DRAFT
ENVIRONMENTAL ASSESSMENT (EA)
FOR
INTELLIGENCE, SURVELLIANCE, AND RECONNAISSANCE (ISR) CAMPUS AREA DEVELOPMENT AT
JOINT BASE LANGLEY-EUSTIS, VIRGINIA

PREPARED FOR:

Langley Air Force Base,
Joint Base Langley-Eustis, Virginia

PREPARED BY:

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DRAFT FINDING OF NO SIGNIFICANT IMPACT (FONSI)
AND
FINDING OF NO PRACTICABLE ALTERNATIVE (FONPA)
for
Intelligence, Surveillance, Reconnaissance (ISR) Campus Area Development
Environmental Assessment (EA) at
Joint Base Langley-Eustis, Langley AFB, Virginia

Pursuant to provisions of the National Environmental Policy Act (NEPA), Title 42 United States Code (USC) Sections 4321 to 4347, implemented by Council on Environmental Quality (CEQ) Regulations, Title 40, Code of Federal Regulations (CFR) § 1500-1508, and 32 CFR § 989, Environmental Impact Analysis Process, the U.S. Air Force (Air Force) assessed the potential environmental consequences associated with installation development activities centered on the development of the ISR Campus Area to provide infrastructure improvements necessary to support the mission of the 633d Air Base Wing (ABW) and tenant units at Joint Base Langley-Eustis AFB (JBLE-Langley), Hampton County, Virginia.

PURPOSE AND NEED
The purpose of the proposed action is to support Intelligence, Surveillance and Reconnaissance (ISR) activities and address planning needs for organizations throughout the installation. This proposed action is needed to consolidate cyber functions on the installation and allow for an advancing, mixed-use development for the entire installation. It also addresses deficiencies of function and capability in the facilities and infrastructure at JBLE-Langley that arise with buildings that are no longer being used, are deteriorating, and no longer meet evolving needs.

The Environmental Assessment (EA), incorporated by reference into this finding, analyzes the potential environmental consequences of activities associated with the ISR Campus Area Development at JBLE-Langley, and provides environmental protection measures to avoid or reduce adverse environmental impacts.

The EA considers all potential impacts of the proposed action, which includes initiatives for facility construction, infrastructure improvements and construction, repairs and renovations, demolition, and the No-Action Alternative. The EA also considers proposed actions that are reasonably foreseeable and have a reasonably close causal relationship which may have environmental impacts when combined with other projects in the Region of Influence.

PROPOSED ACTION
Under the Proposed Action, several construction activities are planned to support the further development of the ISR Area Campus. The installation development activities are planned to occur in District 7, the North Base District, and have been identified to be constructed over the next 6 – 11+ years. General construction and infrastructure improvement activities would occur to support the development of the ISR Campus. New buildings would be constructed to be above the known 100-year floodplain in an already developed area. Destruction or modification of existing wetlands will be avoided, to the extent possible, whenever there is a practicable alternative. For purposes of this EA, the proposed action is defined as development of the entire campus as opposed to individual development activities.

RATIONALE FOR NO OTHER ALTERNATIVES EVALUATED

Planning initiatives detailed in the JBLE Installation Development Plan (IDP) [Mason & Hanger, 2017], evaluated nine planning districts for JBLE-Langley. Each planning district was fully evaluated to consider: operational, natural, environmental, built/historic buildings, location of archaeological sites, capacity opportunities, sustainability development indicators, energy use, asset optimization and space use, Major Command (MAJCOM) and tenant initiatives, and mission requirements. A brief description of each District evaluated along with the development constraints detailed in the ADP [Urban Collaborative, 2019] are summarized below:

District 1, Heavier-Than-Air (HTA), is located south of Sweeney Boulevard and east of Nealy Avenue. The King Street Bridge enters JBLE-Langley at the southwest corner of the HTA District. It is the historic core of the base, and its main functions include privatized officer housing and Air Combat Command (ACC) headquarters. District 1 has limited development opportunities due to Historic District limitations and Clear Zone restrictions.

