Draft

Environmental Assessment

Addressing Realignment of Eglin Boulevard on Eglin Air Force Base

Eglin Air Force Base, Florida

April

2024

ACRONYMS AND ABBREVIATIONS

350 SWW	350th Spectrum Warfare Wing
36 EWS	36th Electronic Warfare Squadron
96 TW	96th Test Wing
ACM	asbestos-containing material
AFB	Air Force Base
AFFF	aqueous film forming foam
AFH	Air Force Handbook
AFMAN	Air Force Manual
AICUZ	Air Installations Compatible Use Zones
APE	Area of Potential Effects
AST	aboveground storage tank
AvFID	Aviation Foreign International Defense
BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practice
BO	Biological Opinion
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CGP	Construction General Permit
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CWA	Clean Water Act
CZ	clear zone
CZMA	Coastal Zone Management Act
DAF	Department of the Air Force
DAFI	Department of Air Force Instruction
DAFMAN	Department of Air Force Manual
dB	decibel
dBA	“A-weighted” decibel
DESR	Defense Explosives Safety Regulation
DoD	Department of Defense
DT	Developmental Test
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EISA	Energy Independence and Security Act
EO	Executive Order
ESA	Endangered Species Act
ESCP	Erosion and Sediment Control Plan
ESQD	explosives safety quantity-distance
EUL	Enhanced Use Lease
FAC	Florida Administrative Code
FCC	Family Child Care
FCMP	Florida Coastal Management Program
FDEP	Florida Department of Environmental Protection
FFWCC	Florida Fish and Wildlife Conservation Commission
FONPA	Finding of No Practicable Alternative
FONSI	Finding of No Significant Impact
ft^2	square foot or square feet
FTU	Formal Training Unit
GHG	greenhouse gas
HDR	HDR, Inc.
HWMP	Hazardous Waste Management Plan
Hz	Hertz
ICRMP	Integrated Cultural Resources Management Plan
INRMP	Integrated Natural Resources Management Plan

IRP	Installation Restoration Program
ISWMP	Integrated Solid Waste Management Plan
LBP	lead-based paint
LOS	level of service
LUC	Land Use Control
MBTA	Migratory Bird Treaty Act
MFH	military family housing
MMRP	Military Munitions Response Program
MS4	Municipal Separate Storm Sewer System
MSL	mean sea level
N/A	not applicable
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO_X	nitrous oxide
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O_3	ozone
OFW	Outstanding Florida Water
OSH	Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
OSW	other surface water
PA	Programmatic Agreement
PCB	polychlorinated biphenyl
pCi/L	picocuries per liter
PFAS	per- and polyfluoroalkyl substances
PFBS	perfluorobutanesulfonic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonate
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PM_{10}	particulate matter less than 10 microns in diameter
POL	petroleum, oil, and lubricants
PPE	personal protective equipment
PSD	Prevention of Significant Deterioration
RI	Remedial Investigation
ROI	Region of Influence
RSL	regional screening level
SHPO	State Historic Preservation Officer
SO_X	sulfur oxide
SPCC	Spill Prevention, Control, and Countermeasures
SR	State Road
SWPPP	Stormwater Pollution Prevention Plan
tpy	tons per year
UFC	Unified Facilities Criteria
U.S.	United States
USACE	United States Army Corps of Engineers
USC	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VOC	volatile organic compound

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COVER SHEET

Draft Environmental Assessment
Addressing Realignment of Eglin Boulevard on Eglin Air Force Base, Florida

Responsible Agency: United States Department of the Air Force (DAF), 96th Civil Engineer Group.

Affected Location: Eglin Air Force Base, Florida.

Report Designation: Draft Environmental Assessment (EA).

Abstract: This EA describes DAF's proposal to realign approximately 2.5 miles of Eglin Boulevard on Eglin Air Force Base from where it splits at F Avenue on the eastern end, continues westward, then connects to Nomad Way. The proposed realignment would bring DAF into compliance with Air Installations Compatible Use Zones land use compatibility requirements and alleviate heavy traffic congestion and circulation concerns in the Eglin Main Base area on the installation. A Planning Charette Report was recently completed in April 2023 for the proposed realignment, resulting in two roadway alignment alternatives.

In addition to the two roadway alignment alternatives, the EA also includes consideration of the No Action Alternative. Under the No Action Alternative, DAF would not reroute Eglin Boulevard, and the location of Eglin Boulevard would continue to impede airfield planning and operations as well as cause traffic congestion and delays. Additionally, the expansion of Taxiway B on the installation's airfield would not be feasible.

The EA analyzes the potential for significant environmental impacts associated with the Proposed Action and alternatives, and aids in determining whether a Finding of No Significant Impact/Finding of No Practicable Alternative can be prepared, or an Environmental Impact Statement is required.

Written comments and inquiries regarding this document should be directed by mail to Ms. Ilka Cole, 96 TW/PA, 101 West D Ave., Suite 101, Eglin AFB, FL 32542, or by email to 96ceg.ceiea.nepapubliccomments@us.af.mil.

Privacy Advisory

This Environmental Assessment (EA) is provided for public comment in accordance with the National Environmental Policy Act (NEPA), Council on Environmental Quality regulations for implementing NEPA (Title 40 Code of Federal Regulations [CFR] Parts 1500–1508, as amended by 87 *Federal Register* 23453–23470), and 32 CFR Part 989, *Environmental Impact Analysis Proces*s.

The Environmental Impact Analysis Process provides an opportunity for public input on United States Department of the Air Force's (DAF's) decision making, allows the public to offer input, and solicits comments on DAF's analysis of environmental impacts.

Public commenting allows DAF to make better-informed decisions. Letters or other written or oral comments provided may be published in the EA. As required by law, comments provided will be addressed in the EA and made available to the public. Providing personal information is voluntary. Private addresses may be compiled to develop a mailing list for those requesting copies of the EA. Only the names of the individuals making comments and specific comments will be disclosed in the EA. Personal information, home addresses, telephone numbers, and email addresses will not be published in the EA.

This document is compliant with Section 508 of the Rehabilitation Act. This allows assistive technology to be used to obtain the available information from the document. Due to the nature of graphics, figures, tables, and images occurring in the document, accessibility is limited to a descriptive title for each item.

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1. Purpose of and Need for the Proposed Action

1.1 Introduction

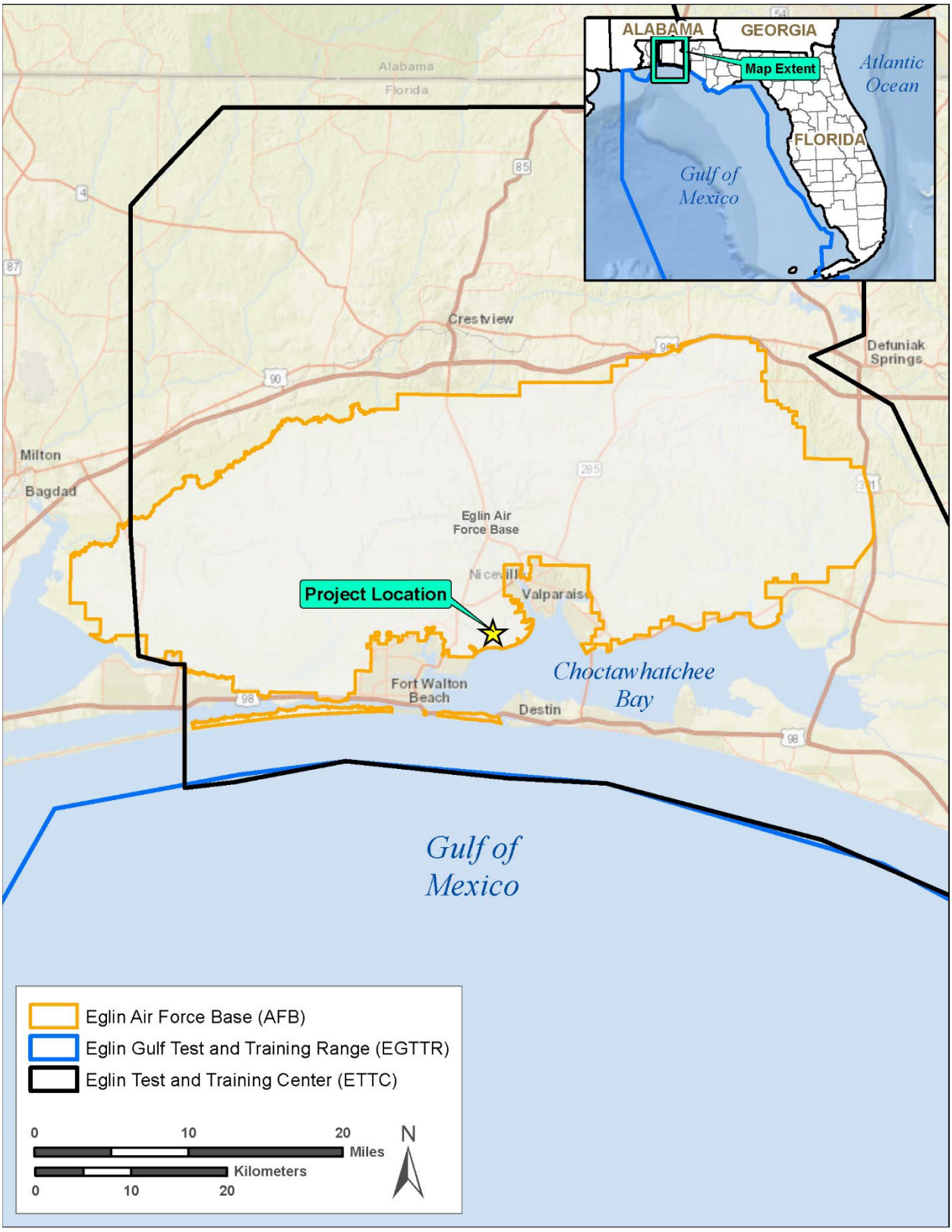
The United States (U.S.) Department of the Air Force (DAF) is proposing to realign approximately 2.5 miles of Eglin Boulevard on Eglin Air Force Base (AFB) from where it splits at F Avenue on the eastern end, continues westward, then connects to Nomad Way. The proposed realignment would bring DAF into compliance with Air Installations Compatible Use Zones (AICUZ) land use compatibility (Air Force Handbook [AFH] 32-7084, *AICUZ Program Manager's Guide*, Attachment 2-5 [DAF 2017]) and safety requirements as well as alleviate heavy traffic congestion and circulation concerns on the installation. DAF completed a Planning Charette Report (Eglin AFB 2023a) for the proposed realignment and identified two roadway alignment alternatives.

1.2 Location and Background

Eglin AFB, located in the panhandle of northwestern Florida (see **Figure 1-2**), is situated among four counties: Santa Rosa, Okaloosa, Walton, and Gulf. Eglin AFB's primary function is to support research, development, testing, and evaluation of conventional weapons and electronic systems. It also provides support for individual and joint training of operational units. The 96th Test Wing (96 TW) is headquartered at Eglin AFB and operates in the land, airspace, and water areas within the Eglin Test and Training Complex as well as the Eglin Gulf Test and Training Range in the Gulf of Mexico. The 96 TW leads more than 9,800 military, civilian, and contractor personnel at Eglin AFB (Eglin AFB 2017).

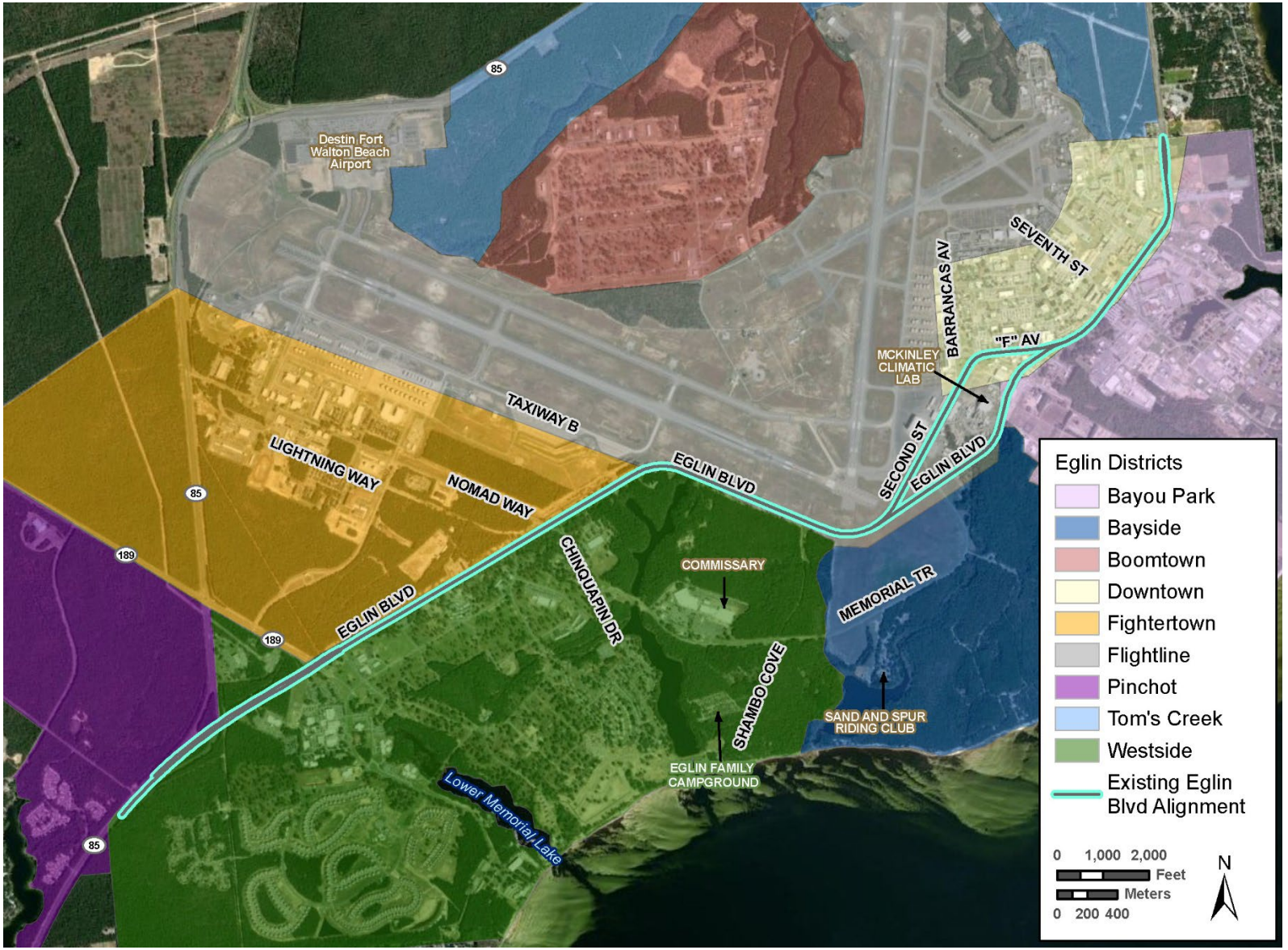
Eglin AFB is composed of the Eglin Main Base, Eglin Test and Training Complex, and Eglin Gulf Test and Training Range (see **Figure 1-1**). Eglin Main Base is along the southcentral boundary within the Eglin Reservation and is the developed portion of the installation that occupies 1,500 acres. The Eglin Main Base includes all command and control elements, base operating and support activities, the installation housing area, and an airfield.

The project area is located entirely on Eglin Main Base, south of the installation's primary airfield and runways as shown on **Figure 1-2**. Eglin Boulevard is a four-lane roadway that serves as the primary connection point between the eastern districts of Eglin Main Base, Bayou Park and Downtown, and the districts to the west: Fightertown and Westside. After eastbound/ southbound Eglin Boulevard splits at F Avenue, southbound traffic follows F Avenue and Second Street before rejoining Eglin Boulevard as a two-way roadway southeast of the airfield. Eglin Boulevard originates off the installation from S. John Sims Parkway to the east and becomes Eglin Parkway off the installation to the west. In the project area, Eglin Boulevard is not compliant with AICUZ land use compatibility (AFH 32-7084, *AICUZ Program Manager's Guide,* Attachment 2-5 [DAF 2017]) and safety requirements because it violates the clear zones (CZs) of Runways 02/20 and 12/30, and crosses (as Second Street) an active towway to a critical operational ramp to access the McKinley Climatic Laboratory. Only a flashing sign and light controls roadway traffic where Eglin Boulevard crosses the active taxiway.



Data Source: Eglin AFB 2022a

Figure 1-1. Eglin AFB Location



Data Source: Eglin AFB 2022a

Figure 1-2. Project Location

In addition to AICUZ compliance concerns, traffic congestion on Eglin Boulevard disrupts daily operations. In a 2013 transportation study, three major intersections of Eglin Boulevard were analyzed using level of service (LOS) (Eglin AFB 2017). LOS analysis categorizes traffic flow and assigns quality levels of traffic based on performance measures such as vehicle speed, density, and congestion, and is divided into six letter grades, which are "A" though "F" from best to worst, respectively. The study results revealed that the Eglin Boulevard and Memorial Trail intersection operated at LOS F, F Avenue at Fourth Street operated at LOS E, and Eglin Boulevard at Fifth Street operated at LOS F, during peak hours.

Peak hours for traffic volume occur during ingress to the installation from 5:00 a.m. to 8:00 a.m. and egress from 3:00 p.m. to 5:00 p.m. Another peak traffic period typically occurs midday from 11:00 a.m. to 12:00 p.m. A 2020 Entry Control Facility Study (Eglin AFB 2020a) analyzed several major intersections on the installation associated with the Haul Road and Northwest Gate Area, including several to be affected by the Proposed Action. Using LOS based on traffic volumes and speed, the 2020 study found the LOS of Eglin Boulevard at Fifth Street to have an overall LOS A to B, the Eglin Boulevard and Nomad Way intersection an overall LOS C to D, and F Avenue at Fifth Street an overall LOS C to D.

1.3 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to bring DAF into compliance with AICUZ land use compatibility (AFH 32-7084, *AICUZ Program Manager's Guide*, Attachment 2-5 [DAF 2017]) and safety requirements, alleviate heavy traffic congestion, and improve flow in the Eglin Main Base area on the installation. The Proposed Action is needed because the existing road alignment crosses graded areas of the CZs and two runway CZs, which is an aircraft hazard and not compliant with AICUZ land use compatibility, as well as crosses the aircraft towway, which is a safety hazard. This also limits the proposed expansion of Taxiway B.

Eglin Boulevard currently does not comply with airfield regulations and poses safety risks during hung munitions operations at the end of the runway, near King Hangar (Eglin AFB 2017). Airfield regulations prohibit roads within the graded portion of the CZ. All roads within the CZ are discouraged; however, but if they are required, they should not be wider than two lanes, and the rights-of way should be fenced and not include sidewalks or bicycle trails. Additionally, nothing associated with these roads should violate obstacle clearance criteria (DAF 2017). Eglin Boulevard must be rerouted outside existing CZs and explosives safety quantity-distance (ESQD) arcs (Eglin AFB 2017).

Improving efficiencies and reducing airfield ground congestion traffic at Taxiway B is under consideration, which would require extending the taxiway. The current location of Eglin Blvd prevents any extension, and, therefore, requires the rerouting of Eglin Boulevard (Eglin AFB 2017). The expansion of Taxiway B is a separate project and any analysis associated with the project is not included in this EA, but would be analyzed in future National Environmental Policy Act (NEPA) documentation as plans for that potential project mature.

1.4 NEPA and Other Compliance Requirements

NEPA (42 United States Code [USC] Sections 4321–4347 as amended) is a federal law requiring the analysis of potential environmental impacts associated with proposed federal actions before the actions are taken. The intent of NEPA is to make informed decisions based on the identification of potential environmental consequences and take appropriate actions to protect, restore, or enhance the environment. The Council on Environmental Quality (CEQ), established under NEPA, is responsible for ensuring federal agency compliance with NEPA.

The CEQ's regulations for implementing NEPA are codified in 40 Code of Federal Regulations (CFR) Parts 1500–1508, *Regulations for Implementing the Procedural Provisions of NEPA*. These regulations mandate all federal agencies to use a prescribed approach to environmental impact analysis to determine whether a proposed action could have significant impacts on the environment. The approach includes an evaluation of the potential environmental consequences associated with a proposed action and considers alternative courses of action.

The *Environmental Impact Analysis Process (*EIAP), 32 CFR Part 989, as amended, is DAF's implementing regulation for NEPA and provides a framework for how DAF implements CEQ regulations and achieves the goals set forth by NEPA. This allows DAF to thoroughly examine a proposed action and its alternatives to determine potential environmental impacts and inform the decision-making process. Air Force Policy Directive 32-70, *Environmental Considerations in Air Force Programs and Activities*, states DAF will comply with applicable federal, state, and local environmental laws and regulations, including NEPA.

To comply with NEPA, the planning and decision-making process for actions proposed by federal agencies involves a study of other relevant environmental statutes and regulations. The NEPA process, however, does not replace procedural or substantive requirements of other environmental statutes and regulations. This Environmental Assessment (EA) for the Proposed Action will examine several resource areas that have the potential to be affected by the Proposed Action and alternatives, and will include applicable elements of the human and natural environments required by specific laws, regulations, Executive Orders (EOs), and policies. Discussions on regulatory compliance with principal federal and state laws and regulations will be provided in Chapter 3 of this EA.

This EA is being prepared in accordance with NEPA; CEQ's NEPA regulations; the July 16, 2020, version of the CEQ NEPA regulations (85 *Federal Register* 43304–43376); the May 2022 amendments of the 2020 CEQ NEPA regulations (87 *Federal Register* 23453–23470); the Fiscal Responsibility Act (BUILDER Act); and DAF's EIAP. This EA will be used to guide DAF in implementing the Proposed Action in a manner consistent with DAF standards for environmental stewardship, should the Proposed Action be approved for implementation.

EO 11988, *Floodplain Management*, and EO 11990, *Protection of Wetlands*, require a Finding of No Practicable Alternative (FONPA) be included in a Finding of No Significant Impact (FONSI) for proposals that involve action in a floodplain or new construction in a wetland. Within the FONSI, the FONPA provides a discussion for why no practicable alternatives exist for avoiding impacts on these resources. The FONPA analysis in the FONSI is approved by the applicable DAF major command. A FONPA would be necessary to include in the FONSI for the

Eglin Boulevard rerouting project because a portion of both of the proposed roadway alignment alternatives intersects wetlands as well as 100- and 500-year floodplains.

1.5 Scope and Organization of the EA

The scope of analysis in this EA includes evaluation of the Proposed Action and alternatives. The NEPA process ensures environmental information, including the anticipated environmental consequences of a proposed action, is available to the public, federal and state agencies, and the decision maker before decisions are made and actions are taken. If the analyses presented in this EA indicate that the Proposed Action would not result in significant environmental impacts, then a FONSI would be prepared. A FONSI summarizes why a proposed action would not have a significant effect on the natural and human environments and why an Environmental Impact Statement would not be necessary. If the analyses presented in this EA indicate that significant environmental effects would result from the proposed action that cannot be mitigated to insignificant levels, a Notice of Intent to prepare an Environmental Impact Statement would be required or no action would be taken.

Resource areas analyzed in this EA include air quality, biological resources, cultural resources, geological resources, hazardous materials and wastes, infrastructure and transportation, land use, noise, safety, socioeconomics, environmental justice, and water resources. This EA considers all direct, indirect, and cumulative environmental effects of the Proposed Action.

Chapter 2 of this EA presents the scope and location of the Proposed Action, and the range of alternatives to be considered, including the No Action Alternative. **Chapter 3** describes the existing conditions of the affected environment and identifies the potential environmental consequences, including cumulative impacts, of implementing all reasonable alternatives. **Chapter 4** provides a summary of the management actions discussed in **Chapter 3** that would be employed to avoid or minimize effects from the Proposed Action on environmental resources. **Chapter 5** lists the references used in the preparation of the EA. **Chapter 6** provides the names of those who prepared the EA.

Appendix A provides materials on interagency coordination and public involvement. **Appendix B** provides materials and documentation related to consultation with federally recognized tribes under Section 106 of the National Historic Preservation Act (NHPA; 54 USC Section 300101 et seq.) and EO 13175 *Consultation and Coordination with Indian Tribal Governments*. **Appendix C** contains supporting documentation used in the Air Quality analysis. **Appendix D** contains the relevant environmental regulations, plans, permits, management actions, and a summary of best management practices (BMPs) discussed in **Section 3**. **Appendix E** contains the wetland delineation report.

1.6 Government-to-Government and Interagency and Intergovernmental Coordination and Consultation, and Public Involvement

1.6.1 Government-to-Government Coordination and Consultation

The NHPA requires federal agencies to consult with Native American tribal governments to identify cultural resources that may be adversely affected by the agency's proposed action. Consistent with NHPA implementing regulations (36 CFR Part 800); Department of Defense (DoD) Instruction 4710.02, *DoD Interactions with Federally Recognized Tribes;* Department of the Air Force Instruction (DAFI) 90-2002, *Interactions with Federally Recognized Tribes*; and Air Force Manual (AFMAN) 32-7003, *Environmental Conservation*, DAF is consulting with federally recognized tribes that are historically affiliated with the Eglin AFB geographic region regarding proposed actions that potentially affect properties of cultural, historical, or religious significance to the tribes. The tribal consultation process is distinct from NEPA consultation or the interagency and intergovernmental coordination processes and requires separate notification of all relevant tribes. The timelines for tribal consultation are also distinct from those of other consultations.

Eglin AFB conducts government-to-government consultation with six federally recognized tribes with a historic or cultural affiliation with Eglin AFB lands: the Miccosukee Tribe of Indians of Florida, Seminole Tribe of Florida, Seminole Nation of Oklahoma, Poarch Band of Creek Indians of Alabama, Muscogee (Creek) Nation of Oklahoma, and Thlopthlocco Tribal Town. The installation currently has arrangements with these tribes whereby the tribes do not wish to be contacted for work in areas that have already been surveyed or where predictive modeling, based on the surrounding area, has determined there is low likelihood for cultural resources (see **Appendix B**). These arrangements are captured within an executed 2021 Programmatic Agreement (PA; Eglin AFB 2021), which supersedes all earlier government-to-government agreements. A cultural resource survey was conducted for the high-probability areas within the project corridors, and the subsequent report identified a No Adverse Effects determination.

1.6.2 Interagency and Intergovernmental Coordination and Consultation

The Intergovernmental Cooperation Act and EO 12372, *Intergovernmental Review of Federal Programs* (as amended by EO 12416), require federal agencies to provide opportunities for consultation with officials of state and local governments that could be affected by a federal project. Through the interagency and intergovernmental coordination process, the project proponent notifies relevant federal, state, and local agencies of a proposed action and alternatives, and provides them with sufficient time to make known their environmental concerns specific to the action. The process also provides the project proponent with the opportunity to cooperate with and consider state and local views in implementing the federal proposal.

The following describes the intergovernmental coordination anticipated for the Proposed Action:

NHPA. Per the requirements of Section 106 of the NHPA and its implementing regulations, findings of effect and requests for concurrence, where appropriate, are transmitted to the Florida State Historic Preservation Officer (SHPO). A Cultural Resources Survey report detailing a No

Adverse Effects determination was submitted to the Florida SHPO, initiating Section 106 consultation. Concurrence from the Florida SHPO was received on February 28, 2024 (see **Appendix A**).

Endangered Species Act (ESA; 16 USC Section 1531 et seq.). Section 7(a)(2) of the ESA requires federal agencies to consult with the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service in cases where a proposed action could affect listed threatened or endangered species, species proposed for listing, candidates for listing, or critical habitat for listed species. NEPA analysis and consultation under ESA Section 7 was conducted to address construction and preparation actions in previously disturbed areas along the airfield at Eglin Main Base. These efforts were documented in the 2014 and 2020 *Cantonment Areas EAs* for Eglin AFB (Eglin AFB 2014, 2020b) and the 2009 and 2013 USFWS programmatic biological opinions (BOs), which respectively address indigo snake, Okaloosa darter, red-cockaded woodpecker, and the gopher tortoise at Eglin AFB (USFWS 2009, 2013, 2020). DAF determined the aforementioned NEPA analyses and programmatic BOs address the construction and demolition required under the Proposed Action; therefore, additional conference under ESA Section 7 would not be required under 32 CFR 989.10, which allows for tiering.

Coastal Zone Management Act (CZMA). The Florida Coastal Management Program (FCMP) incorporates statutes that protect and enhance Florida's conservational, recreational, ecological, and aesthetic values in accordance with the federal CZMA. Eglin AFB is within the coastal zone of Florida; therefore, a coastal zone consistency review is required under the CZMA to ensure federal actions that could affect coastal resources will comply with the enforceable policies of the FCMP to the maximum extent practicable. The FCMP is based on a network of agencies implementing 24 statutes that protect and enhance public safety interests as well as Florida's natural, cultural, and economic coastal resources. The Florida Department of Environmental Protection (FDEP) implements the FCMP through the Florida State Clearinghouse. It is the responsibility of the Florida State Clearinghouse to coordinate state review and concurrence with or objection to the CZMA consistency review. The Proposed Action falls under the future development on Eglin Main Base within the 2020 Cantonment Area EA; therefore, the CZMA consistency concurrence received for that EA covers the Proposed Action under 32 CFR 989.10, which allows for tiering, and no additional review would be required.

Stakeholder Review and Comment. The Draft EA and Draft FONSI will be made available to relevant state and local government agencies and organizations (stakeholders) for a 30-day comment period, in addition to the Florida State Clearinghouse review. **Appendix A** will include the stakeholder distribution letters and responses. Stakeholder comments will be considered in the development of the Final EA and the decision of whether to sign the FONSI.

1.6.3 Public Involvement

NEPA requirements help ensure environmental information is made available to the public during the decision-making process and prior to actions being taken. The premise of NEPA is for federal decision makers to consider the potential impacts the action will have on the physical, biological, economic, and social environmental as part of their planning process.

Because the Proposed Action is within the 100- and 500-year floodplains and wetlands, it is subject to the requirements and objectives of EOs 11988 and 11990, respectively, and a FONPA is required to be included in the FONSI. As such, an Early Public Notice was published on August 25, 2023 in the Northwest Florida Daily News to notify the public that the Proposed Action would occur in the 100- and 500-year floodplain and wetland areas. The notice solicited a 30-day public scoping comment period, and no comments were received. **Appendix A** includes a copy of the Early Public Notice.

A Notice of Availability announcing the Draft EA and Draft FONSI are available for a 30-day comment period will be published in the Northwest Florida Daily News, and a copy of the newspaper notice will be provided in **Appendix A**. The Notice of Availability will be issued to solicit comments on the Proposed Action and involve local communities in the decision-making process. The Draft EA and Draft FONSI will also be made available in electronic format on the Eglin AFB website (https://www.eglin.af.mil/About-Us/Eglin-Documents). Public comments on the Draft EA will be considered prior to a decision being made on whether to sign the FONSI.

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2. Proposed Action and Alternatives

This section describes the Proposed Action and alternatives considered, including the No Action Alternative. Guidance for complying with NEPA requires an assessment of potentially effective and reasonably feasible alternatives for implementing the Proposed Action.

2.1 Proposed Action

DAF is proposing to realign approximately 2.5 miles of Eglin Boulevard on Eglin AFB from where it splits at F Avenue on the eastern end, continues westward, then connects to Nomad Way, as shown in **Figure 2-1**. The current roadway alignment crosses an aircraft towway and two runway CZs, and limits expansion of Taxiway B. Upon completion of the realignment, the existing 2.5-mile portion of Eglin Boulevard would be closed. Realignment of Eglin Boulevard would also facilitate the closure of Second Street at the Special Operations Forces Ramp crossing as well as enable the planned extension of Taxiway B and any future airfield expansion projects.

A Planning Charette Report was completed in April 2023 for the proposed realignment and identified two reasonable alignment alternatives that would minimize environmental impacts to the greatest extent practicable while meeting the selection standards identified in **Section 2.2** (Eglin AFB 2023a). Regardless of the alternative selected, the realigned roadway would consist of four lanes and deviate from the existing roadway east of the airfield, extending beyond the airfield CZs and running south of the Commissary before rejoining the existing Eglin Boulevard eastbound path at the Eglin Boulevard-Nomad Way intersection. The realigned roadway would overlap portions of existing Memorial Trail and Chinquapin Drive, depending on the alternative. Memorial Trail and Chinquapin Drive are two-lane roadways. A multi-use paved pathway diverts from Eglin Boulevard at the eastern intersection with Memorial Trail and generally runs westward along the northern side of Memorial Trail.

Under both alternatives, two signalized intersections and two roundabouts would be constructed along the proposed alignment at areas expected to have heavier congestion. Additional intersections and areas of ingress/egress would differ under either alternative (see **Sections 2.3.1** and **2.3.2**). A three-way roundabout would be constructed at the intersection of F Avenue, Eglin Boulevard, and Fifth Street. A six-way roundabout would be constructed between F Avenue and Second Street to connect with Magnolia, Fourth, and Third Streets. Signalized intersections would be constructed at Eglin Boulevard and Magnolia Street, the primary Commissary ingress/egress, and Nomad Way. In the Planning Charette Report, DAF used existing and predictive growth information from the 2020 Entry Control Facility Study (see **Section 1.2**; Eglin AFB 2020a) to predict LOS at the four proposed signalized intersections for the realignment. The Planning Charrette Report predicts the following for the proposed realignment:

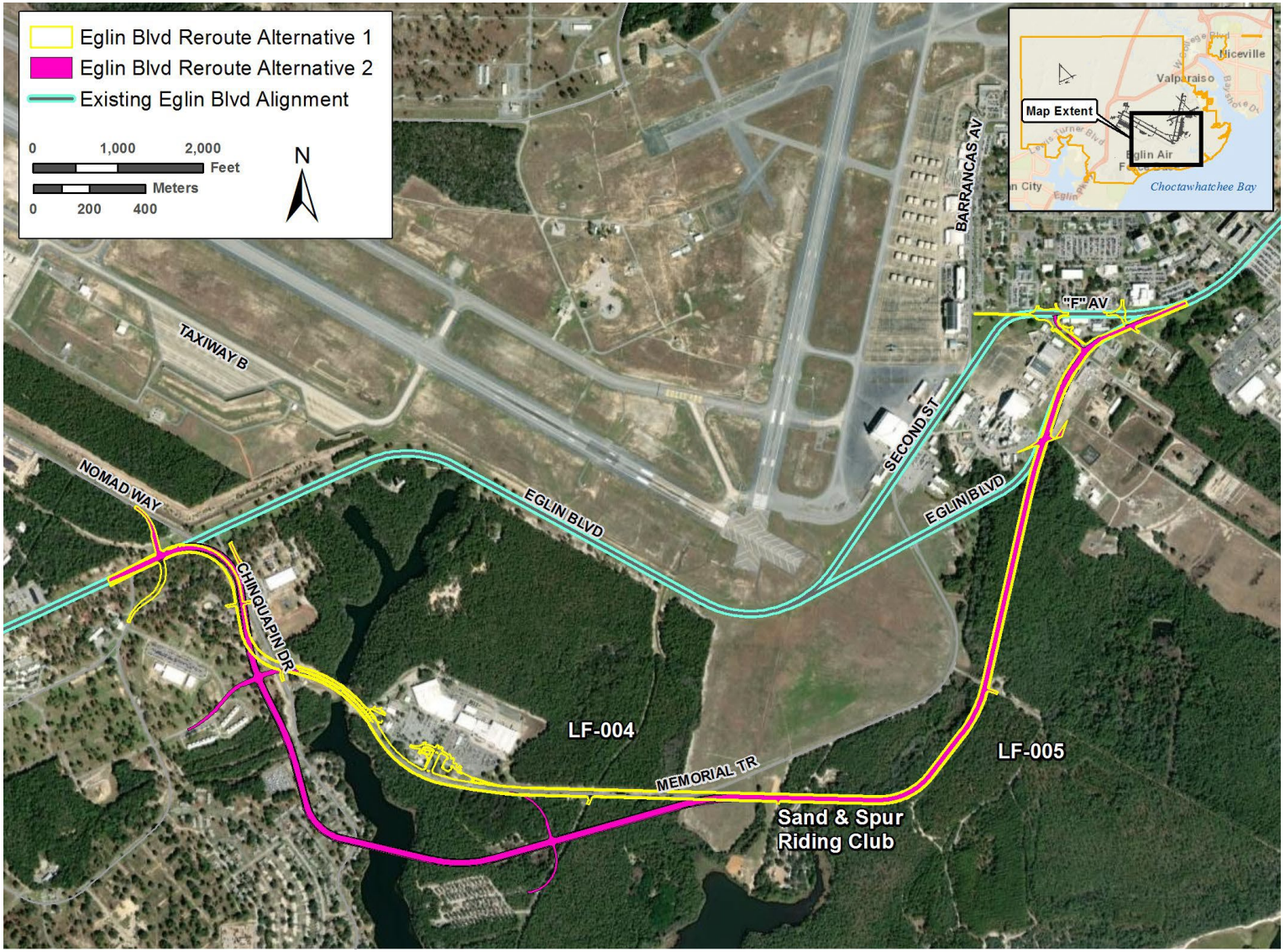
- The Eglin Boulevard-Nomad Way intersection is expected to operate at LOS B in the morning and midday hours, and at LOS C in the afternoon and evening hours.
- The Memorial Trail and Commissary ingress/egress would operate at LOS B in the morning and midday hours, and at LOS C in the afternoon and evening hours.

- The Eglin Boulevard-Fifth Street intersection would be expected to be LOS B during all times of day.
- The Eglin Boulevard-Magnolia Street intersection would operate at LOS B during all times of day.
- Approach delays at the proposed F Avenue, Magnolia Street, Third Street, and Fourth Street roundabout are expected to operate at an acceptable LOS (Eglin AFB 2023a).

Due to the average daily traffic volume and the environmental constraints discussed in the section below limiting the layout of the proposed realignment, the LOS under the Proposed Action would not be anticipated to become LOS A (free flow) during peak hours because of the presence of traffic lights, but would represent a marked improvement over the existing conditions. Additional construction activity under the Proposed Action would include clearing and grading for site development; adding, removing, or relocating existing utilities, including communications lines, natural gas mains, potable water lines, wastewater collection lines, lift stations, stormwater culverts, and electrical transmission and distribution lines; paving; and installing sidewalks, curbs and gutters, storm drainage, landscaping, and pavement markings. Surface drainage, underground drainage systems, stormwater retention basins, culverts, and erosion and sediment control would be designed in accordance with Unified Facilities Criteria (UFC) 3-201-01, *Civil Engineering*; UFC 3-210-10, *Low Impact Development*; Federal Highway Administration's Hydraulic Design of Highway Culverts; and the Northwest Florida Water Management District appendix of the Florida Development Manual state drainage manual.

The realigned portion of Eglin Boulevard would maintain the existing 35-mile-per-hour speed limit. In addition to realignment of the roadway, the Proposed Action would include construction and installation of supporting pedestrian and bicycle infrastructure on one side of the roadway that would connect with existing infrastructure at both project termini. Clearly marked pedestrian pathways would be constructed at intersections.

Construction is expected to occur from March 2027 to March 2029; it would be conducted in phases, with single-lane closures or detours available to maintain installation access to commercial and operational facilities along the route. Existing pavement associated with roadways that would be incorporated into the proposed alignment, such as Eglin Boulevard, Nomad Way, Chinquapin Drive, and Memorial Trail, would be replaced. The realigned roadway would be designed in accordance with UFC 3-250-01, *Pavement Design for Roads and Parking Areas*; UFC 3-201-01, *Civil Engineering*; Air Force Corporate Facilities Standards 2022; the Military Surface Deployment and Distribution Command Traffic Engineering Agency Pamphlet 55-17, *Better Military Traffic Engineering*; Eglin AFB *Installation Facilities Standards*; and the American Association of State Highway and Transportation Officials *Geometric Design of Highways and Streets*, and *Roadside Design Guide*, as applicable. The minimum roadway elevation would be 2 feet above the floodplain elevation in accordance with UFC 3-201-01, Section 2-7.4.



Data Source: Eglin AFB 2022a
Notes: AV = Avenue; BLVD = Boulevard; DR = Drive; ST = Street; TR = Trail; LF-004 = Eglin Main Landfill (D2) Installation Restoration Program (IRP) Site; LF-005 = Eglin Main Landfill IRP Site

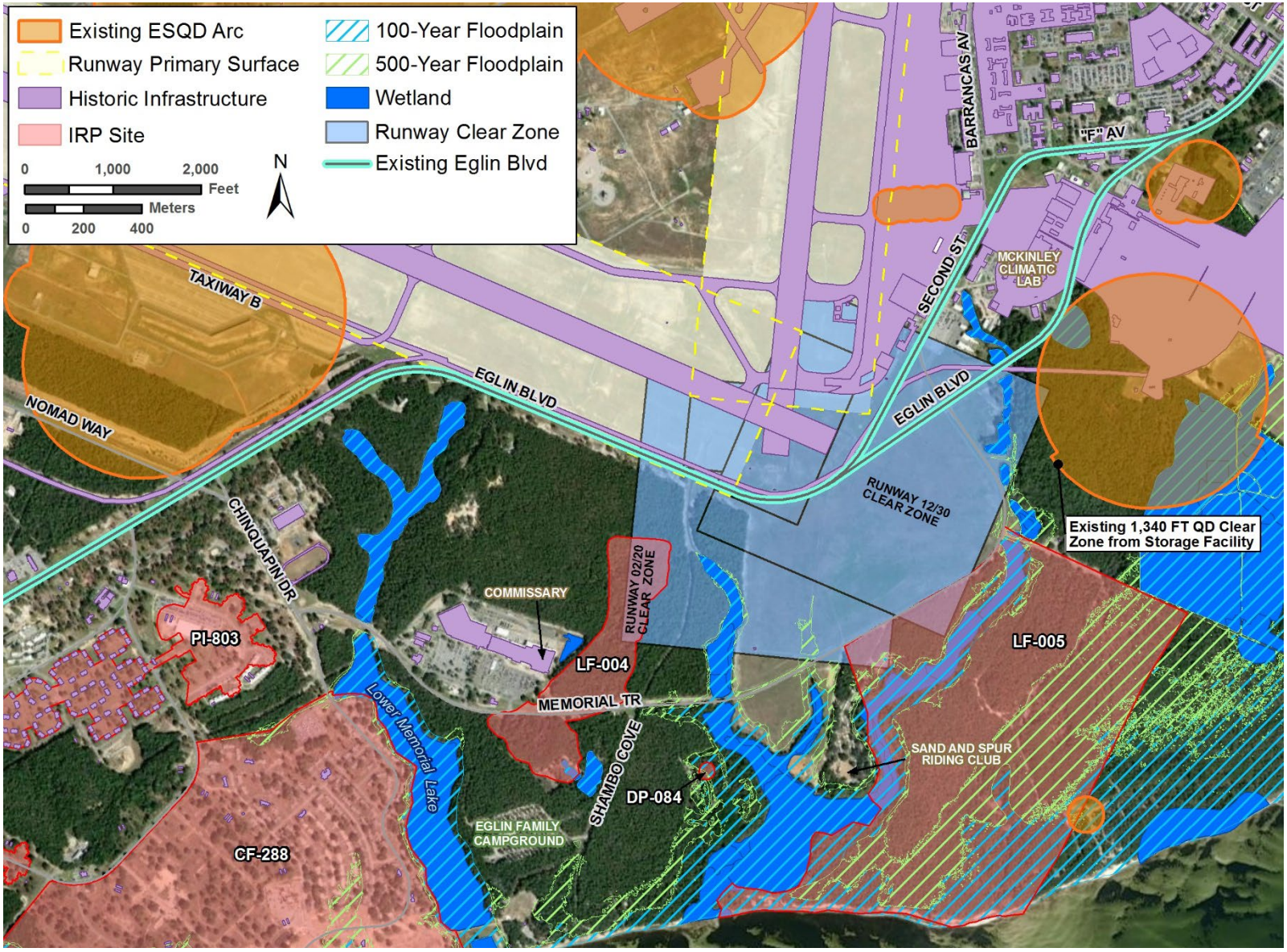
Figure 2-1. Project Area

Some underground utilities, including communications duct systems, a natural gas main, potable water lines, and wastewater collection lines, would be abandoned or removed, and relocated. Some aboveground utilities-related infrastructure, such as a large communications duct bank, up to 2.5 miles of electrical transmission and distribution lines, and two wastewater lift stations, would be relocated to accommodate the proposed roadway. These utilities would be relocated within the project limits of disturbance along the new roadway or as determined by utility providers. If relocation of these utilities were to occur outside of the project limits of disturbance, potential impacts from utility relocation would fall within the scope of development analyzed in the 2020 Cantonment Area EA. Therefore, any additional analysis needed would be covered under tiered 813s per 32 CFR Section 989.10 as required. Additionally, two small horse barns, a round pen, and a dressage arena at the Sand and Spur Riding Club would be demolished. Upon completion, areas where pavement is removed, and construction has disturbed or removed vegetation, would be graded and revegetated. Relocation of the facilities proposed for demolition would be analyzed in a separate future NEPA analysis, as applicable.

Environmental Constraints. The project area and proposed realignments are limited by existing operational, natural, and cultural constraints within the project area, including the location of Installation Restoration Program (IRP) sites, ESQD arcs, airfield CZs and imaginary surfaces, wetlands, floodplains, historic buildings and infrastructure (i.e., historic railroad easement and airfield infrastructure), and archaeological sites. **Figure 2-2** depicts the locations of such environmental constraints associated with the project area.

Overlap with portions of IRP sites LF-004 and LF-005 is unavoidable for the proposed roadway alignments. The IRP sites overlapping the project area include groundwater contamination and two landfills, and would require coordination with the state of Florida.

Per Defense Explosives Safety Regulation (DESR) 6055.09_AFMAN 91-201, *Explosives Safety Standards* (Attachment 5), roads classified as having high traffic density, such as Eglin Boulevard, cannot be located within ESQD arcs to minimize potential safety hazards to the public and personnel. To meet safety requirements, the 96 TW and Air Force Research Laboratory would be required to reduce the amount of materials kept in a storage facility located east of existing Eglin Boulevard south of F Avenue to decrease its associated ESQD arc radius. If the 96 TW and Air Force Research Laboratory are not able to lower the overall materials storage capacity to decrease the ESQD arc radius, an additional storage facility would be constructed at another location to maintain the overall required storage capacity at the installation. Construction of an additional storage facility would be analyzed in a separate NEPA analysis, as determined necessary.



Data source: Eglin AFB 2022a

Figure 2-2. Existing Environmental Constraints Along Eglin Boulevard

Due to the location of the airfield and the presence of the 100-year floodplain and Choctawhatchee Bay, there is no practicable alternative to constructing portions of the proposed alignment within the 100-year floodplain. Roadway sections would be constructed a minimum of 2 feet above the floodplain elevation in accordance with UFC 3-201-01. Additionally, and for similar reasons, there is no practicable alternative to wetland impacts, and wetland mitigation and/or banking would be required. Regardless of the alternative selected, wetland and floodplain impacts would be expected, although the acreage of floodplains and wetlands impacted would differ between alternatives and be minimized to the extent practicable. A wetland delineation and a cultural resources survey were conducted for the alternatives. **Appendix E** provides the wetland delineation report. See **Sections 2.3.1** and **2.3.2** for more details regarding Alternatives 1 and 2.

2.2 Selection Standards and Identification of Reasonable Alternatives

NEPA and the CEQ regulations for implementing NEPA mandate the consideration of reasonable alternatives for a proposed action. “Reasonable alternatives” are defined as those that could be used to meet the purpose of and need for a proposed action. In accordance with DAF’s EIAP (32 CFR Part 989), selection standards are used to identify reasonable alternatives for meeting the purpose of and need for a DAF action.

DAF used the following selection standards to determine whether alternatives for the Proposed Action were reasonable:

1. Must meet AICUZ land use compatibility requirements per AFH 32-7084;
2. Must avoid aircraft hazards (i.e., CZs); and
3. Must improve traffic flow.

Based on these selection standards, DAF considered four alternatives to meet the purpose of and need for the Proposed Action, including widening the existing roadway and three different realignment alternatives. **Table 2-1** compares the potential Proposed Action alternatives against the selection standards.

Table 2-1. Screening Comparison of Alternatives Against Selection Standards

Selection Standard	Widen Existing Roadway	Alignment 1	Alignment 2	Alignment 3
Must meet AICUZ land use compatibility requirements per AFH 32-7084	No	Yes	Yes	No
Must avoid aircraft hazards	No	Yes	Yes	No
Must improve traffic flow	Yes	Yes	Yes	Yes

Source: Eglin AFB 2023a

2.3 Alternatives Carried Forward for Analysis

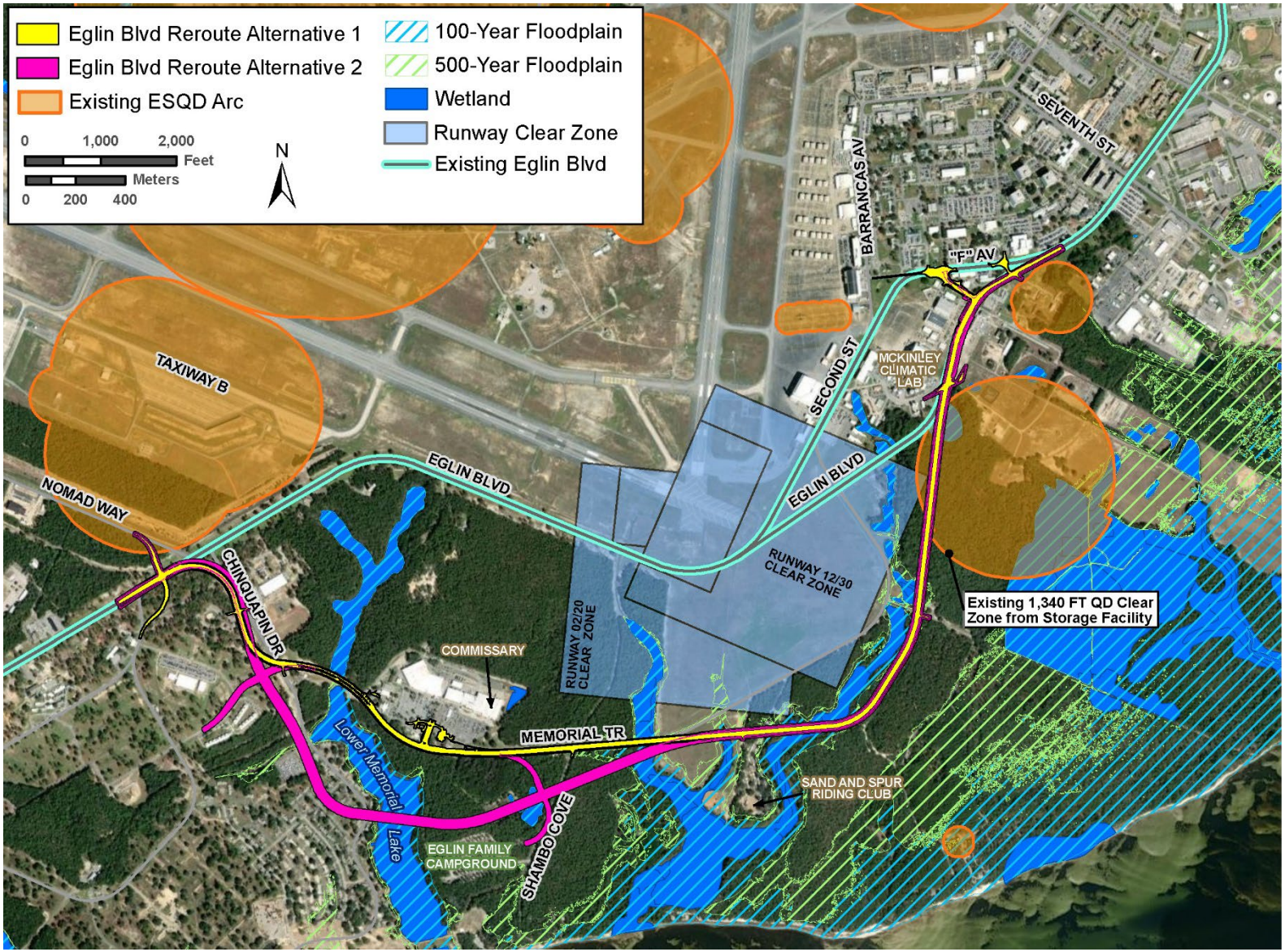
As shown in **Table 2-1**, two action alternatives (i.e., Alignments 1 and 2) meet the selection standards and will be carried forward for detailed analysis. **Figure 2-3** illustrates the alternatives carried forward for the realignment. These two alternatives are described in **Sections 2.3.1** and **2.3.2** and respectively identified as Alternative 1 and 2. Additional alternatives that were evaluated against the selection standards, and the corresponding analyses that determine these alternatives should be eliminated from further detailed analysis in this EA, are described in **Section 2.4**. As discussed in **Section 2.1**, both Alternatives 1 and 2 would require reduction or relocation of the nearby storage facility associated with an overlapping ESQD arc.

