacts to the local economy as a result of temporary construction employment opportunities. The population increase would not substantially increase the demand for law enforcement, fire-fighting services, or social services and health care professionals. The local housing market is anticipated to have sufficient capacity to accommodate the additional housing needs.</p>	<p>The No Action Alternative would result in the F-22 FTU mission remaining at Eglin AFB, therefore there would be no F-22 FTU related personnel increases, facility renovation, or construction at JBLE-Langley. There would be no proposed increase in F-22 training operations in the Warning Areas. There would be no effects to socioeconomics beyond the affected environment as described in the Final EIS, Section 3.2.11.</p>
<p>Environmental Justice</p>	<p>Implementation of the proposed action would have the potential for significant impacts on Environmental Justice populations. The potential for disproportionate adverse effects on Environmental Justice populations, including low-income, minority, and elderly populations would occur as a result of the proposed expansion of the 65+ dBA DNL noise contours. The potential for adverse disproportionate impacts would occur as a result of noise exposure of Environmental Justice populations occurring in census block groups that were not previously located within the existing 65+ dBA DNL noise contour.</p>	<p>The No Action Alternative would result in the F-22 FTU mission remaining at Eglin AFB, therefore there would be no F-22 FTU related personnel increases, facility renovation, or construction at JBLE-Langley. There would be no proposed increase in F-22 training operations, and existing noise contours would remain the same. There would be no effects to low-income, minority, and</p>

Environmental Resource	F-22 FTU Beddown at JBLE-Langley	No Action Alternative
		elderly populations beyond the affected environment as described in the Final EIS, Section 3.2.12.
Aesthetics and Visual Resources	There would be no significant impacts to aesthetics and visual resources. Negligible, permanent adverse impacts to aesthetics and visual resources are expected with new construction and modification of existing facilities within developed areas of the installation. Proposed building design and appearance would be similar to existing buildings.	There would be no F-22 FTU-related construction changes or other alterations to the viewshed at JBLE-Langley; therefore, there would be no impact on aesthetics and visual resources.
Infrastructure and Utilities	There would be no significant impacts to infrastructure and utilities. Minor, permanent adverse impacts to potable water are expected from increased consumption. The potable water system at JBLE-Langley is currently operating below capacity and would accommodate the increase in consumption. Impacts to the wastewater system would be moderate, but not significant. Temporary impacts on the wastewater system would be expected as existing sewer lines are connected to new buildings or capped as appropriate. Construction of new hangars may require additional aboveground recovery tanks for foam systems, oil/water separators, and/or evaporators. Moderate, permanent adverse impacts on the stormwater system would be anticipated. Electricity consumption would increase approximately five percent of the total system capacity; therefore, minor impacts on the electrical supply system would be anticipated. Although new natural gas infrastructure upgrades may be necessary, any new natural gas pipelines would utilize the existing utility corridors and therefore occur in already developed locations of the installation. The natural gas system at JBLE-Langley operates below capacity and would support an increase in capacity. Temporary to permanent adverse impacts to solid waste resources would occur.	There would be no F-22 FTU-related new construction or renovations of existing facilities. Infrastructure and utility use and consumption and solid waste generation would remain as described in the affected environment, Final EIS, Section 3.2.14 ; therefore, no significant impacts would occur.

Environmental Resource	F-22 FTU Beddown at JBLE-Langley	No Action Alternative
Transportation and Circulation	Moderate, adverse impacts to the regional transportation system surrounded JBLE-Langley would occur. The influx of personnel would cause increased traffic congestion at the West Gate and along North Armistead Avenue during morning and afternoon rush hours and potentially along LaSalle Avenue and North King Street. Increased congestion at the West Gate from commercial construction vehicles would occur until construction and renovation projects are complete.	There would be no F-22 FTU-related impacts to transportation and circulation. Transportation and circulation would remain as described in the affected environment, Final EIS, Section 3.2.15 ; therefore, no significant impacts would occur.

Table ES-6 Comparison of Alternatives for the Proposed Beddown of an Additional F-35A FTU Squadron at Eglin Air Force Base

Environmental Resource	F-35A FTU Beddown at Eglin Air Force Base	No Action Alternative
Airspace Management and Operations	There would be no significant impacts to airspace management and operations. There would be an approximate annual reduction of 26,054 airfield operations (30,744 operations of the F-22 aircraft and 11,810 operations of the T-38 aircraft) associated with the departure of the F-22 FTU. The additional squadron of F-35As would conduct approximately 16,500 annual operations resulting in 47,222 annual airfield military aircraft operations. The overall decrease in airfield operations would be expected to have a positive effect on the local air traffic environment.	Under the No Action Alternative, the F-22 FTU mission would not depart and a second F-35A squadron would not beddown at Eglin AFB. The F-22 and F-35A FTU missions would continue to use the same training airspace as they do today; no changes to the number of operations or frequency of use of the training airspace would occur. Annual airfield flight operations (30,744 operations of the F-22 aircraft, 11,810 operations of the T-38 aircraft, and 16,500 of the F-35A aircraft) would remain unchanged. There would be no change in use of training airspace and therefore, no significant impacts would occur.
Acoustic Environment	The beddown of the additional F-35A squadron at Eglin AFB would result in a doubling of F-35A flight operations. With the relocation of the F-22 FTU mission to JBLE-Langley, there would be an approximate 30 percent reduction in operations at Eglin AFB. As a result, areas adjacent to Eglin AFB would	Under the No Action Alternative, the F-22 FTU mission would not depart and a second F-35A squadron would not beddown at Eglin AFB. Annual airfield flight operations would not increase. The off base land area exposed to 65 dBA DNL or greater would remain at approximately 471