District 2, Lighter-Than-Air (LTA), is located in the northeastern section of the base primarily to the east of Roma Road and north of the LTA Bypass. Development potential in this district is somewhat limited due to the existing historic facilities and operational impacts from airfield operations (particularly noise impacts). It is also isolated from core base community support facilities and experiences high winds off the shoreline which restrict land uses and construction types on the eastern edge of the district. Anti-terrorism (AT) standoff distances are met by only a few existing structures.

District 3, Shellbank District, is located in the southern section of the installation south of Sweeney Boulevard and west of Nealy Avenue. It serves as the center of JBLE-Langley's commercial and base service activities. The LaSalle Gate is in this district and serves as the primary entrance to the base from the south. This area is effectively "built-out," with only a handful of readily available development sites within the district.

District 4, Flightline East District, has most of the facilities located between the main runway and Sweeney Boulevard. This area is used primarily to support the Maintenance and Operations Groups and has only a single development parcel at the intersection of Sweeney Blvd. and Nealy Ave. It is also the primary parking area for F-22 aircraft.

District 5, Flightline West District, is used primarily for aviation-based facilities, including hangars, runways, taxiways, and aircraft parking. Development opportunities are limited to near the flightline. Incompatible uses, airfield restrictions, and lack of connections to the Shellbank District all present challenges within the district.

District 6, Flightline North District, runs along the width of the base between the runway and Lee Road, Weyland Bypass, LTA Bypass, and Ward Road. This district contains a partially abandoned golf course along the west end of the runway and runways and taxiways to the east. This area lies within the footprint of the Historic Bombing Range and construction will require coordinating with an unexploded ordnance (UXO) contractor. It is also isolated from existing population centers and has limited development opportunities due to operational and natural constraints.

District 7, North Base District, is located primarily to the north of Weyland Road and the LTA Bypass. It is already a built-up area and includes a mix of uses, including administrative, industrial, and recreational open space. Features of this district include a golf course in the western half of the district, the

emerging ISR campus in the east, and easy access to NASA Langley Research Center. Operational constraints exist and extend from the North Flightline District into the North Base District. Also, the North Base District is isolated from existing population centers and UXO remnants on the old golf course restrict expansion of the ISR campus in that direction without UXO removal. However, this district could accommodate a wide range of mission or community-related functions. Given its separation from the historically populated areas of JBLE-Langley, this district has potential to site sensitive functions that currently are in the Shellbank District.

District 8, Munitions District, is a sparsely developed industrial area located at the north of the installation. Due to the potentially hazardous nature of munitions operations, it is separated from other areas of the base with a large amount of open space and a perimeter fence. There is limited development potential due to Explosives Safety Quantity Distance (ESQD) restrictions.

District 9, Bethel Recreation District, located south of the Langley Family Housing area and Big Bethel Reservoir has a variety of recreational uses. Given the privatization of the housing in this district, there is currently few development opportunities within this district. Opportunities for partnership with the reservoir/recreation area with outside entities exist. There are no known environmental issues at this district.

In May 2020, two of the planning districts were combined reducing the number of planning districts to eight. District 7, the North Base District, which currently has some ISR Campus facilities, emerged as the best location to consolidate cyber functions and further develop the ISR Campus based on the analysis performed in both the IDP and the Area Development Plan (ADP). Therefore, the other seven District locations were removed from further consideration.

The IDP guides long-range development of JBLE-Langley and fully analyzed the North Base District where the ISR Campus emerged. Key recommendations from the IDP for District 7 include consolidate as many ISR, Supply Chain Operations Group (SCOG), and related functions as possible into a walkable campus. In January 2019, an ADP workshop was held to evaluate solutions to support not only ISR needs, but address planning needs for organizations throughout the installation. Stakeholders developed a vision for the campus that guided planning needs for organizations throughout the installation [Urban Collaborative, 2019]. Ultimately a vision for the campus was developed to guide future development:

> To enable a culture of innovation that supports the physical, mental, and spiritual well-being of our warfighters, we will create a walkable campus with connected quads framed by multi-use buildings.