2.3.1 Alternative 1 – Alignment 1 (Preferred Alternative)

Alignment 1 would consist of four lanes and be constructed south of the existing Eglin Boulevard corridor. Alignment 1 would deviate from the existing roadway alignment from east to west-southwest of the McKinley Climatic Laboratory and run southwest of Memorial Trail before joining the existing Memorial Trail roadway west of the Sand and Spur Riding Club. Alignment 1 would pass south of the Commissary, cross Chinquapin Drive, and rejoin the existing Eglin Boulevard alignment via a new four-way intersection with Nomad Way (see **Figure 2-3**). In addition to the signalized intersections with Eglin Boulevard, Nomad Way, and Fifth Street and the two roundabouts that would be constructed for either alternative, a signalized intersection and two areas of ingress/egress for access to the Commissary and other local commercial facilities would be constructed under Alternative 1. The proposed alignment would run for approximately 5 miles, include up to approximately 222 acres of ground disturbance, and impact approximately 23 acres of the 100-year floodplain, 33 acres of the 500-year floodplain, and 22 acres of wetlands. Although impacts on wetlands and floodplains in the project area are unavoidable, this alignment was selected to minimize such impacts.

2.3.2 Alternative 2 – Alignment 2

Alignment 2 would be similar to Alignment 1, except that instead of joining the existing Memorial Trail, a new roadway would be constructed south of Memorial Trail and run westward, crossing Lower Memorial Lake just north of the Eglin Family Campground. Alignment 2 would then connect with the existing Chinquapin Drive roadway and run north to intersect with Nomad Way (see **Figure 2-3**). Alignment 2 would require construction of a new bridge over Lower Memorial Lake. Two additional intersections would be constructed where the proposed alignment would intersect with Shambo Cove and the western end of Memorial Trail. The proposed alignment would run for approximately 5 miles, include up to approximately 233 acres of ground disturbance, and impact approximately 29 acres of the 100-year floodplain, 38 acres of the 500-year floodplain, and 22 acres of wetlands. Although impacts on wetlands and floodplains in the project area are unavoidable, this alignment was selected to minimize such impacts.



Data Sources: Eglin AFB 2022a, 2023a

Figure 2-3. Proposed Action Alternatives

2.4 No Action Alternative

DAF implementing regulations for NEPA, 32 CFR Part 989, as amended, require consideration of the No Action Alternative. Additionally, CEQ NEPA regulations at 40 CFR Section 1502.14(c) requires inclusion of the No Action Alternative in an EA to assess any environmental consequences that may occur if the proposed action is not implemented. This alternative also provides a baseline against which the Proposed Action can be compared. Therefore, the No Action Alternative is carried forward for detailed analysis in this EA. Under the No Action Alternative, DAF would not reroute Eglin Boulevard. The existing Eglin Boulevard roadway would continue to impede airfield planning and operations, violate AICUZ land use compatibility requirements, and cause traffic congestion and delays. Additionally, the potential future expansion of Taxiway B would not be feasible.

2.5 Alternatives Considered but Eliminated from Detailed Analysis

DAF eliminated the following two alternatives from further consideration and analysis because they failed to meet one or more of the selection standards (see **Table 2-1**).

Eglin Boulevard Widening. DAF considered widening the selected portion of Eglin Boulevard from four lanes to eight lanes to alleviate traffic congestion. While widening the existing road would improve traffic congestion and flow, Eglin Boulevard would still cross through the airfield CZ and associated grading areas, thereby not meeting the selection standards. Therefore, it is not carried forward for detailed analysis.

Alignment 3. Another alternative alignment that was considered (Alignment 3) would follow the existing Eglin Boulevard alignment, then follow Memorial Trail from east to west south of the airfield. The only deviation from the existing roadways would be where the existing Eglin Boulevard intersects with Memorial Trail; Alignment 3 would bypass that existing intersection to the southeast and continue running along Memorial Trail from Eglin Boulevard. While this proposed alignment would improve traffic flow, it would not avoid the airfield CZ. Therefore, it would not meet the selection standards and is not carried forward for detailed analysis.

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3. Affected Environment and Environmental Consequences

This section presents a description of the environmental resources and baseline conditions that could be affected by the Proposed Action alternatives and No Action Alternative. Additionally, this section presents an analysis of the potential environmental consequences of the Proposed Action alternatives and No Action Alternative on environmental resources in accordance with CEQ NEPA implementing regulations at 40 CFR Section 1508.1(g).

Reasonably Foreseeable Actions and Cumulative Impacts

As noted in **Section 1.4**, this EA was prepared in accordance with the 2020 CEQ NEPA regulations (*85 Federal Register 43304–43376*), as amended in 2022 (*85 Federal Register 23453–23470*), and therefore analyzes environmental impacts from the Proposed Action combined with potential cumulative impacts from reasonably foreseeable actions. CEQ regulations implementing the procedural provisions of NEPA define cumulative effects are as follows (40 CFR Section 1508.1(g)(3)).

Cumulative effects on the environment result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

Past actions are those actions, and their associated impacts, that have shaped the current environmental conditions of the project area. Therefore, the impacts of past actions are now part of the existing environment and are included in the affected environment described in **Sections 3.1** through **3.12**. This EA considers present and reasonably foreseeable actions based out of Eglin AFB and the surrounding area that could have a causal relationship with the Proposed Action and may result in cumulative impacts. These present and reasonably foreseeable actions are listed in **Table 3-1**. The cumulative impacts on the environment that would result from the Proposed Action, when combined with present and reasonably foreseeable actions, are discussed for each resource area within **Sections 3.1** through **3.12**.

Irreversible and Irretrievable Commitment of Resources

Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the impacts that the use of these resources would have on future generations. Irreversible impacts primarily result from use or destruction of a specific resource that cannot be replaced within a reasonable timeframe (e.g., energy, minerals). Irreversible and irretrievable commitments of resources usually result from implementation of actions that involve the consumption of material resources used for construction, energy, and human labor. Impacts from consumption of these resources is considered to be permanent. The irreversible and irretrievable resources commitments are discussed for each resource area within **Sections 3.1** through **3.12**.

Table 3-1. Present and Reasonably Foreseeable Actions

Project Name	Location	Timeline	Description
5th Generation FTU Optimization	Eglin AFB	2023	DAF is relocating the F-22 FTU mission temporarily operating out of Eglin AFB to Joint Base Langley-Eustis, which includes the beddown of one additional F-35A squadron at Eglin AFB should the F-22 FTU beddown at Joint Base Langley-Eustis occur. Relocation of the F-22 FTU would result in a reduction of F-22 and T-38 airfield operations per year, and associated personnel and dependents at Eglin AFB. The addition of a F-35A squadron would result in an increase in F-35A aircraft, airfield operations per year, munitions expenditures per year, personnel, and dependents at Eglin AFB. The additional F-35A FTU at Eglin AFB would use existing facilities within the 33rd Fighter Wing campus south of Runway 12/30 (JBLE and Eglin AFB 2021). F-22 FTU operations are expected to decrease through 2023, and the associated F-22 and T-38 aircraft are expected to be relocated from Eglin AFB; however, F-22 and T-38 aircraft may remain at Eglin AFB after that time (DAF 2022).
350 SWW and 36 EWS Beddown	Eglin AFB	2024–2025	DAF proposes to permanently beddown the 350 SWW and 36 EWS to Eglin AFB. The proposal includes construction of a 100,000 ft^2 SWW building, 90,000 ft^2 EWS, and 11 acres of parking south of Runway 12/30 and the addition of personnel by 2025 (Eglin AFB 2022b).
AvFID and Fixed Wing Aircraft Growth at Duke Field	Duke Field, Eglin AFB	2022–Future	To support the AvFID mission at Duke Field, DAF is supporting the growth of the 6th Special Operations Squadron, which includes the addition of 5 single-engine aircraft (e.g., Cessna 208 Caravan aircraft) and 294 personnel, construction of permanent facilities, and installation of temporary facilities. Annual flight operations would increase by 2,600 operations (total takeoffs and landings), or approximately 75 hours per week of flight training. Annual air operations would be split between Duke Field at approximately 1,280 operations, or 70 percent, and approximately 780 air operations at other locations on Eglin AFB or nearby airfield, including Hurlburt Field and Bob Sikes Airport. Construction of 41,200 ft^2 of new facilities would occur at Duke Field (DAF 2020).
Beddown of F-35A DT Aircraft	Eglin AFB	2024–2026	DAF proposes to beddown 4 F-35A aircraft and associated personnel as part of a weapons DT program, which includes an additional 2,346 F-35A aircraft operations per year, additional munitions expenditures, and construction and renovation activities. Construction and renovation would include construction of a two-bay aircraft maintenance hangar and aircraft parking area, construction of a two-bay aircraft test hangar, an addition to Building 64, and renovation of four existing support facilities (Buildings 32, 100, 101, and 138). At least 259 military personnel and their dependents would be added to Eglin AFB to support the program (Eglin AFB 2023b).

Project Name	Location	Timeline	Description
Westside EUL	Eglin AFB	2027–2031	DAF proposes to lease 98 acres of forested land, identified as the Westside site, at Eglin AFB in Okaloosa County, Florida, for development by a private developer under the EUL program. Under the Proposed Action, a private developer would be obligated to construct, operate, and maintain a mixed-use technology and research park on the Westside site, which is approximately 1.5 miles northwest of the Eglin AFB West Gate at the corner of Poquito Road and State Route 189 (Lewis Turner Boulevard), adjacent to University of Florida Innovation Station at the Research and Engineering Education Facility. The 96th Civil Engineer Group at Eglin AFB has determined the proposed Westside EUL would directly support and enhance the mission of the installation by providing needed space for research, test, and acquisition partners (Eglin AFB 2022c).
Eglin AFB Future Development Plans	Eglin AFB	2025	Construction and demolition projects are anticipated to continue at Eglin AFB and the surrounding area throughout the next 5 years to support the installation's mission and growth. Projects totaling approximately 1.4 million ft^2 of development would occur across six areas: Eglin Main Base, Camp Rudder/6th Ranger Training Battalion, Duke Field, 7th Special Forces Cantonment, Site C-6 20th Space Control Squadron Area, and the Jackson Guard Compound. Proposed development at Eglin AFB consists of approximately 795,266 ft^2 of construction or other improvements, 170,016 ft^2 of demolitions, 125.4 acres of impervious surfaces, and 35.6 acres of roads and other infrastructure. Proposed development at Duke Field consists of approximately 422,565 ft^2 of construction or other improvements, 24,937 ft^2 of demolitions, 78 acres of impervious surfaces, and 23 acres of parking and other infrastructure. DAF intends to commence projected development within the cantonment areas and Jackson Guard Compound within the next 5 to 10 years. Siting for future development considers areas that are free from environmental constraints. Ongoing necessary routine maintenance activities are expected to continue (Eglin AFB 2020b).
Natural Resources Management Activities	Eglin AFB	Ongoing	The Eglin AFB INRMP details planned natural resources management activities, including wildlife, fire, and forest management. The interstitial areas of Eglin AFB are where the majority of natural resources management activities occur. The INRMP provides an overview of the future direction of natural resources management for the installation (Eglin AFB 2022d).
Storage Facility with ESQD Arcs Relocation or Reduction of Storage Capacity	Eglin AFB	Future	As discussed in **Section 2.1**, to accommodate realignment of Eglin Boulevard, the 96 TW and Air Force Research Laboratory would be required to reduce the amount of materials kept in the storage facility located east of existing Eglin Boulevard south of F Avenue to decrease its associated ESQD arc radius. If the 96 TW and Air Force Research Laboratory are not able to lower the materials storage capacity to decrease the ESQD arc radius, an additional storage facility would be constructed at another location to maintain the overall required storage capacity at the installation.
Relocation of Sand and Spur Riding Club Facilities	Eglin AFB	Future	As discussed in **Section 2.1**, realignment of Eglin Boulevard would require demolition of two small horse barns, a round pen, and a dressage arena at the Sand and Spur Riding Club. As deemed necessary, the demolished facilities would be relocated where feasible to maintain operations of the Sand and Spur Riding Club.

Key: 36 EWS = 36th Electronic Warfare Squadron; 350 SWW = 350th Spectrum Warfare Wing; AvFID = Aviation Foreign International Defense; DT = Developmental Test; ft^2 = square foot/feet; FTU = Formal Training Unit; EUL = Enhanced Use Lease; INRMP = Integrated Natural Resources Management Plan

Resource Analysis

All environmental resources required to be analyzed were initially considered in this EA. In compliance with NEPA, CEQ, and DAF EIAP regulations and guidelines, the following discussion of the affected environment and environmental consequences focuses only on those environmental resources considered potentially subject to impacts or with potentially significant environmental issues. These environmental resources are air quality, biological resources, cultural resources, geological resources, hazardous materials and wastes, infrastructure and transportation, land use, noise, safety, socioeconomics, environmental justice, and water resources.

The environmental resources not analyzed in detail in this EA because insignificant or no impacts would occur are aesthetic and visual resources and airspace management. The following paragraphs justify why these environmental resources were dismissed from detailed analysis.

Aesthetic and Visual Resources. The Proposed Action alternatives would not adversely affect the aesthetics or visual appearance of the installation, nor landscape and landform attributes to landscape-level visually aesthetic qualities. The proposed rerouting of the existing Eglin Boulevard would be consistent with the planning goals and objectives of the vision of the Eglin AFB Installation Development Plan. The proposed realignment would largely follow the path of existing roadways. Where the proposed realignment would deviate from the path of existing roadways, the proposed new roadway would occur within the Eglin Main Base, where the roadway would be consistent with the existing visual landscape. Additionally, because the roadway would be largely flush with the ground, no visual impediments would be introduced to the viewshed. Landscaping would be used, where possible, along the roadway shoulders using plants, shrubs, and trees to blend in with the surrounding environment. Plants used for revegetation would be native species or other species approved by the Eglin Natural Resources Office to help prevent introduction and spread of invasive non-native species on the installation. Additionally, no visually sensitive locations are within the viewshed of the project areas. Therefore, further consideration and analysis of impacts on aesthetics and visual resources are not included in this EA.

Airspace Management. The Proposed Action alternatives do not include aircraft operations, proposals for new airspace, nor changes to existing airspace or airspace configurations (e.g., size, shape, location). The type or conduct of flight operations at Eglin AFB would not be affected by the Proposed Action alternatives. The purpose of the Proposed Action is to eliminate the AICUZ incompatibility that the existing Eglin Boulevard presents. The proposed realignment would be constructed south of the airfield outside the clear zones and accident potential zone and, therefore, would not be expected to affect airfield operations. The proposed realignment would be constructed well below height restrictions. For these reasons, further consideration and analysis of impacts on airspace management are not included in this EA. Impacts on airfield infrastructure are discussed in **Section 3.6**.

3.1 Air Quality

3.1.1 Definition of the Resource

Air quality is defined by the concentration of various pollutants in the atmosphere at a given location. Under the Clean Air Act (CAA), the six pollutants defining air quality, called "criteria pollutants," are carbon monoxide (CO), sulfur dioxide, nitrogen dioxide, ozone (O_3), suspended particulate matter (measured less than or equal to 10 microns in diameter [PM_{10}] and less than or equal to 2.5 microns in diameter [$PM_{2.5}$]), and lead. CO, sulfur oxides (SO_X), nitrogen oxides (NO_X), lead, and some particulates are emitted directly into the atmosphere from emissions sources. NO_X, O_3, and some particulates are formed through atmospheric chemical reactions that are influenced by weather, ultraviolet light, and other atmospheric processes. Volatile organic compound (VOC) and NO_X emissions are precursors of O_3 and are used to represent O_3 generation.

Under the CAA (42 USC Section 85 et seq.), the U.S. Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS; 40 CFR Part 50) for criteria pollutants. Each state has the authority to adopt standards stricter than those established by USEPA. Florida accepts the federal standards. Areas that are and have historically been in compliance with the NAAQS or have not been evaluated for NAAQS compliance are designated as attainment areas. Areas that violate a federal air quality standard are designated as nonattainment areas. Areas that have transitioned from nonattainment to attainment are designated as maintenance areas. Nonattainment and maintenance areas are required to adhere to a State Implementation Plan to reach attainment or ensure continued attainment.

The USEPA General Conformity Rule applies to federal actions occurring in nonattainment or maintenance areas. When the total emissions of nonattainment and maintenance pollutants (or their precursors) exceed specified thresholds, a general conformity determination is required. The emissions thresholds that trigger requirements for a conformity determination are called de minimis levels (in tons per year [tpy]) and are specified at 40 CFR Section 93.153. De minimis levels vary by pollutant and also depend on the severity of the nonattainment status for the air quality management area in question. The General Conformity Rule does not apply to federal actions occurring within attainment or unclassified areas.

Climate Change and Greenhouse Gases (GHGs). Global climate change refers to long-term fluctuations in temperature, precipitation, wind, sea level, and other elements of Earth's climate. Of particular interest, GHGs are gas emissions that trap heat in the atmosphere. GHGs include water vapor, carbon dioxide (CO_2), methane, nitrous oxide, tropospheric O_3, and several fluorinated and chlorinated gaseous compounds. Most GHGs occur naturally in the atmosphere but increases in concentrations result from human activities such as burning fossil fuels. Scientific evidence indicates a trend of increasing global temperature because of increases in GHG emissions from human activities that is predicted to have negative economic and social consequences across the globe. The dominant GHG emitted is CO_2, accounting for 79 percent of all GHG emissions as of 2021 (USEPA 2023a). To estimate global warming potential, all GHGs are expressed relative to a reference gas, CO_2, which is assigned a global warming

potential of one (1). All GHGs are multiplied by their global warming potential, and the results are added to calculate the total equivalent emissions of CO_2 (CO_2e).

EO 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*, signed January 21, 2021, reinstated the *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews*, issued on August 5, 2016, by CEQ that required federal agencies to consider GHG emissions and the effects of climate change in NEPA reviews, and directs federal agencies to determine an appropriate method for analyzing such emissions (CEQ 2016). The CEQ *National Environmental Policy Act Interim Guidance on Consideration of Greenhouse Gas Emissions and Climate Change*, issued January 9, 2023, recommends quantifying a proposed action's GHG emissions in appropriate context (CEQ 2023). In accordance with the 2016 Final Guidance and the 2023 Interim Guidance, estimated CO_2e emissions associated with the Proposed Action are provided in this EA for informative purposes. DAF guidance on applying and conducting a social cost of GHG analysis is under development; it will be released soon and provide specifics on applying social cost of GHG analyses and ensuring standardization across DAF. Therefore, no social cost of GHG analysis has been prepared for this EA.

EO 14008, *Tackling the Climate Crisis at Home and Abroad*, further strengthens EO 13990 by implementing objectives to reduce GHG emissions and bolster resilience to the impacts of climate change, and requiring federal agencies to develop and implement climate action plans. DAF's *Climate Action Plan* recognizes the department's role in contributing to climate change and aims to address the challenges and risks posed by climate change through the implementation of climate priorities, including making climate-informed decisions, optimizing energy use, and pursuing alternative energy sources (DAF SAF/IE 2022). DAF also follows the *DoD Climate Adaptation Plan* and considers the *DoD Climate Risk Analysis* for climate change planning. The *Long-Term Strategy of the United States: Pathways to Net Zero Greenhouse Gas Emissions by 2050* sets target benchmarks to achieve net-zero GHG emissions by no later than 2050 through emission-reducing investments such as carbon-free power generation, zero-emission vehicles, energy-efficient buildings, and expansion and protection of forest areas (DOS and EOP 2021).

3.1.2 Affected Environment

The Region of Influence (ROI) for the air quality analysis is Okaloosa County, Florida, within which the Proposed Action would occur. Okaloosa County is within the Mobile (Alabama)-Pensacola-Panama City (Florida)-Southern Mississippi Interstate Air Quality Control Region (40 CFR Section 81.68). USEPA Region 4 and FDEP regulate air quality in Florida. USEPA has designated Okaloosa County as in attainment or unclassified for all criteria pollutants (USEPA 2023b). As a result, the General Conformity Rule is not applicable to federal actions occurring in Okaloosa County.

Primary sources of air emissions at Eglin AFB include fossil fuel use/burning (e.g., diesel, natural gas) in generators and boilers, aircraft engine testing and operation, munitions use, open burning/open detonation, fire training, prescribed burning, vehicle operations, aerospace ground support equipment use, marina operations, and solid waste landfill operations. Eglin

Boulevard is south of the airfield, where emissions occur from aircraft operations (FDEP 2019). Air emissions within and near Eglin Boulevard and the proposed realignments occur from engine exhaust associated with vehicle movements. No other sources of air emissions are within the proposed alignments.

Climate Change and GHGs. Ongoing global climate change in the southeastern U.S., including Florida, has contributed to rising seas and retreating shores, increased storm intensity, increased precipitation, decreased crop productivity, natural ecosystem disruption, and human health effects (Carter et al. 2018). Changes to regional climate patterns could result in regional changes to flooding frequency and intensity, reduced air quality, damage to transportation infrastructure, and spread of invasive species to new areas. Cities, roads, ports, and water supplies in Florida are vulnerable to the impacts of storms and sea level rise. High air temperatures can cause adverse health effects such as heat stroke and dehydration, which can affect cardiovascular and nervous systems, especially in vulnerable populations. Warmer air can also increase the formation of ground-level O_3, which can lead to a variety of health effects, including aggravation of lung diseases and increased risk of death from heart or lung diseases (USEPA 2016).

Historically, Eglin AFB has an average temperature of 81.2 degrees Fahrenheit during the hottest month of July, and an average temperature of 49 degrees Fahrenheit during the coldest month of January. The region has an average annual precipitation of 66.9 inches per year. The wettest month of the year is July, with an average rainfall of 9.4 inches (IDcide 2023).

In 2020, Okaloosa County produced 2,146,126 tons of CO_2e, and the state of Florida produced 298,506,473 tons of CO_2e, making the state the third highest producer of CO_2 in the U.S. (USEIA 2022, USEPA 2023c). In 2021, Eglin AFB produced 27,896 metric tons of CO_2e (USEPA 2021).

3.1.3 Environmental Consequences

The air quality analysis estimates the effects on air quality and climate change that would result from the Proposed Action. Okaloosa County is in attainment or unclassified for all criteria pollutants. Based on compliance with the NAAQS, the General Conformity Rule does not apply to the Proposed Action. Per *Air Force Air Quality Environmental Analysis Process (EIAP) Guide, Volume II – Advanced Assessments*, DAF applies insignificance indicators to actions occurring within areas designated as attainment or unclassified to provide an indication of the significance of potential impacts on air quality. The insignificance indicator is the 250 tpy Prevention of Significant Deterioration (PSD) major source threshold, as defined by USEPA, and is applied to emissions for all criteria pollutants (except lead) that have been designated attainment or unclassified. The PSD threshold for lead is 25 tpy. The PSD thresholds do not denote a significant impact; however, they do provide a threshold to identify actions that have insignificant impacts on air quality. Any action with net emissions below the insignificance indicators is considered so insignificant that the action will not cause or contribute to an exceedance of one or more NAAQS (AFCEC 2020).

The DAF Air Conformity Applicability Model, version 5.0.18a, was used to estimate the annual air emissions from the Proposed Action. The potential for air quality impacts was assessed in

accordance with AFMAN 32-7002, *Environmental Compliance and Pollution Prevention*; the EIAP (32 CFR Part 989); and the General Conformity Rule (40 CFR Part 93, Subpart B). **Appendix C** includes the Air Conformity Applicability Model, with detailed emissions calculations.

Consistent with EO 14008 and CEQ's 2016 Final Guidance for GHG emissions, this EA examines GHGs as a category of air emissions. It also examines potential future climate scenarios to determine whether elements of the Proposed Action would be affected by climate change. This analysis does not attempt to measure the actual incremental impacts of GHG emissions from the Proposed Action, as there is lack of consensus on how to measure such impacts. Global and regional climate models have substantial variation in output and do not have the ability to measure the actual incremental impacts of a project on the environment.

3.1.3.1 ALTERNATIVE 1 (PREFERRED ALTERNATIVE)

Alternative 1 would result in short-term, moderate, adverse impacts on air quality from construction and demolition. **Table 3-2** shows the net annual emissions from Alternative 1. Criteria pollutant emissions would be directly produced from heavy construction equipment operation, roadway construction, heavy duty diesel vehicles hauling supplies and debris to and from the construction area, workers commuting daily to and from the construction area in their personal vehicles, Sand and Spur Riding Club facilities demolition, and ground disturbance. All such emissions would be temporary in nature and produced only during the estimated 2-year construction period, from March 2027 to March 2029. The estimated annual net emissions associated with Alternative 1 would exceed the insignificance indicator for PM_{10} in 2027. Fugitive dust emissions, including PM_{10}, result from ground disturbance, vehicles traveling on unpaved roads, and disruption of vacant land. Ground disturbance for Alternative 1 includes clearing and grading within the 400-foot-wide corridor along the length of the approximate 5-mile realignment, which would occur on up to 222 acres during the first year of construction (i.e., 2027). Emissions from Alternative 1 would not exceed the insignificance indicators for any other criteria pollutant.

Table 3-2. Estimated Annual Air Emissions from Alternative 1

Calendar Year	NO_X (tpy)	VOC (tpy)	CO (tpy)	SO_X (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	Lead (tpy)	CO_2e (tpy)
2027	6.392	1.039	6.286	0.018	578.898	0.239	<0.001	2,115.2
2028	1.517	0.311	2.082	0.004	0.082	0.082	<0.001	363.5
2029	0.253	0.052	0.347	0.001	0.014	0.014	<0.001	60.6
2030 and later	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0
Maximum	**6.392**	**1.039**	**6.286**	**0.018**	**578.898**	**0.239**	**<0.001**	**2,115.2**
PSD Threshold	**250**	**250**	**250**	**250**	**250**	**250**	**25**	**N/A**
Exceeds PSD Threshold?	**No**	**No**	**No**	**No**	**Yes[1]**	**No**	**No**	**N/A**

Key: N/A = not applicable
[1] Implementation of BMPs and other control measures, such as use of speed restrictions during operation of vehicles within construction areas; dust suppression techniques, such as application of water, use of covers on soil stockpiles and dump truck loads, and suspension of earth-movement activities during high-wind conditions; and landscaping of open areas or planting with native vegetation would reduce uncontrolled particulate matter emissions by

approximately 50 percent, depending on the number of BMPs implemented and the potential for particulate matter emissions (USEPA 1985).

Fugitive dust emissions would be highest during the first year of construction, when grading for the realignment would occur. The level of emissions would vary daily depending on the work phase, activity level, and prevailing weather conditions. The following BMPs and management actions, which can also be found in **Appendix D**, would be incorporated during the construction period to minimize fugitive dust emissions and reduce criteria pollutant emissions:

- During construction and operation, use of electricity from the installation would be used preferentially over the use of generators. All generator use would be pre-approved by the installation Air Quality Manager and would adhere to applicable operating procedures.
- All non-road diesel equipment would comply with the Federal Clean Air Nonroad Diesel Rule, which regulates emissions from nonroad diesel engines and sulfur content in nonroad diesel fuel.
- All construction equipment would be maintained in proper working condition according to the manufacturer's specifications and use diesel particulate filters to reduce emissions of criteria pollutants. Vehicles would be maintained and inspected on a weekly basis to ensure good operating conditions.
- Non-road and on-road vehicles operating within construction areas would be subject to speed restrictions to minimize generation of fugitive dust.
- Dust suppression techniques would be used during construction to reduce air pollution. Recommended methods include application of water, soil stabilizers, or vegetation; use of wind break enclosures; use of covers on soil stockpiles and dump truck loads; use of silt fences; and suspension of earth-movement activities during high-wind conditions (gusts exceeding 25 miles per hour). Dust suppression techniques would be implemented in accordance with the *Florida Erosion and Sediment Control Designer and Reviewer Manual.*
- To the greatest extent feasible, measures to reduce diesel emissions would be implemented. These measures could include switching to cleaner fuels, retrofitting current equipment with emission reduction technologies, repowering old equipment with modern engines, replacing older vehicles, and reducing idling through operator training and contracting policies.
- Open areas would be landscaped or planted with vegetation to prevent emissions of unconfined particulate matter.

To minimize fugitive dust generation, vehicles operating within construction areas would be subject to speed restrictions; dust suppression techniques, such as application of water, use of covers on soil stockpiles and dump truck loads, and suspension of earth-movement activities during high-wind conditions; and landscaping of open areas or planting with native vegetation. These BMPs and other control measures would reduce uncontrolled particulate matter emissions from a construction site by approximately 50 percent, depending on the number of BMPs implemented and the potential for particulate matter emissions (USEPA 1985).

Alternative 1 does not include operation of new, stationary air emissions sources, such as emergency generators or boilers. Although Alternative 1 would not change the number of

vehicles transiting on Eglin Boulevard daily, an increase in mobile air emissions may occur because the travel distance for traffic would double from 2.5 miles to approximately 5 miles. The Proposed Action would alleviate traffic congestion and improve traffic flow, which would reduce vehicle idling times and offset the increase in mobile air emissions. Therefore, long-term impacts on air quality from Alternative 1 would be negligible. Temporary (i.e., in 2027 only) exceedance of the insignificance indicator for PM_{10} would result in short-term, moderate, adverse impacts; however, the steady state (i.e., 2030 and later) annual net air emissions would be below the insignificance indicators, indicating insignificant long-term impacts on air quality. Therefore, Alternative 1 would not contribute to an exceedance of one or more NAAQS in Okaloosa County.

Climate Change and GHGs. Construction would produce a total of 2,539.3 tons of direct CO_2e, which is approximately the GHG footprint of 513 passenger vehicles driven for 1 year or 290 homes' energy use for 1 year (USEPA 2023d). CO_2e emissions from construction would represent approximately 0.12 percent of the total CO_2e emissions from 2020 in Okaloosa County and less than 0.001 percent of CO_2e emissions in Florida. As such, GHG emissions from Alternative 1 would not meaningfully contribute to the potential effects of global climate change and would not considerably increase the total CO_2e emissions produced by Okaloosa County or the state of Florida. No new long-term (i.e., after construction is complete in 2029) GHG emissions would result from Alternative 1. Therefore, Alternative 1 would result in short-term, negligible, adverse impacts from GHGs.

Ongoing changes to climate patterns in northwestern Florida are described in **Section 3.1.2**. These climate changes are unlikely to affect DAF's ability to implement Alternative 1. At the time of this analysis, no future climate scenario or potential climate stressor would have appreciable effects on any element of the Proposed Action. In accordance with DAF's *Climate Action Plan*, climate priorities would be considered during the design phase of the realignment. Roadway design would incorporate features to improve resilience against the potential future effects of climate change, such as changes to flooding frequency and intensity, increased storm intensity, and sea level rise.

3.1.3.2 ALTERNATIVE 2

As with Alternative 1, Alternative 2 would result in short-term, moderate, adverse impacts on air quality from construction. **Table 3-3** shows the net annual emissions from Alternative 2. Air emissions from construction would be temporary, occurring only during the estimated 2-year construction period, from March 2027 to March 2029. Air emissions from construction would be slightly higher than those from Alternative 1 because Alternative 2 would include a larger disturbance area and construction of a bridge where the realignment crosses Lower Memorial Lake. As with Alternative 1, the estimated annual net emissions associated with Alternative 2 would exceed the insignificance indicator for PM_{10} in 2027. Ground disturbance for Alternative 2 would include clearing and grading a 400-foot-wide corridor along the length of the approximate 5-mile realignment, which would occur on up to 233 acres during the first year of construction (i.e., 2027). Emissions from Alternative 2 would not exceed the insignificance indicators for any other criteria pollutant. The BMPs and control measures identified for Alternative 1 and listed in **Appendix D** would be incorporated during the construction period to minimize emissions of

criteria pollutants and reduce uncontrolled particulate matter emissions by approximately 50 percent.

Table 3-3. Estimated Annual Air Emissions from Alternative 2

Calendar Year	NO_X (tpy)	VOC (tpy)	CO (tpy)	SO_X (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	Lead (tpy)	CO_2e (tpy)
2027	6.625	1.080	6.634	0.019	607.555	0.246	<0.001	2,190.5
2028	2.912	0.554	4.175	0.008	0.129	0.129	<0.001	815.0
2029	0.485	0.092	0.696	0.001	0.021	0.021	<0.001	135.8
2030 and later	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0
Maximum	**6.625**	**1.080**	**6.634**	**0.019**	**607.555**	**0.246**	**<0.001**	**2,190.5**
PSD Threshold	**250**	**250**	**250**	**250**	**250**	**250**	**25**	**N/A**
Exceeds PSD Threshold?	**No**	**No**	**No**	**No**	**Yes**	**No**	**No**	**N/A**

Key: N/A = not applicable

As with Alternative 1, Alternative 2 does not include operation of stationary air emissions sources; however, an increase in mobile air emissions may occur because the travel distance for traffic would double from 2.5 miles to approximately 5 miles. The Proposed Action would alleviate traffic congestion and improve traffic flow, which would reduce vehicle idling times and offset the increase in mobile air emissions. Therefore, long-term impacts on air quality from Alternative 2 would be negligible. Temporary exceedance of the insignificance indicator for PM_{10} would result in short-term, moderate, adverse impacts; however, the steady state (i.e., 2030 and later) annual net air emissions would be below the insignificance indicators, indicating insignificant long-term impacts on air quality. Therefore, Alternative 2 would not contribute to an exceedance of one or more NAAQS in Okaloosa County.

Climate Change and GHGs. Construction under Alternative 2 would produce a total of 3,141.3 tons of direct CO_2e, an increase of approximately 24 percent from Alternative 1. By comparison, 3,141.3 tons of CO_2e is approximately the GHG footprint of 634 passenger vehicles driven for 1 year or 359 homes' energy use for 1 year (USEPA 2023d). CO_2e emissions from construction would represent approximately 0.15 percent of the total CO_2e emissions from 2020 in Okaloosa County and approximately 0.001 percent of CO_2e emissions in Florida. As such, GHG emissions from Alternative 2 would not meaningfully contribute to the potential effects of global climate change and would not considerably increase the total CO_2e emissions produced by Okaloosa County or the state of Florida. No long-term GHG emissions would result from Alternative 2. Therefore, Alternative 2 would result in short-term, negligible, adverse impacts from GHGs.

The ongoing changes to climate patterns described in **Section 3.1.2** are unlikely to affect DAF's ability to implement Alternative 2. As described for Alternative 1, no future climate scenario nor potential climate stressor would have appreciable effects on the Proposed Action. Climate priorities would be considered during the design phase of the realignment under Alternative 2 in accordance with DAF's *Climate Action Plan*.

3.1.3.3 NO ACTION ALTERNATIVE

Under the No Action Alternative, DAF would not reroute Eglin Boulevard, and the existing conditions described in **Section 3.1.2** would remain unchanged. Therefore, no impacts on air quality would occur.

3.1.3.4 CUMULATIVE IMPACTS

Short-term, minor to moderate, adverse, cumulative impacts on air quality would occur from construction for the Eglin Boulevard realignment when combined with construction for the reasonably foreseeable actions identified in **Table 3-1**. Construction associated with the reasonably foreseeable actions that coincide with construction for the Proposed Action may contribute additional air emissions in Okaloosa County; however, such occurrences would be temporary in nature and would cease upon completion of construction. The PSD thresholds are applied to each individual project; therefore, the additive emissions of criteria pollutants from construction for the reasonably foreseeable actions, including for the 350 SWW and 36 EWS Beddown, AvFID and Fixed Wing Aircraft Growth at Duke Field, Beddown of F-35A DT Aircraft, Westside Enhanced Use Lease (EUL), and Eglin AFB future development would not be combined with emissions from the Proposed Action and would not exceed the PSD thresholds for NO_X, VOC, CO, SO_X, $PM_{2.5}$, or lead, and would not contribute to further exceedance of the PSD threshold for PM_{10} from the Proposed Action. Long-term, operational, cumulative impacts would not occur from the Proposed Action when combined with reasonably foreseeable actions because the Proposed Action does not include sources of operational air emissions.

3.1.3.5 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

The Proposed Action would not result in irretrievable or irreversible reduction of air quality.

3.2 Biological Resources

3.2.1 Definition of the Resource

Biological resources include native or naturalized flora and fauna as well as the habitats (e.g., grasslands, forests, wetlands) in which they exist. Protected and sensitive biological resources include species listed as threatened, endangered, or proposed under the ESA, as designated by the USFWS; migratory birds; bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*); and species that are protected by state laws or programs. Sensitive habitats include areas designated by the USFWS as critical habitat protected under the ESA and sensitive ecological areas designated by other federal or state regulations. Sensitive habitats also include wetlands, plant communities that are unusual or limited in distribution, and important seasonal use areas for wildlife (e.g., migration routes, breeding areas, crucial summer or winter habitats).

Protected Species. The ESA (16 USC Section 1531 et seq.) establishes a federal program to protect and recover imperiled species and the ecosystems upon which they depend. The ESA requires federal agencies, in consultation with the USFWS, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species nor result in the destruction or adverse modification of designated critical habitat of such species. Under the ESA, “jeopardy” occurs when an action is reasonably expected, directly or

indirectly, to diminish the number, reproduction, or distribution of a species so that the likelihood of survival and recovery in the wild is appreciably reduced. The ESA defines an "endangered species" as any species in danger of extinction throughout all or a significant portion of its range. The ESA defines a "threatened species" as any species likely to become an endangered species in the foreseeable future. The ESA also prohibits any action that causes a "take" of any listed species. "Take" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct." Federal species of concern (i.e., candidate, proposed, under review) are not protected by law; however, these species could become listed and, therefore, are given consideration when addressing impacts from a proposed action. Listed plants are not protected from take, although it is illegal to collect or maliciously harm them on federal land. USFWS has primary responsibility for terrestrial and freshwater organisms protected under the ESA.

Under the ESA, critical habitat is designated if USFWS determines that the habitat is essential to the conservation of a federally threatened or endangered species. In consultation for those species with critical habitat, federal agencies must ensure that their activities do not adversely modify critical habitat to the point that it would no longer aid in the species' recovery.

In Florida, the Florida Fish and Wildlife Conservation Commission (FFWCC) oversees the protection and management of state-protected fauna under the Florida Endangered and Threatened Species Act (Florida Statute 372.072). Within the state of Florida Administrative Code (FAC), protection is provided to state endangered species (68A-27.003 FAC) and state threatened species (68A-27.004 FAC). The Florida Department of Agriculture and Consumer Services maintains the state list of plants designated as endangered, threatened, and commercially exploited (5B-40 FAC) as defined under Florida Statute 581.185(2).

Migratory Bird Treaty Act. The Migratory Bird Treaty Act of 1918 (MBTA; 16 USC Sections 703–712) was enacted to protect migratory birds and their parts (i.e., eggs, nest, feathers). Migratory birds are protected under the MBTA, as amended, and EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*. A Memorandum of Understanding was executed in September 2014 and extended in May 2022 until both parties deem a revised Memorandum of Understanding is required, between DoD and USFWS, to promote the conservation of migratory birds.

EO 13186 requires federal agencies to avoid or minimize impacts on migratory birds listed in 50 CFR Section 10.13, *List of Migratory Birds*. If design and implementation of a federal action cannot avoid measurable adverse impacts on migratory birds, EO 13186 requires the responsible agency to consult with USFWS.

Bald and Golden Eagle Protection Act. Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (BGEPA) of 1940 (16 USC Section 668–668c), as amended in 1962. The BGEPA prohibits the take, possession, or transport of bald eagles; golden eagles; and their parts (e.g., feathers, body parts), nests, and eggs without authorization from USFWS. This includes inactive and active nests. "Take," according to the BGEPA, means to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, or disturb. Activities that directly or indirectly lead to a "take" are prohibited without a permit from USFWS.

Wetlands. Wetlands are an important natural system and habitat because of the diverse biologic and hydrologic functions they perform. These functions include water quality improvement, groundwater recharge and discharge, pollution mitigation, nutrient cycling, wildlife habitat provision, and erosion protection.

Wetlands are protected as a subset of the waters of the U.S. under Section 404 of the Clean Water Act (CWA). The term "waters of the United States" contains relatively permanent bodies of water forming geographic features such as lakes, rivers, streams, and oceans. Also incorporated are special aquatic habitats including wetlands when they have a continuous surface connection to water bodies that are waters of the U.S. The U.S. Army Corps of Engineers (USACE) defines wetlands as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (33 CFR Section 328.3(c)(1)). The final conforming rule Amendments to the "Revised Definition of 'Waters of the United States'" was issued September 8, 2023 by the USEPA (88 *Federal Register* 61964).

EO 11990, *Protection of Wetlands*, requires that federal agencies provide leadership and take actions to minimize or avoid the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. Federal agencies are to avoid new construction in wetlands, unless the agency finds there is no practicable alternative to construction in the wetland, and the proposed construction incorporates all possible measures to limit harm to the wetlands.

DoD Instruction 4715.03, *Natural Resources Conservation Program*, includes requirements for the protection of natural resources, including wetlands, on DoD-controlled land.

The FDEP Environmental Resource Permit Program regulates projects in, on, or over wetlands or other surface waters (OSWs) under 62-330 FAC, *Environmental Permitting Process*.

3.2.2 Affected Environment

The ROI for the biological resources analysis includes 400-foot-wide corridors for Alternatives 1 and 2 (that represent potential outer limits of construction) and adjacent areas, as shown in **Figure 3-1**.

Vegetation. Eglin AFB has 34 community types that fall into four major ecosystems: sandhills, flatwoods, wetlands/riparian, and barrier island; the sandhills system is the most extensive ecosystem, comprising nearly 80 percent of the installation. The installation has approximately 14,000 acres of improved and 46,000 acres of semi-improved areas. Common grasses include St. Augustine (*Stenotaphrum secundatum*), bahia (*Paspalum notatum*), and centipede (*Eremochloa ophiuroides*). Whenever possible, native plants are used in landscaping (Eglin AFB 2022d). The ROI has developed, maintained, open grassy areas and vegetation comprised of a mix of hardwoods and pines (Eglin AFB 2023c). Tree species that may be found in the project area include, but are not limited to, black tupelo, sand pine, slash pine, longleaf pine, sand live oak, swamp laurel oak, and turkey oak (Eglin AFB 2023c, Hudak et al. 2016).

Wildlife. Due to the variety of habitats, Eglin AFB has a rich diversity of game and non-game wildlife. Some representative wildlife species include white-tailed deer (*Odocoileus virginianus*), Florida cottontail (*Sylvilagus floridanus*), raccoon (*Procyon lotor*), eastern mole (*Scalopus aquaticus*), red-winged blackbird (*Agelaius phoeniceus*), great blue heron (*Ardea herodias*), and belted kingfisher (*Megaceryle alcyon*). Freshwater aquatic species that may be observed in or around streams, creeks, wetlands, and rivers include American alligator (*Alligator mississippiensis*), largemouth bass (*Micropterus salmoides*), and sailfin shiner (*Pteronotropis hypselopterus*) (Eglin AFB 2022d).

Protected Species. Potentially occurring on or near the project area are 5 federally listed (endangered, threatened, proposed, and candidate) species protected by USFWS and the state of Florida; 1 state-protected species; and 20 MBTA-protected and/or BGEPA species (**Table 3-4**). Additionally, 19 plant and 55 wildlife state-protected species (FL statutes) have the potential to occur on the installation, including the Florida black bear (*Ursus americanus floridanus*), which is protected by the Florida Black Bear Conservation Rule 68A-4.009. The table of protected species was developed based on data provided in the Eglin AFB Integrated Natural Resources Management Plan (INRMP), USFWS Information for Planning and Consultation (which includes the project corridors for Alternatives 1 and 2, the areas between the Alternatives, and the current Eglin Boulevard to account for species that might be caught between active roads during construction), and from the FFWCC (Eglin AFB 2022d; FFWCC 2022; USFWS 2023a, 2023b, 2023c, 2023d).

The project area is within potential species-specific habitat for the gopher tortoise and eastern indigo snake. Prior to USFWS's determination not to list on October 12, 2022, the gopher tortoise eastern distinct population was a candidate for federal listing and protection. The species is still state listed as threatened, and Eglin AFB continues to comply with the *Gopher Tortoise Programmatic Conference Opinion (FWS Log #: 04EF3000-2018-F-0139;* USFWS 2020). A programmatic BO for the eastern indigo snake, a species that is closely associated with the gopher tortoise, is in place at Eglin AFB. This species has not been documented on the installation since 1999 (USFWS 2009). Two active bald eagle nests are approximately 0.5 and 0.7 mile east-southeast of the project area. Two inactive bald eagle nests are within the same vicinity (**Figure 3-1;** Eglin AFB 2023c). The two active bald eagle nests would not be disturbed by the implementation of either alternative, and both nests are well outside the 330-foot restricted activity buffer around bald eagle nest trees on Eglin AFB (Eglin AFB 2022d). While potential habitat for the West Indian manatee exists within the OSW areas on the western edge of the project area, a dam is between the lake and Choctawhatchee Bay, and no way exists for the West Indian manatee to get to the habitat. Therefore, the species discussed within this paragraph are not analyzed further.

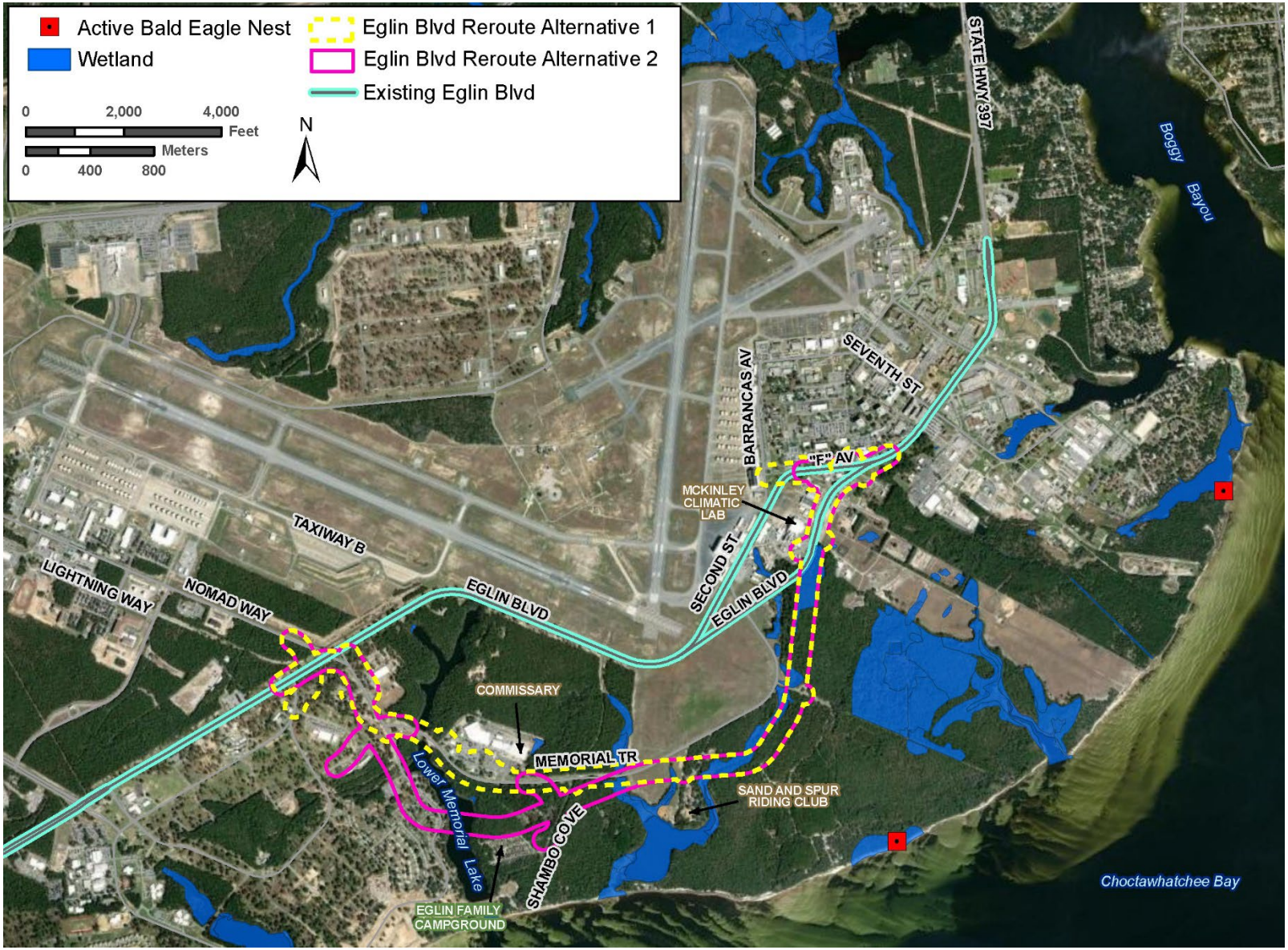
The OSWs also provide habitat for the Gulf sturgeon, but this species would not be expected to be in that habitat for the same reason as the West Indian manatee. Both OSWs and wetlands are potential habitat for the alligator snapping turtle; however, given this species' preference for deeper beds of moving water, both areas would be considered low-quality habitat. No documented occurrences of the alligator snapping turtle species are within the project area.