Environmental Resource	F-35A FTU Beddown at Eglin Air Force Base	No Action Alternative
	<p>experience a decrease in noise levels and fewer people would be exposed to 65 dBA DNL or greater. The supplemental metric analysis of representative noise sensitive locations of school, residential areas, hospitals, and places of worship found either no change or decreases for all metrics. While there would be a modest decrease in operations in the special use airspace, the mix of aircraft and the training requirements of those aircraft would change. As such, noise associated with aircraft operations within the Eglin AFB special use airspace would increase modestly under the proposed action.</p>	<p>acres. Approximately 539 housing units and 1,248 people would continue to be exposed to 65 dBA DNL or greater. The supplemental metric analysis of representative noise sensitive locations of school, residential areas, hospitals, and places of worship would not be expected to change.</p>
<p>Land Use</p>	<p>There would be no impacts on land use with the implementation of the proposed action. There would be an approximate 30 percent reduction in operations at Eglin AFB and a modest decrease in the associated airspace. As a result, areas adjacent to Eglin AFB would experience a decrease in noise levels and fewer people would be exposed to 65 dBA DNL or greater.</p>	<p>Under the No Action Alternative, the F-22 FTU mission would not depart and a second F-35A squadron would not beddown at Eglin AFB. With implementation of the No Action Alternative, land use at Eglin AFB would remain as described in the affected environment, Final EIS, Section 3.3.3.</p>
<p>Air Quality</p>	<p>There would be no significant impacts to air quality. The proposed action would eliminate airfield operations of the F-22 and T-38 aircraft and add an additional squadron of F-35A aircraft. Criteria pollutant emissions would decrease, and the proposed net changes would be beneficial to regional air quality and less than the comparative thresholds used as a guide for assessing significance. The reduction in criteria pollutant emissions would not alter the attainment status of Okaloosa County and therefore would not be categorized as significant.</p>	<p>The No Action Alternative would result in the F-22 FTU mission remaining at Eglin AFB. There would be no establishment of a second F-35A squadron at Eglin AFB. As a result, aircraft operational emissions associated with the No Action Alternative would be anticipated to remain unchanged.</p>
<p>Water Resources</p>	<p>There would be no significant impacts to water resources. There</p>	<p>Under the No Action Alternative, the F-22 FTU mission would not</p>

Environmental Resource	F-35A FTU Beddown at Eglin Air Force Base	No Action Alternative
	<p>would be no direct impacts to surface waters or groundwater because there are no soil-disturbing activities associated with implementation of the proposed action. There would be no effects to wetlands or floodplains. The proposed action would be consistent to the maximum extent practicable with the enforceable policies of the Florida Coastal Management Program. The Florida Department of Environmental Protection provided their concurrence with the Air Force's federal consistency determination on May 13, 2020 (Final EIS, Appendix D).</p>	<p>depart and a second F-35A squadron would not beddown at Eglin AFB. The F-22 FTU mission and F-35A aircraft would continue to use the same training airspace as they do today. There would be no impacts to surface water and water quality, ground water, floodplains, wetlands, or Florida's coastal zone beyond the affected environment as described in the Final EIS, Section 3.3.5.</p>
<p>Safety and Occupational Health</p>	<p>There would be no significant impacts to safety and occupational health. Negligible, temporary adverse impacts on ground safety are expected with the implementation of the proposed action. Interior building renovations may expose personnel to risks from heavy equipment operation, hazardous materials, and potentially noisy and confined environments. No changes to range target configurations or types are needed to accommodate the additional F-35A squadron. The additional F-35A FTU squadron would duplicate the ordnance activities of the existing F-35A squadron, the 58 FS. With the proposed decrease in flight operations, the overall risk associated with aircraft mishap and bird-aircraft strikes would remain low.</p>	<p>With the No Action Alternative there would be no beddown of the second F-35A squadron at Eglin AFB. The F-22 FTU mission would remain at Eglin AFB. There would be no F-35A related personnel or construction changes at Eglin AFB and no impact on ground, explosive, or flight safety beyond the affected environment as described in the Final EIS, Section 3.3.6.</p>
<p>Hazardous and Toxic Materials and Waste</p>	<p>There would be no significant impacts to hazardous and toxic materials and waste. Negligible, temporary, adverse impacts may occur from the use of hazardous materials, POLs, and the generation of hazardous wastes during proposed interior building</p>	<p>Under the No Action Alternative, there would be no beddown of the second F-35A squadron at Eglin AFB. The F-22 FTU mission would remain at Eglin AFB. Hazardous and toxic materials and waste use and generation would remain at</p>

Environmental Resource	F-35A FTU Beddown at Eglin Air Force Base	No Action Alternative
	<p>renovations. The same types of hazardous materials would be utilized and the same types of hazardous waste would still be generated, but at lower quantities representing a minor, permanent beneficial impact to hazardous materials and waste. Minor, permanent, beneficial impacts would occur from reducing the potential for future human exposure to ACM, LBP, and PCBs if discovered and disposed of during building renovations.</p>	<p>levels described in the affected environment, Final EIS, Section 3.3.7.</p>
<p>Biological/Natural Resources</p>	<p>There would be no significant impacts to biological/natural resources. Potential impacts on biological resources would be associated with aircraft operations at Eglin AFB and within the MOAs and Warning Area W-151. Aircraft operations would have minor, temporary to permanent adverse impacts on biological resources from aircraft movement, the use of defensive countermeasures, and noise. The decrease in overall annual training operations would result in a decreased risk of BASH potential. Ordnance use would remain at previously established levels authorized in the 2014 Final Supplemental EIS for F-35 Beddown at Eglin AFB. Negligible impacts associated with the use of flares during F-35A training operations would occur. The Air Force has determined that implementation of the proposed action may affect but is not likely to adversely affect the red-cockaded woodpecker (RCW), piping plover, red knot, and West Indian manatee. The USFWS provided their concurrence with the Air Force's determination on June 19, 2020 (Final EIS, Appendix E).</p>	<p>Under the No Action Alternative, the F-22 FTU mission would not depart and a second F-35A squadron would not beddown at Eglin AFB. The F-22 FTU mission and F-35A aircraft would continue to use the same training airspace as they do today. No changes to the number of operations or frequency of use of the training airspace would occur. As such, there would be no change to biological resources beyond the affected environment described in the Final EIS, Section 3.3.8.</p>