The three major goals are: 1) a walkable campus, 2) connected quads, 3) framed by multi-use buildings. The ADP presents an evaluation matrix that was used to numerically evaluate design alternatives for the site and then perform a quantitative alternative analysis of three Course of Action Design Alternatives (COA). COA1, (Status Quo), scored the lowest at 12%. COA2, a planned scenario based on known projects and future unknown projects that require expandability while trying to keep development costs to a minimum scored 83%. COA3, the preferred design alternative, is a planned scenario based on known projects and future unknown projects that require expandability, with less concern on existing planned development. COA3 scored the highest at 88% overall. The results ultimately revealed the preferred design alternative should be based on COA3 and located in District 7.

NO-ACTION ALTERNATIVE

Under the No-Action Alternative, this project would not be implemented resulting in no change in the status quo. The existing infrastructure used to support ISR activities would continue to be maintained. Synergy between ISR functions would not exist and the infrastructure would not be able to support rapidly changing and increasing mission requirements. The need for a more secure area would not be met. Future services and amenities in the project area would be limited. A walkable campus with connected quads framed by multi-use buildings would not be achieved and some operational mission buildings would be isolated from the ISR Campus. No significant impacts would be experienced with the no action alternative.

ENVIRONMENTAL CONSEQUENCES

The analyses of the affected environment and environmental consequences of implementing the Preferred Alternative presented in the EA concluded that by implementing standing environmental protection measures and operational planning, the Air Force would be in compliance with all terms and conditions and reporting requirements.

The Air Force has concluded that the Preferred Alternative has no significant impact on the following resources which were carried through for full analysis in this EA:

- Air Installation Compatibility Use Zone (AICUZ),
- Air Quality,
- Cultural Resources,
- Hazardous Materials and Waste,
- Safety and Occupational Health,
- Transportation,
- Infrastructure and Utilities, and
- Wetlands and Chesapeake Bay Preservation Areas.

In accordance with 32 CFR § 989.10, *Tiering*, the Air Force is encouraged to make reference to other environmental documents, and environmental documents prepared by other agencies to eliminate repetitive discussions of the same issue and to focus on the issues relating to specific actions. If the Air Force adopts another Federal agency's environmental document, subsequent Air Force environmental documents may also be tiered. This logic is carried forward in 32 CFR § 989.14(d), *Environmental Assessment* where long descriptions and lengthy, detailed data should be avoided and rather incorporated by reference to the background data which supports the concise discussion of the proposal and relevant issues. The primary NEPA documents reviewed as part of the preliminary Environmental Impact Analysis Process (EIAP) to determine which resource areas should be carried forward for full analysis include:

Joint Base Langley Eustis – Langley (JBLE-Langley). 2016. *Final Environmental Assessment for Installation Development at JBLE-Langley*, Virginia. September 2016.

United States (US) Army Corps of Engineers et al., 2021. *Environmental Impact Statement (EIS) Fifth Generation Formal Training Unit Optimization*, JBLE-Langley-Eustis, VA, Eglin Air Force Base, Florida. Feb. 2021.

As a result of the preliminary EIAP, the Proposed Action was determined to have no effect on several resources; therefore, these resources were eliminated from detailed analysis in this EA. The resources

that were eliminated from detailed analysis and the rationale for their elimination are presented in the subsections below:

Aesthetics and Visual Resources

Aesthetics and Visual Resources are fully analyzed within the referenced 2016 EA (of which some of the proposed campus buildings are included). Criteria used to determine if a significant impact to this resource area include having a substantial adverse impact on a scenic vista or viewshed; substantially damaging scenic resources, including, but not limited to, primary/secondary ridgelines, trees, rock outcroppings, and historic buildings; Substantially degrading the existing visual character or quality of the site and its surroundings; or, create a new source of substantial light or glare that would adversely impact day or nighttime views in the area. The proposed ISR campus is planned to be placed in an area with existing buildings and parking lots (some of which will be incorporated into the campus layout). Smaller parking lots enhance the visual environment by increasing the ratio of landscaped area to paved area and allowing more conformance to natural topography. Parking lots between and behind buildings can reduce the visual impact from the circulation system and increase pedestrian access from walkway systems. The campus will be an improvement over current conditions as the walkable, interconnected quad layout will be aesthetically pleasing, with no threat that the significance criteria will be exceeded.

Biological/Natural Resources

Special species status was verified using US Fish and Wildlife Information for Planning and Consultation (IPaC) reports generated on July 5, 2021. No critical habitat, refuge lands, or fish hatcheries exist in the proposed project area. Both the City of Hampton and the ISR campus areas were checked. The July 5, 2021 verification ensured consistency with the referenced 2016 EA, which also indicated no critical habitat, refuge lands or fish hatcheries in existence in the City of Hampton.

The August 2021 updated JBLE-Langley 2021 Integrated Natural Resources Management Plan (INRMP) Annual Review Summary Report indicates that while monitoring for both currently listed and newly listed species is ongoing, no new discoveries of rare threatened or endangered species have been reported. This includes the Eastern Black Rail, which is the only species indicated as a potential visitor to JBLE-Langley as per the IPaC (there are no known critical habitats as indicated in the paragraph above.)

Earth Resources

Geology. The Proposed Action would not involve any activity that would adversely affect subsurface geological formations. Further development of the ISR campus including construction and demolition activities, would be conducted using standard methods that would have no appreciable impact on geology. Excavation is expected to be conducted only to depths necessary for the facility foundations and utility connections. For these reasons, the Proposed Action would have no appreciable effect on geology.

Soils. Because the Proposed Action will be conducted in an already built-up area, adverse effects on soils will not occur. Construction activities would not be conducted during periods of wet weather and would be staged to allow for stabilization of disturbed soils.

Fugitive dust control techniques, such as watering and stockpiling, would be implemented to minimize adverse impacts and would comply with applicable regulations.

Topography. The topography where the Proposed Action will occur is level to gently sloping. Buildings will therefore not be built on a highly sloped site so the finished floor elevation will not impact the surrounding topography.

Land Use

The existing ISR Campus is located in an area that is already built up and disturbed by past development. The general construction and demolition activities would occur only within areas that correlate with compatible land use types or may be permitted with specific restrictions to ensure that development within those areas is not disruptive to the installation's missions. For these reasons, the Proposed Action would have no appreciable effect on Land Use.

Noise

Noise generated from construction and demolition activities under the Proposed Action would temporarily increase ambient noise levels in and around the sites. However, the increased noise levels would be intermittent and limited to daytime working hours during the overall construction/demolition period. The Proposed Action would have no appreciable effect on noise.

Socioeconomics/Environmental Justice

The Proposed Action would not impact the number of persons currently working at JBLE-Langley or living in the local area. However, the proposed action would have a beneficial impact after the structures are built since more services and housing would potentially be made available for servicemen, their families, and employees who work at the installation. During the construction and demolition work, there would be negligible impacts on the local economy. For these reasons, the Proposed Action would have no appreciable effect on the local demographics, local economy, number of persons living in on-base or off-base housing, number of children attending schools in the area, or demand for emergency services (medical, police, and firefighting).

Water Resources

Surface water. JBLE-Langley is located between the Northwest and Southwest Branches of the Back River, a tributary of Chesapeake Bay. In general, drainage for the area ultimately flows into Chesapeake Bay via the Back River, Newmarket Creek, Brick Kiln Creek, and Tabbs Creek. Construction in the Proposed Action area has little to no surface water with the exception of wetland resources which are fully analyzed in this EA. The installation's stormwater system consists primarily of drainage ditches in more undeveloped areas, and underground piping in developed areas. Compliance with applicable federal and state law will be followed to protect the nation's waters and discharge of any pollutant into any jurisdictional waters of the U.S. as defined in 40 CFR § 230.3(s) will be prohibited unless appropriate permitting requirements have been met. For these reasons, the Proposed Action will have no appreciable effect on surface water.