Although suitable habitat exists within the project area for the American oystercatcher, black skimmer, brown-headed nuthatch, cerulean warbler, gull-billed tern, king rail, lesser yellowlegs, marbled godwit, prairie warbler, red-headed woodpecker, ruddy turnstone, short-billed dowitcher, willet, Wilson's plover, and wood thrush, no documented occurrences of any of these species are within the project area. There has been an incidental observation of the obligate host milkweed plant (*Asclepias humistrata*) within the project area, but no Monarch butterflies have documented in the project area. It is also possible that the American kestrel, chimney swift, prothonotary warbler, and swallow-tailed kite may seasonally use the project area, although there have been no documented observations of these species.

Wetlands. Eglin AFB encompasses an approximated total of 63,901 acres of wetlands as defined within Section 404 of the CWA (33 USC Section 1344) and the Environmental Resources Permit program under Part IV, Florida Statutes, Section 373 (Eglin AFB 2022d). Wetlands occur throughout the project area and include several types such as palustrine forested, palustrine scrub-shrub, palustrine emergent, and lacustrine as defined by Classification for Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979).

A wetland survey was conducted within the project area from July 11–13, 2023. The wetland survey covered the 400-foot-wide corridors for the proposed roadway alignments under Alternatives 1 and 2. The Proposed Action was evaluated for the presence of wetlands and OSWs, which include lakes and upland cut drainage ditches, as documented in the Wetland Survey Report (**Appendix E**). Both wetlands and OSWs are jurisdictional resources requiring regulatory approval when impacted. Approximately 22 acres of wetlands and up to 4.7 acres of OSWs exist within either alternative corridor (see **Figure 3-1**, and **Figure 3-5** in **Section 3.12**; Eglin AFB 2023d). As of September 2023, the revision to the definition of "Waters of the United States" should not alter the jurisdictional determination of any of the wetlands documented within the project area for the proposed Eglin Boulevard realignment, although further guidance on interpreting the definition for practical use in the field is expected from USACE in the future.

Critical Habitat. No USFWS-designated critical habitat is within or near the project area at Eglin AFB (USFWS 2023a, 2023b, 2023c).



Data Sources: Eglin AFB 2022a, 2023a, 2023d; Eagle Watch 2023

Figure 3-1. Protected Species and Wetlands Documented Around or Near the Proposed Project Area

Table 3-4. Protected Species with the Potential to Occur near the Project Area on Eglin AFB

Species	Status	Habitat
Mammals		
West Indian manatee (*Trichechus manatus*)	FT/ST	Shallow rivers, saltwater bays, canals, estuaries, and coastal areas
Birds		
American kestrel (*Falco sparverius*)	MBTA	Open stands of mature pines
American oystercatcher (*Haematopus palliatus*)	MBTA	Primarily salt marshes and beaches
Bald eagle (*Haliaeetus leucocephalus*)	BGEPA/ MBTA	Generally inhabits areas within 2.5 miles of bays, lakes, the coast, or other bodies of water; nests in large, mature, accessible trees, but may also use cliffs or human-made structures
Black skimmer (*Rynchops niger*)	MBTA	Inland lakes, sparsely vegetated gravel bars, and sandy beaches
Brown-headed nuthatch (*Sitta pusilla*)	MBTA	Found in pine forests with shortleaf, longleaf, loblolly, and slash pine trees, commonly in open, mature, pine forests
Cerulean warbler (*Setophaga cerulea*)	MBTA	Old-growth, deciduous, floodplain forest; mesic uplands; wooded swamps; and wet bottomlands
Chimney swift (*Chaetura pelagica*)	MBTA	Likely preferred nesting in caves and hollow trees; currently uses chimneys as their preferred nesting site; need a vertical surface for nesting
Gull-billed tern (*Gelochelidon nilotica*)	MBTA	Primarily inhabits rivers, lakes, and freshwater marshes
King rail (*Rallus elegans*)	MBTA	Prefers fresh-tidal and brackish marshes
Lesser yellowlegs (*Tringa flavipes*)	MBTA	Found in shallow lagoons, marshes, and tidal flats
Marbled godwit (*Limosa fedoa*)	MBTA	Inhabits estuaries, beaches, and coastal mudflats
Prairie warbler (*Setophaga discolor*)	MBTA	Prefers early successional shrubby habitats (e.g., clearcut oak forests, young pines)
Prothonotary warbler (*Protonotaria citrea*)	MBTA	Prefers woodlands and forests located near water; nests in woodpecker excavated cavities; forages in downed logs and dead standing trees along stream banks
Red-headed woodpecker (*Melanerpes erythrocephalus*)	MBTA	Found at forest edges, and in open woodlands and clearings
Ruddy turnstone (*Arenaria interpres morinella*)	MBTA	Prefers mudflats, sandy coastlines, wetlands, rocky beaches, and intertidal areas
Short-billed dowitcher (*Limnodromus griseus*)	MBTA	Prefers brackish lagoons and coastal mud flats
Swallow-tailed kite (*Elanoides forficatus*)	MBTA	Inhabits wooded river swamps with tall trees for nesting and nearby open country to hunt; commonly found in near prairie or marsh, cypress swamps, and riverside swamp forests

Species	Status	Habitat
Willet (*Tringa semipalmata*)	MBTA	Found in marshes
Wilson's plover (*Charadrius wilsonia*)	MBTA	Prefers sandy inlets, tidal flats, and open beaches
Wood thrush (*Hylocichla mustelina*)	MBTA	Prefers upland mesic forests with a moderately dense shrub layer and trees taller than 45 feet with an open forest floor, moist soil, and leaf litter
Reptiles and Amphibians		
Alligator snapping turtle (*Macrochelys temminckii*)	FPT/ST	Found in streams and rivers that feed into the Gulf of Mexico
Eastern indigo snake (*Drymarchon couperi*)	FT/ST	May be found in a range of wetland and upland habitats from marsh edges, to pine flatwoods, to coastal dunes
Gopher tortoise (*Gopherus polyphemus)*	ST	Prefers well-drained, sandy soils in xeric oak hammocks, longleaf pine sandhills, scrub, dry prairies, pine flatwoods, and coastal dunes habitats
Fishes		
Gulf sturgeon (*Acipenser oxyrinchus desotoi*)	FT/ST	Occurs in most major river systems from the Mississippi to Suwannee Rivers (Florida) and marine waters of Central and Eastern Gulf of Mexico south to Florida Bay
Insects		
Monarch butterfly (*Danaus plexippus*)	FC	Inhabit grasslands and fields, along roadsides, and in gardens; lays eggs on obligate milkweed plants

Sources: Eglin AFB 2022d; FFWCC 2022; USFWS 2023a, 2023b, 2023c, 2023d
Key**:** C = Candidate species (federal designation); E = Endangered; F = Federal; P = Proposed (federal designation); S = State; T = Threatened

3.2.3 Environmental Consequences

The evaluation of impacts on biological resources considers impacts from construction, operation, and maintenance activities on vegetation, wildlife, protected species, and wetlands. For vegetation and wildlife, species have unique, fundamental needs for food, water, shelter, and space, and can be sustained only where their specific combination of habitat requirements are available. The removal of elements necessary for a species' habitat affects the individual's ability to exist. Therefore, the framework for analysis of impacts on wildlife, vegetation, and wetlands is based on whether the action would cause habitat displacement resulting in reduced feeding or reproduction, removal of critical habitat for sensitive species, and/or behavioral avoidance of available habitat as a result of noise or human disturbance. The level of impacts on biological resources is based on: (1) the importance (e.g., legal, commercial, recreational, ecological, scientific) of the resource, (2) the proportion of the resource that would be affected relative to its occurrence within the region, (3) the sensitivity of the resource to the proposed activities, and (4) the duration of ecological ramifications. Impacts on biological resources are considered significant if species or special habitats are adversely affected over large areas, or if disturbances cause population size or distribution reductions of a species of concern.

3.2.3.1 ALTERNATIVE 1 (PREFERRED ALTERNATIVE)

Vegetation. Short- and long-term, moderate, adverse impacts on vegetation would occur from temporary and permanent disturbance of vegetation and soil compaction during construction activities of the four-lane road and associated roundabouts, creating up to 222 acres of new ground disturbance. Short-term impacts would occur from temporary disturbance of up to 189 acres of vegetation from clearing and construction laydown areas for materials storage. To minimize the introduction and spread of non-native and invasive species, all construction equipment would be inspected and cleaned to remove seeds, plants, and soil prior to entering the installation. All construction materials and any fill would also be inspected to ensure it is as free of seeds, plants, or undesirable soil as practicable. Where appropriate, disturbed areas would be revegetated with native plant species. Selection of native species for any new plantings would be coordinated with the Eglin AFB Natural Resources Office. Additionally, heavy equipment use would trample vegetation and cause soil compaction. Areas of temporary ground disturbance would be reseeded with native vegetation to the extent practicable. Long-term impacts would consist of the permanent removal of up to 33 acres of vegetation and forested habitat from the addition of impervious surfaces.

Vegetation clearing activities would be conducted in accordance with AFMAN 32-7003, *Environmental Conservation*, which states, “forest products may not be traded for goods or services nor used to offset contract costs associated with construction, land clearing, or other contracted activity.” A forest stand survey would be conducted for the project area prior to site preparation activities to determine the species and number of merchantable trees that could be harvested. Merchantable trees would be vetted and tree removal coordinated through the Eglin AFB Natural Resources Forestry Office. The construction contractor would be responsible for the removal of the non-merchantable trees in the project area.

Wildlife. Short- and long-term, negligible, adverse impacts on wildlife may occur from increased noise and potential temporary displacement associated with habitat removal and proposed construction activities. Some wildlife species may use the project area habitat for shelter and feeding. A large portion of the project area is forested habitat, which is generally suitable for most species of wildlife found on the installation. While approximately 33 acres would be permanently removed during construction development, suitable habitat adjacent to the project area would remain available for use. Wildlife would be expected to either temporarily or permanently move to those nearby habitats to avoid noise impacts and support survival needs.

Short-term, negligible, adverse noise impacts on wildlife would occur from heavy equipment use and increased human presence during tree and vegetation removal and construction activities. The increase in the frequency or intensity of noise from construction could temporarily displace wildlife, and proposed construction activities would require heavy equipment use, which would generate short-term increases in noise near the project area. With multiple pieces of equipment operating concurrently, noise levels can be high within several hundred feet of active construction sites. Wildlife species would be expected to use adjacent suitable habitat during construction. A slight increase in the frequency of startle responses or other behavioral modifications may occur during construction activities.

Protected Species. Short-term, negligible, adverse impacts on the alligator snapping turtle could occur from noise associated with vegetation removal and construction as well as temporary wetland disturbance; long-term, negligible, adverse impacts to this species could also occur from permanent habitat removal. The project area encompasses low-quality habitat for the alligator snapping turtle. It is therefore unlikely it is present. If present, the alligator snapping turtle would likely move to adjacent habitat.

Short-term, minor, adverse impacts on migratory bird species that have the potential to occur within the project area (**Table 3-4**) could occur from noise associated with vegetation removal and construction as well as wetland and OSW disturbances. An abundance of suitable habitat exists in the vicinity of the project area to which disturbed MBTA-protected species would likely move. In accordance with the installation INRMP guidelines and EO 13186, and to the extent feasible, construction activities would be completed in a manner that would avoid or minimize adverse effects on migratory birds as much as possible.

The entire project area encompasses potential species-specific habitat for the gopher tortoise and eastern indigo snake. Pre-construction surveys would be completed prior to any ground disturbing activities. In the unlikely event a gopher tortoise is identified, the individual would be relocated in accordance with the *Gopher Tortoise Programmatic Conference Opinion (FWS Log #: 04EF3000-2018-F-0139*; USFWS 2020). The eastern indigo snake has not been documented on the installation since 1999 (USFWS 2009). An Indigo Snake Programmatic BO has been in place since 2009 and would cover the unlikely occurrence of a snake being within the project area and requiring capture and relocation.

In accordance with Section 7 of the ESA, a consultation with the USFWS has been completed. Their concurrence with the Eglin AFB Cantonment Area Biological Assessment was received on December 9, 2013. This consultation describes guidelines under which the project must be completed to minimize potential impacts to threatened and endangered species. In accordance with this consultation, the following requirements must be followed: (a) Gopher Tortoise Survey is required and arranged with the Eglin AFB Natural Resources Office to take place within 30 days of ground disturbing activities. If tortoise burrows are found to conflict with the proposed project site, and burrows cannot be avoided by at least 25 feet, the tortoises must be relocated. Tortoises cannot be relocated if the forecasted low temperature is below 50 degrees for 3 consecutive days. (b) Proponent would also be provided with Eastern Indigo Snake Signs. Personnel must not harass, injure, harm, or kill this species. If an indigo snake is sighted, Eglin AFB Natural Resources Office should be contacted immediately. Personnel must cease any activities and allow the eastern indigo snake sufficient time to move away from the site on its own before resuming activities.

Additionally, the following BMPs would be implemented during construction to avoid adverse impacts on protected species:

- Prior to initiation of construction, construction contractors must receive an Eglin AFB Natural Resources Office-approved environmental briefing.
- Surveys would be required before and after construction activities that may affect protected species or sensitive habitat.

- Routine surveys of the installation would continue to determine presence of protected species.
- All equipment staging and storage areas would be intentionally sited to minimize disturbance on any listed plant or animal species or their respective habitat. Information signs would be posted within active construction areas, alerting crews to the potential presence of protected species. Construction contractors would familiarize work crews with the appearance of potential protected species and instruct work crews not to disturb these species. Other safeguards such as predator-proof waste containers would be used during construction. Work crews would be instructed to stop work if protected animal species are encountered and to only resume work once the species leave the area. The presence of protected species, their habitat, or activities, such as nesting within or near the project area, may require further consultation with the Eglin AFB Natural Resources Office, FFWCC, or USFWS to avoid adverse impacts.
- If the removal of dead trees and vegetation, which provide habitat for birds and bats, is required, the following BMPs and standard operating procedures would be considered:

    - Topping trees or removing dead limbs instead of removing the entire tree
    - Leaving as much trunk height as possible
    - Creating artificial cavities (nest boxes)
    - Drilling into trees to replace cavities lost during tree removal

- Upon locating a dead, injured, or sick individual of an endangered or threatened species within the project area, initial notification must be made to the USFWS Law Enforcement Office in Tallahassee, the FFWCC at 888-404-3922, and Eglin AFB Natural Resources Office at 850-883-1153, 850-882-8421, or 850-882-8391. Additional notification must be made to the USFWS Ecological Services Field Office at Panama City at 850-769-0552. Care would be taken in handling sick or injured individuals and in the preservation of specimens in the best possible state for later analysis of cause of death or injury.

Wetlands. Alternative 1 could affect 21.5 acres of wetlands and 1.4 acres of OSWs within the survey corridor. Short- and long-term, moderate, adverse impacts on wetlands would occur from deposition of fill materials or increased sedimentation into wetlands that could occur during vegetation removal, ground disturbing activities, and construction. However, roadway design and construction would be conducted in a manner such that activities would minimize impacts on wetlands to the maximum extent practical. Less than 0.04 percent of the total acreage of wetlands on Eglin AFB would be impacted by the project and, therefore, impacts would be less than significant. Appropriate permits would be obtained, as required, for proposed activities and wetland compensatory mitigations determined during the permitting process. The scope of wetland compensatory mitigations would be determined through the Uniform Mitigation Assessment Method, which provides a standardized procedure for evaluating the functions of a wetland, the amount that those functions are reduced by a proposed impact, and the amount of mitigation necessary to offset the loss of function. Wetland banking would be used as the method of mitigation and coordinated through the Uniform Mitigation Assessment Method process (FDEP 2023a). Permit-required controls; BMPs; and standard operating procedures would be implemented to minimize impacts on wetlands and OSWs.

Consultation with FDEP and USACE, as appropriate, would be conducted to minimize wetland impacts and identify potential avoidance, minimization, and conservation measures. Due to the impact on wetlands, a Section 404 permit from USACE and an Environmental Resource Permit from FDEP would be obtained prior to construction.

3.2.3.2 ALTERNATIVE 2

Vegetation. Impacts to vegetation would be similar to, but slighter greater than Alternative 1 because Alternative 2 would disturb an additional 11 acres (up to 233 acres) of suitable habitat. Similar to Alternative 1, up to 33 acres of vegetation would be permanently removed.

Wildlife. Impacts on wildlife would be similar to those described for Alternative 1, although these impacts would be slightly greater due to the additional 11 acres of ground disturbance, and removal of up to 22.0 acres of wetlands and 4.7 acres of OSWs. Short- and long-term, adverse impacts are still anticipated to be negligible as sufficient habitat exists within the project vicinity that wildlife could use either temporarily or permanently.

Protected Species. Impacts on the alligator snapping turtle, and MBTA-protected species would be similar to those previously described for wildlife under Alternative 1. Short- and long-term, adverse impacts are still anticipated to be negligible as sufficient habitat exists in the vicinity of the project area that these species could use either temporarily or permanently.

Wetlands. Alternative 2 could affect 22.0 acres of wetlands and 4.7 acres of OSWs within the survey corridor. Short- and long-term, moderate, adverse impacts on wetlands would occur from deposition of fill materials or increased sedimentation into wetlands that could occur during vegetation removal, ground disturbing activities, and construction. Impacts on wetlands and associated avoidance measures would be similar to, but slightly greater than those described for the Alternative 1. Alternative 2 would also include the crossing of the OSW Lower Memorial Lake. This large, open-water crossing would likely require construction of a bridge to minimize impacts.

3.2.3.3 NO ACTION ALTERNATIVE

Under the No Action Alternative, DAF would not reroute Eglin Boulevard, and the existing conditions described in **Section 3.2.2** would remain unchanged. Therefore, no impacts on biological resources would occur.

3.2.3.4 CUMULATIVE IMPACTS

Short- and long-term, negligible to minor, adverse, cumulative impacts on biological resources would occur from realignment of Eglin Boulevard when combined with construction and operation for the reasonably foreseeable actions identified in **Table 3-1**. Portions of the Proposed Action would occur within a previously undisturbed area; however, most reasonably foreseeable project areas would be within previously disturbed areas or would occur within current DAF operational airspace. Short-term, negligible to minor, adverse, cumulative impacts on vegetation and wildlife would occur from ground disturbance and soil compaction during construction for the Proposed Action when combined with other construction actions, such as those for the 350 SWW and 36 EWS Beddown, AvFID and Fixed Wing Aircraft Growth at Duke Field, Eglin Westside EUL, Beddown of F-35A DT Aircraft, and Eglin AFB future development.

Short-term, minor, adverse, cumulative impacts on wildlife could occur from additive habitat disturbance and construction noise from multiple projects occurring at once. Wildlife would be expected to migrate to and use adjacent suitable habitat during ground disturbing activities. Localized loss of habitat, degradation of habitat, noise impacts, or direct physical impacts on species can have a cumulative impact when viewed on a regional scale if that loss or impact is compounded by other events with the same end results.

Long-term, minor, adverse, cumulative impacts on vegetation would occur from the permanent removal of vegetation and trees for the Proposed Action and Westside EUL, which would result in a cumulative total of up to 123 acres of permanent disturbance. The largest alternative parcel (95 acres) proposed for Westside EUL would be directly west of the project area, which, when cleared along with the Westside EUL site, would remove forested habitat and displace wildlife; however, suitable habitat exists within the surrounding areas that wildlife would be expected to move to. Long-term, minor, adverse, cumulative impacts on wetlands could occur from the Proposed Action and Eglin AFB future development plans. Demolition, construction, and maintenance activities have the potential to result in minor increases in sedimentation in wetlands. Therefore, the Proposed Action, when combined with other reasonably foreseeable actions, would not result in significant cumulative impacts on biological resources.

3.2.3.5 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

The implementation of the Proposed Action would create a permanent loss of up to 33 acres of habitat that would become impervious surface and would not be vegetated, as well as a loss or reduction in quality of up to 22.0 acres of wetlands and 4.7 acres of OSWs, representing irreversible or irretrievable resources.

3.3 Cultural Resources

3.3.1 Definition of the Resource

Cultural resources are historic sites, buildings, structures, objects, or districts considered important to a culture, subculture, or community for scientific, traditional, religious, or other purposes. They include archaeological resources, historic architectural or engineering resources, and traditional cultural resources. Federal laws and EOs that pertain to cultural resources management include the NHPA (1966), the Archeological and Historic Preservation Act (1974), the American Indian Religious Freedom Act (1978), the Archaeological Resources Protection Act (1979), and the Native American Graves Protection and Repatriation Act (NAGPRA; 1990). Eglin AFB is required to comply with DAF regulations and instructions, including AFMAN 32-7003, *Environmental Conservation*; and DAFI 90-2002, *Interactions with Federally Recognized Tribes*. The Integrated Cultural Resources Management Plan (ICRMP; Eglin AFB 2022e) is the guidance document for cultural resources at Eglin AFB for planning and proposed activities.

The NHPA defines historic properties as buildings, structures, sites, districts, or objects listed in or eligible for listing in the National Register of Historic Places (NRHP). Resources found significant under NRHP criteria may be considered eligible for listing in the NRHP. Historic properties are generally 50 years of age or older (i.e., considered historic age), are historically significant, and retain sufficient integrity to convey their historic significance.

3.3.2 Affected Environment

Under Section 106 of the NHPA, federal agencies must take into account the effect of their undertakings on historic properties within the proposed undertaking's (or project's) APE. Federal agencies must assess the possible effects of the proposed undertaking on historic properties in consultation with the Florida SHPO and other consulting or interested parties, including tribes and the public. The APE is defined as the geographic area or areas within which an undertaking (project) may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. The APE for the Proposed Action includes the 400-foot-wide corridors for Alternatives 1 and 2, which are each approximately 5 miles long. The APE as currently defined includes approximately 297 acres of land owned by Eglin AFB.

The APE for the Proposed Action overlaps the boundaries of one NRHP-listed historic district, the McKinley Climatic Laboratory; and two NRHP-eligible historic districts, the Eglin AFB Railroad and Test Area Range A-22 Historic Districts. Six NRHP-eligible buildings are located within the APE, two of which are individually eligible (Buildings 110 and 374); the remaining four buildings are contributing resources to the McKinley Climatic Laboratory and Test Range A-22 Historic District. These historic properties are concentrated within the northeastern portion of the APE, within and adjacent to the Eglin Main Base Cantonment Area. The northeastern portion and western end of the APE intersect the Eglin AFB Railroad Historic District, just east of the current intersection of Eglin Boulevard and the railroad alignment, and the current intersection of Nomad Way and the railroad alignment, respectively.

Eglin AFB has an executed PA with tribes and the Florida SHPO for reviewing projects using predictive modeling (Eglin AFB 2021). The PA stipulates that the tribes do not wish to be contacted for work in areas that have already been surveyed or where predictive modeling, based on the surrounding area, has determined that there is a low likelihood for cultural resources. The APE includes five areas with a high probability for containing pre- and post-contact archaeological materials, and excludes those areas that have been previously surveyed or may contain hazardous materials.

An archaeological survey of the five high probability areas, totaling 26 acres combined, was conducted June 27 through July 3, 2023. A total of 83 shovel tests were excavated during the survey, all of which were negative for pre- and post-contact archaeological materials (Eglin AFB 2023e). As discussed in **Section 1.6.2**, the Cultural Resources Survey report identifying a No Adverse Effects determination was submitted to the Florida SHPO, initiating Section 106 consultation. Concurrence from the Florida SHPO was received on February 28, 2024 (see **Appendix A**). The possibility of inadvertent discoveries during construction however cannot be categorically ruled out. Eglin AFB is required to follow guidance regarding inadvertent discoveries of archaeological resources in NAGPRA, AFMAN 32-7003, and set forth in Section XI of the executed 2021 PA (Eglin AFB 2021). If any unrecorded archaeological deposits are encountered during construction, work should also cease and the 96 CEG/CEIEA Cultural Resources Office informed in addition to consultation with the SHPO and potentially Federally recognized Native American Tribes, depending on the cultural material discovered. Eglin AFB would determine the potential presence of archeological resources for any fill borrow locations prior to acquiring fill material from such locations. Similarly, any excavated material from the site must be placed in areas pre-approved for such use to avoid impacts on cultural resources.

3.3.3 Environmental Consequences

Under Section 106 of the NHPA and its implementing regulations, an adverse effect is found when an undertaking (or action) may alter, directly or indirectly, any of the characteristics of a historic property that qualify it for NRHP eligibility in a manner that would diminish the property's historic integrity of location, setting, feeling, association, design, materials, or workmanship. Examples of adverse effects on cultural resources under Section 106 can include physically altering, damaging, or destroying all or part of a resource; altering characteristics of the surrounding environment that contribute to the resource's significance; introducing visual or auditory elements that are out of character with the property or that alter its setting; neglecting the resource to the extent that it deteriorates or is destroyed; or the sale, transfer, or lease of the property out of agency ownership (or control) without adequate legally enforceable restrictions or conditions to ensure preservation of the property's historic significance. Adverse effects determined under Section 106 may or may not be considered significant impacts under NEPA, and considerations include the type, duration, and severity of the impacts as well as mitigation measures developed through Section 106 consultation.

3.3.3.1 ALTERNATIVE 1 (PREFERRED ALTERNATIVE)

Potential impacts on cultural resources from Alternative 1 are limited to visual impacts for all but one of the nine historic properties in the APE. Construction activities associated with Alternative 1 would result in alterations to and/or removal of portions of the remaining Eglin AFB Railroad bed within the 400-foot-wide APE. The segments of the railroad corridor in the APE consist of earthen railbed only, and retain no ballast, ties, or rails. No contributing resources or significant structures associated with the 40-mile-long railroad alignment have been identified in the APE. The proposed activities would allow the original route of the railroad to remain intact and discernible. Therefore, it is not anticipated that the activities proposed under Alternative 1 would diminish the integrity of the Eglin AFB Railroad Historic District based on current conditions in the APE or limit its ability to convey its historic significance, and impacts would not be considered significant.

No construction, site alteration, nor other activities that could physically alter, damage, or destroy the other eight historic properties within the APE are planned as part of the Proposed Action. The proposed improvements to existing roadways within the boundaries of the McKinley Climatic Laboratory and Test Range A-22 Historic District would cause short- and long-term, negligible to minor visual impacts to those historic properties from the presence of construction equipment as well as introduction of new and changed infrastructure within the project area. The presence of construction equipment would be limited to the duration of construction, and impacts would cease upon construction completion within that area. Impacts from changes in infrastructure in the surrounding area would not affect character-defining features of the McKinley Climatic Laboratory and Test Range A-22 Historic District, or their contributing resources. Similarly, impacts on the two individually NRHP-eligible buildings within the APE would be limited to long-term, negligible to minor, adverse, visual impacts. The roadway changes proposed for Alternative 1 would not diminish the integrity of these historic properties nor limit their ability to convey their historic significance, and would not be considered significant impacts. Therefore, DAF has made a determination of No Adverse Effect, which was detailed in the Cultural Resources Survey Report submitted to the Florida SHPO for their concurrence as

part of Section 106 consultation. Concurrence from the Florida SHPO was received on February 28, 2024 (see **Appendix A**).

3.3.3.2 ALTERNATIVE 2

Potential impacts on cultural resources from Alternative 2 are limited to visual impacts for all but one of the nine historic properties in the APE. Construction activities associated with Alternative 2 would result in alterations to and/or removal of portions of the remaining Eglin AFB Railroad bed within the 400-foot-wide APE. The segments of the railroad corridor in the APE consist of earthen railbed only, and retain no ballast, ties, or rails. No contributing resources or significant structures associated with the 40-mile-long railroad alignment have been identified in the APE. The proposed activities would allow the original route of the railroad to remain intact and discernible. Therefore, it is not anticipated that the activities proposed under Alternative 2 would diminish the integrity of the Eglin AFB Railroad Historic District based on current conditions in the APE or limit its ability to convey its historic significance, and impacts would not be considered significant.

No construction, site alteration, or other activities that could physically alter, damage, or destroy the other eight historic properties within the APE are planned as part of the Proposed Action. The proposed improvements to existing roadways within the boundaries of the McKinley Climatic Laboratory and Test Range A-22 Historic District would cause short- and long-term, negligible to minor visual impacts to those historic properties, from the presence of construction equipment as well as introduction of new and changed infrastructure within the area. The presence of construction equipment would be limited to the duration of construction, and impacts would cease upon construction completion within that area. Impacts from changes in infrastructure in the surrounding area would not affect character-defining features of the McKinley Climatic Laboratory and Test Range A-22 Historic District, or their contributing resources. Similarly, impacts on the two individually NRHP-eligible buildings within the APE would be limited to long-term, negligible to minor, adverse, visual impacts. The roadway changes proposed for Alternative 2 would not diminish the integrity of these historic properties nor limit their ability to convey their historic significance, and would not be considered significant impacts.

3.3.3.3 NO ACTION ALTERNATIVE

Under the No Action Alternative, DAF would not reroute Eglin Boulevard, and the existing conditions described in **Section 3.3.2** would remain unchanged. Therefore, no impacts on cultural resources would occur.

3.3.3.4 CUMULATIVE IMPACTS

Long-term, minor, adverse, cumulative impacts on cultural resources could occur from the construction and modification actions under the Proposed Action when combined with reasonably foreseeable construction projects identified in **Table 3-1**. An archaeological survey has been conducted within the APE in five areas with a high probability for containing pre- and post-contact archaeological materials that has yielded negative results. While predictive modeling shows a low likelihood for cultural resources occurring within much of the APE, the potential to encounter undiscovered archaeological deposits during ground disturbing activities

cannot be entirely ruled out. BMPs outlined in **Section 3.3.2** regarding ground-disturbing activities should be followed. Buildings on Eglin AFB that have become historic age (45 years of age or older) since the last historic buildings survey and inventory will need to be evaluated if they are within the APE for any reasonably foreseeable actions. Each reasonably foreseeable project would be independently analyzed for impacts on cultural resources in compliance with applicable federal laws. Potential impacts on cultural resources from reasonably foreseeable actions would be avoided, minimized, or mitigated through the Section 106 process.

3.3.3.5 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

The Proposed Action would not result in irreversible or irretrievable commitments of cultural resources.

3.4 Geological Resources

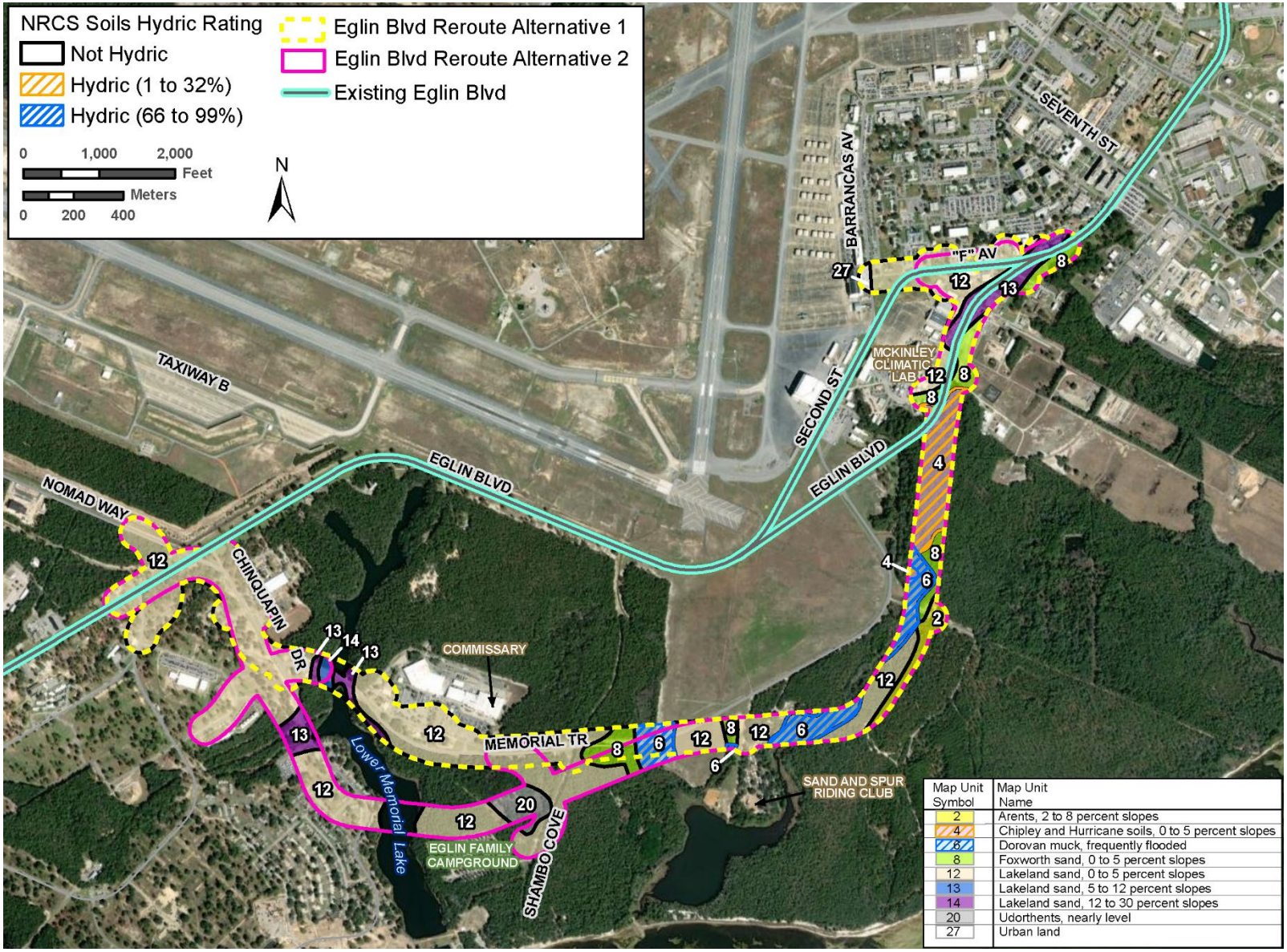
3.4.1 Definition of the Resource

Geological resources are composed of Earth's surface and subsurface materials. Within a given physiographic province, these resources are typically described in terms of geology, topography and physiography, soils and soil quality, farmland productivity, and geologic hazards where applicable.

Geology is a synthesis of many sciences that study Earth's composition and provides information on structural observations of surface and subsurface features. Field analyses gather information regarding the configuration and characterization of such features and can be used to understand the processes that enacted themselves on the landscape during a generalized time. Different field techniques are used to gather information necessary to the area of study, such as boreholes or geophysical methods to understand subsurface bedrock and groundwater interactions, or soil methods that can determine a landscape's structural integrity.

Soils are the unconsolidated materials overlying bedrock or other geologic parent material, and are formed by chemical and physical weathering forces that modified rock and sediments by breaking them down into smaller and smaller debris. Over time, this debris is subject to different soil-forming processes; soils then develop horizons, which are zones of material characterized by differing compositions of organic, clay, silt, and sand particles. All soils are usually described in terms of their complex type, slope, and physical characteristics. Their differences, however, are described in terms of their elasticity, strength, shrink-swell potential, drainage, and erosion potentials, all of which affect their abilities to support certain applications or uses. In appropriate cases, soil properties must be examined for their compatibility with different types of land uses, such as construction activities.

When soils become so unconsolidated that they lose their structural integrity, whether due to rainfall events, lack of vegetation, or temporal patterns of weathering, mass wasting events can occur. These events are classified as geological hazards, and occur when mass amounts of soil and debris move downslope in one bulk mass due to gravity. All hazard types, which can also include earthquakes and sinkholes, among others, can endanger human and animal lives as well as threaten property.



Data Sources: USDA NRCS 2023, Eglin AFB 2023a

Figure 3-2. Soils Underlying the Alternative 1 and 2 Corridors

3.4.2 Affected Environment

The ROI for the geological resources analysis is the 400-foot-wide corridors for Alternatives 1 and 2 and adjacent areas.

Regional Geology. The project area on Eglin AFB falls within the Southern Coastal Plains (Gulf Coast Flatwoods sub-region) ecoregion of Florida (USEPA 2022). The Southern Coastal Plains ecoregion consists mostly of flat plains with many swamps, marshes, and lakes. Once covered by a forest of beech (*Fagus sylvatica*), sweetgum (*Liquidambar styraciflua*), southern magnolia (*Magnolia grandiflora*), slash pine (*Pinus elliottii*), loblolly pine (*Pinus taeda*), white oak (*Quercus alba*), and laurel oak (*Quercus laurifolia*), land cover within the region is now mostly longleaf-slash pine forest, oak-gum-cypress forest within some low-lying areas, beef cattle pasture, and urban development (USEPA 2000). The installation is located atop the Citronelle Formation, which is composed of gravel and sandstone with a few thin clay layers, all of which have undergone considerable weathering from Florida's coastal climate and exposure to saltwater from the Gulf of Mexico.

Topography. The general landscape at Eglin AFB, including the project area, is characterized by developed, flat landscapes with only mild rises (less than 5 percent slopes) in elevation. Generally, these features are indistinguishable to the naked eye under natural vegetated conditions. Due to the installation's location on the northwestern coast of Florida, nearly abutting the Gulf of Mexico, the elevation within the project area ranges between 0 to 75 feet above mean sea level (MSL).

Soils. The predominant soil type within the 400-foot-wide corridors for Alternatives 1 and 2 is the Lakeland Sand soil type, underlying 1,509 acres or approximately 45 percent of the total surface area (see **Figure 3-2**). This soil series is found within areas of 0 to 5 percent slopes, typically in landscape settings on hills on marine terraces, and their soil profiles are composed entirely of sand particle sizes. The second-most predominant soil type within the corridors is Urban Land, comprising 670.7 acres, or roughly 20 percent of the total surface area. This soil type describes soils within areas of high population density in the largely built environment, and are highly altered soils made of human-transported/altered materials or minimally altered or intact "native" soils. **Table 3-5** provides a comprehensive list of soil series found within the corridors (USDA NRCS 2023).

Table 3-5. Soil Series within the Project Area

Name	Slope	Description
Arents	2 to 8%	Very deep, excessively drained, very rapid permeable soil on uplands
Chipley and Hurricane	0 to 5%	Very deep, somewhat poorly drained, very rapid or rapidly permeable soils on uplands in the lower Coastal Plain
Dorovan muck	0 to 1%	Very deep, very poorly drained, moderately permeable soils on densely forested floodplains, hardwood swamps, and depressions
Foxworth sand	0 to 5%	Very deep, moderately well to somewhat excessively drained, rapid to very rapid permeable soils on broad uplands and side slopes
Lakeland sand	0 to 5%	Very deep, excessively drained, rapid to very rapidly permeable soils on uplands
Lakeland sand	5 to 12%	Very deep, excessively drained, rapid to very rapidly permeable soils on uplands
Lakeland sand	12 to 30%	Very deep, excessively drained, rapid to very rapidly permeable soils on uplands
Udorthents	Nearly level	Moderately well-drained or well-drained soils, commonly 30 inches thick, consisting of thin or thick deposits of fill material that have been excavated from nearby areas and spread over the surface
Urban land	—	Soils in areas of high population density in the largely built environment

All soils listed, excluding the Urban Land soil type, are composed of sand, sandy loam, or muck, making potential soil and sediment excavation and removal challenging but not difficult.

Geological Hazards. Local terrain is geologically and seismically stable, lacking structural geologic elements such as faults, folding, and crustal deformation; it does not contain lithological components that would make the area susceptible to sinkholes or other karstic features. Eglin AFB is not predisposed to sinkhole formations because the underlying bedrock is not carbonite or evaporite, which is necessary for karstification (USGS 2023). Because no geological hazards of concern are within the project area, geologic hazards are not discussed further in this EA.

3.4.3 Environmental Consequences

Protection of unique geological features and minimization of soil erosion are considered when evaluating potential effects of a proposed action on geological resources. Generally, adverse effects can be avoided or minimized if proper techniques, erosion-control measures, and structural engineering design are incorporated into project development.

Effects on geology and soils would be major and adverse if they would alter the lithology (i.e., character of a rock formation), stratigraphy (i.e., layering of sedimentary rocks), and geological structures that control groundwater quality, distribution of aquifers and confining beds, and groundwater availability; or change the soil composition, structure, or function within the environment.

3.4.3.1 ALTERNATIVE 1 (PREFERRED ALTERNATIVE)

Regional Geology. Alternative 1 would not alter existing rock formations or sedimentary rock layering. Therefore, no impacts on regional geology would be anticipated from implementation of the Proposed Action.

Topography and Soils. Alternative 1 would result in short-term, negligible to moderate, adverse impacts on local topography and local soils due to ground disturbance, soil compaction, and increased erosion from construction activities; and long-term, moderate, adverse impacts on local soils due to increased erosion associated with an increase of up to 33 acres in impervious surfaces. Local topography would be altered due to excavation of soils and roadways in conjunction with the rebuilding of roadways within the area. Adverse impacts on topography would be both negligible and short term because the area is relatively flat and would not be expected to be drastically altered upon construction completion of the proposed roadway.

Alternative 1 could include up to approximately 222 acres of ground disturbance, resulting in disturbed and exposed soils as well as increased susceptibility to water and wind erosion. Construction for the proposed realignment would largely occur within areas previously disturbed by development or currently forested. Short-term, moderate disturbances to soils, such as soil compaction and displacement, would be caused by the addition, removal, or relocation of existing utilities (e.g., communication lines, natural gas mains, potable water lines, wastewater collection lines, lift stations, stormwater culvert, electrical transmission and distribution lines); paving and installation of sidewalks; installation of curbs and gutters, storm drainage, landscaping, and pavement markings; and replacement of pre-existing pavement under the Proposed Action. The use of heavy equipment or vehicles during construction could potentially result in localized soil compaction, altering the normal function relative to water storage, infiltration, or filtration. The use of existing paved roads and surfaces during construction would minimize these soil effects within the project area. Protective erosion control measures and BMPs, such as installing silt fencing, improving drainage, avoiding soil compaction, and replanting disturbed areas would be implemented to minimize soil erosion and sedimentation during construction, and areas of existing vegetation that should not be disturbed by construction activities would be marked and identified. As needed, Eglin AFB would obtain coverage under the 2017 National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) for projects that individually or cumulatively disturb 1 acre or more of land. The CGP requires the preparation, approval, and implementation of a site-specific Erosion and Sediment Control Plan (ESCP) as well as the installation and project-specific Stormwater Pollution Prevention Plans (SWPPPs) prior to construction, including appropriate structural and non-structural erosion, sediment, and waste control BMPs. All project activities would be reviewed to ensure proper erosion and sediment control measures are considered and incorporated into project designs, and construction activities would be sequenced to limit the length of soil exposure.

The addition of up to 33 acres of permanent impervious surfaces would increase the potential for erosion from stormwater runoff. Vehicle traffic along the proposed realignment could result in pollutant loading to stormwater runoff. These pollutants could then infiltrate surrounding soils and contaminate groundwater sources.

3.4.3.2 ALTERNATIVE 2

Impacts on geological resources under Alternative 2 would be mostly similar to those described for Alternative 1. Similar to Alternative 1, construction for Alternative 2 could include up to approximately 233 acres of ground disturbance, resulting in disturbed and exposed soils, increasing their susceptibility to water and wind erosion. With 10 additional acres of proposed

disturbance than Alternative 1, impacts would be expected to be slightly more than those of Alternative 1, although BMPs would be implemented to minimize impacts to topography and soils.

3.4.3.3 NO ACTION ALTERNATIVE

Under the No Action Alternative, DAF would not reroute Eglin Boulevard, and the existing conditions described in **Section 3.4.2** would remain unchanged. Therefore, no impacts on geological resources would occur.

3.4.3.4 CUMULATIVE IMPACTS

If construction for any of the reasonably foreseeable actions listed in **Table 3-1** were to occur simultaneously with the Proposed Action, ground disturbance, soil compaction, and erosion associated with construction efforts would result in short-term, moderate, adverse, cumulative impacts on soils and geology. Construction of the reasonably foreseeable actions would occur predominantly on undeveloped and undisturbed forested land. Cumulative impacts from construction would be temporary and would not permanently alter the topography, soils, or geology on Eglin AFB.

Long-term, minor, adverse, cumulative impacts would occur as a result of increased erosion and sedimentation associated with the increase in impervious surfaces from the Proposed Action and subsequent construction activities. Implementation of BMPs and environmental protection measures, including erosion control measures, would be used to minimize the potential for erosion. Therefore, the Proposed Action, when combined with other reasonably foreseeable actions, would not result in significant cumulative impacts on geological resources.

3.4.3.5 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

The Proposed Action would not result in irreversible or irretrievable commitments of geological resources.

3.5 Hazardous Materials and Wastes

3.5.1 Definition of the Resource

Hazardous Materials, Petroleum Products, and Hazardous Wastes. Hazardous materials, as defined by 49 CFR Section 171.8, are hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (49 CFR Section 172.101), and materials that meet the defining criteria for hazard classes and divisions in 49 CFR Part 173. Petroleum products include crude oil or any derivative thereof, such as gasoline, diesel, or propane. They are considered hazardous materials because they present health hazards to users in the event of incidental releases or extended exposure to their vapors.

Hazardous wastes are defined by the Resource Conservation and Recovery Act (42 USC Section 6903(5)), as amended by the Hazardous and Solid Waste Amendments, as “a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating, reversible illness; or (B) pose a

substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed." Certain types of common hazardous wastes are subject to special management provisions intended to ease the management burden and facilitate recycling of such materials. These are called universal wastes, and the standards for managing them are established in 40 CFR Part 273. Wastes covered under the universal waste standards include batteries, pesticides, mercury-containing equipment, lamps, and aerosol cans.

Evaluation of hazardous materials and wastes focuses on the storage, transportation, handling, and use of hazardous materials as well as the generation, storage, transportation, handling, and disposal of hazardous wastes. In addition to being a threat to humans, the improper release or storage of hazardous materials, hazardous wastes, and petroleum products can threaten the health and wellbeing of wildlife species, habitats, soil systems, and water resources.

Toxic Substances. Toxic substances are substances that might pose a risk to human health, and are addressed separately from hazardous materials and hazardous wastes. Toxic substances include asbestos-containing materials (ACMs), lead-based paint (LBP), and polychlorinated biphenyls (PCBs), all of which are typically found in buildings and utilities infrastructure.

Asbestos is regulated by USEPA under the CAA; Toxic Substances Control Act; and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). USEPA has established that any material containing more than 1 percent asbestos by weight is considered an ACM. ACMs are generally found in building materials such as floor tiles, mastic, roofing materials, pipe wrap, and wall plaster. USEPA has implemented several bans on various ACMs between 1973 and 1990, so ACMs are typically only present in older buildings (i.e., constructed before 1990). LBP was commonly used prior to its ban in 1978; therefore, buildings constructed prior to 1978 may contain LBP. PCBs are human-made chemicals that persist in the environment and were widely used in building materials (e.g., caulk) and electrical products prior to 1979. Structures constructed prior to 1979 potentially include PCB-containing building materials.

Environmental Contamination. CERCLA governs response or cleanup actions to address releases of hazardous substances, pollutants, and contaminants into the environment. Congress formally established the Defense Environmental Restoration Program in 1986 to provide for the cleanup of DoD property at active installations, Base Realignment and Closure installations, and formerly used defense sites throughout the U.S. and its territories. The two significant restoration programs under the Defense Environmental Restoration Program are the IRP and Military Munitions Response Program (MMRP). The IRP addresses contaminated sites, while the MMRP addresses nonoperational military ranges and other sites suspected or known to contain unexploded ordnance, discarded military munitions, or munitions constituents. Each site is investigated, and appropriate remedial actions are taken, under the supervision of applicable federal and state regulatory programs. When no further remedial action is necessary for a given site, the site is closed, and it no longer represents a threat to human health.

Per- and Polyfluoroalkyl Substances (PFASs). DoD has identified certain PFASs as emerging contaminants of concern that have affected DAF installations. PFASs are a class of

synthetic compounds that possess a chemical structure that gives them unique properties, including thermal stability and the ability to repel both water and oil. This class of chemicals was developed in the 1940s and includes the chemicals perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS). Aqueous film forming foam- (AFFF-) containing PFAS was developed in the early 1960s and used at airports, municipal fire stations, petroleum facilities, and in other industries in the U.S. to extinguish hydrocarbon-based fires effectively. Firefighters at military installations regularly used AFFF in emergencies or were trained with AFFF in an unconfined manner. As awareness of PFAS-related health risks has increased, DAF has limited the use of PFASs at its installations, and continues to investigate and mitigate PFAS-related environmental impacts under CERCLA.

Radon. Radon is a naturally occurring odorless and colorless radioactive gas found in soils and rocks that can lead to the development of lung cancer. Radon tends to accumulate in enclosed spaces, usually those that are below ground and poorly ventilated (e.g., basements). USEPA established a guidance radon level of 4 picocuries per liter (pCi/L) in indoor air for residences; radon levels above this amount are considered a health risk to occupants.

3.5.2 Affected Environment

The ROI for the hazardous materials and wastes analysis includes the 400-foot-wide corridors for Alternatives 1 and 2 and adjacent areas.

Hazardous Materials, Petroleum Products, and Hazardous Wastes. Hazardous materials and petroleum products are used throughout Eglin AFB for various functions and include petroleum, oil, and lubricants (POL); solvents; pesticides; herbicides; paints and thinners; antifreeze; deicing compounds; and acids (Eglin AFB 2016a). All pesticides, including herbicides, used at Eglin AFB must be on the installation's list of approved pesticides. All DAF or contractor pest management personnel who apply or supervise the application of pesticides at Eglin AFB must comply with the installation's *Integrated Pest Management Plan*, and be properly trained and certified (Eglin AFB 2016b).

Procedures and responsibilities for responding to a POL spill or other incident are addressed in the installation's Spill Prevention, Control, and Countermeasures (SPCC) Plan. The SPCC Plan addresses all oil-filled containers greater than 55 gallons on the installation. The plan provides guidance for the prevention and management of spills from aboveground storage tanks (ASTs) and underground storage tanks (Eglin AFB 2019a).

The Eglin AFB Hazardous Waste Management Plan (HWMP) addresses mandatory hazardous waste management requirements of FDEP, DAF, and USEPA. The HWMP applies to all organizations on the installation, including contractors, and provides a framework for complying with environmental standards applicable to hazardous, universal, special, and petroleum wastes (Eglin AFB 2019b).