Environmental Resource	F-35A FTU Beddown at Eglin Air Force Base	No Action Alternative
Topography, Geology, and Soils	No land disturbing activities would occur; therefore, there would be no impacts to topography, geology, and soils at Eglin AFB.	Under the No Action Alternative, the F-22 FTU mission would not depart and a second F-35A squadron would not beddown at Eglin AFB. There would be no effects to topography, geology and soils beyond the affected environment as described in the Final EIS, Section 3.3.9.
Cultural Resources	There would be no ground disturbance and no potential to cause adverse effects to archaeological sites. Although the interiors of Buildings 1344 and 1352 located in the Strategic Air Command Alert Historic District would be altered, the interiors do not contribute to the historic character of the buildings. Therefore, the Air Force has determined that the proposed modifications would have no adverse effect to cultural resources. The State Historic Preservation Officer provided concurrence with the Air Force's determination on July 9, 2020 (Final EIS, Appendix F).	Under the No Action Alternative, the F-22 FTU mission would not depart and a second F-35A squadron would not beddown at Eglin AFB. There would be no effects to cultural resources beyond the affected environment as described in the Final EIS, Section 3.3.10.
Socioeconomics	There would be no significant impacts to socioeconomic conditions. Under the proposed action, there would be a net reduction in 383 personnel. As a result, there would be no increases in demand for public services or housing beyond existing conditions. There would be negligible, permanent adverse effects to socioeconomic conditions associated with the net reduction in personnel.	The F-22 FTU mission would not depart and a second F-35A squadron would not beddown at Eglin AFB. There would be no effects to socioeconomic conditions beyond the affected environment as described in the Final EIS, Section 3.3.11.
Environmental Justice	No impacts on Environmental Justice populations would be anticipated. A reduction of approximately 291 housing units and 706 fewer people, primarily in the Valparaiso area northeast of Eglin AFB, would experience DNL greater than 65 dBA DNL. Therefore, there would be no	The F-22 FTU mission would not depart and a second F-35A squadron would not beddown at Eglin AFB. There would be no effects to Environmental Justice populations beyond the affected environment as described in the Final EIS, Section 3.3.12.

Environmental Resource	F-35A FTU Beddown at Eglin Air Force Base	No Action Alternative
	effects from noise exposure to Environmental Justice populations.	
Aesthetics and Visual Resources	No impacts on visual and aesthetic resources would be anticipated. With the implementation of the proposed action at Eglin AFB, no new construction would occur; however, interior renovations would be required to existing buildings.	The No Action Alternative would result in the F-22 FTU remaining at Eglin AFB. There would be no additional F-35A squadron established at Eglin AFB. No alterations to the viewshed would occur and there would be no impact on aesthetics and visual resources.
Infrastructure and Utilities	There would be no significant impacts to infrastructure and utilities. The potable water, wastewater, electrical, and natural gas systems at Eglin AFB are currently operating below capacity and could accommodate the reduction in consumption. Negligible, positive impacts on solid waste resources would be anticipated.	The No Action Alternative would result in the F-22 FTU remaining at Eglin AFB. There would be no additional F-35A squadron established at Eglin AFB. Utility use and consumption, and solid waste generation would continue as described in the affected environment, Final EIS, Section 3.3.14.
Transportation and Circulation	There would be no significant impacts to transportation and circulation. The net personnel decrease would result in a minor, permanent beneficial impact on the gate traffic and the Regional Transportation System and surrounding communities.	The No Action Alternative would result in the F-22 FTU remaining at Eglin AFB. There would be no additional F-35A squadron established at Eglin AFB. Transportation and circulation would remain at levels described in the affected environment, Final EIS, Section 3.3.15.

ES.2.6 MITIGATION MEASURES

Mitigation avoids, minimizes, remediates, or compensates for environmental impacts. CEQ regulations (40 CFR § 1508.20) define mitigation to include the following:

- Avoiding the impact altogether by not taking a certain action or parts of an action.
- Minimizing impacts by limiting the degree or magnitude of the action, and its implementation.
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- Compensating for the impact by replacing or providing substitute resources or environments.

Avoiding, minimizing, or reducing potential impacts has been a priority in guiding the development of the proposed F-22 FTU mission beddown at JBLE-Langley and the proposed beddown of a

second F-35A FTU squadron at Eglin AFB. Specific measures to avoid, reduce, or minimize impacts have been applied to construction, operation, and maintenance involved in the action.