Toxic Substances. The structures at the Sand and Spur Riding Club proposed for demolition under the Proposed Action are not anticipated to contain toxic substances. The potential exists for transformers on the installation to contain PCBs (Eglin AFB 2019b).

Environmental Contamination. Eglin AFB has 55 active IRP sites that include known or suspected soil and groundwater contamination associated with landfills, POL storage areas, oil/water separators, drainage areas, septic systems, fire training areas, and spill areas (AFCEC 2023a). Portions of Alternatives 1 and 2 fall within IRP Sites CF288, LF004, LF005, and PI803 as well as adjacent to DP084 (see **Figure 3-3**). There are 9 active groundwater monitoring wells that overlap the Alternative 1 and 2 corridors. No active MMRP sites are within or adjacent to Alternatives 1 or 2; therefore, MMRP sites are not discussed further in this EA. A summary of IRP Sites CF288, LF004, LF005, PI803, and DP084 follows:

- **CF288**, Military Family Housing Pesticides, consists of former military family housing (MFH) areas where pesticides were applied under the slab foundations during the 1950s to 1970s. A portion of the Alternative 2 corridor overlaps the former Capehart MFH Area of CF288. Primary contaminants within soil under and around the remaining slabs are pesticides, including dieldrin, chlordane, heptachlor, and heptachlor epoxide. Additionally, groundwater sampling in 2014 and 2015 indicated that the levels of dieldrin in shallow groundwater exceed FDEP groundwater cleanup target levels. CF288 is currently in the Site Assessment planning stages (AFCEC 2023a, 2023b).
- **DP084**, Jack Lake Limb Disposal Area, is an inactive surface disposal area adjacent to Jack Lake measuring approximately 800 by 800 feet. Large quantities of unknown materials were discarded within the area until approximately 1991, when access to the area was guarded to monitor material deposited on the site. DP084 is approximately 300 feet south of a portion of Alternative 2 and approximately 400 feet south of a portion of Alternative 1. Elevated concentrations of PCBs were identified in the soil during a Site Investigation, and 491 tons of PCB-impacted soils were removed from the site in 1999. PCBs were not detected in the groundwater above regulatory levels. A Statement of Basis specifying no further investigative action with Land Use Controls (LUCs) for soil and No Further Action for groundwater was submitted in August 2000, and a LUC Implementation Plan was submitted in 2001. The site has been fenced with a locked gate, with LUCs preventing exposure to soils by restricting the site from residential development without proper engineering controls (AFCEC 2023a).
- **LF004**, Eglin Main Landfill, was the main landfill for Eglin AFB from the early 1960s until approximately 1973. The site covers approximately 70 acres of undeveloped land. Items disposed at the landfill included construction rubble, trees, wood, hardfill, general refuse, hydraulic fluids, septic tank sludge, waste solvents, PCB transformers, waste fuel oil, pesticide containers, pesticides, and metal plating sludge. Additionally, pesticides were sprayed over the waste material to control the insect population. The site was covered with several feet of soil at closure. Portions of the Alternative 1 and 2 corridors overlap LF004. Chromium was detected in groundwater, and the pesticide dichlorodiphenyldichloroethylene was detected in sediment, both at concentrations below applicable regulatory standards. LF004 was approved for No Further Action in 1997, but because the site contains landfilled materials, the installation is managing the site with internal groundwater land use restrictions beneath the site and no de-watering without prior regulatory approval (AFCEC 2023a, Eglin AFB 2022f).
- **LF005**, Eglin Main Landfill, is a closed, 30- to 35-acre trench-and-fill landfill that was used between 1972 and 1978 to dispose of hardfill as well as septic tank and oil-water

separator sludge. The site was covered with 5 feet of soil at closure. Portions of the Alternative 1 and 2 corridors overlap LF005. Landfill leachate, metal, and VOCs have been detected in groundwater, iron and VOCs in surface water, and iron in sediments. LF005 has LUCs that restrict residential development without proper engineering controls and use of the shallow aquifer as a source of potable drinking water. Shallow, intermediate, and deep groundwater monitoring wells exist within the site. Groundwater and surface water monitoring is performed biennially (AFCEC 2023a).

- **PI803**, Ben's Lake Housing, is a former MFH area with internal LUCs. Although PI803 has never been formally investigated, it is assumed that pesticides are present in the soils under and around the location of former slabs associated with the Ben's Lake MFH area. Internal LUCs include groundwater management, soil management and disposal, and consultation with FDEP, when applicable (AFCEC 2023a, Eglin AFB 2023f). A portion of the Alternative 2 corridor overlaps PI803.

PFAS. The Air Force Civil Engineer Center Environmental Restoration Program prepared a Relative Risk Site Evaluation for PFOS, PFOA, and PFBS, which are components of AFFF. The evaluation used USEPA-issued drinking water lifetime health advisories for PFOS and PFOA, and health- and soil-based regional screening levels for PFOS, PFOA, and two surface soil and drinking water regional screening levels for PFBS. Through investigations pursuant to CERCLA, DAF has identified 34 potential AFFF release areas on Eglin AFB for the potential presence of PFAS within the soil and/or groundwater (AFCEC 2022, 2023a). Portions of the Alternative 1 and 2 corridors are near PFAS Sites AFFF 9 (SS286P), AFFF 23 (SS292P), and AFFF 28 (SS306P) (see **Figure 3-3**). A summary of these PFAS sites follows:

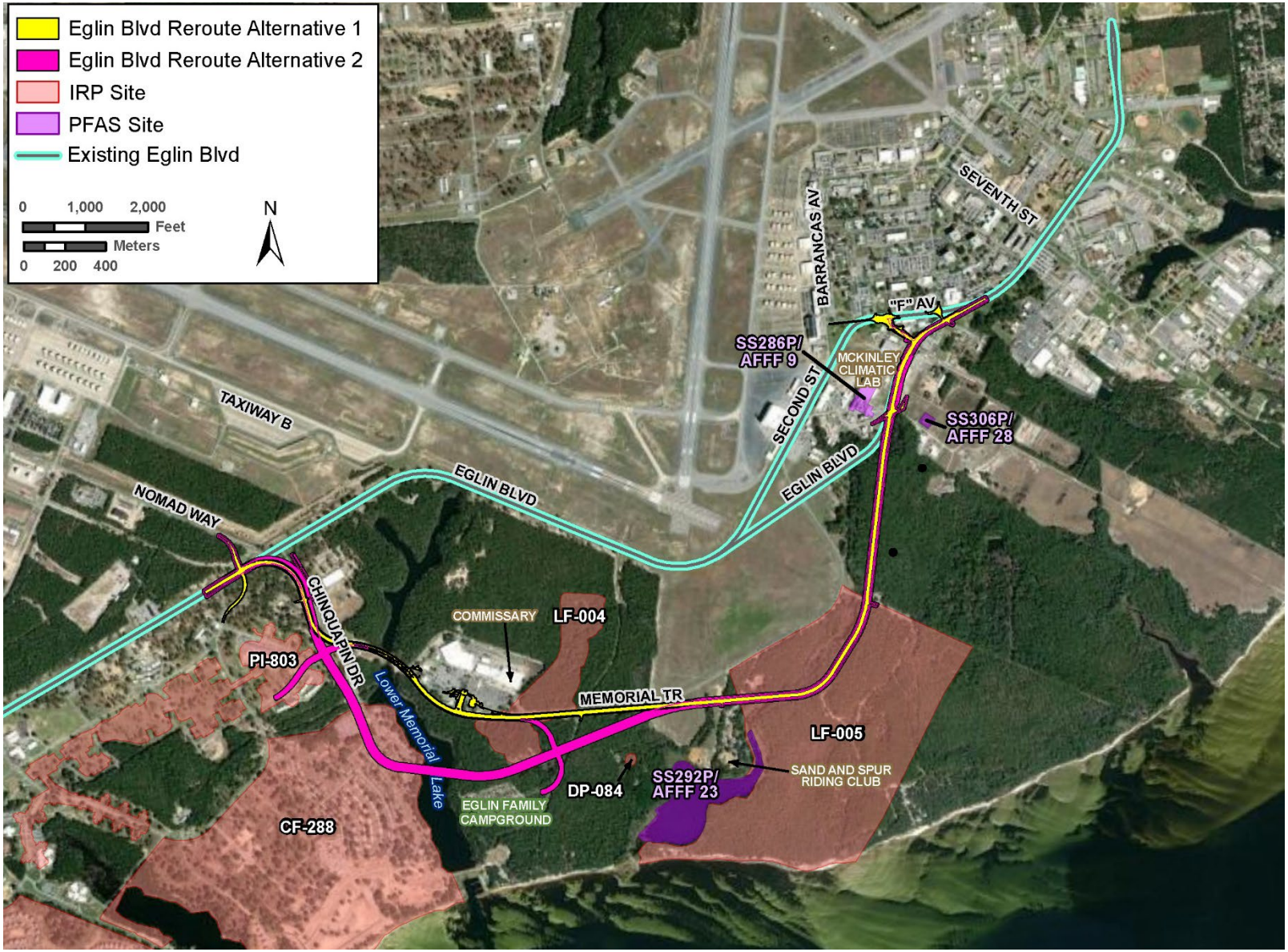
- **AFFF 9 (SS286P)**, McKinley Lab Fire Site, occurred as a result of two inadvertent activations at McKinley Climatic Laboratory in 2002 and 2005 or 2006. Approximately 4,000 gallons of AFFF were released from an AST outside the mechanical building door onto the surrounding grassy area. No exceedances in soil were detected in surface and subsurface soil samples; however, PFOA and PFOS were detected in groundwater at concentrations above regional screening levels (RSLs). Shallow, intermediate, and deep groundwater monitoring wells are within and adjacent to the site. AFFF 9 is currently undergoing a Phase I Remedial Investigation (RI). Anticipated investigation activities consist of additional vadose zone soil borings; shallow and deep groundwater grab samples; shallow monitoring well installation; and groundwater, surface water, and sediment sampling (AFCEC 2023a).
- **AFFF 23 (SS292P)**, Building 138, is a hangar that contains an AFFF fire suppression system that had one inadvertent activation in the mid-1990s, with AFFF released outside the hangar doors. Staining was also observed on the mechanical room floor, from the AFFF tanks to a floor drain. No exceedances in soil were detected in surface and subsurface soil samples; however, PFOA and PFOS were detected in groundwater at concentrations above RSLs. Shallow groundwater monitoring wells are adjacent to the site. AFFF 23 is currently undergoing a Phase I RI. Anticipated investigation activities consist of shallow and deep groundwater grab samples; shallow monitoring well installation; and groundwater, surface water, and sediment sampling (AFCEC 2023a).
- **AFFF 28 (SS306P)**, AFFF Holding Pond, is a holding pond with a synthetic liner that received releases of AFFF from the McKinley Climatic Laboratory via underground

piping and other building releases via a vacuum truck. No exceedances in soil were detected in surface and subsurface soil samples; however, PFOA and PFOS were detected in groundwater at concentrations above RSLs. Shallow groundwater monitoring wells are adjacent to the site. AFFF 28 is currently undergoing a Phase I RI. Anticipated investigation activities consist of shallow and deep groundwater grab samples, shallow and vertical delineation monitoring well installation, and groundwater sampling. Additionally, surface water and sediment samples will be collected at one location based on groundwater results (AFCEC 2023a).

Radon. USEPA rates Okaloosa County, Florida, as radon zone 3. Counties in radon zone 3 have a predicted average indoor radon screening level of less than 2 pCi/L (USEPA 2023e). Because Okaloosa County has a low potential for radon accumulation greater than 2 pCi/L within buildings, no impacts associated with radon would be expected. Therefore, radon is not discussed further in this EA.

3.5.3 Environmental Consequences

Impacts on or from hazardous materials and wastes would be significant if a proposed action would result in noncompliance with applicable federal or state regulations, or increase the amounts generated or procured beyond current management procedures, permits, and capacities. Impacts on contaminated sites would be significant if a proposed action would disturb or create contaminated sites, resulting in negative impacts on human health or the environment, or if a proposed action would make it substantially more difficult or costly to remediate existing contaminated sites.



Data Sources: Eglin AFB 2022a, 2023a

Figure 3-3. IRP and PFAS Sites within and Adjacent to Alternatives 1 and 2

3.5.3.1 ALTERNATIVE 1 (PREFERRED ALTERNATIVE)

Hazardous Materials, Petroleum Products, and Hazardous Wastes. Short-term, negligible to minor, adverse impacts would occur from the use of hazardous materials and petroleum products as well as the generation of hazardous, universal, and petroleum wastes during construction and maintenance of the realigned Eglin Boulevard. Hazardous materials that could be used during construction and maintenance include asphalt, paints, solvents, preservatives, and sealants. POLs such as hydraulic fluid, oils, lubricants, diesel fuel, and gasoline would be used in vehicles and equipment supporting construction. The following BMPs and environmental control measures would reduce the potential for an accidental release of these materials:

- All construction equipment would be maintained according to the manufacturer's specifications, and drip mats would be placed under parked equipment as needed to contain minor spills and drips.
- All hazardous materials; petroleum products; and hazardous, universal, and petroleum wastes used or generated during construction and maintenance would be contained, stored, and managed appropriately (e.g., secondary containment, inspections, spill kits) in accordance with the Eglin AFB HWMP; SPCC Plan; and federal, state, and DAF-applicable regulations to minimize the potential for releases.
- Construction activities may require the temporary use of ASTs on site for power generation or equipment refueling, and their use and maintenance would comply with applicable federal, state, and local laws and regulations to include secondary containment. No refueling or storage of heavy equipment would occur within 100 feet of any drainage. ASTs would be used temporarily and removed from the project area once construction is complete.
- Refueling of equipment would be completed in accordance with the Eglin AFB or project-specific SPCC Plan.
- Transport, storage, use, and disposal of hazardous materials and wastes would be handled and disposed appropriately according to regulations and Eglin AFB's HWMP.
- Construction debris would be managed in accordance with Eglin AFB's Integrated Solid Waste Management Plan (ISWMP).

Hazardous, universal, and petroleum wastes generated would be handled and disposed in accordance with the Eglin AFB HWMP (Eglin AFB 2019b) and federal, state, and local regulations. Construction contractors would be responsible for the disposal of hazardous wastes in accordance with the HWMP and federal and state laws. Should unknown, potentially hazardous wastes be discovered or unearthed during construction, contractors would immediately cease work, notify the Eglin AFB Environmental Restoration Section, and await sampling and analysis results before taking any further action. Any unknown wastes determined to be hazardous would be managed or disposed in accordance with applicable laws and regulations. Following development, specific operations would be evaluated to determine the anticipated hazardous materials to be used, the hazardous and mixed wastes to be generated, and the potential need for the establishment of an initial accumulation point. Hazardous and mixed wastes generated would be handled and disposed in accordance with the Eglin AFB HWMP and federal, state, and local regulations. Maintenance would include the use of

pesticides, to include herbicides, which would be used in accordance with the following management practices:

- All pesticides, to include herbicides, used would be on the Eglin AFB and FDEP lists of approved pesticides.
- Labels and instructions would be followed during handling, mixing, and application.
- All personnel conducting treatment activities would be state-certified pesticide applicators or qualified individuals under direct supervision of a certified applicator, and would comply with the Eglin AFB Integrated Pest Management Plan and all federal, state, and local regulations.
- Applicators would dispose or recycle pesticide containers and excess pesticides according to federal, state, and local regulations and label requirements and immediately clean up or contain any pesticide spill.

Toxic Substances. Short-term, negligible to minor, adverse impacts and long-term, negligible, beneficial impacts could occur should electrical infrastructure containing PCBs require relocation. Any potential PCB-containing equipment not labeled PCB-free or missing the date of manufacture labels would be removed and handled in accordance with the installation's HWMP (Eglin AFB 2019b) and federal, state, and local regulations. PCB-containing materials would be transported off the installation and disposed at a certified hazardous waste disposal facility. New electrical infrastructure would not contain PCBs, resulting in beneficial impacts.

Environmental Contamination. Short-term, negligible to minor, adverse impacts would occur from construction and demolition activities within active IRP sites. Alternative 1 would occur within the boundaries of IRP Sites LF004 and LF005 and near PI803. Construction and demolition activities within these IRP sites are not expected to encounter contaminated soil nor groundwater; however, activities within LF004 and LF005 would require coordination with FDEP. Grading activities could impact groundwater due to proximity of the water table to the ground surface. Grading to potentially contaminated groundwater below the water table would be avoided to the maximum extent practicable or addresses through investigation to determine if the contamination is a concern in the grading area, appropriate remediation, or engineering techniques such as pumping or waterproofing, as required. Additionally, construction and demolition activities, to include establishment of staging and laydown areas, would be conducted to avoid damage to the active groundwater monitoring wells within LF005.

PFAS. No impacts on or from adjacent PFAS sites would occur. Construction and demolition activities are not expected to encounter contaminated soil or groundwater associated with adjacent PFAS sites. Additionally, construction and demolition activities, to include establishment of staging and laydown areas, would be conducted to avoid damage to active groundwater monitoring wells associated with PFAS sites.

3.5.3.2 ALTERNATIVE 2

Impacts from Alternative 2 would be similar to those described for Alternative 1. Alternative 2 would occur within IRP Sites CF288, LF004, LF005, and PI803 as well as adjacent to DP084. Similar to Alternative 1, construction and demolition activities within the LF004 and LF005 site boundaries are not expected to encounter contaminated soil or groundwater and would require

coordination with FDEP. Additionally, construction and demolition activities, to include establishment of staging and laydown areas, would be conducted to avoid damage to active groundwater monitoring wells associated with IRP and PFAS sites.

Short-term, minor, adverse impacts and long-term, negligible to minor, beneficial impacts would occur from activities within IRP Site CF288. Alternative 2 would require demolition and removal of slabs within this site. During demolition activities, the potential exists to encounter pesticide contaminated soil under the former building slabs. Pesticide contaminated soil could either be removed and treated with the use of a portable Thermal Desorption Unit, then returned as clean backfill; or used as fill material, then capped by the new roadway.

3.5.3.3 NO ACTION ALTERNATIVE

Under the No Action Alternative, DAF would not reroute Eglin Boulevard, and the existing conditions described in **Section 3.5.2** would remain unchanged. Therefore, no impacts on or from hazardous materials and wastes would occur.

3.5.3.4 CUMULATIVE IMPACTS

Construction for the Proposed Action, when combined with construction of the reasonably foreseeable actions identified in **Table 3-1**, would result in short-term, negligible to minor, adverse, cumulative impacts on or from hazardous materials and waste management. These impacts would result from the use of hazardous materials and petroleum products as well as generation of hazardous wastes during construction actions. The use and generation of hazardous materials and wastes during construction and demolition would be unavoidable; however, the hazardous materials and wastes would be handled in accordance with federal, state, and local policies. Operational use, storage, and handling of hazardous materials and wastes under the Proposed Action would not be associated with the potential use, storage, and handling of hazardous materials and wastes for the reasonably foreseeable actions. Therefore, the Proposed Action, when combined with reasonably foreseeable actions, would not result in significant cumulative impacts on or from hazardous materials and wastes.

3.5.3.5 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

Material resources, including hazardous materials used for the Proposed Action, would potentially include asphalt, steel, and various construction materials and supplies. The materials that would be consumed are not in short supply, would not limit other unrelated construction activities, and would not be considered significant.

Energy resources, including petroleum-based products (e.g., gasoline, diesel), used for the Proposed Action would be irretrievably lost. During construction, gasoline and diesel would be used for the operation of vehicles and construction equipment. Consumption of these energy resources would not place a significant demand on their availability within the region. Therefore, less than significant impacts would occur.

3.6 Infrastructure and Transportation

3.6.1 Definition of the Resource

Infrastructure consists of the physical structures and systems that enable a population within a specified area to function. The availability of infrastructure and its capacity to support growth are generally regarded as essential to the economic growth of an area. The infrastructure components discussed in this section are electricity, natural gas, potable water, wastewater, stormwater management, communications, and solid waste management.

Transportation refers to the system of roadways and highways that are within the proposed project area vicinity that could reasonably be affected by a proposed action.

3.6.2 Affected Environment

The ROI for the infrastructure and transportation analysis includes utility services and supplies within the 400-foot-wide corridors for Alternatives 1 and 2 and the surrounding communities, and the local roads/highways and pedestrian pathways adjacent to the corridors.

Infrastructure

Electricity. Florida Power and Light and Choctawhatchee Electric Cooperative provide electric service to Eglin AFB through overhead and underground transmission lines. Primary overhead lines near the Alternative 1 and 2 corridors are along Memorial Trail and Chinquapin Drive, while secondary underground lines are throughout the airfield (Eglin AFB 2012, 2017).

Natural Gas. Natural gas is provided to Eglin AFB by the Okaloosa Gas District via high pressure mains. Gas distribution lines near the Alternative 1 and 2 corridors are along Chinquapin Drive and portions of Memorial Trail. Natural gas at Eglin AFB is used for heating and facility operations (Eglin AFB 2012, 2017).

Potable Water. Potable water is provided to Eglin AFB by American States Utility Services, Inc. Eglin AFB has 65 deep-water wells that draw from the Floridan or Sand and Gravel Aquifer to provide potable water throughout the installation. One of these water wells is located near the Alternative 1 and 2 corridors off of Chinquapin Drive. Four elevated water storage tanks are on Eglin Main Base, one of which is south of the Memorial Trail-Chinquapin Drive intersection. Water mains near the Alternative 1 and 2 corridors are along Chinquapin Drive and portions of Memorial Trail (Eglin AFB 2012, 2017).

Wastewater. The wastewater discharge system at Eglin AFB is operated and managed by American States Utility Services, Inc. Wastewater generated on Eglin AFB is collected through the installation's wastewater collection system and processed at Okaloosa County's Arbennie Pritchett Water Reclamation Facility in Fort Walton Beach. Wastewater is generated from aircraft maintenance, production operations, and domestic uses. Sewer pumps and sewer lines are near the proposed Alternative 1 and 2 corridors. Wastewater lines near the Alternative 1 and 2 corridors are along Chinquapin Drive and portions of Memorial Trail (Eglin AFB 2012, 2017).

Stormwater Management. Stormwater on Eglin Main Base is collected through a combination of stormwater gravity lines, open drainage areas, and retention ponds. Stormwater runoff drains

predominantly southward and eastward, and is conveyed via underground stormwater lines to the Choctawhatchee Bay and other natural drainage areas. Stormwater infrastructure on Eglin Main Base is in adequate condition and has adequate capacity to handle storm surges from storm events in Northwest Florida (Eglin AFB 2012, 2017).

Eglin AFB maintains two NPDES permits issued by FDEP: a Multi-Sector General Permit for industrial activity (Permit No. FLR05C197-004) and a Municipal Separate Storm Sewer System (MS4) general stormwater permit (Permit No. FLR04E007). Eglin AFB maintains and implements a SWPPP that documents existing stormwater management practices to ensure potential stormwater pollution is minimized (Eglin AFB 2020c). Eglin AFB also maintains and implements a Stormwater Management Plan, which is required by the MS4 permit (Eglin AFB 2018a). Projects that disturb 1 acre or more must apply for an NPDES General Construction Permit. Additionally, the installation is required to follow Section 438 of the Energy Independence and Security Act (EISA) ruling that federal agencies must reduce stormwater runoff by using low-impact development practices such as reducing impervious surface, and that predevelopment hydrology be maintained and restored to the maximum extent technically feasible (USEPA 2009a).

Communications. Communications infrastructure at Eglin AFB consists of copper and fiber optic cable. Wireless communications cover nearly the entire installation, while wired coverage tends to exist only within developed areas. Communications lines near the Alternative 1 and 2 corridors are along Eglin Boulevard, Memorial Trail, and Chinquapin Drive (Eglin AFB 2012, 2017). An aboveground communications duct bank is located at the corner of the Memorial Trail-Shambo Cove intersection.

Solid Waste Management. Eglin AFB maintains and implements an ISWMP, which identifies alternatives for solid waste disposal through reduction, reuse, and recycling. The installation's Qualified Recycling Program Business Plan is an appendix to the ISWMP. Collection of solid waste is provided by contract personnel that collect, divert, and dispose nonhazardous waste generated on the installation. Eglin AFB operates a recycling center on the installation that processes scrap metal; aluminum; cardboard; paper; and small-caliber, expended, small-arms, cartridge casings. Nonhazardous solid waste that cannot be diverted is taken to the Okaloosa County Transfer Station, then hauled to a local landfill (Eglin AFB 2023g).

Construction and demolition debris is managed by construction contractors, and is required to be collected and transported for approved recycling or reuse contributing to DoD's construction and demolition debris diversion goal. Construction debris that cannot be diverted may be disposed at a local landfill (Eglin AFB 2023g).

Transportation

Roadways. Interstate 10 is the main east-west corridor connecting Eglin AFB to the rest of the Florida Panhandle. State Road (SR) 85 connects Interstate 10 with SR 123 and South John Simms Parkway, which provide access to the Northwest and East Gates, respectively. The primary roads near Eglin Boulevard and the Alternative 1 and 2 corridors are Seventh Street, Choctawhatchee Boulevard, Barrancas Avenue, and Chinquapin Drive. Eglin Boulevard travels southwest around the airfield, connecting the East Gate to the western portion of Eglin Main

Base and the West Gate (Eglin AFB 2017). As stated in **Section 2.1**, the current alignment of Eglin Boulevard crosses an aircraft towway and two runway CZs, and limits the future expansion of Taxiway B.

Gate Access. The East Gate, along Eglin Boulevard, provides access to the eastern portion of Eglin Main Base and the Alternative 1 and 2 corridors. The East Gate is open 7 days per week, 24 hours per day for both inbound and outbound traffic. The Northwest Gate, along Nomad Way at SR 85, is open 5 days per week from 5:30 a.m. to 8:00 a.m. for inbound and outbound traffic and from 3:00 p.m. to 5:30 p.m. for outbound traffic, and is closed for inclement weather, weekends, and federal holidays. The Northwest Gate provides access to the western portion of Eglin Main Base and the western portion of the airfield. The North Gate, along North Gate Road, is closed except for munitions deliveries. The Haul Road Gate is open Monday through Friday from 6:00 a.m. to 5:00 p.m. and Saturday from 6:00 a.m. to 12:00 p.m., and closed on Sunday and federal holidays. The Haul Road Gate includes the commercial vehicle inspection area. Lane capacity at the access gates is limited, resulting in long queues and slower traffic during the peak inbound and outbound hours (Eglin AFB 2017).

Parking. Parking is available throughout the installation for both personal- and government-owned vehicles. Most parking areas are asphalt paved, with concrete curb and gutters (Eglin AFB 2017).

3.6.3 Environmental Consequences

Impacts on infrastructure would be considered significant if a proposed action would cause exceedance of a utility's capacity or place unreasonable demand on a specific utility or infrastructure component.

Impacts on transportation systems would be considered significant if a proposed action resulted in substantial decline in a roadway's efficiency and operability, excessive delays, reduced traffic safety leading to increased risk of vehicular accidents, significant degradation of the existing transportation infrastructure, or substantial and permanent changes to roadway accessibility.

3.6.3.1 ALTERNATIVE 1 (PREFERRED ALTERNATIVE)

Infrastructure

Short- and long-term, negligible to moderate, adverse impacts would be expected on infrastructure and utilities under Alternative 1 from temporary service disruptions during removal, relocation, or addition of utilities. Affected utilities include electrical, natural gas, potable water, wastewater, stormwater management, communications, and solid waste management. The Proposed Action would include the addition, removal, or relocation of communication lines, natural gas mains, potable water lines, wastewater collection lines, stormwater culverts, and electrical transmission and distribution lines. Additionally, aboveground utility-related infrastructure, including a large communications duct bank, up to 2.5 miles of electrical transmission and distribution lines, and two wastewater lift stations would be relocated to accommodate the proposed roadway. These utilities would be relocated within the project limits of disturbance along the new roadway or as determined by utility providers.

Short-term, negligible, adverse impacts on electrical, natural gas, potable water, wastewater, and communications would occur. Service interruptions may be experienced during addition, removal, or relocation of utility lines and aboveground utility-related infrastructure associated with the Proposed Action. No increase in electrical demand on the installation is anticipated because the new streetlights would be more energy efficient. Additionally, although water demand would increase slightly from construction activities, this increase would be minimal and temporary.

Under the Proposed Action, coordination with all utility providers would also be required prior to any ground-disturbing activities in an effort to minimize potential conflicts between utility providers. Coordination with area utility users would be required prior to connecting relocated utilities.

Short- and long-term, negligible to minor, adverse impacts on stormwater management would be expected. Construction activities disturbing 1 acre or more would need coverage under the NPDES CGP. Although ground disturbance during construction would be conducted in accordance with the applicable stormwater discharge permit to control erosion and prevent sediment, debris, or other pollutants from entering the stormwater system, there would be an increase in potential for soil erosion and sediment transport during rain events. Soil erosion and sediment production from ground disturbance would be minimized by preparing and implementing a site-specific SWPPP prior to construction occurring. All BMPs contained within the SWPPP would be implemented during construction. Examples of these BMPs would include using low-impact development where applicable, and adhering to the installation and project-specific SWPPPs and ESCPs. Eglin AFB would obtain an NPDES permit for stormwater discharges from large construction sites from FDEP, as applicable. Protective erosion control measures, such as installing silt fencing, improving drainage, avoiding soil compaction, and planting vegetation would be implemented to minimize soil erosion and sedimentation during construction. Eglin AFB would implement BMPs required under the installation's MS4 Stormwater Management Plan. Examples of MS4 BMPs include construction stormwater management and post-construction practices, such as installing stormwater retention ponds or infiltration basins, periodic checks for illicit discharges (e.g., dumping used oil into parking lot gutter systems), and reviewing stormwater management education materials.

The Proposed Action would result in an increase of up to 33 acres of impervious surface. Impervious surfaces decrease the rate at which stormwater can percolate into the ground, resulting in increased stormwater runoff rates. Additionally, operation of vehicles along the proposed realignment could result in pollutant loading from inadvertent release of hazardous materials and petroleum products to stormwater runoff. Construction of impervious surface and stormwater management systems (e.g., retention ponds, swales, stormwater pipes/culverts) would require an Environmental Resource Permit through the Northwest Florida Water Management District. Design of the stormwater management system would include appropriate long-term control measures and stormwater runoff control techniques to comply with EISA Section 438 to reduce, limit, and control stormwater runoff to preconstruction rates. At completion, areas where pavement is removed and construction has disturbed or removed vegetation would be revegetated with native species. Restoring native vegetation within bare soil areas would also aid in the prevention of soil erosion and reduce runoff rates, further

minimizing impacts. Compliance with EISA Section 438 and implementation of erosion-control BMPs would maintain runoff on site and minimize the potential for adverse impacts on downstream water quality.

Short-term, minor to moderate, adverse impacts on solid waste management would occur from the generation of construction and demolition debris. Demolition of the two small horse barns, round pen, and dressage arena at the Sand and Spur Riding Club would result in approximately 213,350 pounds (107 tons) of solid waste, and construction of new roadways would result in approximately 1,437,480 pounds (719 tons) of solid waste (see **Table 3-6**). Construction and demolition debris would consist primarily of recyclable and reusable building materials such as asphalt, concrete, lumber, and metals (e.g., conduit, piping, wiring). All materials that can be recycled or reused would be diverted from landfills whenever possible, reducing the amount of waste disposed. Site-generated scrap would be separated and recycled off installation. Clean fill material, ground-up asphalt, and broken-up cement would be diverted from the landfill and reused whenever possible. The estimated 826 tons of construction and demolition debris that would be generated from the Proposed Action would be covered under the 38,333 tons of construction and demolition debris analyzed in the 2020 Cantonment Area EA that was determined to not appreciably increase the average amount of solid waste generated by Eglin Main Base per year (Eglin AFB 2020b).

Table 3-6. Estimated Construction and Demolition Debris Generated

Activity	Total ft^2	Multiplier (pounds/ft^2)	Pounds	Tons
Roadway Construction	1,437,480	1	1,437,480	719
Horse Barn and Arena Demolition	1,350	158	213,350	107
Total	—	—	**1,650,830**	**826**

Source: USEPA 2009b
Key: ft^2 = square foot/feet

The weights of all materials disposed and those diverted for recycling or reuse would be reported to the Eglin AFB Solid Waste Program to be credited toward the DoD-mandated construction and demolition diversion goal. Nonhazardous construction and demolition waste that is not recyclable or reusable would be transported to off-installation landfills that accept construction and demolition waste.

Transportation

Short-term, negligible to minor, adverse impacts and long-term, moderate, beneficial impacts on transportation and circulation would occur. During construction, negligible to minor adverse impacts on existing traffic patterns would be expected because traffic along Eglin Boulevard, Memorial Trail, and Chinquapin Drive would be rerouted to accommodate construction, and a temporary increase in the number of construction-related vehicles accessing the project area would occur. Under the Proposed Action, construction vehicles would remain within the project area for the duration of the construction period, which would minimize traffic and reduce impacts on roadways. Nearby roadways and intersections would experience an increased amount of traffic and heightened congestion. During construction, installation roadways would be used by

haul and delivery trucks; however, transportation is not expected to occur during peak travel times.

Alternative 1 would result in long-term, moderate, beneficial impacts on transportation. Existing Eglin Boulevard experiences traffic congestion, which disrupts daily operations. Under Alternative 1, the Eglin Boulevard realignment, signalized intersections, and roundabouts would alleviate congestion and improve traffic circulation at Eglin AFB. Additionally, the proposed realignment would route Eglin Boulevard outside existing CZs, facilitate the closure of Second Street at the Special Operations Forces Ramp crossing, and enable the future extension of Taxiway B.

3.6.3.2 ALTERNATIVE 2

Impacts on infrastructure and transportation under Alternative 2 would be the same as those described for Alternative 1.

3.6.3.3 NO ACTION ALTERNATIVE

Under the No Action Alternative, DAF would not reroute Eglin Boulevard, and the existing conditions described in **Section 3.6.2** would remain unchanged. The existing Eglin Boulevard roadway would continue to impede airfield planning and operations as well as cause traffic congestion and delays. Additionally, the future expansion of Taxiway B would not be feasible. Therefore, continued long-term, significant, adverse impacts on infrastructure and transportation would occur.

3.6.3.4 CUMULATIVE IMPACTS

The Proposed Action and reasonably foreseeable actions (see **Table 3-1**) at Eglin AFB have the potential to affect the following infrastructure: electricity, natural gas, potable water, wastewater, stormwater management, communications, and solid waste. Transportation, including roadways, and gate access have the potential to be affected. Short-term, negligible to minor, adverse, cumulative impacts during construction and associated actions of the Proposed Action and reasonably foreseeable actions would occur from on- or off-installation service interruptions if utilities require disconnections as well as impacts on traffic/transportation circulation.

Upgrades and construction to both infrastructure and transportation projects would increase utility efficiency for all existing and proposed facilities on Eglin AFB, resulting in long-term, beneficial, cumulative impacts.

3.6.3.5 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

The Proposed Action would not result in irretrievable or irreversible commitments of utilities or the transportation system.

3.7 Land Use

3.7.1 Definition of the Resource

Land Use. Land use refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. Natural condition of property can be described or categorized as unimproved, undeveloped, conservation or preservation area, and

natural or scenic area. A wide variety of land use categories result from human activity. Descriptive terms for human activity land uses generally include commercial, industrial, military, residential, agricultural, institutional, transportation, communications and utilities, and recreation.

Coastal Zone. The federal Coastal Zone Management Program comprehensively addresses the nation's coastal issue through a voluntary partnership between the federal government and coastal states and territories. Authorized by the Coastal Zone Management Act (16 USC Section 1451 et seq., as amended), the program aims to protect, restore, and responsibly develop the nation's diverse coastal communities and resources. The program is administered in Florida as the FCMP. The coastal zone refers to the coastal waters and the adjacent shorelines, including islands, traditional and intertidal areas, salt marshes, wetlands, and beaches.

3.7.2 Affected Environment

The ROI for the land use and coastal zone analysis includes the project area depicted in **Figure 2-1**.

Land Use. Located on the Florida Panhandle, Eglin AFB resides primarily within Santa Rosa, Okaloosa, and Walton Counties, spanning approximately 727 square miles (465,396 acres). The installation consists of cantonments, test/live-fire areas, and undeveloped landscapes (interstitial area). The cantonments include Eglin Main Base, Camp Rudder, Duke Field, Hurlburt Field, Choctaw Field, C-6 compound, and the 7th Special Forces Group (Airborne) compound; the project area is within the Eglin Main Base Cantonment Area within Okaloosa County (Eglin AFB 2017, 2018b).

The 2017 Eglin AFB Installation Development Plan identifies nine planning districts, which were formed based upon factors, including framework elements, to consolidate like and compatible functional land uses and to maximize operational efficiency in consideration of their relationships to the existing transportation network and established land use patterns (Eglin AFB 2017). The planning districts may include a single land use or a combination of multiple land use designations within a district. The planning districts are: Flightline District, Downtown District, Westside District, Fightertown District, Boomtown District, Tom's Creek District, Bayou Park District, Bayside District, and Pinchot District. The proposed 400-foot-wide corridors for Alternatives 1 and 2 are located south of the installation's primary airfield and runways within the Westside, Bayside, and Bayou Park Districts. Existing Eglin Boulevard serves as the primary connection point between the eastern districts of Eglin Main Base, Bayou Park District and Downtown District, as well as the districts to the west, Fightertown and Westside Districts. Within the project area, existing Eglin Boulevard is not in compliance with the Eglin AFB AICUZ Program because it violates the CZs of Runways 02/20 and 12/30, and crosses an active towway between the airfield and the McKinley Climatic Laboratory (DAF 2017, Eglin AFB 2018b).

Coastal Zone. The coastal zone in Florida consists of the entire state (all 67 counties) and adjacent territorial seas, including Okaloosa County and Eglin Main Base. The FCMP consists of nine state agencies and five regional water management districts that implement 24 laws to protect and enhance the state's natural, cultural, and economic coastal resources. The FDEP is

responsible for FCMP implementation. Under the FCMP, permits are required for erosion control devices, excavations, and structure construction seaward of the Coastal Construction Control Line. The Coastal Construction Control Line demarks the landward extent of the potential inland impacts or erosion as a result of the 100-year storm event. Portions of both roadway alignment alternatives intersect the 100- and 500-year floodplains.

3.7.3 Environmental Consequences

The significance of potential land use impacts is based on the level of land use sensitivity within areas affected by a proposed action and its compatibility with existing conditions. In general, a land use impact would be considered significant if it were to cause Inconsistency or noncompliance with existing land use plans or policies; incompatibility with adjacent land use to the extent that public health or safety is threatened; preclusion of the viability of existing land use; conflict with planning criteria established to ensure the safety and protection of human life and property; and/or conflict with FCMP coastal zone goals and objectives.

3.7.3.1 ALTERNATIVE 1 (PREFERRED ALTERNATIVE)

Land Use. Long-term, moderate, beneficial impacts on land use at Eglin AFB would be expected under the Proposed Action. According to the *2017 AICUZ Program Manager's Guide* and the *2018 Eglin AFB AICUZ Study*, the current placement of Eglin Boulevard is not compatible with surrounding land uses at Eglin AFB because it violates two established CZs and grading for a CZ. Alternative 1 would deviate from the existing roadway, moving Eglin Boulevard southward, providing the airfield runways with a required unobstructed CZ. Long-term, beneficial impacts would be expected from Alternative 1 because the realignment would bring the existing roadway and airfield into compliance with land use compatibility and controls at Eglin AFB. Eglin AFB would be required to follow all state and local processes and rules for roadway development. Siting of the realignment would adhere to Eglin AFB requirements, local land use regulations, and AICUZ land use compatibility requirements.

The relocation of utility lines, aboveground communication bank, lift station, and the addition of speed limit signs and traffic lights would result in only minimal visual impediments because the area is relatively flat and any infrastructure would be placed to avoid blocking any crucial viewpoints along the proposed roadway. Similar infrastructure already exists in most of the project area, and the proposed roadway would be level and keep with the existing visual landscape, which is that of an operational airfield. Therefore, negligible impacts would be expected on the visual landscape.

Coastal Zone. The proposed realignment under Alternative 1 would not jeopardize costal resources at Eglin AFB. The Proposed Action falls under the future development scenarios on Eglin Main Base identified within the 2020 Cantonment Area EA (Eglin AFB 2020b); therefore, the CZMA consistency concurrence received for that EA covers the Proposed Action, and no additional review is required.

3.7.3.2 ALTERNATIVE 2

Land Use. Impacts on land use under Alternative 2 would be the same as those described for Alternative 1.

Coastal Zone. As described for Alternative 1, CZMA consistency concurrence received for the 2020 Cantonment Area EA (Eglin AFB 2020b) covers the Proposed Action, and no additional review is required.

3.7.3.3 NO ACTION ALTERNATIVE

Under the No Action Alternative, DAF would not reroute Eglin Boulevard, and the existing conditions described in **Section 3.7.2** would remain unchanged. The existing Eglin Boulevard would continue to impede airfield planning and operations, and violate AICUZ land use compatibility requirements. Therefore, continued long-term, significant, adverse impacts on land use would occur.

3.7.3.4 CUMULATIVE IMPACTS

Future projects and associated new facilities for the reasonably foreseeable actions identified in **Table 3-1** would generally be compatible with land uses on Eglin AFB. Future land use development, such as the Eglin Westside EUL and the Eglin Future Development Plans, have the potential to cause long-term, adverse, cumulative impacts without proper coordination and adherence to established land use compatibility and controls. Short-term, minor, adverse, cumulative impacts on land use could result from temporary increases in noise levels if any of the construction or modifications for the reasonably foreseeable actions overlap with the Proposed Action.

The Proposed Action and reasonably foreseeable actions on Eglin AFB would be implemented in accordance with the *Installation Development Plan* and *AICUZ Study*, which could result in long-term, minor to moderate, beneficial, cumulative impacts on land use.

3.7.3.5 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

The Proposed Action would not result in irretrievable or irreversible commitments of resources with regard to land use.

3.8 Noise

3.8.1 Definition of the Resource

Noise is any sound that is unwanted, loud, or unpleasant; interferes with communication; is intense enough to damage hearing; or is otherwise intrusive. How a person responds to noise varies depending on the noise's type and characteristics. These characteristics include distance between the noise source and the receptor, receptor sensitivity, and time of day. Noise is often generated by activities, such as construction or vehicular traffic, which are essential to a communities' quality of life. Any area where occupants are more susceptible to the adverse effects of noise are considered noise sensitive receptors. A noise sensitive receptor includes a land use where people involved in indoor or outdoor activities may be subject to stress or considerable interference from noise. Such locations or facilities include residential dwellings, hospitals, nursing homes, places of worship, educational facilities, and libraries. Sensitive receptors may also include noise sensitive cultural practices, some domestic animals, or certain wildlife species or broad areas such as nature preserves and designated districts in which occasional or persistent sensitivity to noise above ambient (background noise) levels exist in the

environment. Ambient noise levels will vary depending on housing density and proximity to open space, major traffic areas, or airports.

Sound is a form of energy and varies by both intensity and frequency. Sound is produced when something vibrates, sending waves of energy through the environment, also known as an acoustic wave. This energy displaces particles and creates a mechanical pressure. The sound pressure level is measured in decibels (dB) and is used to quantify sound intensity or loudness. Frequency, measured in Hertz (Hz), is the number of times per second an acoustic wave repeats itself and drives the sound's pitch. People can hear sound between 20 and 20,000 Hz, with increased sensitivity between 250 and 5,000 Hz. Human perception of sound is variable between low and high frequencies. Considering this varying sensitivity, the "A-weighted" decibel (dBA) scale is used to approximate the relative loudness of sound based on human perception. Most people are exposed to daily sound levels of 50 to 55 dBA or higher. **Table 3-7** provides common sounds encountered in daily life and through construction activities, and their dBA levels 50 feet from the source.

Regulatory Framework. Under the Noise Control Act of 1972, the Occupational Safety and Health Administration (OSHA) established workplace standards for noise. The minimum requirement states that constant noise exposure must not exceed 90 dBA over an 8-hour period. The highest allowable sound level to which workers can be constantly exposed is 115 dBA, and exposure to this level must not exceed 15 minutes within an 8-hour period. Additionally, the standards limit instantaneous exposure, such as impact noise, to 140 dBA. If noise levels exceed these standards, employers are required to provide hearing protection equipment that reduces sound levels to acceptable limits (OSHA 2008).

Table 3-7. Common Sound Levels

Common Sound Sources	Sound Level (dBA)
Household/Outdoor	
Refrigerator	50
Doorbell	80
Lawnmower	90
Car Horn	110
Rock Band	110
Ambulance Siren	120
Airplane Taking Off	140
Handgun	166
Clearing and Grading Machinery	
Concrete Mixer	74–88
Paver	86–88
Dozer/Tractor/Front Loader	75–80
Construction Equipment	
Grader	80–93
Truck	83–94
Backhoe	72–93
Pile Driver	91–105

Sources: FAA 2022, CHC 2022, USEPA 1971

DoD Instruction 4715.13, *DoD Operational Noise Program*, establishes policy, assigns responsibilities, and prescribes procedures for administering the DoD Operational Noise Program and managing military noise. DoD developed the Air Installations Compatible Use Zones program for military airfields. The program's goal is to promote compatible land use development around military airfields by providing information on aircraft noise exposure and accident potential. Noise below or at 65 dBA is found to be appropriate for all land use categories.

3.8.2 Affected Environment

Noise on Eglin AFB is mainly generated from human-made sources, such as vehicle traffic and aircraft operations. Other sources of noise include weapons testing and training operations. Noise from aircraft along the existing Eglin Boulevard is within 80 dBA noise contours (Eglin AFB 2018b). The nearest noise sensitive receptors to the Proposed Action are located on the installation, between approximately 690 and 2,390 feet from the 400-foot-wide corridors for Alternatives 1 and 2, and include:

- Eglin Elementary School, approximately 1,500 feet west of the nearest point along the project corridors
- Family Child Care, approximately 700 feet southwest of the project corridors
- Unity Park, along Chinquapin Drive, and the project corridors run through the eastern side of this park
- Eglin Inn – Temporary Lodging Facility, approximately 1,300 feet southwest of the project corridors
- Westgate Chapel, approximately 2,400 feet west of the project corridors
- Eglin Main Commissary, approximately 800 feet east of Alternative 1 and approximately 1,700 feet east of Alternative 2
- Eglin Family Campground, approximately 1,600 feet south of Alternative 1 and approximately 700 feet south of Alternative 2

A residential neighborhood was formerly located immediately southwest of the project area between Memorial Lake and Bens Lake/Boatner Road. This residential community has been demolished, with only foundations left in place; without residences it is not considered a sensitive receptor and is not discussed further in this EA. The installation has also indicated plans to relocate the Sand and Spur Riding Club, currently located east of the Proposed Action, which would be analyzed under separate NEPA analysis. Therefore, these facilities are not considered sensitive receptors.

3.8.3 Environmental Consequences

This section analyzes the potential impacts from noise within the ROI. An alternative would be considered to have significant impacts on the noise environment if it would result in non-construction noise levels exceeding the Okaloosa County noise ordinance, and/or noise levels exceeding the Housing and Urban Development normally acceptable criteria.

3.8.3.1 ALTERNATIVE 1 (PREFERRED ALTERNATIVE)

Under Alternative 1, short- and long-term, minor to moderate, adverse impacts on the noise environment would be expected from construction noise as well as vehicle transit and traffic along the proposed alignment. The Alternative 1 corridor follows some existing roadways but would result in up to 33 acres of new roadway. Construction would involve grading, excavating, and paving, which would produce considerable amounts of noise. **Table 3-8** lists the anticipated decibel levels during construction when activities and equipment are nearest to each sensitive receptor location. A sensitive receptor 50 feet from the noise source would generally experience noise levels between 74 dBA and 94 dBA from construction equipment operations. As the distance from the source doubles, the loudness of the noise decreases by 6 dBA. Noise levels would be loudest at a sensitive receptor's location when the source of the construction noise would be closest but would decrease with increasing distance from the source. Generally, a sensitive receptor at least 250 feet away would experience noise levels below 75 dBA for the proposed alignment. The eastern side of Unity Park along existing Chinquapin Drive could experience noise levels up to 94 dBA during construction activities. The noise from heavy construction equipment would be temporary in nature and cease upon construction phase completion. Given the temporary nature of the proposed construction, the existing noise environment, and implementation of some or all of the following BMPs, these impacts would be moderate:

- To reduce noise effects on noise sensitive receptors, heavy construction equipment would include noise abatement components such as mufflers, engine enclosures, engine vibration isolators, or other sound dampening supplements that could reduce the sound level by up to 10 dBA; construction would be limited to normal weekday business hours (generally 7:00 a.m. to 6:00 p.m.); construction contractors would aim to maintain uniform noise levels, avoid impulse noises, and operate equipment in the quietest manner practicable (e.g., speed); construction contractors would locate stationary operating equipment as far from sensitive receptors as possible; and construction crews would turn off idling equipment when not in use.
- Construction equipment would remain within a project area for the duration of the construction period, reducing the frequency of increased truck traffic and associated noise levels. Construction contractors would select material transportation routes as far away from sensitive receptors as possible.
- To prevent effects on construction crew safety from elevated noise levels, contractors would require construction personnel, and particularly equipment operators, to wear hearing protection to limit exposure to noise and protect hearing and ensure compliance with the OSHA Standards; DAF's OSH Program; and DAF Instruction 48-127, *Occupational Noise and Hearing Conservation Program*.
- Area users would be notified before noisy construction activities occur and would be provided updates, as necessary, as to when and where construction actions would occur. Signage would be posted at the entry points of the construction site providing current construction information, including schedule and activity, as applicable.
- Construction contractors would coordinate issuance of a notice in advance of noisy or disruptive construction activities so civilian and commercial users operating within the

area would have adequate awareness of the planned activities and time to plan for avoidance.

Because this alternative primarily follows existing roadways, Chinquapin Drive and Memorial Trail, new noise sources would not be expected from roadway operation following construction. An increase in vehicle traffic noise however would be expected because the existing Eglin Boulevard is a major arterial roadway, and its traffic would be rerouted to the proposed Alternative 1 alignment. Noise associated with traffic within formerly forested areas in some locations along the new alignment would result in long-term, moderate, adverse impacts where vehicle noise did not previously occur. **Section 3.2** describes noise impacts on wildlife within the project area. See **Section 3.6** for information regarding changes to traffic patterns and associated impacts.

Table 3-8. Anticipated Noise Levels at Nearest Receptor Locations During Construction

Receptor Site	Alternative 1		Alternative 2	
	Nearest Distance to Construction (ft)	dB	Nearest Distance to Construction (ft)	dB
Eglin Elementary School	1,493	0	1493	0
Family Child Care	693	11	693	11
Unity Park	0	94	0	94
Eglin Inn	1,225	0	1225	0
Westgate Chapel	2,384	0	2384	0
Eglin Main Commissary	766	3	1680	3
Eglin Family Campground	1,608	0	699	0

3.8.3.2 ALTERNATIVE 2

Alternative 2 would also partially follow an existing road, Chinquapin Drive, and add up to 33 acres of new roadway, resulting in similar and short- and long-term, minor to moderate, adverse impacts on the noise environment as those described for Alternative 1. Noise levels from construction activities would be temporary and intermittent. Because sensitive receptors would be less than 50 feet from the Alternative 2 corridor, implementation of BMPs would be required to reduce noise from construction equipment to more acceptable levels. See **Section 3.8.3.1** for appropriate BMPs that could be used. Given the temporary nature of construction and implementation of BMPs, these impacts would be short term and moderate.

Noise from traffic and Alternative 2 alignment operation would result in long-term, minor to moderate, adverse impacts on the noise environment. Once the alignment is operational, vehicle traffic would be rerouted from the existing Eglin Boulevard, a major arterial roadway, and increased noise would be expected. The introduction of new noise sources from vehicle transit in some formerly forested areas not previously used as a roadway would occur. While operational traffic noise along the alignment would occur over the long term, the nearest sensitive receptor is more than 250 feet away; therefore, noise impacts are expected to be minor.

3.8.3.3 NO ACTION ALTERNATIVE

Under the No Action Alternative, DAF would not reroute Eglin Boulevard, and the existing conditions described in **Section 3.8.2** would remain unchanged. No change to the existing ambient noise levels would occur and noise impacts from traffic would continue to be moderate; however, the existing Eglin Boulevard roadway would continue to impede airfield planning and operations as well as cause traffic congestion and delays.

3.8.3.4 CUMULATIVE IMPACTS

If construction for any of the reasonably foreseeable actions identified in **Table 3-1** were to be implemented concurrently with the Proposed Action, cumulative impacts on the noise environment during construction from heavy equipment use and construction traffic would be moderate, but temporary and intermittent. Long-term, the existing ambient noise levels or the types of noise would not be expected to change. Therefore, short-term, moderate, cumulative impacts would be expected from the Proposed Action in combination with the reasonably foreseeable actions.

3.8.3.5 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

Noise generated for the Proposed Action would not result in an irreversible or irretrievable change in the ambient sound environment.

3.9 Safety

3.9.1 Definition of the Resource

A safe environment is one in which no, or an optimally reduced, potential for death, serious bodily injury or illness, or property damage occurs. Safety addresses the well-being, safety, and health of contractors, military personnel, and members of the public during the various aspects of the Proposed Action.

Safety and accident hazards can often be preemptively identified and reduced, or eliminated. Necessary elements for an accident-prone situation or environment include the presence of the hazard itself together with the exposed (and possibly susceptible) population. The degree of exposure depends primarily on the hazard's proximity to the population. Hazardous activities can include construction, demolition, transportation, maintenance and repair activities, and activities that occur in extremely noisy environments. Any facility or human-use area with potentially corrosive or explosive material creates an unsafe environment for nearby populations. Activities within these areas must adhere strictly to handling, transport, storage, and disposal protocols to ensure personnel safety on the installation, as well as the safety of nearby off-installation populations.

Safety can be improved by following regulatory requirements designed for employee benefit and through implementation of operational practices that reduce the risk of illness, injury, death, and property damage. The health and safety of on-site military and civilian workers is safeguarded by numerous DoD and DAF regulations designed to comply with standards issued by OSHA. These standards specify the amount and type of training required for industrial workers, the use of personal protective equipment (PPE) and clothing, engineering controls, and maximum

exposure limits for workplace stressors. OSHA standards, which are found in 29 CFR Parts 1900–1910 and 1926, were developed to promote a safe working environment. These standards establish general environmental controls, including the use of PPE and availability of Safety Data Sheets, as needed. OSHA standards limit exposure to noise, ionizing and nonionizing radiation, and toxic and hazardous substances as well as establish requirements for handling and storing compressed gases and flammable liquids.

Occupational Safety and Health (OSH) regulations cover potential exposure to a wide range of chemical, physical, and biological hazards as well as ergonomic stressors. The regulations are designed to control these hazards by eliminating hazard exposure via administrative or engineering controls, substitution, or PPE use. OSH is the responsibility of each employer, as applicable. Employer responsibilities are to review potentially hazardous workplace conditions; monitor exposure to workplace chemical (e.g., asbestos, lead, hazardous substances), physical (e.g., noise propagation, falls), and biological (e.g., infectious waste, wildlife, poisonous plants) agents as well as ergonomic stressors; recommend and evaluate controls (e.g., prevention, administrative, engineering, PPE) to ensure personnel exposure is eliminated or adequately controlled; and ensure a medical surveillance program is in place to perform occupational health physicals for those workers subject to the use of respiratory protection or engaged in hazardous waste, asbestos, lead, or other work requiring medical monitoring.

Florida is one of several states that administers their own OSH Program according to the provision of the federal OSH Act of 1970, which permits a state to administer its own OSH Program if it meets all federal requirements regarding the program's structure and operations. The goal of the OSH Program at the Florida Department of Health is to characterize work-related injuries and illnesses, and to use this information to inform prevention activities that will improve the health and safety of Florida's workforce (Florida Health 2023). Their activities include surveillance of work-related injuries and illnesses; sharing findings with workers, employers, and health care providers; and collaborating with stakeholders in occupational health on intervention and education efforts.

DAFI 91-202, *The U.S. Air Force Mishap Prevention Program*, ensures that DAF operational and construction procedures meet or exceed OSHA and DAF OSH guidance (DoD Directive 4715.1E, *Environment, Safety, and Occupational Health*) as well as other federal safety and health requirements. Department of the Air Force Manual (DAFMAN) 91-203, *Air Force Occupational Safety, Fire, and Health Standards*, provides specific work procedures for a safe workplace and details safety components of construction work, including civil engineering activities, motor vehicle operations and maintenance, materials handling, mishap prevention, fire prevention, and tool and machinery operations.

To ensure safety from munitions, explosive safety clearance zones must be established around facilities used for the storage, handling, or maintenance of munitions. DESR 6055.09_AFMAN 91-201, *Explosive Safety Standards*, which applies to all DAF activities, established the size of safety clearance zones, also referred to as ESQD arcs, based upon Quantity-Distance criteria or the category and weight of the explosives contained within a facility. Regulatory requirements and procedures ensure minimal risk occurs to the health and safety of installation personnel, as well as the public, from installation-related operations and activities.

3.9.2 Affected Environment

The ROI for the safety analysis includes the project area and the contractors involved in construction, demolition, and maintenance activities; personnel; and civilians on Eglin AFB.

Contractor Safety. Day-to-day operations, maintenance, and construction activities conducted at Eglin AFB are performed in accordance with applicable DAF safety regulations, published DAF technical orders, and standards prescribed by DAF OSH requirements. Specific safety requirements and responses to events that may occur on Eglin AFB are detailed in published range operating procedures. All aspects of occupational safety at Eglin AFB meet DAF standards for mission safety.

All contractors performing construction, operation, and maintenance activities on Eglin AFB are responsible for following OSHA regulations, and are required to conduct these activities in a manner that does not increase risk to workers or the public. For each project, a site-specific health and safety plan is required. Developers working on the installation are required to prepare appropriate job site safety plans explaining how job safety would be ensured throughout the life of the project, and to follow all applicable OSHA requirements.

Military Personnel and Public Safety. Each branch of the military has its own policies and regulations that act to protect its workers, despite their work location. DAFI 91-202, *The U.S. Air Force Mishap Prevention Program*, establishes mishap prevention program requirements, assigns responsibilities for program elements, and contains program management information. To meet the goals of minimizing loss of DAF resources and protecting military personnel, mishap prevention programs should address: groups at increased risk for mishaps, injury, or illness; a process for tracking incidents; funding for safety programs; metrics for measuring performance; safety goals; and methods to identify safety BMPs.

Eglin AFB's safety program ensures the safety of DAF personnel and the public on installation by regulating mission activities. DAFI 91-202 implements Air Force Policy Directive 91-2, *Safety Programs*, which applies to all activities that occur on base. Eglin AFB provides fire, medical, and police protection to all portions of the installation.

Eglin AFB has two independent firefighting organizations, Eglin Fire and Emergency Services and Eglin Wildland Support Module. Eglin Fire and Emergency Services, a subordinate unit of the 96th Civil Engineer Group, consists of approximately 200 firefighters, with a mix of civilian and military personnel, who operate out of eight base fire stations (Nomad Way, 501 North Barrancas Avenue, 80 Gaffney Road, Bennet Avenue [Hurlburt Field], 99 Grand Camp Terrace, Just Cause Way, Short Street [Duke Field], and Jackson Road) (EF&ES 2023). The Eglin Wildland Support Module provides the primary wildland firefighting response and fuels management for the many thousands of acres of open space on the base. It can field approximately 50 forestry firefighters comprising civilian DAF employees, other federal employees on temporary duty assignments, and contract employees (EF&ES 2023).

The 96th Medical Group Hospital at Eglin AFB provides comprehensive medical care to approximately 92,000 eligible beneficiaries (active duty military members, retirees, and their families). The hospital is accredited by the Joint Commission and currently has a 6-bed intensive care unit and a 53-bed facility (Base Directory 2023a). The 96th Medical Group

provides a wide variety of outpatient services and presently supports one of DAF's larger outpatient workloads. The hospital is located at 307 Boatner Road on Eglin AFB.

Eglin AFB police respond to disasters on or off installation that involve installation resources or affect mission capabilities. The mission of the 96th Security Forces Squadron at Eglin AFB is to protect, defend, and fight to enable DAF mission success. Not only are they responsible for installation law and discipline enforcement, but they are also DAF's base defense and ground combat force (Base Directory 2023b).

Traffic and Pedestrian Safety. The current alignment of Eglin Boulevard causes heavy traffic congestion through the Eglin Main Base. Further, the existing road alignment crosses graded areas of the CZ and two runway CZs, which is an aircraft hazard; and crosses the aircraft towway, which is a safety hazard. The current location of Eglin Boulevard is not in compliance with airfield regulations and poses various safety risks. Airfield regulations prohibit roads within the graded portion of the CZ. All roads within the CZ are discouraged; however, if required, they should not be wider than two lanes, and the rights-of way should be fenced and not include sidewalks or bicycle trails.

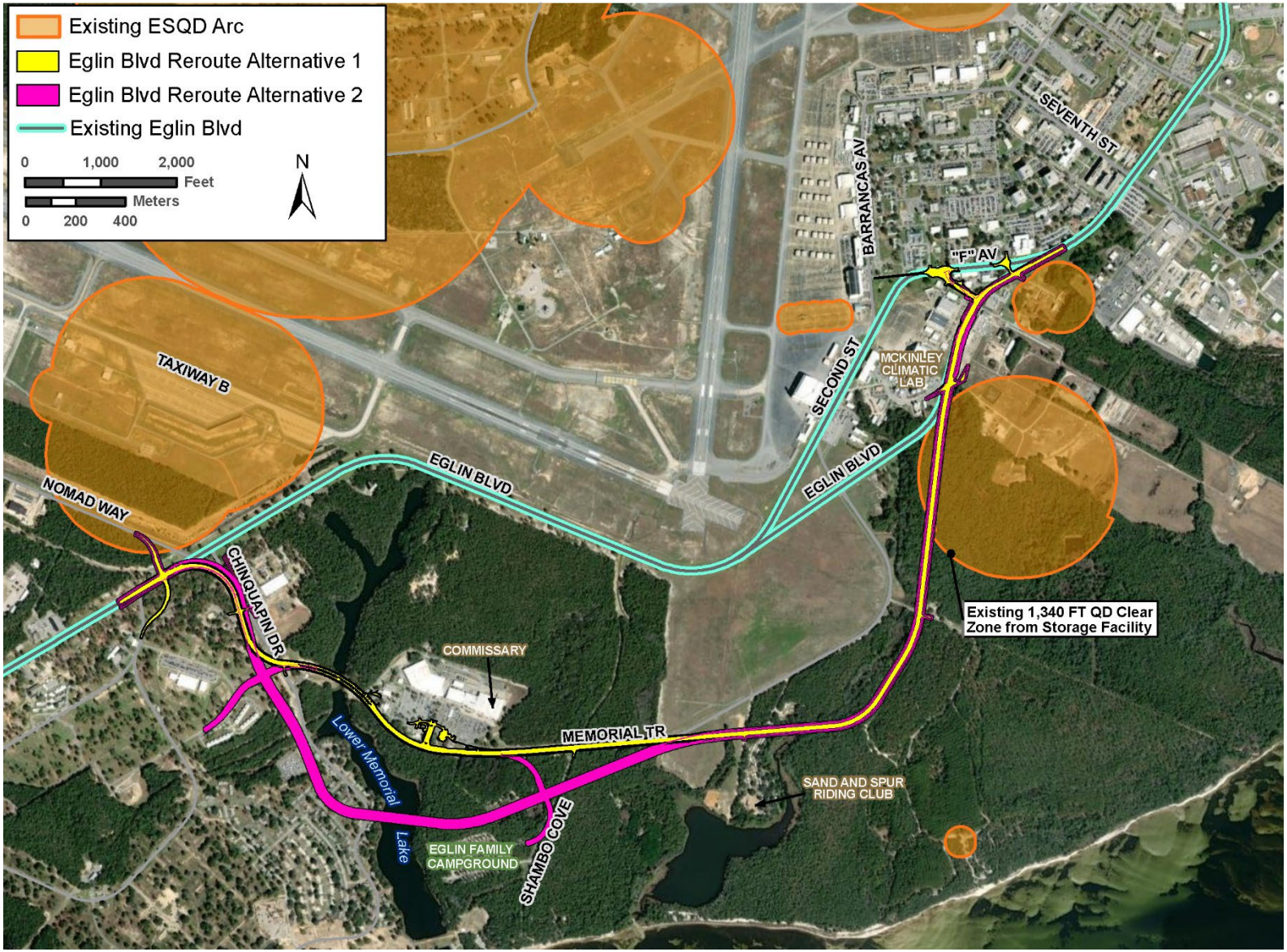
Explosives Safety. There are 19 ESQD covering a total of 1,841 acres at Eglin Main Base. Most of the ESQD arcs at Eglin Main Base are concentrated within the munition storage area north of the airfield and the live ordnance loading areas southwest of Runway 12/30. The proposed new alignments under Alternatives 1 and 2 intersect two separate ESQD arcs at Eglin AFB, one on the western end of the alignments on Nomad Way and one on the eastern end of the alignments on Memorial Trail (see **Figure 3-4**).

3.9.3 Environmental Consequences

Any increase in safety risks is considered an adverse impact. Significant impacts on safety would be expected if the Proposed Action were to noticeably increase risks associated with the safety of contractors, military personnel, or the public; and/or introduce a new risk for which DAF is not prepared or does not have adequate management and response plans in place.

3.9.3.1 ALTERNATIVE 1 (PREFERRED ALTERNATIVE)

Contractor Safety. During all phases of construction, safety standards required by OSHA, DoD, and DAF would be followed. The OSH Act (29 USC Section 651) specifies the amount and types of training required for workers, standard work protocols and procedures, use of protective equipment, implementation of engineering controls, and maximum exposure limit for workplace stressors. All construction workers would be required to adhere to all OSHA and DAF OSH standards during construction and operations. Workers would be required to wear PPE appropriate to each task, such as reflective vests, ear protection, steel-toed boots, hard hats, gloves, and other appropriate safety gear. Areas being repaired or maintained would be fenced and appropriately marked with signs and placards, as required. Equipment, trucks, tractors, and heavy equipment used during construction and maintenance activities would use roads and streets that can safely accommodate these vehicles.



Data Sources: Eglin AFB 2022a, 2023a

Figure 3-4. ESQD Arcs within the Project Vicinity

Construction, demolition, and maintenance activities would comply with all applicable safety requirements and installation-specific protocols and procedures, including appropriately marking potentially hazardous areas as well as posting warning signs and barriers to limit access to approved construction and oversight personnel only.

The construction contractor would also be required to develop a comprehensive health and safety plan detailing all potential hazards and site-specific guidance to ensure potential safety risks are minimized. The plan would include, at a minimum, emergency response and evacuation procedures; operating manuals; PPE recommendations; procedures for handling, storing, and disposing of hazardous materials and wastes; information on the effects and symptoms of potential exposures; and guidance with respect to hazard identification. Contractor personnel would be responsible for compliance with applicable federal, state, and local safety regulations and would be educated through daily safety briefings to review upcoming work activities and associated hazards. Therefore, impacts on contractor safety under Alternative 1 would be minor.

Military Personnel and Public Safety. Alternative 1 would result in short-term, negligible, adverse impacts on the health and safety of military personnel and the public that work near the project area. Construction, demolition, and maintenance activities would comply with all applicable safety requirements as well as installation-specific protocols and procedures, including appropriately marking potentially hazardous areas as well as posting warning signs and barriers to limit access to approved construction and oversight personnel only. Necessary roadway detours during construction would be routed to minimize safety concerns for personnel and the public from potential operations impingement, and traffic flow and congestion.

As stated in **Section 2.1**, ESQD arcs would need to be avoided to minimize potential safety hazards to the public and military personnel, or an exception would need to be obtained for the proposed Eglin Boulevard alignment. To meet safety requirements, the amount of materials kept in the storage facility located east of the existing Eglin Boulevard would need to be reduced to decrease the ESQD arc radius. If the overall storage capacity is not able to be reduced, an additional storage facility would be constructed at another location to maintain the overall required storage capacity at the installation. With these precautionary measures, Alternative 1 is not expected to result in significant, adverse impacts on the safety of military personnel or the public.

Additionally, the current roadway alignment crosses an aircraft towway and two runway CZs, which could be hazardous to both military personnel and the public who use the existing Eglin Boulevard as well as airfield personnel and operations. Relocating the alignment outside these potentially hazardous zones could result in a long-term, moderate, beneficial impact on the safety of military personnel and the public.

Traffic and Pedestrian Safety. Alternative 1 would generate short- and long-term, minor, beneficial and adverse impacts on traffic safety. Construction activities would pose a minor risk to drivers but appropriate BMPs and management practices discussed above under ***Contractor Safety*** and ***Military Personnel and Public Safety*** would be implemented to reduce the safety risk. Reduced congestion, intersection and interchange reconfigurations, traffic signalization

modernization, and bicycle and pedestrian enhancements associated with the Proposed Action would reduce traffic safety risks.

Short- and long-term, minor, beneficial and adverse impacts on bicycle and pedestrian mobility are anticipated from Alternative 1. Signage and community coordination would be used to minimize disruption to non-motorized mobility during construction. Pedestrian and cyclist safety would be improved through improved sidewalks and connections, bicycle lanes or paved shoulders, and crosswalk signals to provide long-term enhancements to bicycle and pedestrian mobility and safety.

3.9.3.2 ALTERNATIVE 2

Impacts on safety under Alternative 2 would be the same as those described for Alternative 1.

3.9.3.3 NO ACTION ALTERNATIVE

Under the No Action Alternative, DAF would not reroute Eglin Boulevard, and the existing conditions described in **Section 3.9.2** would remain unchanged. The existing Eglin Boulevard roadway would continue to impede airfield planning and operations as well as cause traffic congestion and delays. The existing roadway would still cross the aircraft towaway and two runway CZs, which could be hazardous to both military personnel and the public. Therefore, continued long-term, moderate, adverse impacts on health and safety would occur.

3.9.3.4 CUMULATIVE IMPACTS

If construction under the Proposed Action were to occur concurrently with construction of the proposed temporary site for the 350 SWW and 36 EWS beddown or any of the Eglin AFB future development plans, short-term, minor, adverse, cumulative impacts on health and safety could occur. Adherence to established procedures, including using PPE, fencing project areas, posting signs, and complying with OSH, DAF, and OSHA standards would minimize health and safety impacts on contractors, military personnel, and the public. These procedures are typical for construction projects on the installation and surrounding areas. Therefore, the Proposed Action, when combined with other past, present, and reasonably foreseeable future projects identified in **Table 3-1**, would not result in a significant cumulative impact on health and safety.

3.9.3.5 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

The Proposed Action would not result in an irreversible or irretrievable reduction in public health and safety.

3.10 Socioeconomics

3.10.1 Definition of the Resources

Socioeconomics is defined as characteristics of a population and its economic activity. The relationships between population, housing, employment, and income are analyzed to understand the effects of a proposed action on income and jobs generated or lost.

3.10.2 Affected Environment

The ROI for the socioeconomics analysis is Okaloosa County, where the Proposed Action would occur.

Demographics. This analysis compares Okaloosa County demographics to the state of Florida (see **Table 3-9**). The population of Okaloosa County has increased by 11.3 percent from 2014 to 2022, which is slightly less than the rate for the state of Florida, which increased by 12 percent (USCB 2023a).

Table 3-9. Population Data for 2014 and 2022

	Okaloosa County	Florida
2014 Population	194,615	19,853,880
2022 Population	216,482	22,244,823
Percent Change	11.3%	12.0%

Sources: USCB 2023a, 2023b

Economic Activity. The estimated employed civilian population within Okaloosa County was 62,712 as of 2021, and the average per capita income was $36,672, which is slightly greater than $35,216 for the state of Florida (USCB 2023a). **Table 3-10** details the distribution of employees in each industry in Okaloosa County and the state of Florida. The educational services, and health care and social assistance industry hires the most people, outside military employment, in both Okaloosa County and the state of Florida. Employment characteristics are not substantially different between the two geographic areas.

In 2020, the U.S. military contributed to approximately 29 percent of Northwest Florida's economy, employing approximately 186,689 people (Enterprise Florida 2022). Approximately 63 percent of Okaloosa County's economy came from the U.S. military in 2020, which employed 73,224 people between Eglin AFB and Hurlburt Field. Ten percent of U.S. military contracts are construction projects, which contributes a smaller portion of income to the state of Florida.

Housing. The closest neighborhood to Eglin Boulevard is the Eglin AFB-owned Warrior Landing neighborhood. The neighborhood houses Eglin AFB staff of all ranks and provides room for families (AFCEC 2016). An additional neighborhood was formerly located east of Warrior Landing, but historical pesticide application contamination resulted in abandonment of these housing units (see **Section 3.5**). Currently, only the foundations of these houses are still present (AFCEC 2023a).

Table 3-10. Employment Characteristics by Industry, 2016–2021

Industry	Okaloosa County	Florida
Civilian population 16 years old and over in the labor force	93,326	9,824,911
Percent Employed by Industry		
Agriculture, forestry, fishing and hunting, and mining	0.7%	0.8%
Construction	7.3%	8.0%
Manufacturing	4.2%	5.1%
Wholesale trade	1.4%	2.6%
Retail trade	11.1%	12.3%
Transportation and warehousing, utilities	4.7%	6.0%
Information	1.2%	1.7%
Finance and insurance, and real estate and rental and leasing	7.3%	7.8%
Professional, scientific, and management, and administrative and waste management services	13.5%	13.5%
Educational services, and health care and social assistance	18.2%	21.1%
Arts, entertainment, and recreation, and accommodation and food services	15.0%	11.5%
Other services, except public administration	4.9%	5.2%
Public administration	10.7%	4.3%

Sources: USCB 2021a, 2021b

3.10.3 Environmental Consequences

The criteria evaluated to assess whether an alternative would result in potential significant impacts on socioeconomics includes the extent/degree to which an alternative would result in substantial changes in employment and earnings; and/or substantial changes in demographics.

3.10.3.1 ALTERNATIVE 1 (PREFERRED ALTERNATIVE)

Under Alternative 1, short-term, minor, beneficial impacts on the local economy within Okaloosa County would occur from construction revenue. Construction workers would likely be hired to work on the Proposed Action, joining employed workers, which would benefit the construction industry. The construction industry is one of the smaller industries in both Okaloosa County and Florida, and the Proposed Action would briefly improve sector growth. Purchasing construction materials, such as concrete and asphalt mix, locally for the Proposed Action would also benefit local sellers. Construction contractors would coordinate issuance of a notice in advance of noisy or disruptive construction activities so commercial users operating within the area would have adequate awareness of the planned activities and time to plan to minimize any potential adverse impacts on business operations.

Long-term, minor, beneficial impacts would occur for commuters due to lessened traffic congestion. With a greater flow of traffic from the realignment, commuters would suffer less from travel delays, improving workforce efficiency within the local geographic region. Additionally,

businesses along the existing Memorial Trail near the Commissary could potentially receive more revenue from the increase in vehicle traffic passing by directly.

3.10.3.2 ALTERNATIVE 2

Under Alternative 2, beneficial impacts on the local economy would be similar to, but slightly greater than Alternative 1. The Alternative 2 alignment would extend Eglin Boulevard farther west, requiring construction of a bridge over Lower Memorial Lake. The project would accrue additional revenue, and likely require construction companies to hire slightly more workers in total than Alternative 1. More local materials, such as concrete and asphalt mix, would be purchased, as well as bridge construction materials, such as steel and stone, benefitting local sellers slightly more than Alternative 1.

Similar to Alternative 1, long-term, minor, beneficial impacts would occur for commuters due to lessened traffic congestion. With a greater flow of traffic from the realignment, commuters would suffer less from travel delays, improving workforce efficiency within the local geographic region.

3.10.3.3 NO ACTION ALTERNATIVE

Under the No Action Alternative, DAF would not reroute Eglin Boulevard, and the existing conditions described in **Section 3.10.2** would remain unchanged. Commuters would continue to experience traffic congestion and delays on the installation. Therefore, continued long-term, minor, adverse impacts on socioeconomics would occur.

3.10.3.4 CUMULATIVE IMPACTS

The Proposed Action, when combined with reasonably foreseeable actions identified in **Table 3-1**, would result in short-term, minor, beneficial, cumulative impacts on socioeconomics. The Proposed Action and other reasonably foreseeable actions that would require hiring construction workers and sourcing local construction materials would increase employment and local spending, improving the Okaloosa County economy. Improved traffic flow within the project area would also support Eglin AFB operations and other industries near Eglin Boulevard.

3.10.3.5 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

The Proposed Action would use materials such as concrete, asphalt, steel, and stone. These resources are in abundance, and this would not have significant impacts on the availability of resources in the market. These resources would be lost during construction, but their purchase would benefit local construction material sellers.

Individuals hired by construction companies to support the Proposed Action would be part of a temporary and irretrievable loss of human and labor resources because the new construction workers would temporarily be unable to support other projects or activities within the area. This would be considered beneficial overall for the Okaloosa County economy.

3.11 Environmental Justice

3.11.1 Definition of the Resource

USEPA defines environmental justice as “the fair treatment and meaningful involvement of all people regardless of income, race, color, national origin, Tribal affiliation, or disability, in agency

decision-making and other Federal activities that affect human health and the environment so that people:

(i) Are fully protected from disproportionate and adverse human health and environmental effects (including risks) and hazards, including those related to climate change, the cumulative impacts of environmental and other burdens, and the legacy of racism or other structural or systemic barriers; and
(ii) Have equitable access to a healthy, sustainable, and resilient environment in which to live, play, work, learn, grow, worship, and engage in cultural and subsistence practices (EO 14096, *Revitalizing Our Nation's Commitment to Environmental Justice for All)*."

Additional considerations of concern related to environmental justice and protection of children include race, ethnicity, elderly citizens, and the poverty status of populations within a proposed action's vicinity.

CEQ states that minority populations exist if (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority percentage of the general population (CEQ 1997). This analysis assumes any number greater than the reference population to be meaningfully greater.

The Department of Health and Human Services defines low income via the federal poverty level every year. Communities are designated as "poverty areas" if 20 percent or more of the residents have incomes below the federal poverty threshold, and an "extreme poverty area" as one with 40 percent or more below the poverty level. These criteria are applied nationally without regard to the local cost of living.

Children are defined as those under the age of 18, while elderly citizens are defined as those above the age of 65. Larger populations of children or elderly within an area that may be affected by a proposed action is an indication that higher proportions of people are within the area who would be more vulnerable to environmental stressors.

EOs that address environmental justice include:

- **EO 12898**, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* directs agencies to identify and address the environmental effects of their actions on minority populations and low-income populations. This EO was enacted to ensure the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.
- **EO 13045**, *Protection of Children from Environmental Health Risks and Safety Risks,* states that each federal agency "(a) shall make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children; and (b) shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks." Children might be more susceptible than adults to certain environmental effects and risks. Therefore, activities occurring near areas that have higher concentrations of

children during any given time, such as schools and childcare facilities, might further intensify potential impacts on children.

- **EO 14096**, *Revitalizing Our Nation's Commitment to Environmental Justice for All,* affirms that environmental justice is central to the implementation of civil rights and environmental laws. It directs agencies to consider measures to address and prevent disproportionate and adverse impacts on communities with environmental justice concerns, including the cumulative impacts on pollution and other burdens such as climate change. The EO establishes the White House Office of Environmental Justice, which is led by the Federal Chief Environmental Justice Officer, and tasks it with coordinating the implementation of environmental justice policy across the federal government, ensuring that federal efforts evolve alongside the understanding of environmental justice.

3.11.2 Affected Environment

The ROI for the analysis of impacts on communities with environmental justice concerns includes census tracts 208, 212, and 214. Okaloosa County and the state of Florida are included for comparison (see **Table 3-11).** With population sizes less than 50 percent and not meaningfully greater than the Okaloosa County minority population, none are considered communities with environmental justice concerns for minorities, and none are designated by the Climate and Economic Justice Screening Tool as disadvantaged areas (CEJST 2023).

Racial demographics are mostly similar between tracts, except for Tract 214, which has a higher Hispanic or Latino population, and Tract 212, which has a higher Black or African American population.

The poverty level for individuals for 2023 is $14,580, and $24,860 for the average household size of three. Tracts 208, 212, and 214 all have incomes above the poverty level, and Tracts 208 and 212 have an average income slightly higher than the averages for Okaloosa County and Florida (HealthCare 2023). Therefore, these tracts' populations are not considered communities with environmental justice concerns for income.

Tracts 208 and 214 have child populations that are higher than the reference community child population, and also have elderly populations (at 2.4 percent) well below that of the reference community. More than 28 percent of the population in Tract 208 are children; fewer than 3 percent are elderly. The child population in Tract 212 is nearly 21 percent and the elderly population is estimated at 13 percent; both are slightly less than the reference population. Tract 214 has the highest child population (38 percent).

The nearest sensitive receptors to the Alternatives 1 and 2 proposed alignments is the Eglin Family Child Care (FCC) Center, located approximately 500 feet south of the existing Eglin Boulevard. The closest neighborhood is Warrior Landing, located approximately 1.2 miles southwest from the proposed corridors. A horseback riding club, Sand and Spur Riding Club, and a campground, Eglin Family Campground, are also located within 1 mile south of the proposed corridors.

No senior centers, assisted living centers, nor senior medical care facilities are near or on the proposed alignments (USCB 2022a).

Table 3-11. Race, Age, and Income Demographics within the ROI

Characteristic	Census Tract 208 (2021)	Census Tract 212 (2021)	Census Tract 214 (2021)	Okaloosa County (2022)	Florida (2022)
Total Population	5,516	5,915	2,559	216,482	22,244,823
Under 18 Years of Age	28.1%	20.9%	37.9%	22.2%	19.3%
Over 65 Years of Age	2.4%	12.7%	2.4%	16.7%	21.6%
Race					
White alone	75.0%	78.3%	58.2%	80.4%	76.8%
White alone, not Hispanic or Latino	63.7%	67.5%	33.2%	71.8%	52.3%
Black or African American	6.0%	11.1%	2.9%	10.6%	17.0%
American Indian and Alaska Native	0.1%	0.2%	0.2%	0.8%	0.5%
Asian	3.1%	3.8%	2.7%	3.3%	3.1%
Native Hawaiian or Other Pacific Islander	0.0%	0.1%	0.0%	0.2%	0.1%
Two or More Races	4.2%	6.3%	9.2%	4.7%	2.4%
Hispanic or Latino	11.3%	10.8%	25.0%	10.5%	27.1%
Poverty and Income					
Median Household Income	$83,720	$73,333	$58,345	$67,390	$61,777
Families Living Below the Poverty Line	6.5%	8.1%	11.4%	9.7%	13.1%

Sources: Census Reporter 2021a, 2021b, 2021c; USCB 2022a, 2022b

3.11.3 Environmental Consequences

Impacts on environmental justice and the protection of children were assessed to determine whether any alternatives would result in disproportionately high and adverse human health and environmental impacts on minority, low-income, or child populations.

3.11.3.1 ALTERNATIVE 1 (PREFERRED ALTERNATIVE)

Under Alternative 1, short- and long-term, negligible to minor, adverse impacts from construction and operation of realigned Eglin Boulevard would be expected to affect all populations, including minority, low-income, child, and elderly populations in the ROI similarly. Because the ROI does not encompass minority or low-income populations that would be considered communities with environmental justice concerns, disproportionate impacts on these populations would not occur. Eglin AFB would consider the requirements in EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low- Income Populations*, and EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, when reviewing and approving all site-specific plans.

Anticipated impacts would be more perceptible to individuals and facilities nearer the construction activities and proposed alignments. The closest proximity of proposed construction activities and operation of the proposed alignment to the nearest house would be slightly greater than 1 mile. The closest neighborhood to the Alternative 1 realignment is Warrior Landing, in Tract 214. Construction and safety BMPs, including those discussed in **Sections 3.1.3, 3.8.3,** and **3.9.3**, would be followed to minimize noise, emissions, and safety impacts to the extent practicable, although the construction noise and emissions may not be noticeable at the given distance from the neighborhood. Short-term, beneficial impacts would occur from increased construction revenue within the area that would potentially benefit lower-income workers and households in the region. **Section 3.10** provides additional details on the anticipated socioeconomic effects from the Proposed Action.

Short and long-term, adverse noise effects and traffic-related emissions effects would be experienced by individuals at facilities closest to the realigned portion of the road, specifically at the Sand and Spur Riding Club, Commissary, and FCC Center. Construction vehicles working along the Alternative 1 alignment for the duration of construction would generate short-term, minor, adverse noise and emissions impacts on children within the area. Noise and emissions effects would be greatest in the outdoors, and children would primarily be indoors. Mufflers and sound barriers would also be used to minimize noise level exposure to individuals outdoors. Long-term operation of the realigned road within 0.5 mile of the FCC Center would still create increased traffic-related noise. Additionally, increased traffic during construction for Alternative 1 would affect commute times for individuals who work at Eglin AFB or the FCC Center. Parents with children at the FCC Center during the day may experience a minor increase in their travel time during construction. Following completion of project construction, travel time to and from the FCC Center and commutes for the immediate area would decrease. **Section 3.8** provides additional details on construction noise. **Section 3.1** provides additional details on construction emissions.

3.11.3.2 ALTERNATIVE 2

Under Alternative 2, long-term, negligible to minor, adverse noise and emissions impacts on populations in the ROI would be similar to, but slightly greater than, those described for Alternative 1. Changes implemented under Alternative 2 would not disproportionately affect minority or low-income communities with environmental justice concerns.

The proposed realignment under Alternative 2 would move a small portion of Eglin Boulevard approximately 0.2 mile closer to Warrior Landing and Eglin AFB facilities, slightly increasing noise and emissions for people nearby. Impacts on the FCC Center would be identical to those described for Alternative 1 because the proposed Alternative 2 alignment would be the same within that area as Alternative 1. Visitors to the Eglin Family Campground would likely experience a small increase in noise because the realignment under Alternative 2 would move the roadway approximately 900 feet south closer to the camp site.

3.11.3.3 NO ACTION ALTERNATIVE

Under the No Action Alternative, DAF would not reroute Eglin Boulevard, and the existing conditions described in **Section 3.11.2** would remain unchanged. Noise and air emissions from congested traffic along Eglin Boulevard would continue to affect nearby residents and

commuters. Because these impacts do not disproportionately affect minority or low-income communities with environmental justice concerns, no impacts on environmental justice would occur.

3.11.3.4 CUMULATIVE IMPACTS

Construction under the Proposed Action would contribute minor impacts on minority, low-income, and child populations when combined with reasonably foreseeable actions identified in **Table 3-1**. Noise, traffic, and emissions would have no disproportionate adverse effect on minority populations. Low-income populations would benefit from construction revenue from the Proposed Action and reasonably foreseeable actions, and would not face disproportionate adverse effects. Noise from construction would likely be noticeable for children at the FCC Center, although it would be temporary and not be expected to have significant impacts on health. Staff at facilities closest to the Alternative 1 and 2 corridors would also likely be exposed to noise during working hours, but long-term risks of reduced health would be unlikely. Neighborhoods, such as Warrior Landing, may notice noise, but it is unlikely it would be noticeable enough to irritate residents. If construction for the Proposed Action were to occur concurrently with any of the reasonably foreseeable actions, these impacts would be slightly greater. No significant cumulative impacts would occur for sensitive populations.

3.11.3.5 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

No irretrievable or irreversible commitment of resources regarding sensitive populations would occur.

3.12 Water Resources

3.12.1 Definition of the Resource

Water resources include groundwater, surface water, and floodplains, and their relationship to water quality within the project area. Evaluation of water resources examines the quantity and quality of the resource and its demand for various purposes.

Groundwater. Groundwater is water that collects or flows beneath Earth's surface, filling the porous spaces in soil, sediment, and rocks. Groundwater originates from precipitation and is an essential resource often used for potable water consumption, agricultural irrigation, and industrial applications. Groundwater can typically be described in terms of its depth from the surface, aquifer or well capacity, water quality, surrounding geologic composition, and recharge rate.

Surface Water. Surface water includes natural, modified, and constructed water confinement and conveyance features above groundwater that may have a defined channel and discernable water flows as well as associated flora, fauna, and habitats. These features are generally classified as streams, creeks, springs, wetlands, natural and artificial impoundments (e.g., ponds, lakes), and constructed drainage canals and ditches.

Stormwater is an important component of surface water systems because of its potential to introduce sediments and other contaminants that could degrade lakes, rivers, and streams. Stormwater flows, which can be exacerbated by soil erosion and high proportions of impervious

surfaces associated with buildings and paved surfaces, are important to the management of surface water. Stormwater systems provide the benefit of reducing sediments and other contaminants that would otherwise flow directly into surface waters.

The CWA provides the statutory basis for state water quality standards. In Florida, FDEP is responsible for implementing state laws providing for the protection of the quality of Florida's water resources (FDEP 2023b).

The FDEP has established five surface water classifications according to designated uses. In addition to these classifications, FDEP may designate a surface water body as an Outstanding Florida Water (OFW). An OFW is a surface water body that has exceptional recreational or ecological significance (FDEP 2023c).

USEPA regulates water quality standards under the federal Safe Drinking Water Act (42 USC Section 300 et seq.) and the CWA. Section 303(d) of the CWA requires states to identify and develop a list of impaired water bodies where technology-based and other required controls have not provided attainment of water quality standards. Section 305(b) of the CWA requires states to assess and report the quality of their water bodies. The state of Florida combined their Section 303(d) and 305(b) lists into one report, referred to as the Integrated Report. The Integrated Report identifies those water bodies that are impaired and do not meet designated uses, and it establishes total maximum daily loads for the pollutants of concern (FDEP 2016).

Floodplains. Floodplains are areas of low-level ground present along rivers, stream channels, large wetlands, or coastal waters. Such lands might be subject to periodic or infrequent inundation from rain or melting snow. Floodplain ecosystem functions include natural moderation of floods, flood storage and conveyance, groundwater recharge, and nutrient cycling. Floodplains also help to maintain water quality and are often home to a diverse array of plants and animals. In their natural vegetated state, floodplains slow the rate at which the incoming overland flow reaches the main water body.

EO 11988, *Floodplain Management*, requires federal agencies to determine whether a proposed action would occur within a floodplain and directs them to avoid floodplains to the maximum extent possible wherever there is a practicable alternative. EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*, supplements the existing floodplain management policy in EO 11988 by adding a new floodplain definition and a Federal Flood Risk Management Standard to cover a wider area than EO 11988.

3.12.2 Affected Environment

The ROI for water resources analysis includes groundwater, surface water, and floodplains as well as areas within and adjacent to the 400-foot-wide corridors for Alternatives 1 and 2.

Groundwater. Two aquifers underlie Eglin AFB: the Surficial Aquifer (also known as the Sand and Gravel Aquifer) and the Floridan Aquifer. The Floridan Aquifer system, which underlies all of Florida, is the major source of the groundwater supply for most of Florida and the primary water supply source at Eglin AFB (FDEP 2023d). The Floridan Aquifer consists of a thick sequence of inter-bedded limestone and dolomite. The top of the Floridan Aquifer ranges from approximately

50 feet below MSL in the northeastern corner of Eglin AFB to approximately 700 feet below MSL in the southwestern part of the installation (Eglin AFB 2022g). The surficial aquifer consists primarily of fine to coarse sand and gravel. Water within this unit is generally unconfined (i.e., free to rise and fall). The surficial aquifer is not a primary water supply source at Eglin AFB; however, water is drawn from it by certain on-installation wells (Eglin AFB 2022d). The surficial aquifer is separated from the underlying confined Floridan Aquifer by the low-permeability Pensacola Clay confining bed.

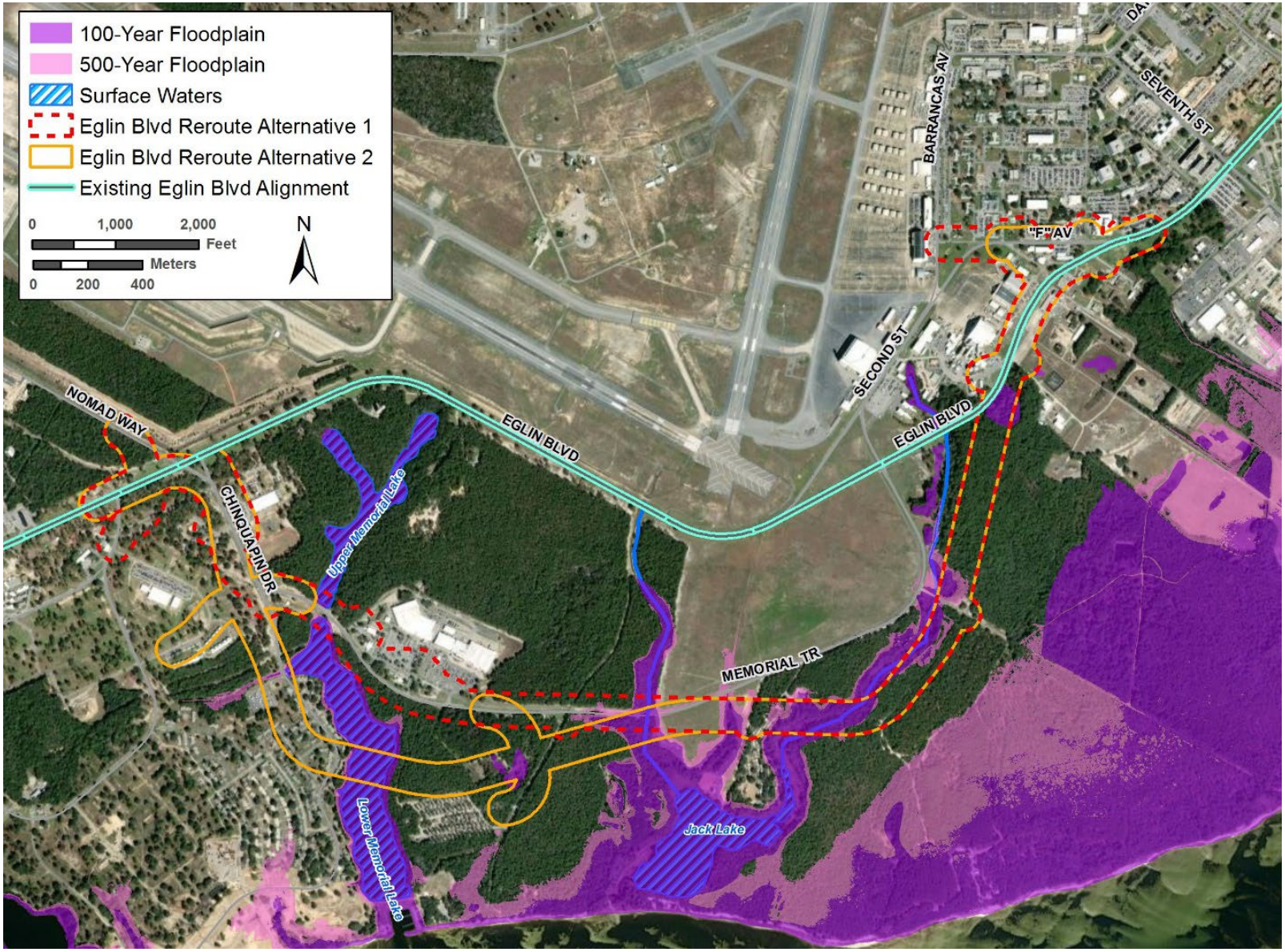
Surface Water. The main reservation of Eglin AFB encompasses portions of three hydrologic basins, including Choctawhatchee Bay, the Yellow River Basin, and Pensacola Bay. Surface water in these basins is extensive. Eglin AFB includes 32 lakes (over 300 acres of human-made ponds and natural lakes), 30 miles of rivers, an extensive stream network covering approximately 600 acres of the installation, and 20 miles of Gulf of Mexico shoreline, and it is adjacent to several estuarine bays along the Gulf of Mexico.

No OFWs are near the project area. Fred Gannon Rocky Bayou State Recreational Area, Basin Bayou State Recreation Area, Gulf Islands National Seashore, Rocky Bayou State Aquatic Preserve, St. Joseph Bay Aquatic Preserve, Yellow River Marsh Aquatic Preserve, and the Shoal River are OFWs adjacent to Eglin AFB (Eglin AFB 2022d).

As shown in **Figure 3-5**, three water bodies are within the project area. Jack Lake is one of two natural ponds on the installation. It is 25.5 acres and is located approximately 0.6 mile south of Eglin Boulevard (USFWS 2023e). Two small, north-south channels cross Eglin Boulevard and connect to Jack Lake. Upper and Lower Memorial Lakes, 0.5 mile west of Jack Lake, are man-made.

Upper Memorial Lake is composed of several fingers and surrounded by trees, while Lower Memorial Lake is adjacent to a residential neighborhood. Upper and Lower Memorial Lake are approximately 16.9 and 35.6 acres, respectively, and are bisected by Memorial Trail. None of these water bodies are listed as impaired (USEPA 2023f).

The lower segment of Choctawhatchee Bay is southeast of Eglin Boulevard. The surface waters of Choctawhatchee Bay are Class II waters. Class II waters are generally coastal waters where shellfish harvesting occurs. The bay is considered impaired due to the presence of nitrogen, phosphorus, mercury in fish tissue, and the presence of bacteria in shellfish that exceeds Shellfish Evaluation and Assessment Section thresholds (USEPA 2023f).



Data Sources: Eglin AFB 2022a, 2023a

Figure 3-5. Water Resources within the Project Area

Floodplains. Floodplain management on Eglin AFB includes floodplain protection, floodplain boundary determination, and assessment of proposed actions within floodplains. Floodplain protection and assessment of proposed actions is the responsibility of the 96th Civil Engineer Group Environmental Management Branch. Flooding on Eglin AFB is caused by rainfall, hurricane storm surge, or a combination of both. Annual rainfall averages 60 inches, primarily in summer and late winter or early spring. Most of the summer rainfall is from scattered showers and thundershowers that are often heavy and last only 1 or 2 hours. Excessive rainfall may also result from hurricanes or tropical storms, with most storms occurring in late summer and early fall. The area has a drought return interval of 20 to 25 years (Eglin AFB 2022d). Eglin Main Base has 100-year and 500-year floodplains along its southern border with Choctawhatchee Bay (Eglin AFB 2020b, FEMA 2023). Existing Eglin Boulevard and the Alternative 1 and 2 corridors cross both 100- and 500-year floodplains.

3.12.3 Environmental Consequences

A proposed action could have significant impacts on water resources if it were to substantially affect water quality, reduce water availability, or reduce supply to existing users; endanger public health or safety by creating or worsening health or flood hazard conditions; threaten or damage unique hydrologic characteristics; overdraft groundwater basins; exceed the safe annual yield of water supply sources; and/or violate applicable laws or regulations that protect water resources.

3.12.3.1 ALTERNATIVE 1 (PREFERRED ALTERNATIVE)

Groundwater. Short-term, minor, adverse and long-term, negligible, adverse impacts on groundwater could occur due to increasing erosion and sedimentation from runoff associated with road construction, creating new impervious surfaces that could change stormwater flow regimens into potential groundwater recharge areas. Increases in impervious surfaces would also reduce the amount of ground surface available for groundwater recharge. These changes however would be highly localized and minor. If required, DAF would implement LUCs near monitoring or water wells within the project area to prevent any potential contamination from reaching the groundwater. See **Sections 3.4.3** and **3.6.3** for BMPs that would be implemented

Surface Water. Overall, individual construction activities would have the potential for short-term, minor to moderate, adverse effects on surface water in any location where construction would occur within 50 feet of a surface water body. The use of BMPs specified in the NPDES CGP, installation-specific SWPPP, and development of a site-specific construction SWPPP would minimize potential adverse effects. Measures from project-specific and installation SWPPPs and ESCPs would be implemented to minimize sedimentation and stormwater runoff, such as:

- Soil erosion control mats;
- Silt fencing;
- Sediment traps;
- Straw bales;
- Turbidity curtains;
- Application of water to disturbed soils to reduce dust and erosion; and

- Revegetation of disturbed areas with native plants.

DAF would comply with all applicable DAF, federal, and state laws and regulations, and BMPs during construction and adherence to all required permits would be implemented to minimize impacts on water resources. All construction BMPs would be approved by the Eglin AFB Environmental Management Branch to ensure they are adequate. The construction site would also be subject to on-site inspections to ensure that sediment and erosion controls are compliant with the permitting requirements, and that appropriate housekeeping measures are being employed. See **Section 3.6.3** for additional applicable BMPs. The potential exists for erosion and associated sedimentation to flow into surface water features during construction. The direct release of chemicals or metals into water bodies or wetlands is prohibited.

The new alignment could result in a potential increase in surface runoff due to an increase in impermeable surfaces. Under Alternative 1, long-term, minor to moderate, adverse impacts on surface water would occur from the increase of up to 33 acres of impervious surfaces, increasing the potential for surface runoff and velocity over existing conditions. As discussed in **Section 3.6.3**, operation of vehicles along the proposed realignment could result in pollutant loading to stormwater runoff and adversely impact local ground and surface waters.

Floodplains. Long-term, intermittent, moderate, adverse impacts on floodplains would be expected under Alternative 1. The proposed alignment would affect approximately 23 acres of the 100-year floodplain and approximately 33 acres of the 500-year floodplain. Impacts and measures to address those impacts would be similar to those described for groundwater and surface water. Additionally, a potential option to reduce flood impacts would be to elevate the proposed roadway above the floodplain level. The new roadway would be constructed with potential climate change impacts such as an increase in storm surges and sea level rise taken into consideration. The project would be developed in conformance with EO 14008, *Tackling the Climate Crisis at Home and Abroad*; DoD's UFC 2-100-01, *Installation Master Planning – with Change 1*, and UFC 3-201-01, *Civil Engineering – with Change 5*; DoD's Directive-Type Memorandum 22-003, *Flood Hazard Area Management for DoD Installations*; and DoD's 2021 Climate Adaptation Plan..