The mitigations described in **Table ES-7** by applicable environmental resource were evaluated and could be incorporated, as applicable, into a decision to beddown the F-22 FTU mission at JBLE-Langley and a decision to beddown the additional F-35A squadron at Eglin AFB to avoid, minimize, or reduce potential impacts. Specific best management practices (BMPs) are identified and incorporated into the beddown actions in furtherance of 32 Part 989.22 and included in the mitigation plan and also fulfill permit requirements. These mitigations include BMPs for construction practices and continuation of ongoing operational restrictions and avoidance measures. BMP mitigations are designed and incorporated into the contractual responsibilities for on-base projects and activities to increase safety and avoid or reduce the potential for environmental consequences. The Air Force retains the responsibility to monitor and ensure that these BMPs are applied according to specific resources.

Table ES-7. Mitigations and Best Management Practices

Resource Area	Mitigations and Best Management Practices
Airspace Management and Operations	
JBLE-Langley	Operations will adhere to all existing FAA and DOD rules and regulations.
Eglin AFB	Operations will adhere to all existing FAA and DOD rules and regulations.
Acoustic Environment	
JBLE-Langley	The Air Force identified the following measures that are viable for flight safety, pilot training requirements, and implementation practicability: <ul style="list-style-type: none"> • Reduce F-22 closed pattern operations by 3,200 per year for the F-22 FTU in future steady-state years • Reduce ADAIR straight-in arrivals to Runway 08 by 75 percent by increasing ADAIR straight-in arrivals on Runway 26 • Reduce ADAIR nighttime operations from 3 to 2 percent.
Eglin AFB	No mitigation is recommended.
Land Use	
JBLE-Langley	JBLE-Langley and the surrounding communities will continue to collaborate on land use issues and develop and update land use plans as needed.
Eglin AFB	No mitigation is recommended.
Air Quality	
JBLE-Langley	During construction activities, BMPs will be implemented in order to mitigate all construction related emissions and may include engine idling limitations,

Table ES-7. Mitigations and Best Management Practices

Resource Area	Mitigations and Best Management Practices
	<p>lower speed limits, traffic re-routing, and dust suppression techniques. Dust suppression techniques may include but not be limited to:</p> <ul style="list-style-type: none"> • use, where possible, of water or chemicals for dust control, • installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials, • covering of open equipment for conveying soil and or dusty materials, and • prompt removal of spilled or tracked dirt or other materials from paved streets and removal of dried sediments resulting from erosion. <p>The Air Force will look for off-base options for closed pattern training outside of the Hampton Roads air quality area to optimize FTU training.</p>
Eglin AFB	No mitigation is recommended.
Water Resources	
JBLE-Langley	<p>The Air Force will update the existing Municipal Separate Storm Sewer (MS4) Permit No. VAR040140, Virginia Pollutant Discharge Elimination System (VPDES) Permit No. VAR052285 and associated Stormwater Pollution Prevention Plan (SWPPP), and implement site-specific management actions such as stormwater erosion and sediment control plans. Construction BMPs, such as silt fences and vegetation buffers, will be implemented to mitigate impacts to surface waters and water quality and wetlands from stormwater runoff. New building construction will incorporate BMPs and/or mitigation, into the design to mitigate impacts to the flood plain in accordance with the UFC for Civil Engineering. The Air Force will adhere to wetlands mitigation requirements in accordance with the permit issued pursuant to Section 404 of the Clean Water Act.</p>
Eglin AFB	No mitigation is recommended.
Safety and Occupational Health	
JBLE-Langley	<p>Personnel will implement applicable Air Force Occupational Safety and Health (AFOSH) and Occupational Safety and Health Administration (OSHA) requirements during construction, renovation, and demolition projects. Health and safety plans (i.e., BASH plans, emergency response plans) will be updated.</p>
Eglin AFB	<p>Personnel will implement applicable AFOSH and OSHA requirements during renovation projects. Health and safety plans (i.e., BASH plans, emergency response plans) will be updated.</p>
Hazardous and Toxic Materials and Waste	
JBLE-Langley	<p>Hazardous materials will continue to be procured through the hazardous material pharmacy (HAZMART) and the established logistics chain. Hazardous wastes will continue to be managed in accordance with JBLE-Langley's Hazardous Waste Management Plan (HWMP) and established procedures. Temporary storage of hazardous materials, hazardous wastes, and Petroleum Oil and Lubricants (POLs) will follow local BMPs noted in the JBLE-Langley HWMP, Spill Prevention and Response Plan (SPRP), and SWPPP.</p>

Table ES-7. Mitigations and Best Management Practices

Resource Area	Mitigations and Best Management Practices
Eglin AFB	Temporary storage of hazardous materials, hazardous wastes, and POLs will follow local BMPs noted in the Eglin AFB HWMP, SPCC Plan, and SWPPP.
Biological/Natural Resources	
JBLE-Langley	Airfield management and risk reduction measures associated with the BASH prevention program will continue to be implemented with the overall goals of reducing the likelihood for BASH incidents, ensuring pilot safety and the protection of military aircraft, and minimizing incidents of injury or death to birds and other wildlife.
Eglin AFB	Construction equipment from off-site locations used for interior building renovations will be directed to be cleaned prior to entry onto Eglin AFB to minimize the threat of non-native plant introductions. Airfield management and risk reduction measures associated with the BASH prevention program will continue to be implemented with the overall goals of reducing the likelihood for BASH incidents, ensuring pilot safety and the protection of military aircraft, and minimizing incidents of injury or death to birds and other wildlife.
Topography, Geology, and Soils	
JBLE-Langley	Stormwater BMPs, such as the use of silt fences, for erosion and sediment control will minimize the degradation of soil quality and soil loss through stormwater runoff and erosion. Site-specific management requirements for erosion and sediment control will be implemented. The Air Force will update all applicable permits including the VPDES Permit and associated SWPPP and MS4 Permit.
Eglin AFB	No mitigation is recommended.
Cultural Resources	
JBLE-Langley	The mitigation measures to resolve adverse effects to historic properties are stipulated in the Memorandum of Agreement signed by the State Historic Preservation Officer and the Air Force (Final EIS, Appendix F). Mitigations will include a Historic American Building Survey, Level III documentation (Federal Register Vol. 68, No. 139: 43159) of Building 753. The resulting documentation will be submitted to the SHPO, the National Park Service's Heritage Documentation Program for review, and upon acceptance archived in the Library of Congress and at DHR. The Air Force will also prepare a NRHP nomination form for the Langley Field Historic District and submit it to the SHPO for review and final submission to the NRHP. In the event of an inadvertent cultural discovery during ground disturbing operations, standard operating procedures identified in the Integrated Cultural Resources Management Plan for JBLE-Langley would be adhered to.
Eglin AFB	No mitigation is recommended.
Socioeconomics	
JBLE-Langley	No mitigation is recommended.
Eglin AFB	No mitigation is recommended.