3.12.3.2 ALTERNATIVE 2

Impacts on water resources under Alternative 2 would be slightly greater than those described for Alternative 1. Similar to Alternative 1, short- and long-term, minor, adverse impacts on groundwater would occur under Alternative 2. Short- and long-term, moderate, adverse impacts on surface water would be similar to, but slightly greater than, those described for Alternative 1 due to the installation of a bridge over Lower Memorial Lake. Bridge construction would include the use of a pile driver, which could transport sediment and other material into the lake. Bridge installation would result in disruption to water flow, increased sediment loading, and impacts on bank stability. Implementation of BMPs during construction would minimize impacts by controlling the movement of surface water runoff and ensuring no direct access to groundwater recharge points.

Alternative 2 would result in slightly greater adverse impacts on floodplains because the proposed alignment would affect approximately 29 acres of the 100-year floodplain and

approximately 38 acres of the 500-year floodplain, which is 26 and 15 percent greater in acreage, respectively, compared with Alternative 1.

Impacts on water resources under Alternative 2 would not be significant due to the use of the previously discussed measures and BMPs, and adherence to all applicable regulations and restrictions discussed under Alternative 1 and in **Appendix D**.

3.12.3.3 NO ACTION ALTERNATIVE

Under the No Action Alternative, DAF would not reroute Eglin Boulevard, and the existing conditions described in **Section 3.12.2** would remain unchanged. Therefore, no impacts on water resources would occur.

3.12.3.4 CUMULATIVE IMPACTS

The Proposed Action, when combined with reasonably foreseeable actions identified in **Table 3-1,** would result in short- and long-term, minor to moderate, adverse, cumulative impacts on water resources from construction activities involving ground disturbance and increases in impervious surfaces. Soil disturbance could result in erosion, sedimentation, and degraded water quality. The cumulative increase in impervious surfaces from the Proposed Action and reasonably foreseeable actions would be considered a minor contribution to additional runoff and erosion effects on the whole watershed but may also be noticeable on a local level. In accordance with federal and state stormwater regulations, the post-development hydrologic conditions of project areas must be maintained as they were during predevelopment. For the construction and modification actions associated with the Proposed Action and reasonably foreseeable actions, preservation of predevelopment hydrologic conditions would be ensured through the use of existing stormwater management systems on the installation, adherence to appropriate plans and permits, and incorporation of BMPs and low-impact development strategies that would attenuate potentially long-term, adverse cumulative impacts on water resources. Overall, the Proposed Action, when combined with reasonably foreseeable actions, would not result in significant cumulative impacts on water resources.

3.12.3.5 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

The Proposed Action would not result in irreversible or irretrievable commitments of water resources.

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This EA is being prepared by HDR, Inc. (HDR) and DAWSON under the direction of Eglin AFB. The individuals that contributed to the preparation of this document are listed as follows:

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A

Interagency Coordination and Public Involvement

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Appendix A. Interagency Coordination and Public Involvement

A.1 Interagency Coordination Distribution List

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Coordinator
Florida Department of Environmental Protection
Florida State Clearinghouse
3800 Commonwealth Boulevard
Mail Station 47
Tallahassee, FL 32399

A.2 Early Public Notice published in the *Northwest Florida Daily News* on August 25, 2023

Public Notice
Potential to Impact Floodplains and Wetlands
Eglin Air Force Base, Florida

The U.S. Department of the Air Force (DAF) is preparing an Environmental Assessment (EA) addressing their proposal to realign approximately 2.5-miles of Eglin Boulevard from where it splits at F Avenue on the eastern end, continuing west, then connects to Nomad Way, on Eglin Air Force Base (AFB). A Planning Charette Report was recently completed by the DAF for the proposed realignment, identifying two roadway alignments to be analyzed as alternatives for the Proposed Action in the EA. The purpose of this Proposed Action is to bring DAF into compliance with Air Installation Compatible Use Zone (AICUZ) land use compatibility requirements, alleviate heavy traffic congestion and improve flow in the Eglin Main-Base area on the installation. The Proposed Action is needed because the existing road alignment crosses the aircraft tow-way, graded areas, and two runway Clear Zones, which is an aircraft hazard and not compliant with AICUZ land use compatibility, and limits the potential future expansion along Taxiway B.

The Proposed Action is subject to the requirements and objectives of Executive Order (EO) 11988, *Floodplain Management*, and EO 11990, *Protection of Wetlands*, because the proposed roadway realignment at Eglin AFB would intersect floodplains and wetlands. Depending on the alternative, up to approximately 29 and 38 acres of 100- and 500-year floodplains, respectively, and up to 27 acres of wetlands and other surface waters, could potentially be impacted. Per EO 11988 Section 2(a)(4), EO 11990 Section 2(b), and 32 CFR Part 989.14(l), the DAF requests advance public comment to determine if there are any public concerns regarding the Proposed Action and alternatives' potential to impact floodplains and wetlands. The DAF would also like to solicit public input or comments on potential additional alternatives. The Proposed Action and alternatives, including any identified during this early public comment period, will be analyzed in the forthcoming EA, and the public will have the opportunity to comment on the Draft EA when it is released.

The public comment period is from August 25 to September 24, 2023. Please submit written comments by mail to Ms. Ilka Cole, 96th Test Wing Public Affairs, 101 West D Avenue, Room 238, Eglin AFB, FL 32542 or by email to 96CEG.CEIEA.NEPAPublicComments@us.af.mil.

Mucarsel-Powell leads pack of 2024 challengers to Sen. Rick Scott

James Call
Tallahassee Democrat
USA TODAY NETWORK – FLORIDA

U.S. Sen. Rick Scott is up for reelection in 2024, after an unsuccessful bid to challenge Mitch McConnell as Republican Senate Leader FILE PHOTO

Former Congresswoman Debbie Mucarsel-Powell is a candidate for the U.S. Senate
JACK GRUBER/USA TODAY NETWORK

Former Democratic Miami Congresswoman Debbie Mucarsel-Powel announced Tuesday morning that she will challenge Republican Sen. Rick Scott in 2024.

Mucarsel-Powell is considered an underdog against Scott, who has won three statewide elections by deploying millions of dollars he made as a health care executive. Democrats have won just one statewide election since 2012 – Nikki Fried's successful bid to be Commissioner of Agriculture in 2018.

Mucarsel-Powell is a 52-year-old former dean of Florida International University's School of Medicine and made health care the focus of her campaign announcement on social media – with a declaration of her candidacy on X and the unveiling of a campaign website.

In a video, Mucarsel-Powel attacked Scott on his support for limits on abortion access, threats to cut Social Security and Medicare, and his record as the head of a chain of hospitals.

"He wrote the plan that could take away the Social Security and Medicare you worked and paid for. And he's gotten tens of millions of dollars richer, while so-called serving the people, but our costs for prescriptions, health insurance, homeowners insurance have all gone up," said Mucarsel-Powel in the two-minute video.

"No mas," said Mucarsel-Powel, who came to Florida as a14-year-old Ecuadoran immigrant. "I've already fought guys like Rick Scott and beat them."

Scott fires back, calling challenger a 'radical socialist'

A year ago, Scott proposed a plan to sunset all federal legislation.

Democrats criticized the plan and Republican Senate Minority Leader Mitch McConnell dismissed it, saying the Republican Party would "not have as a part of our agenda a bill that raises taxes on half the American people and sunsets Social Security and Medicare within five years."

Scott went on to clarify that the proposal did not apply to those two programs. He then launched an unsuccessful challenge to McConnell for the Senate leadership position.

The Mucarsel-Powell video also referenced Scott's tenure as the CEO for the hospital chain Columbia/HCA, which was part of a Justice Department fraud investigation.

Though no charges were brought against Scott, Columbia/HCA was required to pay hundreds of millions of dollars to resolve whistle-blower lawsuits that alleged HCA systematically defrauded Medicare and Medicaid.

Scott left the company with a $300 million severance package.

The Scott campaign immediately responded to the Mucarsel-Powell challenge with a statement that called her a "radical socialist" and tied her to former House Speaker Nancy Pelosi.

"Former Congresswoman Mucarsel-Powell is a radical socialist who voted 100% of the time with Nancy Pelosi during her short tenure in Congress, which is why the voters of South Florida booted her out of office the first chance they got," said Priscilla Ivasco, a Scott campaigner spokeswoman.

Mucarsel-Powell was elected to the U.S. House in 2018 in a wave year for Democrats and became the first South American immigrant elected to Congress.

She lost the seat two years later when Republican Carlos Gimenez rode former President Donald Trump's coattails to victory.

Despite national Democrats lobbying her to challenge Gimenez in 2022, Mucarsel-Powell went to work to combat misinformation in Spanish-language media, which she said played a role in her defeat.

A Democratic field

Democrats have been looking for a candidate to challenge Scott.

Rep. Fentrice Driskell, D-Tampa, the House Democratic leader tweeted Monday night, hours before Mucarsel-Powell threw her hat in the ring, that she would not be a candidate for the Senate.

Instead, Driskell said she intends to stay in Tallahassee to hold the line against Gov. Ron DeSantis' agenda.

"After giving it a lot of thought, I have realized that my work in the FL House is not done yet. And when DeSantis loses the GOP primary & returns to focus where he can do more damage, we need to be ready. As Minority Leader, I will continue to lead in this fight," tweeted Driskell.

Phil Ehr, a 26-year U.S. Navy veteran who ran against North Florida MAGA Congressman Matt Gaetz last year, announced on social media in July he is a candidate, but has yet to file the paperwork.

Three people have filed to run in the August Democratic Primary to face Scott in November 2024.

- Fort Lauderdale businessman Matt Boswell filed to run in July.
- Seminole County combat veteran Joseph Rod submitted paperwork in January.
- And Jason Williams of Vero Beach filed papers with the Secretary of State office to run last month.

None have yet filed campaign finance reports.

Scott is also being challenged in the primary by Melbourne lawyer Keith Gross, a political newcomer in Florida who ran for office previously in Georgia. He came out swinging in April, accusing Scott of "getting rich by hiding fraud and corruption."

Scott announced his reelection campaign earlier this year with a pledge to visit all 67 Florida counties.

His stump speech criticizes President Joe Biden, Democrats and their "reckless spending, open borders and woke socialists' policies."

"If we continue down this path, the future of Florida and the country will be filled with high prices and woke socialism," Scott tells voters.

Numbers not with Democrats

Whoever wins the Democratic nomination faces a monetary and numerical challenge in a bid to flip the seat to the Democratic column.

Republican registered voters outnumber Democrats by more than a half million. Voters registered as no-party affiliates or with a minor party outnumber Democrats in 21 of the state's 67 counties.

Scott is a specialist in the strategic deployment of money he made as a hospital executive to win close elections.

He spent about $75 million of his own money to win his first election as governor in 2010 – a 1.2% victory margin over former CFO Alex Sink.

The week before the 2014 election, Scott dropped more than $12 million in an ad buy and defeated former Gov. Charlie Crist by 1%.

In 2018, Scott wrote a check for $63.6 million – more than three-quarters of the $85 million he raised from supporters – to unseat three-term Sen. Bill Nelson.

Scott's Democratic challenger will carry the banner for a party that was routed in last year's election – the GOP winning all statewide elections and supermajorities in the Florida House and Senate.

And they can expect little help from the national party in flipping the seat blue.

Democratic-held seats are on the ballot in Wisconsin, Nevada, Pennsylvania, Ohio, and West Virginia, and the experts expect the party to devote resources to those races, given the present state of politics in Florida.

The nonpartisan Cook Political Report rates the Florida seat as "likely Republican," in 2024.

James Call is a member of the USA TODAY NETWORK-Florida Capital Bureau. He can be reached at jcall@tallahassee.com. Follow on him Twitter: @Call-Tallahassee

NOTICE OF INTENT
TO PREPARE AN ENVIRONEMNTAL IMPACT STATEMENT FOR EXPANSION OF CHILDCARE SERVICES NORTH OF THE EGLIN TEST AND TRANING COMPLEX EGLIN AIR FORCE BASE, FLORIDA

The Department of the Air Force (DAF) is issuing this Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) to assess the potential social, economic, and environmental impacts associated with (1) the Department of the Army (DoA) constructing and operating a new childcare center on Camp Bull Simons in the Eglin Test and Training Complex (ETTC), Eglin Air Force Base (AFB), Florida (Alternative 1); and (2) the Department of the Air Force (DAF) constructing and operating one or more additional childcare centers in or north of the ETTC, Eglin AFB, Florida. The locations being considered by the DAF include State Road 85 and Rattlesnake Bluff Road (Alternative 2), Crestview West (Alternative 3), Crestview Central (Alternative 4), and Crestview East (Alternative 5). Resource areas being analyzed for impacts in the EIS include air quality, water resources, geological resources, cultural resources, biological resources, land use, noise, infrastructure, hazardous materials and wastes, socioeconomics, environmental justice, and safety. The proposed action could include construction in wetlands and/or floodplains. This notice fulfills the requirements of Section 2(b) of Executive Order (EO) 11990, *Protection of Wetlands*, Section 2(a)(4) of EO 11988, *Floodplain Management*, and 44 Code of Federal Regulations, Part 9.9(c) to provide opportunity for early public review of proposed federal actions in wetlands and floodplains.

A public scoping period will take place starting from the date of this NOI publication and will last for 30 days. This scoping period will be conducted in compliance with National Environmental Policy Act (NEPA) and Section 106 consultation pursuant to *Code of Federal Regulations* title 36, section 800.2(d), which will also fulfill the Section 106 requirements for public notification. To ensure the DAF has sufficient time to consider public input in the preparation of the draft EIS, scoping comments should be submitted within the scoping period. The Eglin public website (https://www.eglin.af.mil/About-Us/Eglin-Documents/) provides information on the EIS and the scoping process as well as downloadable comment forms to fill out and return either electronically or by mail. Scoping comments may be submitted to Ms. Ilka Cole, 96th Test Wing Public Affairs, 101 West D Avenue, Room 238, Eglin AFB FL 32542 or by email to 96CEG.CEIEA.NEPAPublicComments@us.af.mil. EIS inquiries and requests for digital or print copies of scoping materials are available upon request through the same mailing address and email. Print copies of the project scoping materials are also available to the public at the following three locations:

Robert L. F. Sikes Public Library
1445 Commerce Drive
Crestview, FL 32539

Crestview City Hall
198 North Wilson Street
Crestview, FL 32536

Jackson Guard
107 Highway 85 North
Niceville, FL 32578

PRIVACY ADVISORY NOTICE

The draft EIS will be provided for public comment in early 2024. As required by law, comments received will be addressed in the EIS and made available to the public. Providing personal information is voluntary. Any personal information provided will be used only to fulfill requests for copies of the EIS or associated documents. Private addresses will be compiled to develop a mailing list for those requesting copies of the EIS; however, only the individuals' names making comments and specific comments will be disclosed. Personal home addresses and phone numbers will not be published.

Public Notice
Potential to Impact Floodplains and Wetlands
Eglin Air Force Base, Florida

The U.S. Department of the Air Force (DAF) is preparing an Environmental Assessment (EA) addressing their proposal to realign approximately 2.5-miles of Eglin Boulevard from where it splits at F Avenue on the eastern end, continuing west, then connects to Nomad Way, on Eglin Air Force Base (AFB). A Planning Charrette Report was recently completed by the DAF for the proposed realignment, identifying two roadway alignments to be analyzed as alternatives for the Proposed Action in the EA. The purpose of this Proposed Action is to bring DAF into compliance with Air Installation Compatible Use Zone (AICUZ) land use compatibility requirements, alleviate heavy traffic congestion and improve flow in the Eglin Main-Base area on the installation. The Proposed Action is needed because the existing road alignment crosses the aircraft tow-way, graded areas, and two runway Clear Zones, which is an aircraft hazard and not compliant with AICUZ land use compatibility, and limits the potential future expansion along Taxiway B.

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The public comment period is from August 25 to September 24, 2023. Please submit written comments by mail to Ms. Ilka Cole, 96th Test Wing Public Affairs, 101 West D Avenue, Room 238, Eglin AFB, FL 32542 or by email to 96CEG.CEIEA.NEPAPublicComments@us.af.mil.

A.3 Letter to the Florida State Clearinghouse

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 96TH TEST WING (AFMC)
EGLIN AIR FORCE BASE FLORIDA

19 April 2024

Eric S. Sculthorpe
96 CEG/CEIE
501 DeLeon Street, Building 696, Suite 101
Eglin Air Force Base Florida, 32542-5105

Chris Stahl, Coordinator
Florida State Clearinghouse
Florida Department of Environmental Protection
3800 Commonwealth Boulevard, Main Station 47
Tallahassee, Florida 32399-2400

SUBJECT: Review of the Draft *Environmental Assessment Addressing Realignment of Eglin Boulevard, Eglin Air Force Base, Florida*.

Mr. Stahl

The Department of the Air Force is pleased to electronically submit the Draft *Environmental Assessment Addressing Realignment of Eglin Boulevard, Eglin Air Force Base, Florida*, which is available on the Eglin AFB website at https://www.eglin.af.mil/About-Us/Eglin-Documents. This correspondence is a request for comments from your office on the subject document. The Department of the Air Force prepared this document to conform to the requirements of the *National Environmental Policy Act*.

The Proposed Action falls under the proposed future development on Eglin Main Base as described in the 2020 Cantonment Area EA; therefore, the CZMA consistency concurrence received for that EA covers the Proposed Action under 32 CFR Section 929.10, which allows for tiering, and no additional CZMA consistency review is required.

We respectfully request your comments be sent to Mr. John C. Harcourt, 96 CEG/CEIEA, 501 DeLeon Street, Building 696, Suite 101, Eglin AFB, FL 32542-5105, or by email: [redacted] Please reference the "Eglin Boulevard Realignment EA" in the subject line of the correspondence. The Department of the Air Force would greatly appreciate it if you would consolidate and submit your agency's comments within 60 days from receipt of this document.

SCULTHORPE.ERIC.SHEFFIELD.1268454850
Digitally signed by SCULTHORPE.ERIC.SHEFFIELD.1268454850
Date: 2024.04.18 08:24:00 -05'00'

ERIC S. SCULTHORPE, P.E., NH-03
Acting Chief, Environmental Management Branch

cc: Project File (letter only)

A.4 State Historic Preservation Office Section 106 Consultation

FLORIDA DEPARTMENT of STATE

RON DESANTIS
Governor

CORD BYRD
Secretary of State

Department of the U.S. Air Force
1690 Air Force Pentagon
Washington, DC 20330-1670

February 28, 2024

RE: DHR Project File No.: 2023-7248 Received by DHR: December 13, 2023
Cultural Resources Survey for Eglin Boulevard Reroute Project, Okaloosa County, Florida

To Whom It May Concern:

Our office reviewed the referenced project in accordance with Section 106 of the *National Historic Preservation Act of 1966*, as amended, and its implementing regulations in *36 CFR Part 800: Protection of Historic Properties*, as well as Chapters 267.061 and 373.414, *Florida Statutes*, and implementing state regulations and the State 404 Program Operating Agreement for possible effects on historic properties listed, or eligible for listing, in the *National Register of Historic Places*. The project is subject to compliance with requirements for United States Air Force Project No. CR-22-0023.

In June-July 2023, HDR Environmental conducted the above referenced cultural resource assessment survey (CRAS) on behalf of Eglin Air Force Base. HDR excavated approximately 26.02 acres of archaeological survey areas with 87 shovel tests dug throughout the project area on Eglin AFB. As a result of the survey, no archaeological sites were identified, though nine previously recorded historic resources were revisited. These nine historic resources include 8OK2662/8WL2643 (Eglin AFB Railroad), 8OK1222 (McKinley Climatic Laboratory), 8OK2227 (Range A-22 Historic District), 8OK1332 (BLDG 110), 8OK3682 (374: Guided Weapons Evaluation Facility), 8OK1326 (BLDG 410), 8OK1330 (BLDG 421), 8OK1331 (BLDG 422), and 8OK1505 (Building 441 Non-Potable Water Supply), which are all either eligible for the NRHP, contributing to an eligible district, or NR listed. HDR notes, "The project as proposed would not affect the integrity of location, design, setting, materials, workmanship, feeling, or association of any of the nine historic properties in the APE. The roadway improvements would not diminish the integrity of these historic properties or limit their ability to convey their historic significance." Based on the survey results, it is the opinion of HDR that the proposed project will have no adverse effect on any known historic properties.

Based on the information provided, our office concurs with the presented survey results and recommendations and finds that the proposed project will have no adverse effect on historic properties listed, or eligible for listing, in the NRHP, or otherwise of historical, archaeological, or architectural value within the surveyed APE. Further, we find the submitted report complete and sufficient in accordance with Chapter 1A-46, *Florida Administrative Code*.

Division of Historical Resources
R.A. Gray Building • 500 South Bronough Street• Tallahassee, Florida 32399
850.245.6300 • 850.245.6436 (Fax) • FLHeritage.com

Historical Resources

USAF
DHR Project File No.: 2023-7248
February 28, 2024
Page 2

If you have any questions, please contact Ethan Putman, Historic Preservationist, by email at *Ethan.Putman@dos.myflorida.com*.

Sincerely,

Kelly L Chase
For

Alissa Slade Lotane
Director, Division of Historical Resources
& State Historic Preservation Officer

Division of Historical Resources
R.A. Gray Building • 500 South Bronough Street• Tallahassee, Florida 32399
850.245.6300 • 850.245.6436 (Fax) • FLHeritage.com

B

Eglin AFB Consultation with Federally Recognized Tribes

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Appendix B. Eglin AFB Consultation with Federally Recognized Tribes

B.1 Government-to-Government Consultation Distribution List

Eglin AFB conducts government-to-government consultation with six federally recognized tribes with a historic or cultural affiliation with Eglin Air Force Base (AFB) lands: the Miccosukee Tribe of Indians of Florida, Seminole Tribe of Florida, Seminole Nation of Oklahoma, Poarch Band of Creek Indians of Alabama, Muscogee (Creek) Nation of Oklahoma, and Thlopthlocco Tribal Town.

The installation has a Programmatic Agreement (PA) with these tribes whereby the tribes do not wish to be contacted for work within areas that have already been surveyed or where predictive modeling, based on the surrounding area, has determined that there is a low likelihood for cultural resources. These arrangements are captured in the executed 2021 PA, which supersedes all earlier government-to-government agreements. The Area of Potential Effects includes five areas with a high probability for containing precontact and post-contact archaeological materials, and excludes those areas that have been previously surveyed or may contain hazardous materials. An archaeological survey of the five high probability areas, totaling 26 acres combined, was conducted on June 27 through July 3, 2023. A total of 83 shovel tests were excavated during the survey, all of which were negative for pre- and post-contact archaeological materials. A cultural resource survey was conducted for the high-probability areas within the project corridors, and the subsequent report identified a No Effects determination.

B.2 Eglin AFB Government-to-Government Tribal Consultation Memorandum

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 96TH TEST WING (AFMC)
EGLIN AIR FORCE BASE FLORIDA

3/7/2022

MEMORANDUM FOR RECORD

FROM: Eglin Air Force Base Installation Tribal Liaison Officer

SUBJECT: Government to Government Tribal Consultation with Regards to Traditional Cultural Properties and Sacred Sites at Eglin Air Force Base, Florida

Eglin Air Force Base (AFB) has a well-established relationship with various Federally-recognized tribes that have a historic affiliation to the area in and around Eglin AFB. While tribal consultations had been occurring for years, the formal government-to-government relationship was established between Eglin AFB and the following four tribes in 2008: the Miccosukee Tribes of Indians of Florida, the Muscogee (Creek) Nation, the Poarch Band of Creek Indians, and the Seminole Tribe of Florida. The federally recognized tribe, Thlopthlocco Tribal Town, began consulting with Eglin AFB beginning 2012, and then the Seminole Nation of Oklahoma in September of 2019.

Meetings with all of these tribes led to the development of a Memoranda of Understanding (MOU) related to Section 106 of the *National Historic Preservation Act* and *The Native American Graves Protection and Repatriation Act*. The Muscogee (Creek) Nation and Thlopthlocco Tribal Town ultimately signed MOUs with Eglin AFB. Although indicating an intent to sign, the Poarch Band of Creek Indians never actually signed an MOU. The Miccosukee Tribe of Indians of Florida and the Seminole Tribe of Florida did not wish to sign MOUs, but verbally agreed with all of the principles laid out in the documents signed by the other tribes.

In October of 2021, Eglin AFB completed a landmark comprehensive Section 106 Programmatic Agreement (PA) with the Florida State Historic Preservation Officer (FL SHPO) and the Advisory Council on Historic Preservation (ACHP). This PA superseded the previous MOUs. Three of the six tribes have signed as Invited Signatories: the Muscogee (Creek) Nation, the Seminole Nation of Oklahoma, and the Thlopthlocco Tribal Town, and three tribes verbally agreed and are listed as Concurring Parties: the Miccosukee Tribes of Indians of Florida, the Poarch Band of Creek Indians, and the Seminole Tribe of Florida.

Eglin AFB has already surveyed approximately 75 percent of the roughly 387,000 acres that can currently be evaluated (or about 288,000 acres). In addition, nearly 100 percent of all high-probability areas have been surveyed and thousands of specific archaeological sites have been evaluated. Through several decades of archaeological investigations and tribal consultations, no Traditional Cultural Properties (TCPs) or Sacred Sites have ever been identified by the tribes.

The topic of TCPs has routinely been discussed with the tribes beginning in 2008 when the formal government-to-government relationship was first established. TCPs were also discussed at our most recent face-to-face meeting with the tribes on 16 June 2021. Eglin AFB and the tribes recognized that previously unknown TCPs could be identified in the future with the accumulation of more information. However, each tribe has stated that they are unaware of any TCPs or Sacred Sites currently located on Eglin AFB lands and prefer to not be consulted regarding each specific project which impacts areas previously assessed and/or determined low-risk for TCPs or Sacred Sites.

This memorandum for record will be updated annually, to reflect the current status of communication with the tribes as well as any changes to TCPs of Sacred Sites identified on Eglin AFB.

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MARIA D. RODRIGUEZ, NH-04
Installation Tribal Liaison Officer
Eglin AFB, Florida

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C

Air Quality Supporting Documentation

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Appendix C. Air Quality Supporting Documentation

This appendix discusses emission factor development and calculations, including assumptions employed in the analyses presented in **Section 3.1** of the Environmental Assessment.

The Air Conformity Applicability Model (ACAM) version 5.0.18a was used to perform an analysis to assess the potential air quality impacts associated with the Proposed Action in accordance with Air Force Manual 32-7002, *Environmental Compliance and Pollution Prevention; the Environmental Impact Analysis Process* (EIAP, 32 Code of Federal Regulations [CFR] Part 989) and the General Conformity Rule (40 CFR Part 93, Subpart B). This appendix provides the ACAM results.

The emission factors presented in this appendix are imbedded within ACAM and come from the following Department of the Air Force (DAF) documents: (1) *Air Emissions Guide for Air Force Stationary Sources, Methods for Estimating Emissions of Air Pollutants for Stationary Sources at U.S. Air Force Installations, Air Force Civil Engineer Center* (June 2020), and (2) *Air Emissions Guide for Air Force Mobile Sources, Methods for Estimating Emissions of Air Pollutants for Mobile Sources at U.S. Air Force Installations, Air Force Civil Engineering Center* (June 2020). Additional data and methodology used to prepare the ACAM reports are below.

C.1 Alternative 1 – Alignment 1 (Preferred Alternative)

C.1.1 Air Conformity Applicability Model Report Record of Air Analysis (ROAA)

1. General Information: The Department of the Air Force's (DAF's) Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality impacts associated with the Proposed Action in accordance with the Air Force Manual 32-7002, *Environmental Compliance and Pollution Prevention*; the Environmental Impact Analysis Process (EIAP, 32 Code of Federal Regulations [CFR] Part 989); and the General Conformity Rule (GCR, 40 CFR Part 93, Subpart B). This report provides a summary of the ACAM analysis.

a. Action Location:
Base: EGLIN AIR FORCE BASE (AFB)
State: Florida
County(s): Okaloosa
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: Eglin Boulevard Realignment, Alternative 1: Alignment 1 (Preferred Alternative)

c. Project Number/s (if applicable):

d. Projected Action Start Date: 03/2027

e. Action Description:

The Proposed Action is to realign an approximately 2.5-mile portion of Eglin Boulevard from the split of Eglin Boulevard and F Avenue on the eastern end and continue westward, to the intersection of Eglin Boulevard and Nomad Way on Eglin AFB. Two action alternatives were considered: Alignment 1 and Alignment 2.

For the purposes of this analysis, it was assumed the entire estimated disturbance area would be cleared and graded. Construction was assumed to occur from March 2027 to March 2029 (24 months). It was assumed that the addition, removal, or relocation of utilities would occur along the entire realignment. The Proposed Action would not result in changes to the number of vehicles traveling on Eglin Boulevard daily. Therefore, the net change in air emissions from changes to traffic patterns was not calculated.

f. Point of Contact:
Name: Carolyn Hein
Title: Contractor
Organization: HDR
Email:
Phone Number:

2. Air Impact Analysis: Based on the attainment status at the action location, the requirements of the General Conformity Rule are:

_____ applicable
__X__ not applicable

Total net direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the start of the action through achieving "steady state" (i.e., net gain/loss upon action fully implemented) emissions. The ACAM analysis used the latest and most accurate emission estimation techniques available; all algorithms, emission factors, and methodologies used are described in detail in DAF's *Air Emissions Guide for Air Force Stationary Sources*, *Air Emissions Guide for Air Force Mobile Sources*, and *Air Emissions Guide for Air Force Transitory Sources*.

"Insignificance Indicators" were used in the analysis to provide an indication of the significance of potential impacts to air quality based on current ambient air quality relative to the National Ambient Air Quality Standards (NAAQSs). These insignificance indicators are the 250-ton/year (yr) Prevention of Significant Deterioration (PSD) major source threshold for actions occurring in areas that are "Clearly Attainment" (i.e., not within 5 percent of any NAAQS) and the GCR de minimis values (25 ton/yr for lead and 100 ton/yr for all other criteria pollutants) for actions occurring in areas that are "Near Nonattainment" (i.e., within 5 percent of any NAAQS). These indicators do not define a significant impact; however, they do provide a threshold to identify actions that are insignificant. Any action with net emissions below the insignificance indicators for all criteria pollutants are considered so insignificant that the action will not cause or contribute to an exceedance on one or more NAAQSs. For further detail on insignificance indicators see Chapter 4 of DAF's *Air Quality Environmental Impact Analysis Process (EIAP) Guide*, Volume II - Advanced Assessments.

The Proposed Action's net emissions for every year through achieving steady state were compared against the Insignificance Indicator and are summarized below.

Analysis Summary:

2027

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	1.039	250	
NOx	6.392	250	
CO	6.286	250	
SOx	0.018	250	
PM 10	578.898	250	Yes
PM 2.5	0.239	250	
Pb	0.000	25	No
NH3	0.012	250	
CO2e	2115.2		

2028

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.311	250	
NOx	1.517	250	
CO	2.082	250	
SOx	0.004	250	
PM 10	0.082	250	
PM 2.5	0.082	250	
Pb	0.000	25	No
NH3	0.001	250	
CO2e	363.5		

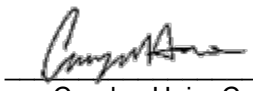
2029

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.052	250	
NOx	0.253	250	
CO	0.347	250	
SOx	0.001	250	
PM 10	0.014	250	
PM 2.5	0.014	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	60.6		

2030 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.000	250	
NOx	0.000	250	
CO	0.000	250	
SOx	0.000	250	
PM 10	0.000	250	
PM 2.5	0.000	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	0.0		

The estimated annual net emissions associated with this action temporarily exceed the insignificance indicators. However, the steady state estimated annual net emissions are below the insignificance indicators showing no significant long-term impact to air quality. Therefore, the Proposed Action will not cause or contribute to an exceedance on one or more NAAQSs. No further air assessment is needed.



Carolyn Hein, Contractor

. 8/10/2023
DATE

C.1.2 Detail Air Conformity Applicability Model Report

1. General Information

- Action Location
Base: EGLIN AFB
State: Florida
County(s): Okaloosa
Regulatory Area(s): NOT IN A REGULATORY AREA

- Action Title: Eglin Boulevard Realignment, Alternative 1: Alignment 1 (Preferred Alternative)

- Project Number/s (if applicable):

- Projected Action Start Date: 3/2027

- Action Purpose and Need:
The purpose of the Proposed Action is to bring DAF into compliance with Air Installation Compatible Use Zone (AICUZ) land use compatibility requirements, and alleviate heavy traffic congestion and improve traffic flow in the Eglin Main Base area on the installation. The Proposed Action is needed because the existing road alignment crosses the aircraft towway, graded areas of the clear zones (CZs), and two runway CZ, which are an aircraft hazard and not compliant with AICUZ land use compatibility.

- Action Description:
The Proposed Action is to realign an approximately 2.5-mile portion of Eglin Boulevard from the split of Eglin Boulevard and F Avenue on the eastern end, and continue westward to the intersection of Eglin Boulevard and Nomad Way on Eglin AFB. Two action alternatives were considered: Alignment 1 and Alignment 2.

For the purposes of this analysis, it was assumed the entire estimated disturbance area would be cleared and graded. Construction was assumed to occur from March 2027 to March 2029 (24 months). It was assumed that the addition, removal, or relocation of utilities would occur along the entire realignment. The Proposed Action would not result in changes to the number of vehicles traveling on Eglin Boulevard daily. Therefore, the net change in air emissions from changes to traffic patterns was not calculated.

- Point of Contact
Name: Carolyn Hein
Title: Contractor
Organization: HDR
Email:
Phone Number:

- Activity List:

Activity Type		Activity Title
2.	Construction / Demolition	Alternative 1: Alignment 1
3.	Construction / Demolition	Alternative 1: Alignment 1, Demolition of Sand and Spur Riding Club Facilities

Emission factors and air emission estimating methods come from DAF's *Air Emissions Guide for Air Force Stationary Sources*, *Air Emissions Guide for Air Force Mobile Sources*, and *Air Emissions Guide for Air Force Transitory Sources*.

2. Construction / Demolition

2.1 General Information & Timeline Assumptions

- Activity Location
County: Okaloosa
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Alternative 1: Alignment 1

- Activity Description:
Construction would occur over a 24-month period, from March 2027 to March 2029.

Demolition would be required for approximately 5 acres (217,800 square feet [SF]) of existing pavement. Depth of pavement demolition was assumed to be 1 foot. It was estimated 30,500 cubic yards (CY) of material would be hauled off site. Demolition would begin in March 2027 and last approximately 1 month.

The total disturbance area was estimated to be approximately 222 acres. The entire disturbance area would be cleared and graded prior to construction. Therefore, site grading would occur on 222 acres (9,670,000 SF). It was estimated 185,000 CY of material would be hauled off site, and 55,000 CY of material would be hauled on site. Site grading would begin in April 2027 and last approximately 6 months.

Trenching would be required for the addition, removal, and relocation of utilities, and installation of stormwater retention areas. It was assumed a 5-foot-wide trench would be excavated along the entire length of the realignment (approximately 5 miles [26,400 feet]). Additionally, 11,500 SF would be excavated for box culvert installation. Therefore, the total trenched area would be 143,500 SF. It was assumed 7,000 CY of material would be hauled off site, and 1,000 CY of material would be hauled on site. Excavation and trenching would begin in October 2027 and last approximately 1 month.

Approximately 50 acres (2,178,000 SF) of pavement and sidewalks would be required. Paving would begin in November 2027 and last approximately 16 months.

- Activity Start Date
Start Month: 3
Start Month: 2027

- Activity End Date
Indefinite: False
End Month: 2
End Month: 2029

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	1.392750
SO_x	0.022446
NO_x	8.104425
CO	8.618325
PM 10	578.987342

Pollutant	Total Emissions (TONs)
PM 2.5	0.332177
Pb	0.000000
NH_3	0.013370
CO_2e	2521.8

2.1 Demolition Phase

2.1.1 Demolition Phase Timeline Assumptions

- Phase Start Date
Start Month: 3
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 1
Number of Days: 0

2.1.2 Demolition Phase Assumptions

- General Demolition Information
Area of Building to be demolished (ft^2): 217,800
Height of Building to be demolished (ft): 1

- Default Settings Used: Yes

- Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Concrete/Industrial Saws Composite	1	8
Rubber Tired Dozers Composite	1	1
Tractors/Loaders/Backhoes Composite	3	8

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.1.3 Demolition Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Concrete/Industrial Saws Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0336	0.0006	0.2470	0.3705	0.0093	0.0093	0.0030	58.539
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.217	000.002	000.097	003.798	000.003	000.003		000.024	00318.106
LDGT	000.234	000.003	000.176	004.231	000.004	000.004		000.026	00412.011
HDGV	000.995	000.006	000.827	014.430	000.023	000.021		000.052	00945.995
LDDV	000.053	000.001	000.078	003.752	000.003	000.002		000.008	00323.574
LDDT	000.060	000.001	000.117	002.519	000.003	000.003		000.008	00374.999
HDDV	000.103	000.004	002.324	001.630	000.044	000.041		000.032	01247.498
MC	003.040	000.003	000.567	012.758	000.024	000.021		000.052	00387.105

2.1.4 Demolition Phase Formula(s)

- Fugitive Dust Emissions per Phase
$PM10_{FD} = (0.00042 * BA * BH) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
0.00042: Emission Factor (lb/ft^3)
BA: Area of Building to be demolished (ft^2)
BH: Height of Building to be demolished (ft)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = BA * BH * (1 / 27) * 0.25 * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building being demolish (ft^2)
BH: Height of Building being demolish (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)
0.25: Volume reduction factor (material reduced by 75% to account for air space)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)

WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

2.2 Site Grading Phase

2.2.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 4
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 6
Number of Days: 0

2.2.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 9,670,000
Amount of Material to be Hauled On-Site (yd^3): 55,000
Amount of Material to be Hauled Off-Site (yd^3): 215,500

- Site Grading Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Graders Composite	2	8
Other Construction Equipment Composite	2	8
Rollers Composite	1	8
Rubber Tired Dozers Composite	3	8
Scrapers Composite	6	8
Tractors/Loaders/Backhoes Composite	2	8

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.2.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rollers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0409	0.0007	0.2500	0.3762	0.0122	0.0122	0.0036	67.123
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1495	0.0026	0.8387	0.7186	0.0334	0.0334	0.0134	262.81
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.217	000.002	000.097	003.798	000.003	000.003		000.024	00318.106
LDGT	000.234	000.003	000.176	004.231	000.004	000.004		000.026	00412.011
HDGV	000.995	000.006	000.827	014.430	000.023	000.021		000.052	00945.995
LDDV	000.053	000.001	000.078	003.752	000.003	000.002		000.008	00323.574
LDDT	000.060	000.001	000.117	002.519	000.003	000.003		000.008	00374.999
HDDV	000.103	000.004	002.324	001.630	000.044	000.041		000.032	01247.498
MC	003.040	000.003	000.567	012.758	000.024	000.021		000.052	00387.105

2.2.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)

2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

2.3 Trenching/Excavating Phase

2.3.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 1
Number of Days: 0

2.3.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 143,500
Amount of Material to be Hauled On-Site (yd^3): 1,000

Amount of Material to be Hauled Off-Site (yd^3): 7,000

- Trenching Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	2	8
Other General Industrial Equipment Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.3.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rollers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0409	0.0007	0.2500	0.3762	0.0122	0.0122	0.0036	67.123
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1495	0.0026	0.8387	0.7186	0.0334	0.0334	0.0134	262.81
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.217	000.002	000.097	003.798	000.003	000.003		000.024	00318.106
LDGT	000.234	000.003	000.176	004.231	000.004	000.004		000.026	00412.011
HDGV	000.995	000.006	000.827	014.430	000.023	000.021		000.052	00945.995
LDDV	000.053	000.001	000.078	003.752	000.003	000.002		000.008	00323.574
LDDT	000.060	000.001	000.117	002.519	000.003	000.003		000.008	00374.999
HDDV	000.103	000.004	002.324	001.630	000.044	000.041		000.032	01247.498
MC	003.040	000.003	000.567	012.758	000.024	000.021		000.052	00387.105

2.3.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works

NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

2.4 Paving Phase

2.4.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 11
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 16
Number of Days: 0

2.4.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 2,178,000

- Paving Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Pavers Composite	1	8
Paving Equipment Composite	2	8
Rollers Composite	2	6

- Vehicle Exhaust
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.4.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rollers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0409	0.0007	0.2500	0.3762	0.0122	0.0122	0.0036	67.123
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1495	0.0026	0.8387	0.7186	0.0334	0.0334	0.0134	262.81
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.217	000.002	000.097	003.798	000.003	000.003		000.024	00318.106
LDGT	000.234	000.003	000.176	004.231	000.004	000.004		000.026	00412.011
HDGV	000.995	000.006	000.827	014.430	000.023	000.021		000.052	00945.995
LDDV	000.053	000.001	000.078	003.752	000.003	000.002		000.008	00323.574
LDDT	000.060	000.001	000.117	002.519	000.003	000.003		000.008	00374.999
HDDV	000.103	000.004	002.324	001.630	000.044	000.041		000.032	01247.498
MC	003.040	000.003	000.567	012.758	000.024	000.021		000.052	00387.105

2.4.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Off-Gassing Emissions per Phase
$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / acre)^2 / acre)

3. Construction / Demolition

3.1 General Information & Timeline Assumptions

- Activity Location
County: Okaloosa
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Alternative 1: Alignment 1, Demolition of Sand and Spur Riding Club Facilities

- Activity Description:
Two small horse barns, a round pen, and a dressage arena at the Sand and Spur Riding Club would be demolished to allow for the realignment. Total demolition area was estimated to be 1,500 SF. A building height of 12 feet was assumed. Demolition would occur during the pavement demolition phase, or March 2027, and would last approximately 1 month.

- Activity Start Date
Start Month: 3
Start Month: 2027

- Activity End Date
Indefinite: False

End Month: 3
End Month: 2027

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.009635
SO_x	0.000176
NO_x	0.058027
CO	0.095789
PM 10	0.005809

Pollutant	Total Emissions (TONs)
PM 2.5	0.002029
Pb	0.000000
NH_3	0.000066
CO_2e	17.5

3.1 Demolition Phase

3.1.1 Demolition Phase Timeline Assumptions

- Phase Start Date
Start Month: 3
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 1
Number of Days: 0

3.1.2 Demolition Phase Assumptions

- General Demolition Information
Area of Building to be demolished (ft^2): 1,500
Height of Building to be demolished (ft): 12

- Default Settings Used: Yes

- Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Concrete/Industrial Saws Composite	1	8
Rubber Tired Dozers Composite	1	1
Tractors/Loaders/Backhoes Composite	2	6

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

3.1.3 Demolition Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Concrete/Industrial Saws Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0336	0.0006	0.2470	0.3705	0.0093	0.0093	0.0030	58.539
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.217	000.002	000.097	003.798	000.003	000.003		000.024	00318.106
LDGT	000.234	000.003	000.176	004.231	000.004	000.004		000.026	00412.011
HDGV	000.995	000.006	000.827	014.430	000.023	000.021		000.052	00945.995
LDDV	000.053	000.001	000.078	003.752	000.003	000.002		000.008	00323.574
LDDT	000.060	000.001	000.117	002.519	000.003	000.003		000.008	00374.999
HDDV	000.103	000.004	002.324	001.630	000.044	000.041		000.032	01247.498
MC	003.040	000.003	000.567	012.758	000.024	000.021		000.052	00387.105

3.1.4 Demolition Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (0.00042 * BA * BH) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
0.00042: Emission Factor (lb/ft^3)
BA: Area of Building to be demolished (ft^2)
BH: Height of Building to be demolished (ft)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = BA * BH * (1 / 27) * 0.25 * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building being demolish (ft^2)
BH: Height of Building being demolish (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)
0.25: Volume reduction factor (material reduced by 75% to account for air space)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

C.2 Alternative 2 – Alignment 2

C.2.1 Air Conformity Applicability Model Report Record of Air Analysis (ROAA)

1. General Information: The DAF's ACAM was used to perform an analysis to assess the potential air quality impact/s associated with the action in accordance with the Air Force Manual 32-7002, *Environmental Compliance and Pollution Prevention*; the EIAP (32 CFR Part 989); and the GCR (40 CFR Part 93, Subpart B). This report provides a summary of the ACAM analysis.

a. Action Location:
Base: EGLIN AFB
State: Florida
County(s): Okaloosa
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: Eglin Boulevard Realignment, Alternative 2: Alignment 1=2

c. Project Number/s (if applicable):

d. Projected Action Start Date: **0**3/2027

e. Action Description:

The Proposed Action is to realign an approximately 2.5-mile portion of Eglin Boulevard from the split of Eglin Boulevard and F Avenue on the eastern end, and continue westward to the intersection of Eglin Boulevard and Nomad Way on Eglin AFB. Two action alternatives were considered: Alignment 1 and Alignment 2.

For the purposes of this analysis, it was assumed the entire estimated disturbance area would be cleared and graded. Construction was assumed to occur from March 2027 to March 2029 (24 months). It was assumed addition, removal, or relocation of utilities would occur along the entire realignment. The Proposed Action would not result in changes to the number of vehicles traveling on Eglin Boulevard daily. Therefore, the net change in air emissions from changes to traffic patterns was not calculated.

f. Point of Contact:
Name: Carolyn Hein
Title: Contractor
Organization: HDR
Email:
Phone Number:

2. Air Impact Analysis: Based on the attainment status at the action location, the requirements of the General Conformity Rule are:

_____ applicable
__X__ not applicable

Total net direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the start of the action through achieving "steady state" (i.e., net gain/loss upon action fully implemented) emissions. The ACAM analysis used the latest and most accurate emission estimation techniques available; all algorithms, emission factors, and methodologies used are described in detail in DAF's *Air Emissions Guide for Air Force Stationary Sources*, *Air Emissions Guide for Air Force Mobile Sources*, and *Air Emissions Guide for Air Force Transitory Sources*.

"Insignificance Indicators" were used in the analysis to provide an indication of the significance of potential impacts to air quality based on current ambient air quality relative to the NAAQSs. These insignificance indicators are the 250 ton/yr PSD major source threshold for actions occurring in areas that are "Clearly Attainment" (i.e., not within 5 percent of any NAAQS) and the GCR de minimis values (25 ton/yr for lead and 100 ton/yr for all other criteria pollutants) for actions occurring in areas that are "Near Nonattainment" (i.e., within 5 percent of any NAAQS). These indicators do not define a significant impact; however, they do provide a threshold to identify actions that are insignificant. Any action with net emissions below the insignificance indicators for all criteria pollutant is considered so insignificant that the action will not cause or contribute to an exceedance on one or more NAAQSs. For further detail on insignificance indicators see Chapter 4 of DAF's *Air Quality Environmental Impact Analysis Process (EIAP) Guide*, Volume II - Advanced Assessments.

The Proposed Action's net emissions for every year through achieving steady state were compared against the Insignificance Indicator and are summarized below.

Analysis Summary:

2027

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	1.080	250	
NOx	6.625	250	
CO	6.634	250	
SOx	0.019	250	
PM 10	607.555	250	Yes
PM 2.5	0.246	250	
Pb	0.000	25	No
NH3	0.012	250	
CO2e	2190.5		

2028

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.554	250	
NOx	2.912	250	
CO	4.175	250	
SOx	0.008	250	
PM 10	0.129	250	
PM 2.5	0.129	250	
Pb	0.000	25	No
NH3	0.004	250	
CO2e	815.0		

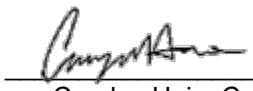
2029

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.092	250	
NOx	0.485	250	
CO	0.696	250	
SOx	0.001	250	
PM 10	0.021	250	
PM 2.5	0.021	250	
Pb	0.000	25	No
NH3	0.001	250	
CO2e	135.8		

2030 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.000	250	
NOx	0.000	250	
CO	0.000	250	
SOx	0.000	250	
PM 10	0.000	250	
PM 2.5	0.000	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	0.0		

The estimated annual net emissions associated with this action temporarily exceed the insignificance indicators. However, the steady state estimated annual net emissions are below the insignificance indicators showing no significant long-term impact to air quality. Therefore, the Proposed Action will not cause or contribute to an exceedance on one or more NAAQSs. No further air assessment is needed.



Carolyn Hein, Contractor

. 8/10/2023
DATE

C.2.2 Detail Air Conformity Applicability Model Report

1. General Information

- Action Location
Base: EGLIN AFB
State: Florida
County(s): Okaloosa
Regulatory Area(s): NOT IN A REGULATORY AREA

- Action Title: Eglin Boulevard Realignment

- Project Number/s (if applicable):

- Projected Action Start Date: 3/2027

- Action Purpose and Need:
The purpose of the Proposed Action is to bring DAF into compliance with AICUZ land use compatibility requirements and alleviate heavy traffic congestion and improve traffic flow in the Eglin Main Base area on the installation. The Proposed Action is needed because the existing road alignment crosses the aircraft towway, graded areas of the CZs, and two runway CZ, which are an aircraft hazard and not compliant with AICUZ land use compatibility.

- Action Description:
The Proposed Action is to realign an approximately 2.5-mile portion of Eglin Boulevard from the split of Eglin Boulevard and F Avenue on the eastern end, and continue westward to the intersection of Eglin Boulevard and Nomad Way on Eglin AFB. Two action alternatives were considered: Alignment 1 and Alignment 2.

For the purposes of this analysis, it was assumed the entire estimated disturbance area would be cleared and graded. Construction was assumed to occur from March 2027 to March 2029 (24 months). It was assumed that the addition, removal, or relocation of utilities would occur along the entire realignment. The Proposed Action would not result in changes to the number of vehicles traveling on Eglin Boulevard daily. Therefore, the net change in air emissions from changes to traffic patterns was not calculated.

- Point of Contact
Name: Carolyn Hein
Title: Contractor
Organization: HDR
Email:
Phone Number:

- Activity List:

Activity Type		Activity Title
2.	Construction / Demolition	Alternative 2: Alignment 2
3.	Construction / Demolition	Alternative 2: Alignment 2, Demolition of Sand and Spur Riding Club Facilities

Emission factors and air emission estimating methods come from DAF's *Air Emissions Guide for Air Force Stationary Sources*, *Air Emissions Guide for Air Force Mobile Sources*, and *Air Emissions Guide for Air Force Transitory Sources*.