Table ES-7. Mitigations and Best Management Practices

Resource Area	Mitigations and Best Management Practices
Environmental Justice	
JBLE-Langley	No mitigation is recommended although the noise mitigation measures identified for the Acoustic Environment would benefit Environmental Justice Populations.
Eglin AFB	No mitigation is recommended.
Aesthetics and Visual Resources	
JBLE-Langley	New buildings will be constructed in the visual character of JBLE-Langley as identified in the 2017 Installation Development Plan.
Eglin AFB	No mitigation is recommended.
Infrastructure and Utilities	
JBLE-Langley	BMPs to minimize impacts to infrastructure and utilities will be implemented, including the following: coordination with all utility providers prior to any ground-disturbing activities in an effort to minimize unintended damage to underground utilities; Leadership in Energy and Environmental Design and sustainable development will be incorporated into construction projects to achieve optimum resource efficiency, sustainability, and energy conservation; and the continuation and enhancement of recycling and reuse programs to accommodate waste generated.
Eglin AFB	No mitigation is recommended.
Transportation and Circulation	
JBLE-Langley	Construction deliveries will be scheduled outside of peak periods of inbound traffic. Construction workers will use the West Gate to reduce congestion at JBLE-Langley's other gates. The installation could implement necessary measures to reduce gate congestion, such as: <ul style="list-style-type: none"> • Adjusting operational schedules • Providing additional personnel at gates to process security checks during peak hours.
Eglin AFB	Deliveries associated with building renovation will be scheduled outside of peak periods of inbound traffic. Construction workers will use the Commercial Gate to reduce congestion at Eglin AFB's other gates. The installation could implement necessary measures to reduce gate congestion, such as: <ul style="list-style-type: none"> • Adjusting operational schedules; or, • Providing additional personnel at gates to process security checks during peak hours.

Key: ADAIR = Adversary Air; BMPs = Best Management Practices; BASH = Bird/wildlife Aircraft Strike Hazard; CWA = Clean Water Act; DHR = Department of Historic Resources; DOD = Department of Defense; FAA = Federal Aviation Administration; HAZMART = Hazardous Material Pharmacy; HWMP = Hazardous Waste Management Plan; MS4 = Municipal Separate Storm Sewer; NRHP = National Register of Historic Places; SHPO = State Historic Preservation Officer; SPCC = Spill, Prevention, Control, and Countermeasure; SWPPP = Stormwater Pollution Prevention Plan; UFC = Unified Facilities Criteria; VPDES = Virginia Pollutant Discharge Elimination System

ES.3.0 ENVIRONMENTAL CONSEQUENCES

The environmental consequences contained in this section of the Executive Summary are summarized from the Final EIS Chapter 4. These summarized environmental consequences are those identified in Tables ES-5 and ES-6 for the proposed actions.

ES.3.1 F-22 FTU Mission Beddown at JBLE-Langley

ES.3.1.1 Airspace Management and Operations

Adverse impacts to the airfield airspace environment would occur; however, the impacts would not be considered significant. There would be an approximate increase of 58,308 annual airfield operations. No changes to the current lateral or vertical configuration of the Pamlico-B MOA or Warning Areas would be required, nor would it alter their scheduled times of use or procedures for scheduling the airspace. The additional F-22 and T-38 pilots would be expected to operate during the same hours, at the same altitudes, and in the same manner as the existing F-22s and T-38s. The use of Warning Areas would continue to be coordinated with the Navy who would set priorities for use based on established procedures. The addition of the FTU and T-38s could result in the saturation of the primary training airspace during times typically used by JBLE-Langley. While overflow operations could still happen in nearby airspace, reduced training times and significant limitations to training type would be expected. Potential impacts to civil aviation traffic could occur as a result of increased F-22 and T-38 operations in the Warning Areas and Pamlico-B MOA, but effects would be minimal.

ES.3.1.2 Acoustic Environment

Aircraft operations would substantially increase at JBLE – Langley. The off base land area exposed to 65 decibel A-weighted Day-Night Average Sound Level (dBA DNL) or greater would increase 34 percent to 9,026 acres. As such, an estimated 10,292 housing units and 24,286 people would be exposed to 65 dBA DNL or greater, a 48 percent and 40 percent increase, respectively, when compared to the baseline. The supplemental metric analysis of representative noise sensitive locations of school, residential areas, hospitals, and places of worship found increases for all metrics. Representative points of interest identified in the **Final EIS, Table 4.2-7** would experience an increase in noise from 1 to 4 dBA DNL greater than current conditions. The proposed increase in aircraft operations would increase noise at JBLE-Langley.

ES.3.1.3 Land Use

No significant impacts would occur. Proposed development would conform to existing land uses. Potential constraints to residential land use on the installation resulting from increase in personnel would be considered minor. Temporary and minor indirect impacts (e.g., annoyance) on existing land uses would result from construction and renovation activities. The off-base land use within the JBLE-Langley noise contours would cover 9,026 acres, an increase from the baseline of 2,304 acres.

ES.3.1.4 Air Quality

Criteria pollutant emissions would increase as a result of proposed aircraft operations and building construction. The proposed net changes would be less than the initial indicators of significance

for sulfur dioxide (SO₂), particulate matter less than or equal to 2.5 microns (PM_{2.5}) and particulate matter less than or equal to 10 microns (PM₁₀). The increases in these pollutant emissions would not be significant. The proposed net change in emissions would exceed the initial indicator of significance for carbon monoxide (CO). The increase of 482.65 tons is due to the additional airfield operations. The estimated increase in annual CO emissions would result in an increase of 3.5 percent for the Hampton Roads region's total CO emissions, based on 2017 data in the National Emission Inventory (USEPA 2020b). The increase is not anticipated to generate a significant impact such as violation of the National Ambient Air Quality Standards for CO. The assessment of impacts to regional air quality for all of the criteria pollutants would be less than significant based on the available information on construction and aircraft operation activities. Volatile organic compounds (VOC) and nitrogen oxides (NO_x) emissions would increase. The proposed net changes would be less than the de minimis thresholds for VOCs and NO_x; therefore, the requirements of the General Conformity Rule are not applicable.

ES.3.1.5 Water Resources

There would be no significant impacts to water resources. Adverse impacts to floodplains from construction would be considered permanent and minor. For proposed new building construction and new pavement adjacent to the flightline, net increases in impermeable surface would be minimal. There would be minor, temporary to permanent adverse impacts to less than approximately 0.5 acres of wetlands adjacent to the proposed Child Development Center improvements. Construction activities and training operations would be consistent to the maximum extent practicable with the enforceable policies of the Virginia Coastal Zone Management Program. The Virginia Department of Environmental Quality provided their concurrence with the Air Force's federal consistency determination on November 19, 2020. Their response and comments are provided in the **Final EIS, Appendix A**.

ES.3.1.6 Safety and Occupational Health

There would be no significant impacts to safety and occupational health. Negligible, temporary adverse impacts to ground safety would be anticipated. No impacts to explosives safety would be anticipated. Implementation of the Action Alternative would not require the creation of new weapons storage, maintenance and/or loading areas, and new explosive safety quantity distances would not be required. Negligible impacts associated with the use of chaff and flares during training operations is anticipated. Minor, permanent adverse impacts to flight safety would be expected. An overall increase in aircraft operations and flying hours would increase the risk of aircraft mishaps and bird/wildlife-aircraft strike hazard (BASH) events.

ES.3.1.7 Hazardous and Toxic Materials and Waste

There would be no significant impacts to hazardous and toxic materials and waste. Negligible, temporary, adverse impacts may occur from the use of hazardous materials, Petroleum, Oil, and Lubricants (POLs), and the generation of hazardous wastes during proposed construction and renovation. Construction and demolition would generate negligible quantities of hazardous wastes. There would be no new types of waste generated, just an increase in quantity for existing waste streams. The increases in waste generation would not impact JBLE-Langley's status as a large quantity generator. Minor, temporary, adverse impacts from Asbestos-Containing Material (ACM) and Lead-Based Paint (LBP) may occur; however, appropriate measures would be taken to reduce potential exposure to, and release of, these hazards. No adverse impacts would occur from the presence of Environmental Restoration Program (ERP) sites proximate to the Action

Area. Minor, permanent, beneficial impacts would occur from reducing the potential for future human exposure to Polychlorinated Biphenyls at JBLE-Langley.

ES.3.1.8 Biological/Natural Resources

There would be no significant impacts to biological/natural resources. Minor, temporary to permanent adverse impacts to vegetation at JBLE-Langley would occur as a result of new construction which would occur in previously disturbed areas. Impacts to wildlife resulting from construction would be negligible. Aircraft operations would have minor, temporary to permanent adverse impacts on biological resources from aircraft movement, the use of defensive countermeasures, noise, or the increase in BASH potential resulting from the increased number of operations. Potential negligible, permanent adverse impacts on biological resources from training activities include the deposition of residual plastic materials from chaff and flare use and potential ingestion by marine organisms. However, the likelihood of an organism encountering and ingesting residual materials is low.

The Air Force has determined that the Action Alternative may affect, but is not likely to adversely affect the following listed species under the jurisdiction of the U.S. Fish and Wildlife Service (USFWS) including the Bermuda petrel, the piping plover, the roseate tern, and the red knot. The USFWS Raleigh Field Office provided their concurrence with the Air Force's determination on August 17, 2020 and the USFWS Virginia Field Office provided their concurrence on August 21, 2020 (**Final EIS, Appendix E**). Additionally, the Air Force has determined that the Action Alternative may affect, but is not likely to adversely affect the following listed species under the jurisdiction of the National Marine Fisheries Service (NMFS) including the North Atlantic right whale, fin whale, blue whale, sperm whale, leatherback turtle, loggerhead turtle, green turtle, Kemp's ridley turtle, Atlantic sturgeon, and shortnose sturgeon. The NMFS provided their concurrence with the Air Force's determination on August 4, 2020 (**Final EIS, Appendix E**).