2. Construction / Demolition

2.1 General Information & Timeline Assumptions

- Activity Location
County: Okaloosa
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Alternative 2: Alignment 2

- Activity Description:
Construction would occur over a 24-month period, from March 2027 to March 2029.

Demolition would be required for approximately 5 acres (217,800 SF) of existing pavement. Depth of pavement demolition was assumed to be 1 foot. It was estimated 30,500 CY of material would be hauled off site. Demolition would begin in March 2027 and last approximately 1 month.

The total disturbance area was estimated to be approximately 233 acres. The entire disturbance area would be cleared and graded prior to construction. Therefore, site grading would occur on 233 acres (10,150,000 SF). It was estimated 185,000 CY of material would be hauled off site, and 55,000 CY of material would be hauled on site. Site grading would begin in April 2027 and last approximately 6 months.

Trenching would be required for the addition, removal, and relocation of utilities, and installation of stormwater retention areas. It was assumed a 5-foot-wide trench would be excavated along the entire length of the realignment (approximately 5 miles [26,400 feet]). Additionally, 11,500 SF would be excavated for box culvert installation. Therefore, the total trenched area would be 143,500 SF. It was assumed 7,000 CY of material would be hauled off site, and 1,000 CY of material would be hauled on site. Excavation and trenching would begin in October 2027 and last approximately 1 month.

Construction would be required for a bridge over Lower Memorial Lake. It was assumed the footprint of the bridge would be 150,000 SF. The height of bridge construction was estimated to be 15 feet. Construction would likely occur simultaneously with the pavement phase, starting in November 2027 and lasting approximately 16 months.

Approximately 56 acres (2,439,000 SF) of pavement and sidewalks would be required. Paving would begin in November 2027 and last approximately 16 months.

- Activity Start Date
Start Month: 3
Start Month: 2027

- Activity End Date
Indefinite: False
End Month: 2
End Month: 2029

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	1.716464
SO_x	0.028425
NO_x	9.964229
CO	11.409380
PM 10	607.699686

Pollutant	Total Emissions (TONs)
PM 2.5	0.394280
Pb	0.000000
NH_3	0.016382
CO_2e	3123.9

2.1 Demolition Phase

2.1.1 Demolition Phase Timeline Assumptions

- Phase Start Date
Start Month: 3
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 1
Number of Days: 0

2.1.2 Demolition Phase Assumptions

- General Demolition Information
Area of Building to be demolished (ft^2): 217,800
Height of Building to be demolished (ft): 1

- Default Settings Used: Yes

- Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Concrete/Industrial Saws Composite	1	8
Rubber Tired Dozers Composite	1	1
Tractors/Loaders/Backhoes Composite	3	8

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.1.3 Demolition Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Concrete/Industrial Saws Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0336	0.0006	0.2470	0.3705	0.0093	0.0093	0.0030	58.539
Rubber Tired Dozers Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45

Tractors/Loaders/Backhoes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.217	000.002	000.097	003.798	000.003	000.003		000.024	00318.106
LDGT	000.234	000.003	000.176	004.231	000.004	000.004		000.026	00412.011
HDGV	000.995	000.006	000.827	014.430	000.023	000.021		000.052	00945.995
LDDV	000.053	000.001	000.078	003.752	000.003	000.002		000.008	00323.574
LDDT	000.060	000.001	000.117	002.519	000.003	000.003		000.008	00374.999
HDDV	000.103	000.004	002.324	001.630	000.044	000.041		000.032	01247.498
MC	003.040	000.003	000.567	012.758	000.024	000.021		000.052	00387.105

2.1.4 Demolition Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (0.00042 * BA * BH) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
0.00042: Emission Factor (lb/ft^3)
BA: Area of Building to be demolished (ft^2)
BH: Height of Building to be demolished (ft)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = BA * BH * (1 / 27) * 0.25 * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building being demolish (ft^2)
BH: Height of Building being demolish (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)
0.25: Volume reduction factor (material reduced by 75% to account for air space)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
VMT_{WT} = WD * WT * 1.25 * NE

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

2.2 Site Grading Phase

2.2.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 4
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 6
Number of Days: 0

2.2.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 10,150,000
Amount of Material to be Hauled On-Site (yd^3): 55,000
Amount of Material to be Hauled Off-Site (yd^3): 215,500

- Site Grading Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Graders Composite	2	8
Other Construction Equipment Composite	2	8
Rollers Composite	1	8
Rubber Tired Dozers Composite	3	8
Scrapers Composite	6	8
Tractors/Loaders/Backhoes Composite	2	8

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.2.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rollers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0409	0.0007	0.2500	0.3762	0.0122	0.0122	0.0036	67.123
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1495	0.0026	0.8387	0.7186	0.0334	0.0334	0.0134	262.81
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.217	000.002	000.097	003.798	000.003	000.003		000.024	00318.106
LDGT	000.234	000.003	000.176	004.231	000.004	000.004		000.026	00412.011
HDGV	000.995	000.006	000.827	014.430	000.023	000.021		000.052	00945.995
LDDV	000.053	000.001	000.078	003.752	000.003	000.002		000.008	00323.574
LDDT	000.060	000.001	000.117	002.519	000.003	000.003		000.008	00374.999
HDDV	000.103	000.004	002.324	001.630	000.044	000.041		000.032	01247.498
MC	003.040	000.003	000.567	012.758	000.024	000.021		000.052	00387.105

2.2.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD}$ = (20 * ACRE * WD) / 2000

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

2.3 Trenching/Excavating Phase

2.3.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 1
Number of Days: 0

2.3.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 143,500
Amount of Material to be Hauled On-Site (yd^3): 1,000
Amount of Material to be Hauled Off-Site (yd^3): 7,000

- Trenching Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	2	8
Other General Industrial Equipment Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.3.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rollers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0409	0.0007	0.2500	0.3762	0.0122	0.0122	0.0036	67.123
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1495	0.0026	0.8387	0.7186	0.0334	0.0334	0.0134	262.81

Tractors/Loaders/Backhoes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.217	000.002	000.097	003.798	000.003	000.003		000.024	00318.106
LDGT	000.234	000.003	000.176	004.231	000.004	000.004		000.026	00412.011
HDGV	000.995	000.006	000.827	014.430	000.023	000.021		000.052	00945.995
LDDV	000.053	000.001	000.078	003.752	000.003	000.002		000.008	00323.574
LDDT	000.060	000.001	000.117	002.519	000.003	000.003		000.008	00374.999
HDDV	000.103	000.004	002.324	001.630	000.044	000.041		000.032	01247.498
MC	003.040	000.003	000.567	012.758	000.024	000.021		000.052	00387.105

2.3.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase
$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

2.4 Building Construction Phase

2.4.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 11
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 16
Number of Days: 0

2.4.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 150,000
Height of Building (ft): 12
Number of Units: N/A

- Building Construction Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Cranes Composite	1	6
Forklifts Composite	2	6
Generator Sets Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8
Welders Composite	3	8

- Vehicle Exhaust
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

- Vendor Trips
Average Vendor Round Trip Commute (mile): 40 (default)

- Vendor Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

2.4.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0680	0.0013	0.4222	0.3737	0.0143	0.0143	0.0061	128.77
Forklifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0236	0.0006	0.0859	0.2147	0.0025	0.0025	0.0021	54.449
Generator Sets Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0287	0.0006	0.2329	0.2666	0.0080	0.0080	0.0025	61.057
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0214	0.0003	0.1373	0.1745	0.0051	0.0051	0.0019	25.650

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.217	000.002	000.097	003.798	000.003	000.003		000.024	00318.106
LDGT	000.234	000.003	000.176	004.231	000.004	000.004		000.026	00412.011
HDGV	000.995	000.006	000.827	014.430	000.023	000.021		000.052	00945.995
LDDV	000.053	000.001	000.078	003.752	000.003	000.002		000.008	00323.574
LDDT	000.060	000.001	000.117	002.519	000.003	000.003		000.008	00374.999
HDDV	000.103	000.004	002.324	001.630	000.044	000.041		000.032	01247.498
MC	003.040	000.003	000.567	012.758	000.024	000.021		000.052	00387.105

2.4.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = BA * BH * (0.42 / 1000) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building (ft^2)
BH: Height of Building (ft)
(0.42 / 1000): Conversion Factor ft^3 to trips (0.42 trip / 1000 ft^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Vender Trips Emissions per Phase

$VMT_{VT} = BA * BH * (0.38 / 1000) * HT$

VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
BA: Area of Building (ft^2)
BH: Height of Building (ft)
(0.38 / 1000): Conversion Factor ft^3 to trips (0.38 trip / 1000 ft^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

2.5 Paving Phase

2.5.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 11
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 16
Number of Days: 0

2.5.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 2,439,000

- Paving Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Pavers Composite	1	8
Paving Equipment Composite	2	8
Rollers Composite	2	6

- Vehicle Exhaust
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.5.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0676	0.0014	0.3314	0.5695	0.0147	0.0147	0.0061	132.89
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0442	0.0012	0.2021	0.3473	0.0068	0.0068	0.0039	122.60
Rollers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0409	0.0007	0.2500	0.3762	0.0122	0.0122	0.0036	67.123

Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1495	0.0026	0.8387	0.7186	0.0334	0.0334	0.0134	262.81
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.217	000.002	000.097	003.798	000.003	000.003		000.024	00318.106
LDGT	000.234	000.003	000.176	004.231	000.004	000.004		000.026	00412.011
HDGV	000.995	000.006	000.827	014.430	000.023	000.021		000.052	00945.995
LDDV	000.053	000.001	000.078	003.752	000.003	000.002		000.008	00323.574
LDDT	000.060	000.001	000.117	002.519	000.003	000.003		000.008	00374.999
HDDV	000.103	000.004	002.324	001.630	000.044	000.041		000.032	01247.498
MC	003.040	000.003	000.567	012.758	000.024	000.021		000.052	00387.105

2.5.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)

WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Off-Gassing Emissions per Phase
$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / acre)^2 / acre)

3. Construction / Demolition

3.1 General Information & Timeline Assumptions

- Activity Location
County: Okaloosa
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Alternative 2: Alignment 2, Demolition of Sand and Spur Riding Club Facilities

- Activity Description:
Two small horse barns, a round pen, and a dressage arena at the Sand and Spur Riding Club would be demolished to allow for the realignment. Total demolition area was estimated to be 1,500 SF. A building height of 12 feet was assumed. Demolition would occur during the pavement demolition phase, or March 2027, and would last approximately 1 month.

- Activity Start Date
Start Month: 3
Start Month: 2027

- Activity End Date
Indefinite: False
End Month: 3
End Month: 2027

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.009635
SO_x	0.000176
NO_x	0.058027
CO	0.095789
PM 10	0.005809

Pollutant	Total Emissions (TONs)
PM 2.5	0.002029
Pb	0.000000
NH_3	0.000066
CO_2e	17.5

3.1 Demolition Phase

3.1.1 Demolition Phase Timeline Assumptions

- Phase Start Date
Start Month: 3
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 1
Number of Days: 0

3.1.2 Demolition Phase Assumptions

- General Demolition Information
Area of Building to be demolished (ft^2): 1,500
Height of Building to be demolished (ft): 12

- Default Settings Used: Yes

- Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Concrete/Industrial Saws Composite	1	8
Rubber Tired Dozers Composite	1	1
Tractors/Loaders/Backhoes Composite	2	6

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

3.1.3 Demolition Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Concrete/Industrial Saws Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0336	0.0006	0.2470	0.3705	0.0093	0.0093	0.0030	58.539
Rubber Tired Dozers Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.1671	0.0024	1.0824	0.6620	0.0418	0.0418	0.0150	239.45

Tractors/Loaders/Backhoes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0335	0.0007	0.1857	0.3586	0.0058	0.0058	0.0030	66.872

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.217	000.002	000.097	003.798	000.003	000.003		000.024	00318.106
LDGT	000.234	000.003	000.176	004.231	000.004	000.004		000.026	00412.011
HDGV	000.995	000.006	000.827	014.430	000.023	000.021		000.052	00945.995
LDDV	000.053	000.001	000.078	003.752	000.003	000.002		000.008	00323.574
LDDT	000.060	000.001	000.117	002.519	000.003	000.003		000.008	00374.999
HDDV	000.103	000.004	002.324	001.630	000.044	000.041		000.032	01247.498
MC	003.040	000.003	000.567	012.758	000.024	000.021		000.052	00387.105

3.1.4 Demolition Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (0.00042 * BA * BH) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
0.00042: Emission Factor (lb/ft^3)
BA: Area of Building to be demolished (ft^2)
BH: Height of Building to be demolished (ft)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = BA * BH * (1 / 27) * 0.25 * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building being demolish (ft^2)
BH: Height of Building being demolish (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)
0.25: Volume reduction factor (material reduced by 75% to account for air space)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

D

Management Practices

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Appendix D. Management Practices

The following is a list of plans, regulations and permits, and BMPs/management actions associated with the Proposed Action. The plans, regulations and permits, BMPs, and management actions are required for ongoing operations at Eglin AFB to ensure continued avoidance and minimization of impacts on resources.

D.1 Plans

The Proposed Action would adhere to the following plans.

- Eglin AFB Installation Development Plan
- Eglin AFB ICRMP
- Eglin AFB INRMP
- Eglin AFB ISWMP
- Eglin AFB Stormwater Management Plan
- Eglin AFB SWPPP
- Eglin AFB HWMP
- Eglin AFB SPCC Plan
- Eglin AFB Installation Emergency Management Plan
- Eglin AFB Integrated Pest Management Plan

D.2 Regulations and Permits

The following regulations and permits apply to the Proposed Action.

- CAA (42 USC Section 85)
- EO 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*
- EO 14008, *Tackling the Climate Crisis at Home and Abroad*
- ESA (16 USC Section 1536)
- ESA Section 7 consultation with USFWS (16 USC Section 1536)
- The Sikes Act (16 USC Section 670(a)(2))
- MBTA of 1918, as amended (16 USC Sections 703–712)
- EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*
- BGEPA of 1940 (16 USC Sections 668–668c)
- USFWS National Bald Eagle Management Guidelines
- Magnuson-Stevens Fisheries Management and Conservation Act
- Florida Black Bear Conservation Rule 68A-4.009
- CWA (33 USC Section 1344) and NPDES permit program (32 USC Section 1251 et seq.)
- EO 11988, *Floodplain Management*
- EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*
- EO 11990, *Protection of Wetlands*

- Identification of Impaired Surface Waters, also referred to as the Impaired Waters Rule (62-303 FAC)
- EISA Section 438 (42 USC Section 152)
- Farmland Protection Policy Act (7 USC Section 73)
- Toxic Substances Control Act (15 USC Section 53)
- Resource Conservation and Recovery Act (42 USC Section 6901 et seq.)
- CERCLA (42 USC Section 9601 et seq.)
- Pollution Prevention Act (42 USC Section 13101 et seq.)
- NHPA (54 USC Section 300101 et seq.)
- Archaeological and Historic Preservation Act (16 USC Sections 469–469c)
- American Indian Religious Freedom Act (42 USC Section 1996)
- Archaeological Resources Protection Act (16 USC Sections 470aa–470mm)
- NAGPRA (25 USC Section 3001 et seq.)
- EO 11593, Protection and Enhancement of the Cultural Environment
- CZMA (16 USC Section 1451 et seq.)
- CZMA Consistency Determination (Florida Statutes, Chapter 380, Part II)
- Noise Control Act of 1972 (42 USC Section 4901 et seq.)
- OSH Act (29 USC Section 651)
- OSHA Standards (29 CFR Parts 1910 and 1926)
- DoD MMRP: 32 CFR Part 179, Munitions Site Prioritizations Protocol Final Rule and 40 CFR Parts 260, 261, 262, 263, 264, 265, 266, and 270 Vol. 62 No. 29, Military Munitions Final Rule: Hazardous Waste Identification and Management; Explosives Emergencies; Manifest Exemption for Transport of Hazardous Waste on Right-of-Ways on Contiguous Properties
- *USEPA Munitions Response Guidelines* (2010); *Munitions and Explosives of Concern Hazard Assessment Methodology* (2008); and *Handbook on Management of Munitions Response Actions* (2005)
- EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*
- EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*
- EO 14096, *Revitalizing Our Nation's Commitment to Environmental Justice for All*
- DoD Directive 4715.1E, *Environment, Safety, and Occupational Health*
- DoD Instruction 4165.57, *Air Installations Compatible Use Zones*
- DoD Instruction 4710.02, *DoD Interactions with Federally Recognized Tribes*
- DAFI 32-7020, *Environmental Restoration Program*
- DAFI 91-202, *The U.S. Air Force Mishap Prevention Program*
- DAFI 90-2002, *Interactions with Federally Recognized Tribes*
- AFMAN 32-7002, *Environmental Compliance and Pollution Prevention*
- AFMAN 32-7003, *Environmental Conservation*
- DESR 6055.09_AFMAN 91-201, *Explosive Safety Standards*
- DAFMAN 91-203, *Air Force Occupational Safety, Fire, and Health Standards*
- DAF Policy Directive 32-70, *Environmental Considerations in Air Force Programs and Activities*

- DAF Policy Directive 91-2, *Safety Programs*

D.3 Management Actions

Under the Proposed Action, Eglin AFB would be responsible for implementing the BMPs and management actions included in **Sections 3.1** through **3.12**.

D.1.1 Air Quality

- During construction and operation, use of electricity from the installation would be used preferentially over the use of generators. All generator use would be pre-approved by the installation Air Quality Manager and would adhere to applicable operating procedures.
- All non-road diesel equipment would comply with the Federal Clean Air Nonroad Diesel Rule, which regulates emissions from nonroad diesel engines and sulfur content in nonroad diesel fuel.
- All construction equipment would be maintained in proper working condition according to the manufacturer's specifications and use diesel particulate filters to reduce emissions of criteria pollutants. Vehicles would be maintained and inspected on a weekly basis to ensure good operating conditions.
- Non-road and on-road vehicles operating within construction areas would be subject to speed restrictions to minimize generation of fugitive dust.
- Dust suppression techniques would be used during construction to reduce air pollution. Recommended methods include application of water, soil stabilizers, or vegetation; use of wind break enclosures; use of covers on soil stockpiles and dump truck loads; use of silt fences; and suspension of earth-movement activities during high-wind conditions (gusts exceeding 25 miles per hour). Dust suppression techniques would be implemented in accordance with the *Florida Erosion and Sediment Control Designer and Reviewer Manual.*
- To the greatest extent feasible, measures to reduce diesel emissions would be implemented. These measures could include switching to cleaner fuels, retrofitting current equipment with emission reduction technologies, repowering old equipment with modern engines, replacing older vehicles, and reducing idling through operator training and contracting policies.
- Open areas would be landscaped or planted with vegetation to prevent emissions of unconfined particulate matter.

D.1.2 Biological Resources

- DAF would comply with all applicable DAF, federal, and state laws and regulations.
- BMPs during construction and adherence to all required permits would be implemented to minimize impacts on wetlands.
- All construction BMPs would be approved by the Eglin AFB Environmental Management Branch to ensure they are adequate. The construction site would also be subject to on-site inspections to ensure that sediment and erosion controls are compliant with the

permitting requirements, and that appropriate housekeeping measures are being employed.

- Prior to initiation of construction, construction contractors must receive an Eglin AFB Natural Resources Office-approved environmental briefing.
- Surveys would be required before and after construction activities that may affect protected species or sensitive habitat.
- To minimize the introduction and spread of non-native and invasive species, all construction equipment would be inspected and cleaned to remove seeds, plants, and soil prior to entering the installation. All construction materials and any fill would also be inspected to ensure it is as free of seeds, plants, or undesirable soil as practicable. Where appropriate, disturbed areas would be revegetated with native plant species. Selection of native species for any new plantings would be coordinated with the Eglin AFB Natural Resources Office.
- Routine surveys of the installation would continue to determine presence of protected species.
- In accordance with Section 7 of the ESA, a consultation with the USFWS has been completed. Their concurrence with the Eglin AFB Cantonment Area Biological Assessment was received on December 9, 2013. This consultation describes guidelines under which the project must be completed to minimize potential impacts to threatened and endangered species. In accordance with this consultation, the following requirements must be followed: (a) Gopher Tortoise Survey is required and arranged with the Eglin AFB Natural Resources Office to take place within 30 days of ground disturbing activities. If tortoise burrows are found to conflict with the proposed project site, and burrows cannot be avoided by at least 25 feet, the tortoises must be relocated. Tortoises cannot be relocated if the forecasted low temperature is below 50 degrees for 3 consecutive days. (b) Proponent would also be provided with Eastern Indigo Snake Signs. Personnel must not harass, injure, harm, or kill this species. If an indigo snake is sighted, Eglin AFB Natural Resources Office should be contacted immediately. Personnel must cease any activities and allow the eastern indigo snake sufficient time to move away from the site on its own before resuming activities.
- All equipment staging and storage areas would be intentionally sited to minimize disturbance on any listed plant or animal species or their respective habitat. Information signs would be posted within active construction areas, alerting crews to the potential presence of protected species. Construction contractors would familiarize work crews with the appearance of potential protected species and instruct work crews not to disturb these species. Other safeguards such as predator-proof waste containers would be used during construction. Work crews would be instructed to stop work if protected animal species are encountered and to only resume work once the species leave the area. The presence of protected species, their habitat, or activities, such as nesting within or near the project area, may require further consultation with the Eglin AFB Natural Resources Office, FFWCC, or USFWS to avoid adverse impacts.
- The scope of wetland compensatory mitigations would be determined through the Uniform Mitigation Assessment Method, which provides a standardized procedure for evaluating the functions of a wetland, the amount that those functions are reduced by a proposed impact, and the amount of mitigation necessary to offset the loss of function.

Wetland banking would be used as the method of mitigation and coordinated through the Uniform Mitigation Assessment Method process (FDEP 2023a)

- Vegetation clearing activities would be conducted in accordance with DAF Manual 32-7003, *Environmental Conservation*, which states, "forest products may not be traded for goods or services nor used to offset contract costs associated with construction, land clearing, or other contracted activity." A forest stand survey would be conducted for the project area prior to site preparation activities to determine the species and number of merchantable trees that could be harvested. Merchantable trees would be vetted and tree removal coordinated through the Eglin AFB Natural Resources Forestry Office.
- If the removal of dead trees and vegetation, which provide habitat for birds and bats, is required, the following BMPs and standard operating procedures would be considered:

    - Topping trees or removing dead limbs instead of removing the entire tree
    - Leaving as much trunk height as possible
    - Creating artificial cavities (nest boxes)
    - Drilling into trees to replace cavities lost during tree removal

- Upon locating a dead, injured, or sick individual of an endangered or threatened species within the project area, initial notification must be made to the USFWS Law Enforcement Office in Tallahassee, the FFWCC at 888-404-3922, and Eglin AFB Natural Resources Office at 850-883-1153, 850-882-8421, or 850-882-8391. Additional notification must be made to the USFWS Ecological Services Field Office at Panama City at 850-769-0552. Care would be taken in handling sick or injured individuals and in the preservation of specimens in the best possible state for later analysis of cause of death or injury.

D.1.3 Cultural Resources

- Eglin AFB is required to follow guidance regarding inadvertent discoveries of archaeological resources in NAGPRA, DAFMAN 32-7003, and set forth in Section XI of the executed 2021 PA (Eglin AFB 2021).
- If any unrecorded archaeological deposits are encountered during construction, work should also cease and the 96 CEG/CEIEA Cultural Resources Office informed in addition to consultation with the SHPO and potentially Federally recognized Native American Tribes, depending on the cultural material discovered.
- Eglin AFB would determine the potential presence of archeological resources for any fill borrow locations prior to acquiring fill material from such locations. Similarly, any excavated material from the site must be placed in areas pre-approved for such use to avoid impacts on cultural resources.

D.1.4 Geological Resources

- Construction equipment, privately owned vehicles, and government-owned vehicles would use existing paved roads and surfaces during construction and operations to minimize impacts on soils.

- Protective erosion control measures, such as installing silt fencing, improving drainage, avoiding soil compaction, and replanting disturbed areas would be implemented to minimize soil erosion and sedimentation during construction.
- As needed, Eglin AFB would obtain coverage under the 2017 NPDES CGP for projects that individually or cumulatively disturb 1 acre or more of land. The CGP requires the preparation, approval, and implementation of a site-specific ESCP as well as the installation- and project-specific SWPPP prior to construction, including appropriate structural and non-structural erosion, sediment, and waste control BMPs. Stormwater management controls, inspections, and required remedial actions would be implemented as necessary in accordance with the project-specific SWPPP.
- All project activities would be reviewed to ensure proper erosion and sediment control measures are considered and incorporated into project designs.
- Construction activities would be sequenced to limit length of soil exposure.
- Areas of existing vegetation that should not be disturbed by construction activities would be marked and identified.

D.1.5 Hazardous Materials and Wastes

- All construction equipment would be maintained according to the manufacturer's specifications, and drip mats would be placed under parked equipment as needed to contain minor spills and drips.
- All hazardous materials; petroleum products; and hazardous, universal, and petroleum wastes used or generated during construction and maintenance would be contained, stored, and managed appropriately (e.g., secondary containment, inspections, spill kits) in accordance with the Eglin AFB HWMP; SPCC Plan; and federal, state, and DAF-applicable regulations to minimize the potential for releases.
- Construction activities may require the temporary use of ASTs on site for power generation or equipment refueling, and their use and maintenance would comply with applicable federal, state, and local laws and regulations to include secondary containment. No refueling or storage of heavy equipment would occur within 100 feet of any drainage. ASTs would be used temporarily and removed from the project area once construction is complete.
- Refueling of equipment would be completed in accordance with the Eglin AFB or project-specific SPCC Plan.
- All pesticides, to include herbicides, used would be on the Eglin AFB and FDEP lists of approved pesticides. Labels and instructions would be followed during handling, mixing, and application. All personnel conducting treatment activities would be state-certified pesticide applicators or qualified individuals under direct supervision of a certified applicator, and would comply with the Eglin AFB Integrated Pest Management Plan and all federal, state, and local regulations. Applicators would dispose or recycle pesticide containers and excess pesticides according to federal, state, and local regulations and label requirements and immediately clean up or contain any pesticide spill.
- Transport, storage, use, and disposal of hazardous materials and wastes would be handled and disposed appropriately according to regulations and Eglin AFB's HWMP.
- Construction debris would be managed in accordance with Eglin AFB's ISWMP.

- Construction contractors would be responsible for the disposal of hazardous wastes in accordance with the HWMP and federal and state laws.
- Should unknown, potentially hazardous wastes be discovered or unearthed during construction, construction contractors would immediately cease work, notify the Eglin AFB Environmental Restoration Section, and await sampling and analysis results before taking any further action. Any unknown wastes determined to be hazardous would be managed or disposed in accordance with applicable laws and regulations.
- Following development, specific operations would be evaluated to determine the anticipated hazardous materials to be used, the hazardous and mixed wastes to be generated, and the potential need for the establishment of an initial accumulation point. Hazardous and mixed wastes generated would be handled and disposed in accordance with the Eglin AFB HWMP and federal, state, and local regulations.
- Grading to potentially contaminated groundwater below the water table would be avoided to the maximum extent practicable or addresses through investigation to determine if the contamination is a concern in the grading area, appropriate remediation, or engineering techniques such as pumping or waterproofing, as required.

D.1.6 Infrastructure and Transportation

- Coordination with all utility providers would be required prior to any ground-disturbing activities in an effort to minimize potential conflicts between utility providers.
- Coordination with area users of utilities would be required prior to connecting new development to utilities.
- Construction vehicles would remain within a project area for the duration of the construction period, which would minimize traffic and reduce impacts on roadways.
- BMPs, in conjunction with the installation- and project-specific SWPPPs would be used to reduce stormwater runoff where possible. Examples of these BMPs would include using low-impact development where applicable, and adhering to the installation- and project-specific SWPPPs and ESCPs. A potential option to reduce flood impacts would be to elevate ground floors of newly constructed facilities above the floodplain level.
- Eglin AFB would obtain an NPDES permit for stormwater discharges from large construction sites from FDEP, as applicable. Protective erosion control measures, such as installing silt fencing, improving drainage, avoiding soil compaction, and planting vegetation would be implemented to minimize soil erosion and sedimentation during construction.
- Construction of impervious surface and stormwater management systems (e.g., retention ponds, swales, stormwater pipes/culverts) would require an Environmental Resource Permit through the Northwest Florida Water Management District.
- Eglin AFB would implement BMPs required under the installation's MS4 Stormwater Management Plan. Examples of MS4 BMPs include construction stormwater management and post-construction practices, such as installing stormwater retention ponds or infiltration basins, periodic checks for illicit discharges (e.g., dumping used oil into parking lot gutter systems), and reviewing stormwater management education.
- In accordance with the EISA (42 USC Part 152), which requires federal facility projects over 5,000 square feet to maintain or restore the predevelopment hydrology of the

property to the maximum extent technically feasible, low-impact development techniques would be incorporated.
- Eglin AFB would minimize impervious area to limit runoff and maintain on-site recharge. This would include the new roadway and pedestrian pathway.

D.1.7 Land Use

- Eglin AFB would be required to follow all state and local processes and rules for roadway development.
- Siting of the realignment would adhere to Eglin AFB requirements, local land use regulations, and AICUZ land use compatibility requirements.

D.1.8 Noise

- To reduce noise effects on noise sensitive receptors, heavy construction equipment would include noise abatement components such as mufflers, engine enclosures, engine vibration isolators, or other sound dampening supplements that could reduce the sound level by up to 10 dBA; construction would be limited to normal weekday business hours (generally 7:00 a.m. to 6:00 p.m.); construction contractors would aim to maintain uniform noise levels, avoid impulse noises, and operate equipment in the quietest manner practicable (e.g., speed); construction contractors would locate stationary operating equipment as far from sensitive receptors as possible; and construction crews would turn off idling equipment when not in use.
- Construction equipment would remain within a project area for the duration of the construction period, reducing the frequency of increased truck traffic and associated noise levels. Construction contractors would select material transportation routes as far away from sensitive receptors as possible.
- To prevent effects on construction crew safety from elevated noise levels, contractors would require construction personnel, and particularly equipment operators, to wear hearing protection to limit exposure to noise and protect hearing and ensure compliance with the OSHA Standards; DAF's OSH Program; and DAF Instruction 48-127, *Occupational Noise and Hearing Conservation Program*.
- Area users would be notified before noisy construction activities occur and would be provided updates, as necessary, as to when and where construction actions would occur. Signage would be posted at the entry points of the construction site providing current construction information, including schedule and activity, as applicable.
- Construction contractors would coordinate issuance of a notice in advance of noisy or disruptive construction activities so civilian and commercial users operating within the area would have adequate awareness of the planned activities and time to plan for avoidance.

D.1.9 Safety

- The OSH Act (29 USC Section 651) specifies the amount and types of training required for workers, standard work protocols and procedures, use of protective equipment, implementation of engineering controls, and maximum exposure limit for workplace

stressors. All construction workers would be required to adhere to all OSHA and DAF OSH standards during construction.

- Construction workers would be required to wear PPE appropriate to each task, such as reflective vests, ear protection, steel-toed boots, hard hats, gloves, and other appropriate safety gear.
- Areas being repaired or maintained would be fenced and appropriately marked with signs and placards, when required.
- Trucks, tractors, and heavy equipment used for construction activities would use roads and streets that can safely accommodate such vehicles.
- Necessary roadway detours during construction would be routed to minimize safety concerns for personnel and public from potential operations impingement and traffic flow and congestion.
- Construction, demolition, and maintenance activities would comply with all applicable safety requirements and installation-specific protocols and procedures, including appropriately marking potentially hazardous areas as well as posting warning signs and barriers to limit access to approved construction and oversight personnel only.
- The construction contractor would be required to develop a comprehensive health and safety plan detailing all potential hazards and site-specific guidance to ensure potential safety risks are minimized. The plan would include, at a minimum, emergency response and evacuation procedures; operating manuals; PPE recommendations; procedures for handling, storing, and disposing of hazardous materials and wastes; information about the effects and symptoms of potential exposures; and guidance with respect to hazard identification. Construction contractor personnel would be responsible for compliance with applicable federal, state, and local safety regulations, and would be educated though daily safety briefings to review upcoming work activities and associated hazards.

D.1.10 Socioeconomics

- Construction contractors would coordinate issuance of a notice in advance of noisy or disruptive construction activities so commercial users operating within the area would have adequate awareness of the planned activities and time to plan to minimize any potential adverse impacts on business operations.

D.1.11 Environmental Justice

- Eglin AFB would consider the requirements in EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low- Income Populations*, and EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, when reviewing and approving all site-specific plans.

D.1.12 Water Resources

- The direct release of chemicals or metals into water bodies or wetlands is prohibited.
- BMPs, in conjunction with the installation- and project-specific SWPPPs would be used to reduce stormwater runoff where possible. Examples of these BMPs would include using low-impact development where applicable, and adhering to the installation- and

project-specific SWPPPs and ESCPs. A potential option to reduce flood impacts would be to elevate ground floors of newly constructed facilities above the floodplain level.

- Eglin AFB would obtain an NPDES permit for stormwater discharges from large construction sites from FDEP, as applicable. Protective erosion control measures, such as installing silt fencing, improving drainage, avoiding soil compaction, and planting vegetation would be implemented to minimize soil erosion and sedimentation during construction.
- Eglin AFB would implement BMPs required under the installation's MS4 Stormwater Management Plan. Examples of MS4 BMPs include construction stormwater management and post-construction practices, such as installing stormwater retention ponds or infiltration basins, periodic checks for illicit discharges (e.g., dumping used oil into parking lot gutter systems), and reviewing stormwater management education materials from the respective MS4 permit holder.
- Measures from project-specific and installation SWPPPs and ESCPs would be implemented to minimize sedimentation and stormwater runoff, such as:
    - Soil erosion control mats;
    - Silt fencing;
    - Sediment traps;
    - Straw bales;
    - Turbidity curtains;
    - Application of water to disturbed soils to reduce dust and erosion; and
    - Revegetation of disturbed areas with native plants.
- DAF would comply with all applicable DAF, federal, and state laws and regulations, and BMPs during construction and adherence to all required permits would be implemented to minimize impacts on water resources. All construction BMPs would be approved by the Eglin AFB Environmental Management Branch to ensure they are adequate. The construction site would also be subject to on-site inspections to ensure that sediment and erosion controls are compliant with the permitting requirements, and that appropriate housekeeping measures are being employed.
- To minimize impacts on floodplains or from flooding, the proposed roadway could be elevated above the floodplain level. The new roadway would be constructed with potential climate change impacts such as an increase in storm surges and sea level rise taken into consideration. The project would be developed in conformance with EO 14008, *Tackling the Climate Crisis at Home and Abroad*; DoD's UFC 2-100-01, *Installation Master Planning – with Change 1*, and UFC 3-201-01, *Civil Engineering – with Change 5*; DoD's Directive-Type Memorandum 22-003, *Flood Hazard Area Management for DoD Installations*; and DoD's 2021 Climate Adaptation Plan.
- In accordance with the EISA (42 USC Part 152), which requires federal facility projects over 5,000 square feet to maintain or restore the predevelopment hydrology of the property to the maximum extent technically feasible, low-impact development techniques would be incorporated.
- Eglin AFB would minimize impervious area to limit runoff and maintain on-site recharge. This would include the new roadway and pedestrian pathway.

E

Wetland Delineation Report

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Wetland Survey Report

for an Environmental Assessment Addressing Realignment of Eglin Boulevard

Eglin Air Force Base, Florida

September

2023

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EXECUTIVE SUMMARY

Wetland and Other Surface Water (OSW) delineations were completed July 11-13, 2023, for the two Eglin Blvd Reroute Alternatives. The survey area for Eglin Blvd Reroute Alternative 1 had a total of 21.53 acres of wetlands and 1.35 acres of OSW and for Eglin Blvd Reroute Alternative 2, a total of 22.02 acres of wetlands and 4.72 acres of OSW delineated.

The Revised Definition of "Waters of the United States"; conforming final rule was made effective by the Environmental Protection Agency and Department of the Army, as published in the *Federal Register* on Friday, September 8, 2023 (88 FR 61964). HDR staff has reviewed the rule change and in their professional opinion it does not alter the jurisdictional determination of any of the wetlands documented within the project area of the Eglin Blvd Reroute project. However, it is anticipated that further guidance on interpreting the definition for practical use in the field will be provided by the USACE in the future.

1.0 OVERVIEW

A wetland survey was completed in July 2023 in support of an Environmental Assessment for the Department of the Air Force for the proposed realignment of an approximately 2.5-mile portion of Eglin Boulevard from the split of Eglin Boulevard and F Avenue on the eastern end, continuing to the west, to the intersection of Eglin Boulevard and Nomad Way, on Eglin Air Force Base (AFB) in Okaloosa County, Florida. The wetland survey covered two roadway alignment alternatives as shown in **Figure 1.1**. Analysis of each alternative alignment was completed based on establishing a study area that is 200 feet on either side of the approximate roadway centerline creating a 400-foot-wide corridor as shown in subsequent graphics. The proposed roadway would be four lanes and each proposed alignment run for approximately five miles. No potentially required stormwater facilities were evaluated.

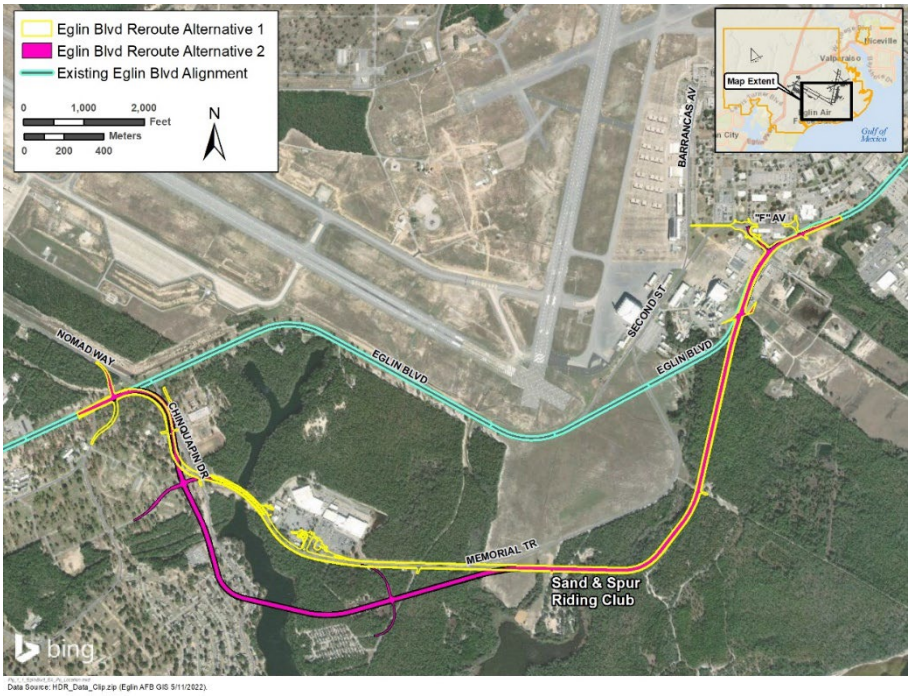

Figure 1.1 Project Location

1.1 BACKGROUND RESEARCH

A desktop analysis was performed prior to conducting wetland and OSW delineations to establish baseline information and guide the onsite evaluations. Data sources utilized for this analysis included the Northwest Florida Water Management District (NWFWMD) Florida Land Use, Cover and Forms Classification System (FLUCCS), GIS Data as developed by the Florida Department of Transportation, aerial photographs, U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI), and United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soils Map for Okaloosa County.

1.2 SOILS

Based on the USDA NRCS Soils Map for Okaloosa County, the alternative corridors are underlain by two primary soil mapping units identified as hydric; Chipley and Hurricane soils (0 to 5 percent slopes) and Dorovan muck (frequently flooded). Hydric soils in the survey area are shown in **Figure 1.2**. Hydric soils with a Hydric Rating of 1 to 32% are categorized as Predominantly No-Hydric, but with hydric components and a Hydric Rating of 66 to 99% is categorized as Predominantly Hydric. Hydric soils are a primary indicator of the presence of wetlands.

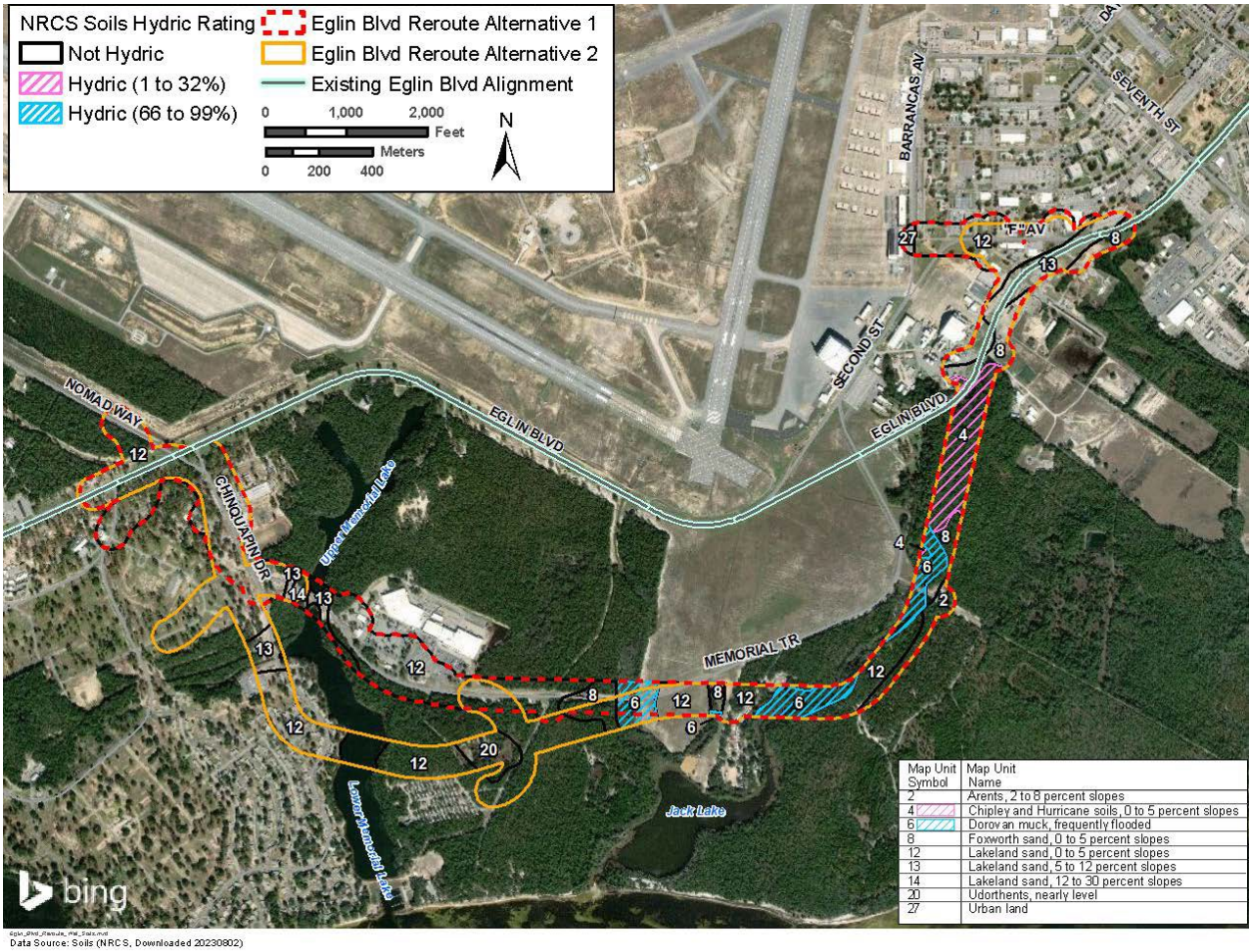

Figure 1.2 Hydric Soils within Alternative Alignments

1.3 NATIONAL WETLAND INVENTORY (NWI)

The NWI is a service provided by the USFWS to produce maps of wetlands and deepwater habitats. The maps provide an estimate of wetland extent and type of wetland based primarily on review of aerial data. The data is used only as a resource of potential wetlands and open water habitat present in the survey area. NWI identified locations and general habitat classifications in the survey area are shown in **Figure 1.3**. All NWI areas were investigated during the field review.

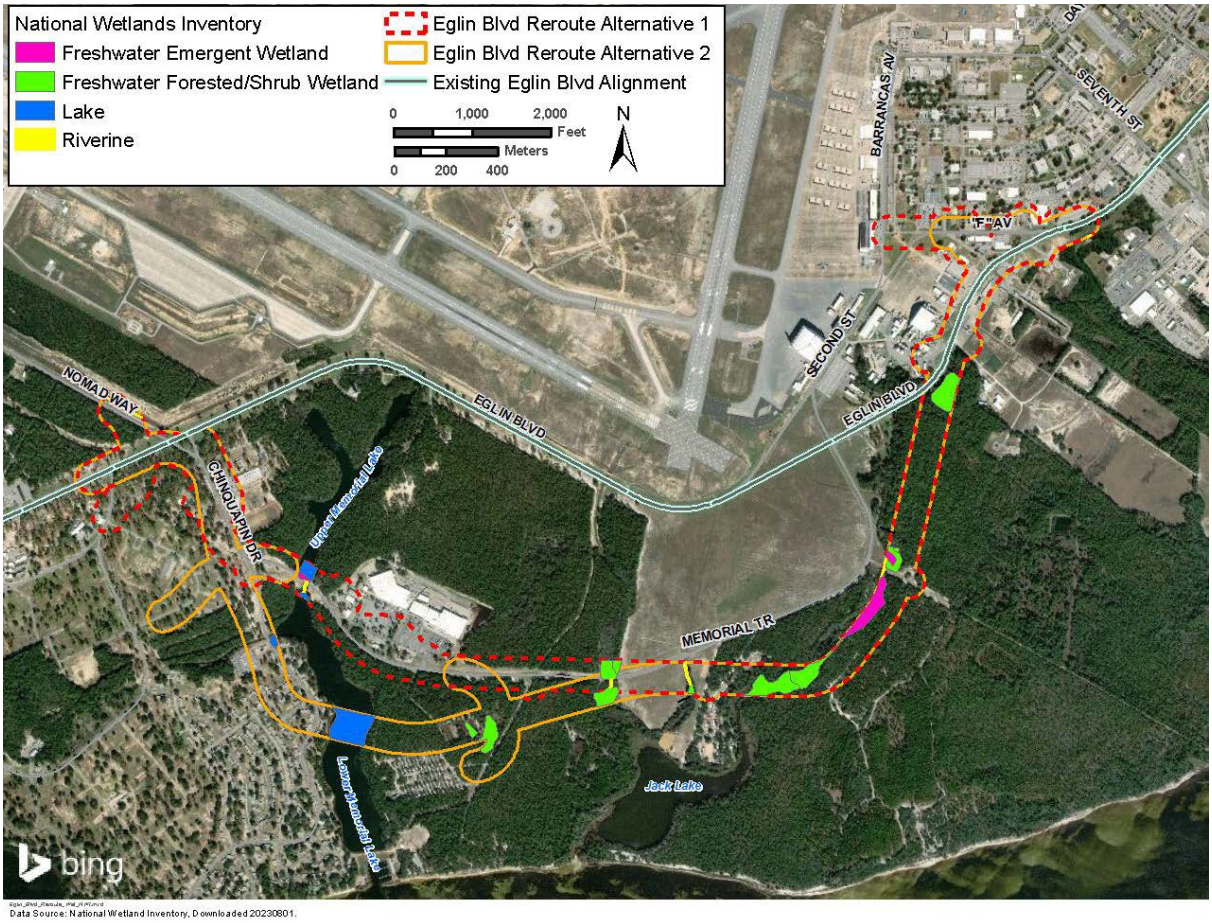

Figure 1.3 NWI Locations within Alternative Alignments

2.0 WETLANDS AND OTHER SURFACE WATERS

Both alternative alignments were evaluated for the presence of wetlands and OSW in accordance with 62-340 F.A.C. *Delineation of the Landward Extent of Wetlands and Surface Waters*. All wetlands and other surface waters in the survey area are under the jurisdiction of the Florida Department of Environmental Protection (FDEP) under 62-330 F.A.C. *Environmental Resource Permitting* and 62-331 *State 404 Program* as state-assumed waters. The State 404 program giving FDEP the federal dredge and fill permitting program under section 404 of the federal Clean Water Act within certain waters went into effect December 22, 2020. All jurisdictional resources in the survey area are considered assumed waters and thus under the regulatory requirements of FDEP. In addition, delineations followed the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0)*.

2.1 DATA COLLECTION

Wetland and OSW delineations were accomplished via field reviews on July 11-13, 2023. The U.S. Army Corps of Engineers Wetland Determination Data Sheets can be viewed in **Appendix A** and associated Wetland Site Pictures can be viewed in **Appendix B**.

2.2 SURVEYED WETLANDS AND OTHER SURFACE WATERS

Seven wetland and six OSWs were delineated in the survey area. The wetlands include wetland forested mixed, hydric pine flatwoods, and freshwater marshes. All of the wetlands are located within the Choctawhatchee Bay Basin. Within the survey area for Alternative Alignment 1, a total of 21.53 acres of wetlands and 1.35 acres of OSW are present for a total of 22.88 acres of jurisdictional resources. Within the survey area for Alternative Alignment 2, a total of 22.02 acres of wetlands and 4.72 acres of OSW are present for a total of 26.74 acres of jurisdictional resources. **Table 2.1** provides a summary of each resource and acreages by alternative. **Figure 2.2** displays the delineated wetlands and OSW areas for the two alternatives. Aerials with the wetland overlays at a 1 inch: 400-foot scale, as required by FDEP during the permitting process, are provided in **Appendix C**.