ES.3.1.9 Topography, Geology, and Soils

There would be no significant impacts to topography, geology, and soils. Land disturbance associated with new construction and pavement expansions adjacent to the airfield would not change the existing topography at JBLE-Langley. Temporary to permanent, minor adverse impacts to soils would occur as the result of new building construction and airfield pavement expansion to accommodate the beddown of the F-22 FTU mission, including the conversion of existing pervious areas to impervious areas.

ES.3.1.10 Cultural Resources

There would be significant impacts to cultural resources due to the adverse effects on historic properties associated with the demolition of Hangar 753, a contributing property to the Langley Field Historic District, and the introduction of visual elements from new construction that could potentially diminish the integrity of the Langley Field Historic District. No impacts to archeological resources would be anticipated. Proposed F-22 and T-38 aircraft operations would be operating in the same areas and manner as existing aircraft and would have no adverse effects on historic properties. The mitigation measures which would resolve adverse effects to historic properties are stipulated in a Memorandum of Agreement executed on January 19, 2021 (**Final EIS, Appendix F**).

ES.3.1.11 Socioeconomics

There would be no significant impacts to socioeconomic conditions. Increased expenditures from the addition of 2,432 persons, including 760 military personnel, to the local community would provide a minor, permanent beneficial impact on the Hampton Roads region through increased payroll tax revenue. Substantial investments in infrastructure including new building construction and site improvements at JBLE-Langley to accommodate the F-22 FTU mission would result in minor, temporary beneficial impacts to the local economy as a result of temporary construction employment opportunities. The population increase would not substantially increase the demand for law enforcement, fire-fighting services, or social services and health care professionals. The local housing market is anticipated to have sufficient capacity to accommodate the additional housing needs.

ES.3.1.12 Environmental Justice

Implementation of the Action Alternative would have the potential for significant impacts on Environmental Justice populations. The potential for disproportionate adverse effects on Environmental Justice populations, including low-income, minority, and elderly populations would occur as a result of the proposed expansion of the 65+ dBA DNL noise contours. The potential for adverse disproportionate impacts would occur as a result of noise exposure of Environmental Justice populations occurring in census block groups that were not previously located within the existing 65+ dBA DNL noise contour.

ES.3.1.13 Aesthetics and Visual Resources

There would be no significant impacts to aesthetics and visual resources. Negligible, permanent adverse impacts to aesthetics and visual resources are expected with new construction and modification of existing facilities within developed areas of the installation. Proposed building design and appearance would be similar to existing buildings.

ES.3.1.14 Infrastructure and Utilities

There would be no significant impacts to infrastructure and utilities. Minor, permanent adverse impacts to potable water are expected from increased consumption. The potable water system at JBLE-Langley is currently operating below capacity and would accommodate the increase in consumption. Impacts to the wastewater system would be moderate, but not significant. Temporary impacts on the wastewater system would be expected as existing sewer lines are connected to new buildings or capped as appropriate.

Construction of new hangars may require additional aboveground recovery tanks for foam systems, oil/water separators, and/or evaporators. Moderate, permanent adverse impacts on the stormwater system would be anticipated. Electricity consumption would increase approximately five percent of the total system capacity; therefore, minor impacts on the electrical supply system would be anticipated. Although new natural gas infrastructure upgrades may be necessary, any new natural gas pipelines would utilize the existing utility corridors and therefore occur in already developed locations of the installation. The natural gas system at JBLE-Langley operates below capacity and would support an increase in capacity. Temporary to permanent adverse impacts to solid waste resources would occur.

ES.3.1.15 Transportation and Circulation

Moderate, adverse impacts to the regional transportation system surrounded JBLE-Langley would occur. The influx of personnel would cause increased traffic congestion at the West Gate and along North Armistead Avenue during morning and afternoon rush hours and potentially along LaSalle Avenue and North King Street. Increased congestion at the West Gate from commercial construction vehicles would occur until construction and renovation projects are complete.

ES.3.1.16 No Action Alternative for the Proposed F-22 FTU Mission Beddown at JBLE-Langley

Under the No Action Alternative, there would be no F-22 FTU mission beddown at JBLE-Langley and no impacts to the natural and human environment would result. There would be no facility renovations, construction and or addition personnel associated with the F-22 FTU mission beddown at JBLE-Langley. The No Action Alternative would result in the F-22 FTU mission remaining at Eglin AFB while the academics, simulators, low observable maintenance, and some flight training would continue to be conducted at Tyndall AFB. As a result, there would be no additional F-35A FTU squadron beddown at Eglin AFB if the F-22 FTU mission does not depart Eglin AFB.

ES.3.2 F-35A FTU Mission Beddown at Eglin AFB

ES.3.2.1 Airspace Management and Operations

There would be no significant impacts to airspace management and operations. There would be an approximate annual reduction of 26,054 airfield operations (30,744 operations of the F-22 aircraft and 11,810 operations of the T-38 aircraft) associated with the departure of the F-22 FTU. The additional squadron of F-35As would conduct approximately 16,500 annual operations resulting in 47,222 annual airfield military aircraft operations. The overall decrease in airfield operations would be expected to have a positive effect on the local air traffic environment.

ES.3.2.2 Acoustic Environment

The beddown of the additional F-35A squadron at Eglin AFB would result in a doubling of F-35A flight operations. With the relocation of the F-22 FTU mission to JBLE-Langley, there would be an approximate 30 percent reduction in operations at Eglin AFB. As a result, areas adjacent to Eglin AFB would experience a decrease in noise levels and fewer people would be exposed to 65 dBA DNL or greater. The supplemental metric analysis of representative noise sensitive locations of school, residential areas, hospitals, and places of worship found either no change or decreases for all metrics. While there would be a modest decrease in operations in the special use airspace, the mix of aircraft and the training requirements of those aircraft would change. As such, noise associated with aircraft operations within the Eglin AFB special use airspace would increase modestly under the proposed action.

ES.3.2.3 Land Use

There would be no impacts on land use with the implementation of the Action Alternative. There would be an approximate 30 percent reduction in operations at Eglin AFB and a modest decrease in the associated airspace. As a result, areas adjacent to Eglin AFB would experience a decrease in noise levels and fewer people would be exposed to 65 dBA DNL or greater.

ES.3.2.4 Air Quality

Criteria pollutant emissions would decrease with an overall reduction in operations. The proposed net changes would be beneficial to regional air quality and less than the comparative thresholds used as a guide for assessing significance. The reduction in criteria pollutant emissions would not alter the attainment status of Okaloosa County and therefore would not be categorized as significant.

ES.3.2.5 Water Resources

There would be no significant impacts to water resources. There would be no direct impacts to surface waters or groundwater because there are no soil-disturbing activities associated with implementation of the Action Alternative. There would be no effects to wetlands or floodplains. The Action Alternative would be consistent to the maximum extent practicable with the enforceable policies of the Florida Coastal Management Program. The Florida Department of Environmental Protection provided their concurrence with the Air Force's federal consistency determination on May 13, 2020 (**Final EIS, Appendix D**).

ES.3.2.6 Safety and Occupational Health

There would be no significant impacts to safety and occupational health. Negligible, temporary adverse impacts on ground safety are expected with the implementation of the Action Alternative. Interior building renovations may expose personnel to risks from heavy equipment operation, hazardous materials, and potentially noisy and confined environments. No changes to range target configurations or types are needed to accommodate the additional F-35A squadron. The additional F-35A FTU squadron would duplicate the ordnance activities of the existing F-35A squadron, the 58 FS. With the proposed decrease in flight operations, the overall risk associated with aircraft mishap and bird-aircraft strikes would remain low.

ES.3.2.7 Hazardous and Toxic Materials and Waste

There would be no significant impacts to hazardous and toxic materials and waste. Negligible, temporary, adverse impacts may occur from the use of hazardous materials, POLs, and the generation of hazardous wastes during proposed interior building renovations. The same types of hazardous materials would be utilized, and the same types of hazardous waste would still be generated, but at lower quantities representing a minor, permanent beneficial impact to hazardous materials and waste. Minor, permanent, beneficial impacts would occur from reducing the potential for future human exposure to ACM, LBP, and PCBs if discovered and disposed of during building renovations.

ES.3.2.8 Biological/Natural Resources

There would be no significant impacts to biological/natural resources. Potential impacts on biological resources would be associated with aircraft operations at Eglin AFB and within the MOAs and Warning Area W-151. Aircraft operations would have minor, temporary to permanent adverse impacts on biological resources from aircraft movement, the use of defensive countermeasures, and noise. The decrease in overall annual training operations would result in a decreased risk of BASH potential. Ordnance use would remain at previously established levels

authorized in the 2014 Final Supplemental EIS for F-35 Beddown at Eglin AFB. Negligible impacts associated with the use of flares during F-35A training operations would occur.

The Air Force has determined that implementation of the Action Alternative may affect but is not likely to adversely affect the red-cockaded woodpecker (RCW), piping plover, red knot, and West Indian manatee. The USFWS provided their concurrence with the Air Force's determination on June 19, 2020 (**Final EIS, Appendix E**).

ES.3.2.9 Topography, Geology, and Soils

No land disturbing activities would occur; therefore, there would be no impacts to topography, geology, and soils at Eglin AFB.

ES.3.2.10 Cultural Resources

There would be no ground disturbance and no potential to cause adverse effects to archaeological sites. Although the interiors of Buildings 1344 and 1352 located in the Strategic Air Command Alert Historic District would be altered, the interiors do not contribute to the historic character of the buildings. Therefore, the Air Force has determined that the proposed modifications would have no adverse effect to cultural resources. The State Historic Preservation Officer provided concurrence with the Air Force's determination on July 9, 2020 (**Final EIS, Appendix F**).

ES.3.2.11 Socioeconomics

There would be a net reduction in 383 personnel. As a result, there would be no increases in demand for public services or housing beyond existing conditions. There would be negligible, permanent adverse effects to socioeconomic conditions associated with the net reduction in personnel.

ES.3.2.12 Environmental Justice

No impacts on Environmental Justice populations would be anticipated. A reduction of approximately 291 housing units and 706 fewer people, primarily in the Valparaiso area northeast of Eglin AFB, would experience DNL greater than 65 dBA DNL. Therefore, there would be no effects from noise exposure to Environmental Justice populations.

ES.3.2.13 Aesthetics and Visual Resources

No impacts on visual and aesthetic resources would be anticipated. No new construction would occur; however, interior renovations would be required to existing buildings.

ES.3.2.14 Infrastructure and Utilities

There would be no significant impacts to infrastructure and utilities. The potable water, wastewater, electrical, and natural gas systems at Eglin AFB are currently operating below capacity and could accommodate the reduction in consumption. Negligible, positive impacts on solid waste resources would be anticipated.

ES.3.2.15 Transportation and Circulation

There would be no significant impacts to transportation and circulation. The net personnel decrease would result in a minor, permanent beneficial impact on the gate traffic and the Regional Transportation System and surrounding communities.