Table 2.1 Wetlands and Other Surface Waters Summary

Wetland/ OSW	FLUCCS	NWI	Size (ac) Within Alternative 1	Size (ac) Within Alternative 2
Wetland 1	630 – Wetland Forested Mixed	PFO1/3Ch – Palustrine, Forested, Broad-leaved Deciduous, Seasonally Flooded	1.01	2.13
Wetland 2	630 – Wetland Forested Mixed	PFO1/3Ch – Palustrine, Forested, Broad-leaved Deciduous, Seasonally Flooded	0.70	0.08
Wetland 3	630 – Wetland Forested Mixed	PSS1Ch – Palustrine, Scrub-Shrub, Broad-leaved Deciduous, Seasonally Flooded	0.45	0.44
Wetland 4	630 – Wetland Forested Mixed and 641 – Freshwater Marshes	PSS3Ch – Palustrine, Scrub-Shrub, Broad-leaved Evergreen, Seasonally Flooded and PFO1Fh – Palustrine, Forested, Broad-leaved Deciduous, Semi-permanently Flooded	5.70	5.70
Wetland 5	630 – Wetland Forested Mixed	Mapped as PEM1Fh – Palustrine, Emergent, Persistent, Semi-permanently Flooded. Field Verified as PFO1/3Ch – Palustrine, Forested, Broad-leaved Deciduous, Seasonally Flooded	1.67	1.67
Wetland 6	630 – Wetland Forested Mixed	PEM1Fh – Palustrine, Emergent, Persistent, Semi-permanently Flooded and PFO3Ch – Palustrine, Forested, Broad-leaved Evergreen, Seasonally Flooded	2.12	2.12
Wetland 7	625 – Hydric Pine Flatwoods	PFO4/1B – Palustrine, Forested, Needle-leaved Evergreen, Broad-leaved Deciduous, Saturated	9.88	9.88
Wetland Acreage Totals			**21.53**	**22.02**
OSW A	520 - Lake	L1UBHh – Lacustrine, Unconsolidated Bottom, Permanently Flooded	0.63	0.01
OSW B	520 - Lake	L1UBHh – Lacustrine, Unconsolidated Bottom, Permanently Flooded	0.57	0.00
OSW C	520 - Lake	L1UBHh – Lacustrine, Unconsolidated Bottom, Permanently Flooded	0.00	0.08
OSW D	Ditch	Not Mapped - Ditch	0.00	0.13
OSW E	520 - Lake	L1UBHh – Lacustrine, Unconsolidated Bottom, Permanently Flooded	0.00	4.35
OSW F	Ditch	Partially Mapped as R4SBC – Riverine, Intermittent, Streambed, Seasonally Flooded and Upland Cut Ditch	0.15	0.15
OSW Acreage Totals			**1.35**	**4.72**
Combined Acreage Totals			**22.88**	**26.74**

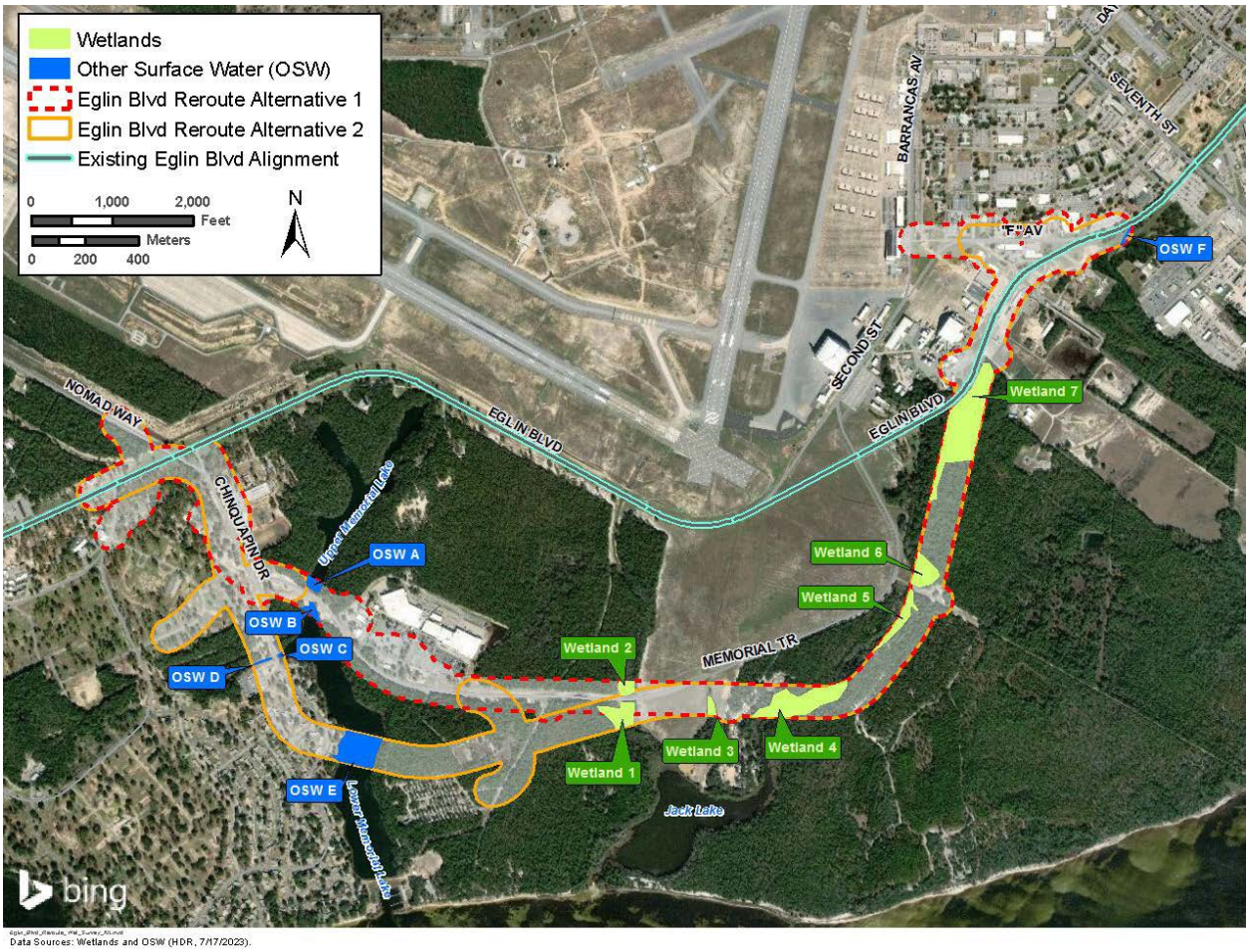

Figure 2.2 Delineated Wetlands and Other Surface Waters

2.3 WETLAND AND OTHER SURFACE WATER DESCRIPTIONS

Wetland 1 is a mixed wetland forest located directly south of Memorial Trail. To the west it is buffered by natural forest and to the east it is bordered by the mowed and maintained flightline. The primary channel appears to have been artificially channelized near Memorial Trail. Canopy species include slash pine (*Pinus elliotti*), sweetbay magnolia (*Magnolia virginiana*), and red bay (*Persea palustris*). Species observed in the understory included titi (*Cyrilla racemiflora*), swamp azalea (*Rhododendron viscosum*), fetterbush (*Leucothoe racemosa*), and netted chain fern (*Woodwardia areolata*). The eastern side of the wetland is being impacted by muscadine vine (*vitis rotundifolia*) by choking out canopy and shrub species.

Wetland 2 is a mixed wetland forest located directly north of Memorial Trail where it connects to Wetland 1 via a box culvert. To the west it is buffered by natural forest and to the east it is bordered by the mowed and maintained flightline. The primary channel appears to have been channelized. On the east side there is a very defined topographic break to the wetland. Canopy species include slash pine, sweetbay magnolia, and water oak (*Quercus nigra*). The wetland edges had dense titi and wax myrtle (*Myrica cerifera*). Netted chain fern and green arum (*Peltandra virginica*) were noted in the herbaceous layer. Directly adjacent to Memorial Trail the wetland forms a small emergent marsh that includes ferns and wildrice (*Zizania aquatica*).

Wetland 3 is a mixed wetland forest with no natural buffer. It is abutted by mowed and maintained areas on all sides of the survey area. It is the receiving point of a large swale system that drains the flightline. The wetland is almost completely covered by muscadine vine that is choking out canopy species. The dominate canopy species is sweetbay magnolia with Atlantic white cedar (*Chamaecyparis thyoides*) and wax myrtle on the edges. The invasive exotic Japanese climbing fern (*Lygodium japonicum*) was noted in the wetland.

Wetland 4 on the west end of the system at the headwaters of Jack Lake is a freshwater marsh dominated by sawgrass (*Cladium jamaicense*). The marsh is bordered by slash pine and sweetbay magnolia with large area on the east end covered in the invasive air potato (*Dioscorea bulbifera*). The wetland transitions to a mixed forested system going east where the primary canopy trees are slash pine, water oak and sweetbay magnolia. Species observed in the understory included titi, fetterbush, black titi (*Cliftonia monophylla*) and netted chain fern. The wetland is described as a braided stream system. The wetland has a forested buffer in most areas other than where it abuts a horse stable complex.

Wetland 5 is a mixed wetland forest that is the eastern continuation of Wetland 4 but becomes one primary channel. It is well buffered to the south by natural forest and a smaller buffer to the north. Canopy species include slash pine, sweetbay magnolia, water oak, red bay, and water tupelo (*Nyssa aquatica*). Species observed in the understory included titi, black titi, and netted chain fern. One small invasive Chinese tallow (*Triadica sebifera*) was noted on the west end of the wetland.

Wetland 6 is a mixed wetland forest. It lacks a buffer to the west and partially to the south. To the east and north it is buffered by a natural forest system. The primary channel is manmade, and the wetland forms a small pond near the culvert going under the range road that separates Wetland 5 from Wetland 6. The ponded area has false willow/saltbush (*Baccharis sp*.) and black willow (S*alix nigra*). The remaining wetland area is a mature hydric pine flatwood community of slash pines, sweetbay magnolia. Species observed in the understory included titi, fetterbush, netted chain fern and swamp azalea.

Wetland 7 is a hydric pine flatwood that transitions from a seepage area adjacent to Eglin Blvd on the north end of the wetland. Other than Eglin Blvd to the north the wetland does have a natural forested buffer in all other directions. The canopy is primarily large slash pines on hummocks and sweetbay magnolias with a smaller component of red bays and water oaks. Species observed in the understory included titi, fetterbush, netted chain fern, cinnamon fern (*Osmundastrum cinnamomea*), and needle palms (*Rhapidophyllum hystrix*). Due to fire suppression the wetland has more of a closed canopy and less natural herbaceous groundcover than a historic hydric pine flatwoods community.

OSW A is an open water manmade lake identified as Upper Memorial Lake. The lake does have a natural forested buffer to the east and west with Memorial Trail to the south. The survey area includes the dam located at the southern end of the lake. The area was delineated just off the edge of water as a small fringe of wetland vegetation occurs. The lake edge has the invasive species torpedo grass (*Panicum repens*). Native plants along the lake edge include titi, wax myrtle, American holly (*Ilex opaca*), sweetgum (*Liquidambar styraciflua*), and laurel oak (*Quercus laurifolia*).

OSW B is an open water manmade lake identified as Lower Memorial Lake. The survey area is on the upper end of the lake adjacent to Memorial Trail and has minimal natural buffer. The area was delineated just off the water's edge as a narrow fringe of wetland vegetation occurs. The lake edge is dominated by the invasive species torpedo grass and common reed (*Phragmites australis*). Native species along the lake edge include rushes (*Scirpus sp.*), false willow/saltbush, and wax myrtle.

OSW C is the convergence of a drainage ditch outfall into the manmade Lower Memorial Lake. The area contains shallow water dominated by a monoculture of the invasive common reed.

OSW D is an upland cut drainage ditch that outfall into Lower Memorial Lake under Chinquapin Dr. The ditch has steep sides and a flat bottom. The ditch is dominated by invasive species such as torpedo grass and common reed.

OSW E is an open water manmade lake identified as Lower Memorial Lake. The survey area is in a central portion of the lake. The area was delineated just off the edge of water as a small fringe of wetland vegetation occurs. The western side of the lake is adjacent to an abandoned housing development. The shoreline throughout this area is dominated by the invasive common reed and extends from the open water into the uplands above the water edge. The east side of the lake is buffered by a mature upland forest. The lake edge has thick mats of invasive torpedo grass. Native species include titi, wax myrtle, and rushes.

OSW F is an upland cut ditch on the southside of Eglin Blvd that carries stormwater from a developed portion of the base to a larger system of ditches draining to Choctawhatchee Bay. The ditch has steep sides and a flat bottom. The ditch is vegetated primarily with the invasive torpedo grass with some native ferns.

2.4 WETLAND FUNCTIONAL ASSESSMENTS

An assessment was conducted for the wetlands within the survey area using the Uniform Mitigation Assessment Method (UMAM) pursuant to Chapter 62-345, F.A.C. This process is used to determine the relative quality wetland function. The wetland functional quality is determined by assessing three parameters and scoring these parameters from one (1) to ten (10), with one being the lowest score and ten being the highest. These parameters are described below:

1. Location and Landscape Support - The value of functions provided by an assessment area to fish and wildlife are influenced by the landscape position of the assessment area and its relationship with surrounding areas. A score of ten (10) means the assessment area is ideally located and the surrounding landscape provides full opportunity for the assessment area to perform beneficial functions at an optimal level.

2. Water Environment - The quantity of water in an assessment area, including the timing, frequency, depth and duration of inundation or saturation, flow characteristics, and the quality of that water, may facilitate or preclude its ability to perform certain functions and may benefit or adversely impact its capacity to support certain wildlife. A score of ten (10) means the hydrology and water quality fully support the functions and provides benefits to fish and wildlife at optimal capacity for the assessment area.

3. Community Structure - Each assessment area is evaluated with regard to its characteristic vegetative community structure. In general, these areas are characterized by plant cover. A score of ten (10) means that the vegetation community and physical structure provide conditions which support an optimal level of function to benefit fish and wildlife utilizing the assessment area.

The results of the UMAM assessment are provided in **Table 2.4**. The UMAM assessment worksheets demonstrating these results are provided in **Appendix D**. Combined scores greater than 21 would be considered between Moderate and Optimal wetland function, while scores below 21 would be considered between Moderate and Minimal wetland function. These values are preliminary and would be refined after roadway design and exact impact areas are defined and reviewed by the regulatory agencies. As shown in the table, most wetland areas scored as having moderate to optimal wetland function. Note OSWs that are comprised of ditches/drainage features are not evaluated, because mitigation is not required for these features. For OSW areas that are open water such as lakes, greater evaluation of benthic features such as density of submerged aquatic resources would be required to provide an adequate UMAM assessment.

Table 2.4 Wetland Functional Assessment Scores

Uniform Mitigation Assessment Method (UMAM)					
Wetland/ OSW	**Location & Landscape Support**	**Water Environment**	**Community Structure**	**Combined**	**Wetland Function Rating**
Wetland 1	6	7	7	20	Moderate to Minimal
Wetland 2	6	7	8	21	Moderate to Optimal
Wetland 3	4	7	4	15	Moderate to Minimal
Wetland 4	7	7	8	22	Moderate to Optimal
Wetland 5	7	7	8	22	Moderate to Optimal
Wetland 6	5	7	8	20	Moderate to Minimal
Wetland 7	7	7	9	23	Moderate to Optimal

3.0 REFERENCES

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U.S. Department of Agriculture (USDA), Natural Resources Conservation Service. Custom Soil Resource Report for Okaloosa County, Florida. 2023

APPENDIX A: U.S. ARMY CORPS OF ENGINEERS WETLAND DETERMINATION DATA SHEETS

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Eglin Blvd Reroute City/County: Okaloosa County Sampling Date: 7/12/2023

Applicant/Owner: Eglin AFB State: FL Sampling Point: Wetland 1 & 2

Investigator(s): Josey Walker & Mick Garrett Section, Township, Range: S26, T1S, R23W

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR or MLRA): LRR P, MLRA 133B Lat: 30.462928 Long: 86.521819 Datum:

Soil Map Unit Name: Dorovan muck, frequently flooded NWI classification: PFO1/3Ch

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes Y No ____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
The wetland 1 & 2 sample point is on the east side of the tributary to Jacks Lake identified as Airport Drain. Wetland 1 & 2 are one wetland divided by Memorial Trail. It is continuous throughout the survey area and consists of deciduous/coniferous mix of vegetation. NWI wetlands are mapped throughout the project area as well. The channel appears to have been channelized to the north and south of Memorial Trail, but appear more natural getting further away from the road way.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- x Water Marks (B1)
- x Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- x Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No x	Depth (inches): ____
Water Table Present?	Yes x	No ____	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No x	Depth (inches): ____

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
The wetland point sits within a mapped NWI wetland and adjacent to the mapped NHD creek.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland 1 & 2

Tree Stratum (Plot size: 10' x 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Magnolia virginiana*	50	Yes	FACW
2. *Persea palustris*	20	Yes	FACW
3. *Pinus elliottii*	20	Yes	FACW
4. *Quercus nigra*	10	No	FAC
5.			
6.			
	100	=Total Cover	
50% of total cover: 50		20% of total cover:	20
Sapling Stratum (Plot size: 10' x 10')			
1. *Magnolia virginiana*	10	Yes	FACW
2.			
3.			
4.			
5.			
6.			
	10	=Total Cover	
50% of total cover: 5		20% of total cover:	2
Shrub Stratum (Plot size: 10' x 10')			
1. *Cyrilla racemiflora*	25	Yes	FACW
2. *Diospyros virginiana*	10	No	FAC
3. *Leucothoe racemosa*	20	Yes	FACW
4. *Rhododendron viscosum*	10	No	OBL
5.			
6.			
	65	=Total Cover	
50% of total cover: 33		20% of total cover:	13
Herb Stratum (Plot size: 10' x 10')			
1. *Woodwardia areolata*	40	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40	=Total Cover	
50% of total cover: 20		20% of total cover:	8
Woody Vine Stratum (Plot size: 10' x 10')			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	50	x 1 =	50
FACW species	145	x 2 =	290
FAC species	20	x 3 =	60
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	215 (A)		400 (B)
Prevalence Index = B/A =			1.86

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below.)
PFO wetland consisting of a deciduous/coniferous vegetation mix. Northwest side of railroad (beyond sample point) is dominated by bald cypress and swamp tupelo.

SOIL

Sampling Point: Wetland 1 & 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/2	100						
3-10	10YR 2/1	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- x Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- X 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Eglin Blvd Reroute City/County: Okaloosa County Sampling Date: 7/12/2023

Applicant/Owner: Eglin AFB State: FL Sampling Point: Wetland 3

Investigator(s): Josey Walker & Mick Garrett Section, Township, Range: S26, T1S, R23W

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR or MLRA): LRR P, MLRA 133B Lat: 30.462992 Long: 86.517694 Datum:

Soil Map Unit Name: Dorovan muck, frequently flooded NWI classification: PSS1Ch

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes Y No ____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
The wetland 3 sample point is on the west side of the tributary to Jacks Lake also identified as Airport Drain. The wetland is continuous throughout the survey area. The wetland is an end point of a large drainage swale system the drains the flight line. NWI wetlands are mapped throughout the area as well. As the swale enters the wetland area it starts to spread out, but a defined channel is not present in the survey area. The wetland in the survey area is almost completely covered by vitis rotundifiolia smothering out all other vegegtation. While the interior is almost completely sweetbay magnolia, but stunted and damged by the woody vines.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- x Water Marks (B1)
- x Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- x Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No x	Depth (inches): ____
Water Table Present?	Yes ____	No x	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No x	Depth (inches): ____

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
The wetland point sits within a mapped NWI wetland and adjacent to the mapped NHD creek.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland 3

Tree Stratum (Plot size: 10' x 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Magnolia virginiana*	80	Yes	FACW
2. *Liquidambar styraciflua*	20	Yes	FAC
3.			
4.			
5.			
6.			
	100	=Total Cover	
50% of total cover: 50		20% of total cover:	20
Sapling Stratum (Plot size: 10' x 10')			
1. *Magnolia virginiana*	80	Yes	FACW
2. *Prunus caroliniana*	20	Yes	FACU
3.			
4.			
5.			
6.			
	100	=Total Cover	
50% of total cover: 50		20% of total cover:	20
Shrub Stratum (Plot size: 10' x 10')			
1. *Cyrilla racemiflora*	25	Yes	FACW
2.			
3.			
4.			
5.			
6.			
	25	=Total Cover	
50% of total cover: 13		20% of total cover:	5
Herb Stratum (Plot size: 10' x 10')			
1. *Onoclea sensibilis*	25	Yes	FACW
2. *Dryopteis ludoviciana*	10	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	35	=Total Cover	
50% of total cover: 18		20% of total cover:	7
Woody Vine Stratum (Plot size: 10' x 10')			
1. *Vitis rotundifolia*	50	Yes	FAC
2.			
3.			
4.			
5.			
	50	=Total Cover	
50% of total cover: 25		20% of total cover:	10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 87.5% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	220	x 2 =	440
FAC species	70	x 3 =	210
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	310 (A)		730 (B)
Prevalence Index = B/A =			2.35

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below.)

PFO wetland consisting of a deciduous/coniferous vegetation mix. Northwest side of railroad (beyond sample point) is dominated by bald cypress and swamp tupelo.

SOIL

Sampling Point: Wetland 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/2	100						
3-10	10YR 2/1	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- x Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- x Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Eglin Blvd Reroute City/County: Okaloosa County Sampling Date: 7/13/2023

Applicant/Owner: Eglin AFB State: FL Sampling Point: Wetland 4-7

Investigator(s): Josey Walker & Mick Garrett Section, Township, Range: S26, T1S, R23W

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR or MLRA): LRR P, MLRA 133B Lat: 30.463108 Long: 86.514433 Datum:

Soil Map Unit Name: Dorovan muck, frequently flooded NWI classification: PSS3Ch & PFO1Fh

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation N , Soil Y , or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes Y No ____

Are Vegetation N , Soil N , or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
The wetland 4-7 sample point is on the south side of the tributary to Jacks Lake identified as Airport Drain. Noting all tributaries are identified as Airport Drain. The four wetlands are contigous, but seperated as to how the survey corridor crosses the system. The wetland is continuous throughout the survey area and consists of deciduous/coniferous mix of vegetation. NWI wetlands are mapped throughout the majority of the survey area as well. The wetland transitions from wet flatwoods to a freshwater marsh system of sawgrass over the mile run in the survey area.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- x Water Marks (B1)
- x Sediment Deposits (B2)
- x Drift Deposits (B3)
- x Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- x Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- X Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): ____
Water Table Present?	Yes ____	No ____	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ____	Depth (inches): ____

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
The wetland point sits within a mapped NWI wetland and adjacent to the mapped NHD creek. The system becomes multiple braided channels as it approaches the open water of Jacks Lake. Surface water was present in the channels.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland 4-7

Tree Stratum (Plot size: 10' x 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Magnolia virginiana*	60	Yes	FACW
2. *Persea palustris*	15	No	FACW
3. *Pinus elliottii*	15	No	FACW
4. *Nyssa sylvatica*	10	No	OBL
5.			
6.			
	100	=Total Cover	
50% of total cover: 50		20% of total cover:	20
Sapling Stratum (Plot size: 10' x 10')			
1. *Quercus phellos*	5	Yes	FACW
2. *Asimina triloba*	5	Yes	FAC
3.			
4.			
5.			
6.			
	10	=Total Cover	
50% of total cover: 5		20% of total cover:	2
Shrub Stratum (Plot size: 10' x 10')			
1. *Cyrilla racemiflora*	40	Yes	FACW
2. *Cliftonia monophylla*	20	Yes	OBL
3. *Leucothoe racemosa*	20	Yes	FACW
4. *Rhododendron viscosum*	10	No	OBL
5.			
6.			
	90	=Total Cover	
50% of total cover: 45		20% of total cover:	18
Herb Stratum (Plot size: 10' x 10')			
1. *Woodwardia areolata*	40	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40	=Total Cover	
50% of total cover: 20		20% of total cover:	8
Woody Vine Stratum (Plot size: 10' x 10')			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	80	x 1 =	80
FACW species	155	x 2 =	310
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	240 (A)		405 (B)

Prevalence Index = B/A = 1.69

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below.)

PFO wetland consisting of a deciduous/coniferous vegetation mix. Northwest side of railroad (beyond sample point) is dominated by bald cypress and swamp tupelo.

SOIL

Sampling Point: Wetland 4-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ____ **No** ____

Remarks:

The sampling data point is located in an area where ground surface disturbance is not allowed due to contamination. A well defined slope break is present separating the sand pine dominated scrub area from the wetland.

APPENDIX B: WETLAND SITE PICTURES

Eglin Blvd Reroute
July 11-13, 2023

Picture 1. Wetland 1 looking south from culvert under Memorial Trail.

Picture 2. Wetland 1 channel on west side of wetland.

Eglin Blvd Reroute
July 11-13, 2023

Picture 3. Wetland 1 looking west at east side of wetland.

Picture 4. Wetland 2 looking north from Memorial Trail.

Picture 5. Wetland 2 channel on west side of wetland.

Picture 6. Wetland 2 representative ground cover on east side of wetland.

Picture 7. Wetland 3 looking southeast at substantial coverage by muscadine vine.

Picture 8. Wetland 3 looking south at interior of wetland.

Picture 9. Wetland 4 looking east at freshwater emergent marsh dominated by sawgrass.

Picture 10. Wetland 4 invasive air potato on west end of wetland.

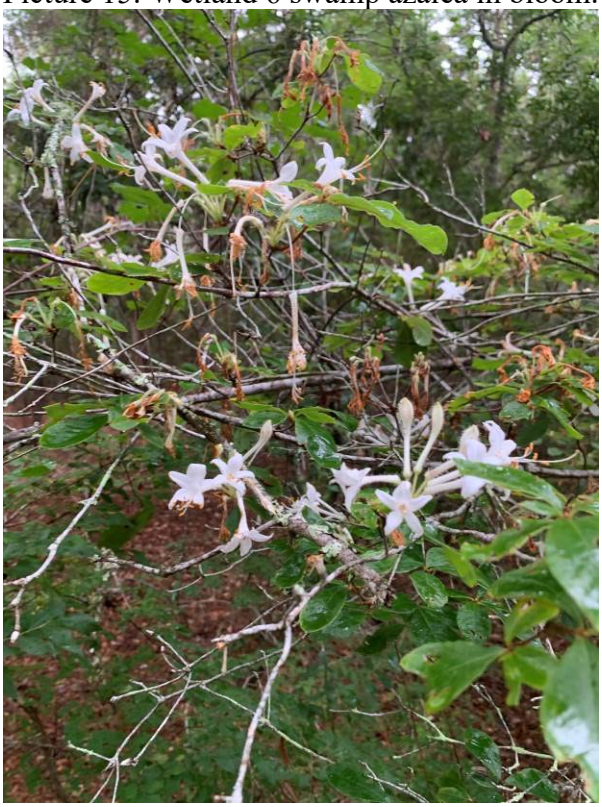
Picture 11. Wetland 4 at transition from emergent marsh to forested system.

Picture 12. Wetland 4 looking north from southside of wetland.

Picture 13. Wetland 5 looking north from southside of wetland.

Picture 14. Wetland 6 looking north at south end of wetland.

Picture 15. Wetland 6 swamp azalea in bloom.



Picture 16. Wetland 7 interior near cut channel.

Picture 17. Wetland 7 looking south from Eglin Blvd.

Picture 18. OSW A looking north from dam.

Picture 19. OSW A invasive torpedo grass along shoreline.

Picture 20. OSW B looking north along shoreline.

Picture 21. OSW B looking south from dam area.

Picture 22. OSW C looking east at drainage ditch dominated by common reed.

Picture 23. OSW D looking north at drainage ditch dominated by common reed.

Picture 24. OSW E looking east with a dense shoreline of common reed.

Picture 25. OSW E looking north along eastern shoreline.

Picture 26. OSW E eastern shoreline with dense invasive torpedo grass on shoreline.

Picture 27. OSW E looking west across the lake.

Picture 28. OSW F looking south.

APPENDIX C: AERIALS WITH THE WETLAND OVERLAYS AT A 1 INCH: 400-FOOT SCALE

Eglin Blvd Reroute Alternative 1
Eglin Blvd Reroute Alternative 2
Wetlands
Other Surface Water (OSW)
Existing Eglin Blvd Alignment

PAGE INDEX
1 2 3 4 5 6 7 8

0 400 Feet
0 40 Meters

N

Eglin_Blvd_Reroute_Wet_400scale.mxd
Data Sources: Wetlands and OSW (HDR, 7/17/2023).

Eglin Blvd Reroute Alternative 1
Eglin Blvd Reroute Alternative 2
Wetlands
Other Surface Water (OSW)
Existing Eglin Blvd Alignment

0 400 Feet
0 40 Meters

N

Eglin_Blvd_Reroute_Wet_400scale.mxd
Data Sources: Wetlands and OSW (HDR, 7/17/2023).

Eglin Blvd Reroute Alternative 1
Eglin Blvd Reroute Alternative 2
Wetlands
Other Surface Water (OSW)
Existing Eglin Blvd Alignment

PAGE INDEX
1 2 3 4 5 6 7 8

0 400 Feet
0 40 Meters

N

Eglin_Blvd_Reroute_Wet_400scale.mxd

Data Sources: Wetlands and OSW (HDR, 7/17/2023).

Eglin Blvd Reroute Alternative 1
Eglin Blvd Reroute Alternative 2
Wetlands
Other Surface Water (OSW)
Existing Eglin Blvd Alignment

PAGE INDEX
1 2 3 4 5 6 7 8

0 400 Feet
0 40 Meters

N

Eglin_Blvd_Reroute_Wet_400scale.mxd

Data Sources: Wetlands and OSW (HDR, 7/17/2023).

Eglin Blvd Reroute Alternative 1
Eglin Blvd Reroute Alternative 2
Existing Eglin Blvd Alignment
Wetlands
Other Surface Water (OSW)

PAGE INDEX
1 2 3 4 5 6 7 8

0 400 Feet
0 40 Meters

N

Eglin_Blvd_Reroute_Wet_400scale.mxd
Data Sources: Wetlands and OSW (HDR, 7/17/2023).

Eglin Blvd Reroute Alternative 1
Eglin Blvd Reroute Alternative 2
Existing Eglin Blvd Alignment
Wetlands
Other Surface Water (OSW)

PAGE INDEX
1 2 3 4 5 6 7 8

0 400 Feet
0 40 Meters

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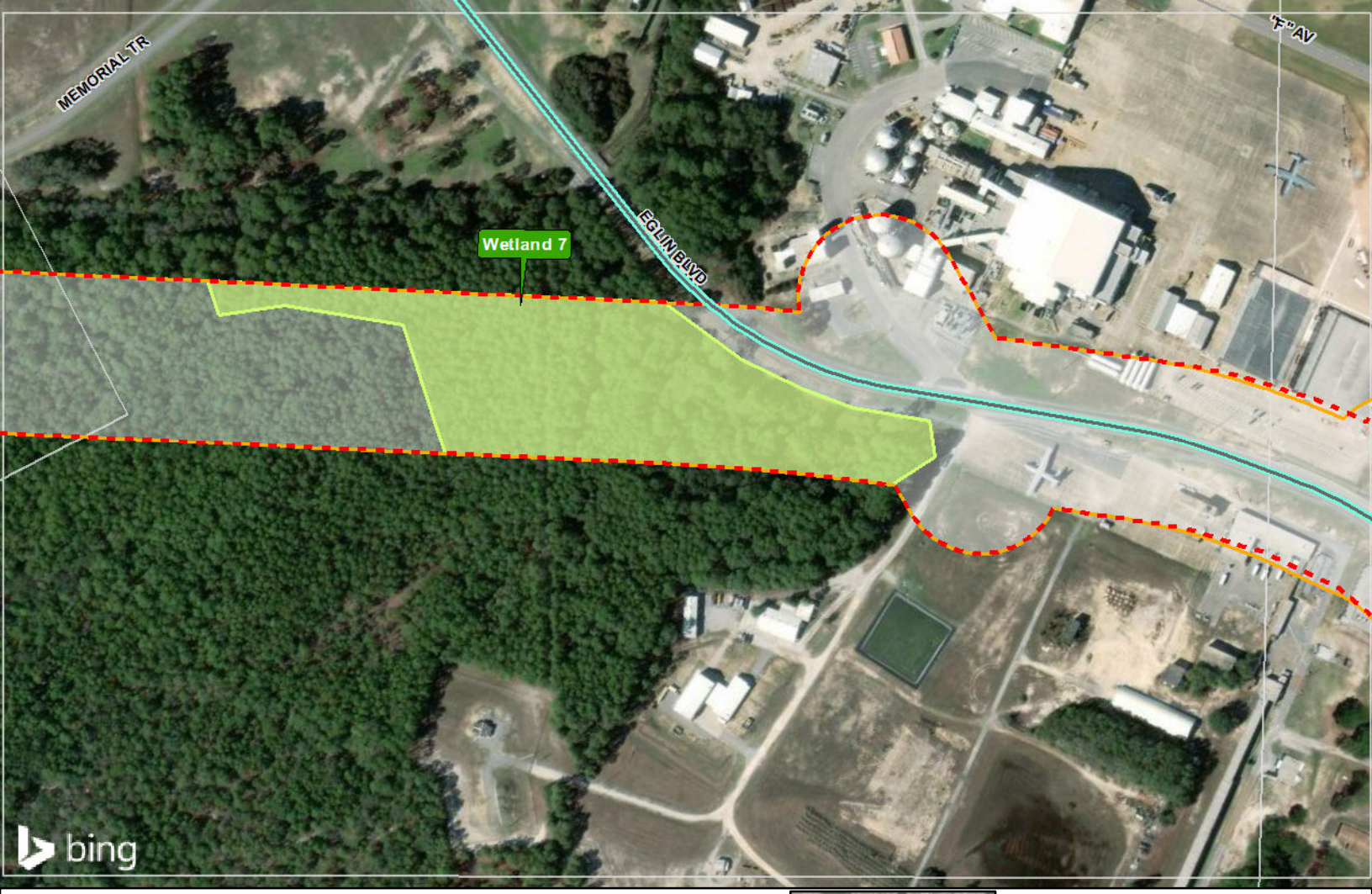
Data Sources: Wetlands and OSW (HDR, 7/17/2023).



Eglin Blvd Reroute Alternative 1
Eglin Blvd Reroute Alternative 2
Wetlands
Other Surface Water (OSW)
Existing Eglin Blvd Alignment

0 400 Feet
0 40 Meters

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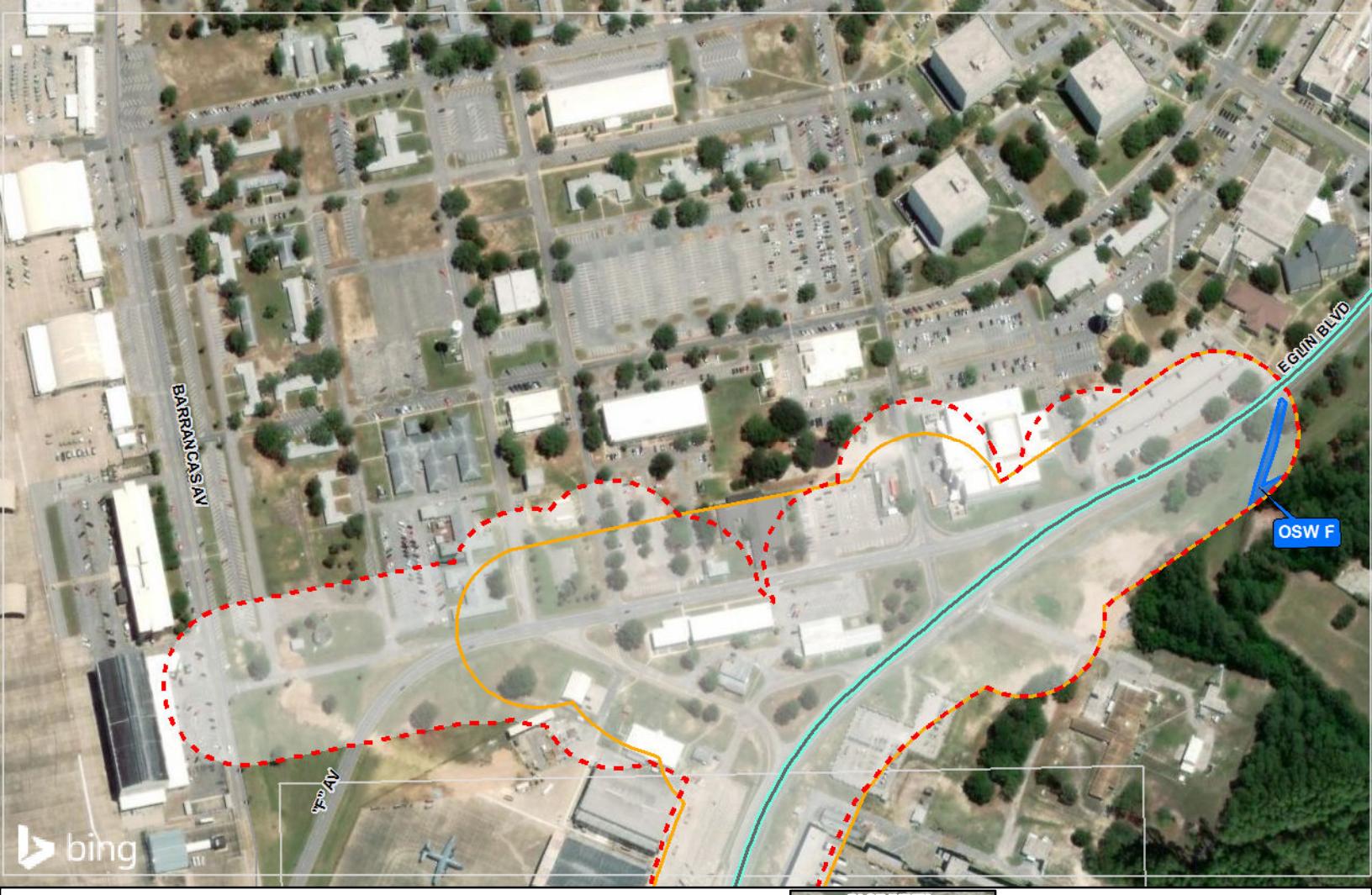
Eglin_Blvd_Reroute_Wet_400scale.mxd
Data Sources: Wetlands and OSW (HDR, 7/17/2023).



Eglin Blvd Reroute Alternative 1
Eglin Blvd Reroute Alternative 2
Wetlands
Other Surface Water (OSW)
Existing Eglin Blvd Alignment

0 400 Feet
0 40 Meters

N

Eglin_Blvd_Reroute_Wet_400scale.mxd
Data Sources: Wetlands and OSW (HDR, 7/17/2023).

APPENDIX D: UMAM DATA SHEETS

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Eglin Blvd. Reroute		Wetland 1 & 2

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
630 - Wetland Forested Mixed	NWI - PFO1/3Ch - Freshwater Forested/Shrub Wetland	Impact	2.83 acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Choctawhatchee Bay - HUC #03140102	Class III	N/A

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

The wetland is identified as Airport Drain as it receives drainage from the Eglin AFB flightline. It is a tributary of Jack Lake, which has a direct connection to Choctawhatchee Bay.

Assessment area description

The wetland is located on either side of Memorial Trail with the southern side identified as Wetland 1 and the northern side as Wetland 2. There is a box culvert under Memorial Trail connecting the wetlands. The west side of the wetland is buffered by natural forest. The east side is cleared and mowed as part of the flightline with minimal buffer to the wetland. The primary channel does appear to be artificially channelized to maximize drainage.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
The entire wetland is located on Eglin Main Base and functions to provide drainage to the runway and flightline infrastructure.	Not unique.

Functions	Mitigation for previous permit/other historic use
Drainage, nutrient removal, and wildlife habitat	N/A

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Various small mammals, small fish and birds.	Eastern Indigo snake - T and Wood Stork - T both may be present but have a low likelihood of occurrence.

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

No listed species were observed. One small snake observed.

Additional relevant factors:

The assessed wetland is historically impacted by channelizing the system to maximize the wetland to function to drain the area.

Assessment conducted by:	Assessment date(s):
Josey Walker	7/12/2023

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Eglin Blvd. Reroute		Wetland 1
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Impact	Josey Walker	7/12/2023

Scoring Guidance	**Optimal (10)**	**Moderate(7)**	**Minimal (4)**	**Not Present (0)**
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support w/o pres or current: 6 — with:	Wetland 1 is located directly south of Memorial Trail. To the west it is buffered by a mature upland forest. To the east it abuts the cleared flightline with minimal buffer.
.500(6)(b)Water Environment (n/a for uplands) w/o pres or current: 7 — with:	The wetland currently receives untreated stormwater from multiple inputs including Memorial Trail. However, the drainage way is well vegetated and no observable water quality deficiencies were noted.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current: 7 — with:	The wetland is forested with a mature canopy. The understory is diverse and no invasive exotics were noted. However, the east side of the wetland has been negatively impacted by vitis rotundifolia (muscadine vine) as it is covering the entire perimeter and choking out the natural vegetation.

Score = sum of above scores/30 (if uplands, divide by 20)

current or w/o pres: — with:

Delta = [with-current]

If preservation as mitigation:	
Preservation adjustment factor =	
Adjusted mitigation delta =	

If mitigation:	
Time lag (t-factor) =	
Risk factor =	

For impact assessment areas

FL = delta x acres = Acres

For mitigation assessment areas

RFG = delta/(t-factor x risk) =

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Eglin Blvd. Reroute		Wetland 2
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Impact	Josey Walker	7/12/2023

Scoring Guidance
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed

Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support w/o pres or current: 6 with:	Wetland 2 is located directly north of Memorial Trail. To the west it is buffered by a mature upland forest. To the east it abuts the cleared flightline with minimal buffer.
.500(6)(b)Water Environment (n/a for uplands) w/o pres or current: 7 with:	The wetland currently receives untreated stormwater from multiple inputs including Memorial Trail. However, the drainage way is well vegetated and no observable water quality deficiencies were noted.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current: 8 with:	The wetland is forested with a mature canopy other than adjacent to Memorial Trail, which included widlrice sp. and ferns. The understory is diverse with green arum and netted chain fern in the herbaceous layer. No invasive exotics were noted. Cyrilla has formed a dense interface along portions of the wetland edge due to lack of natural fire.

Score = sum of above scores/30 (if uplands, divide by 20)
current or w/o pres:
with:

Delta = [with-current]

If preservation as mitigation:	
Preservation adjustment factor =	
Adjusted mitigation delta =	

If mitigation:	
Time lag (t-factor) =	
Risk factor =	

For impact assessment areas	
FL = delta x acres =	
Acres	

For mitigation assessment areas	
RFG = delta/(t-factor x risk) =	

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Eglin Blvd. Reroute		Wetland 3

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
630 - Wetland Forested Mixed	NWI - PSS1Ch - Freshwater Forested/Shrub Wetland	Impact	0.45 acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Choctawhatchee Bay - HUC #03140102	Class III	N/A

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

The wetland is identified as Airport Drain as it receives drainage from the flightline. It is a tributary of Jack Lake, which has a direct connection to Choctawhatchee Bay.

Assessment area description

The wetland is located south of Memorial Trail. It receives direct drainage input from a large swale that traverses and drains a large portion of the flightline. It has no natural buffer. It is directly abutted by mowed and maintained areas. The assessed portion of the wetland is dominated by coverage of muscadine vine and dead canopy trees were noted.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
The entire wetland is located on Eglin Main Base and functions to provide drainage to the runway and flightline infrastructure.	Not unique.

Functions	Mitigation for previous permit/other historic use
Drainage, nutrient removal, and minimal wildlife habitat	N/A

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Various small mammals, small reptiles and birds.	Eastern Indigo snake - T and Wood Stork - T both may be present but have a low likelihood of occurrence.

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

No listed species were observed. One snake observed.

Additional relevant factors:

The assessed wetland is primarily a drainage feature with no natural buffer.

Assessment conducted by:	Assessment date(s):
Josey Walker	7/12/2023

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Eglin Blvd. Reroute		Wetland 3
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Impact	Josey Walker	7/12/2023

Scoring Guidance
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed

Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support w/o pres or current: 4 with:	Wetland 3 is located south of Memorial Trail. It has no natural buffer as it is abutted by mowed and maintained areas on all sides.	
.500(6)(b)Water Environment (n/a for uplands) w/o pres or current: 7 with:	The wetland currently receives untreated stormwater from multiple inputs including Memorial Trail and the flightline. However, the primary drainage input is a vegetated swale no observable water quality deficiencies were noted.	
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current: 4 with:	The wetland is forested with a mature canopy including some very large sweetbay magnolias and cedars on the edge. However, the wetland is covered by muscadine vine. The wetland system is being choked out and impacts to canopy species were noted. In addition, the Japanese climbing fern was noted in the wetland interior.	

Score = sum of above scores/30 (if uplands, divide by 20)
current or w/o pres:
with:

Delta = [with-current]

If preservation as mitigation:	
Preservation adjustment factor =	
Adjusted mitigation delta =	

If mitigation:	
Time lag (t-factor) =	
Risk factor =	

For impact assessment areas	
FL = delta x acres =	
Acres	

For mitigation assessment areas	
RFG = delta/(t-factor x risk) =	

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Eglin Blvd. Reroute		Wetland 4-7

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
630 - Wetland Forested Mixed, 641 Freshwater Marshes, 625 Hydric Pine Flatwoods	NWI - PSS3Ch-PFO1Fh-PFO4/1B - Freshwater Forested/Shrub Wetland & PEM1Fh Freshwater Emergent Wetland	Impact	19.44 acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Choctawhatchee Bay - HUC #03140102	Class III	N/A

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

The wetland is identified as Airport Drain as it receives drainage from the Eglin AFB flightline and other developed portions of Eglin main base. It is a tributary of Jack Lake, which has a direct connection to Choctawhatchee Bay.

Assessment area description

The wetland is located on the south side of Memorial Trail and is a continuous run from Eglin Blvd to Jack Lake. It is divided into identified wetlands 4-7 based on how the corridor crosses the wetland. There is one culverted crossing between wetland 5 and 6. Most of the wetland does have a natural forested buffer. On the west end it abuts a horse stable complex. The primary channel is artificially channelized to on the eastern end. The wetland transitions from hydric pine flatwoods, to a mixed forested system to a emergent freshwater marsh and Jack Lake.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
The entire wetland is located on Eglin Main Base and functions to provide drainage to the runway and flightline infrastructure.	Not unique.

Functions	Mitigation for previous permit/other historic use
Drainage, nutrient removal, and wildlife habitat	N/A

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Various small mammals, small fish and birds.	Eastern Indigo snake - T and Wood Stork - T both may be present but have a low likelihood of occurrence.

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

No listed species were observed. What appeared to be black bear scat was observed

Additional relevant factors:

The assessed wetland is historically impacted by channelizing a portion of the system to maximize the wetland to function to drain the area.

Assessment conducted by:	Assessment date(s):
Josey Walker	7/12/2023

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Eglin Blvd. Reroute		Wetland 4
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Impact	Josey Walker	7/12/2023

Scoring Guidance
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed

Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support w/o pres or current: 7 with:	Wetland 4 is located south of Memorial Trail. Other than the western end of the wetland it is buffered by a mature upland forest. The western end has a horse stable complex adjacent to the wetland. Although forested the south side of the wetland is adjacent to a known contamination site.
.500(6)(b)Water Environment (n/a for uplands) w/o pres or current: 7 with:	The wetland currently receives untreated stormwater from multiple inputs. However, the drainage way is well vegetated, a good buffer is mostly present and no observable water quality deficiencies were noted.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current: 8 with:	The west end of the wetland is an emergent marsh primarily made up of sawgrass. It transitions into a braided stream system dominated by mature sweetbay magnolias The understory is diverse and appears healthy. One noted deficiency is the west end of the wetland along the edge is has a strong stand of the invasive exotic air potato.

Score = sum of above scores/30 (if uplands, divide by 20)
current or w/o pres:
with:

Delta = [with-current]

If preservation as mitigation:	
Preservation adjustment factor =	
Adjusted mitigation delta =	

If mitigation:	
Time lag (t-factor) =	
Risk factor =	

For impact assessment areas	
FL = delta x acres =	
Acres	

For mitigation assessment areas	
RFG = delta/(t-factor x risk) =	

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Eglin Blvd. Reroute		Wetland 5
Impact or Mitigation	Assessment conducted by:	Assessment date:
Impact	Josey Walker	7/12/2023

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: 7	with:
	Wetland 5 is located south of Memorial Trail. It is primarily buffered by a mature upland forest. It does have several range roads running along it with a major range road on the east end. Although forested the south side of the wetland is adjacent to a known contamination site.	
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: 7	with:
	The wetland currently receives untreated stormwater from multiple inputs. However, the drainage way is well vegetated, a good buffer is mostly present and no observable water quality deficiencies were noted.	
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: 8	with:
	The wetland is a mature forested braided stream system. The dominant species is sweetbay magnolia with titi fringes. The herbaceous layer is diverse with the dominant species of netted chain fern. The invasive exotic Chinese tallow was noted on the east end of the wetland.	

Score = sum of above scores/30 (if uplands, divide by 20)	current or w/o pres:	with:

Delta = [with-current]

If preservation as mitigation:	
Preservation adjustment factor =	
Adjusted mitigation delta =	

If mitigation:	
Time lag (t-factor) =	
Risk factor =	

For impact assessment areas	
FL = delta x acres =	
Acres	

For mitigation assessment areas	
RFG = delta/(t-factor x risk) =	

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Eglin Blvd. Reroute		Wetland 6
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Impact	Josey Walker	7/12/2023

Scoring Guidance	**Optimal (10)**	**Moderate(7)**	**Minimal (4)**	**Not Present (0)**
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support w/o pres or current: 5 — with:	Wetland 6 is located south of Memorial Trail. It is partially buffered by a mature upland forest. There are disturbed and mowed areas to the east and west.
.500(6)(b)Water Environment (n/a for uplands) w/o pres or current: 7 — with:	The wetland currently receives untreated stormwater from multiple inputs. The primary drainage channel is channelized. However, the drainage way is well vegetated, a good buffer is mostly present and no observable water quality deficiencies were noted.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current: 8 — with:	The wetland is ponded with surface water near the culvert separating wetland 6 from wetland 5. It has various wetland shrubs including false willow and black willow. Outside the ponded area is a mature hydric pine flatwood community with large slash pines and sweetbays. The herbaceous layer is diverse and included both netted chain fern and cinnamon fern.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	
with	

Delta = [with-current]

If preservation as mitigation:	
Preservation adjustment factor =	
Adjusted mitigation delta =	

If mitigation:	
Time lag (t-factor) =	
Risk factor =	

For impact assessment areas	
FL = delta x acres =	
Acres	

For mitigation assessment areas	
RFG = delta/(t-factor x risk) =	

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Eglin Blvd. Reroute		Wetland 7
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Impact	Josey Walker	7/12/2023

Scoring Guidance
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed

Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	Wetland 7 is located south of Eglin Blvd and east of Memorial Trail. It is partially buffered by a mature upland forest. To the north it is directly adjacent to Eglin Blvd.	w/o pres or current: 7 / with:
.500(6)(b)Water Environment (n/a for uplands)	The wetland currently receives untreated stormwater from multiple inputs. However, no observable water quality deficiencies were noted in the hydric pine flatwoods community.	w/o pres or current: 7 / with:
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	The wetland is a mature hydric pine flatwood community with large slash pines on hummocks, sweetbays, red bays, water oaks, and titi. The herbaceous layer is diverse and included both netted chain fern and cinnamon fern.	w/o pres or current: 9 / with:

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	
with	

Delta = [with-current]

If preservation as mitigation:	
Preservation adjustment factor =	
Adjusted mitigation delta =	

If mitigation:	
Time lag (t-factor) =	
Risk factor =	

For impact assessment areas	
FL = delta x acres =	
Acres	

For mitigation assessment areas	
RFG = delta/(t-factor x risk) =	