Groundwater. The three water bearing units beneath JBLE-Langley are the Water Table Aquifer, the Yorktown-Eastover Aquifer, and the Chickahominy-Piney Point Aquifer. The groundwater beneath JBLE-Langley is not a practical source of irrigation or potable water. The potable water is supplied by the City of Newport News Water Works and is ultimately sourced from the Chickahominy River. For these reasons, the Proposed Action will not impact groundwater resources.

Floodplains. The discussion of floodplains is tiered from the 2016 EA, which describes that JBLE-Langley is almost entirely within the 100-year floodplain. Given this fact, there is no other practicable alternative within the footprint of JBLE that would actually avoid the 100-year floodplain. Although the Proposed Action may have an irreversible and irretrievable impact on floodplains, the Proposed Action would only impact a small portion of the 100-year floodplain area. Additionally, the potential demolition of

buildings within the 100-year floodplain would represent a long-term, minor, beneficial effect. The Proposed Action would not have significant impacts associated with floodplains.

Coastal zone management areas (CZMA). The Virginia Department of Environmental Quality (VDEQ) is responsible for oversight and implementation of Virginia's Coastal Zone Management Program established in 1986 which is comprised of state agencies and local governments that administer enforceable laws, regulations, and policies to protect the Commonwealth's coastal resources. Federal lands, including JBLE-Langley, are statutorily excluded from the coastal zone pursuant to Section 304 of the CZMA. CZMA requires that federal agencies be consistent with enforceable policies of state coastal zone management programs when conducting or supporting activities within or outside the coastal zone that affect land use, water use, or natural resources of the coastal zone. The Proposed Action would not have a significant impact to land use, water use, or natural resources of the coastal zone. For these reasons, the Proposed Action will not impact the CZMA but would still be subject, to the maximum extent practicable, enforceable policies of the states coastal zone management program to ensure federal consistency.

FINDING OF NO PRACTICABLE ALTERNATIVE (FONPA)

Per 32 CFR § 989.14(g), there are no practicable alternatives to avoid wetlands and construction within the 100-year floodplain. To support ISR activities and address planning needs for organizations throughout the installation, the removal of wetlands within the proposed action area (North Base District) may be necessary. However, wetland destruction will be avoided if at all possible. To consolidate cyber functions on the installation and allow for an advancing, mixed-use development for the entire installation, construction within the 100-year floodplain is unavoidable. Other alternatives considered were reviewed as part of the ISR Campus Area Development Plan (Urban Collaborative, 2019) and were eliminated from further detailed analysis because they did not meet the stated purpose and need for the action, were not practicable, or would have led to greater overall environmental impact. For the reasons stated in the EA, the eliminated alternatives are not practicable alternatives to avoiding the potential wetland impacts. The only practicable alternative is described in the "Description of the Proposed Action" section above.

Based on my review of the facts and analyses contained in the attached EA, I find that there is no practicable alternative to action in a100-year floodplain or construction in a wetland.

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

Based on my review of the facts and analyses contained in the attached EA, conducted under the provisions of CEQ NEPA Regulations, (Title 40 Code of Federal Regulations [CFR] §§ 1500–1508) [(The Sep 14, 2020 version of CEQ NEPA rules is being used, 85 FR 43304-43376], and 32 CFR § 989, Department of the Air Force EIAP, I conclude that the Preferred Alternative ISR Campus Area Development would not have a significant environmental impact, either by itself or with a close causal relationship to other known projects at JBLE-Langley. Accordingly, an Environmental Impact Statement is not required. The signing of this Finding of No Significant Impact and Finding of No Practicable Alternative completes the environmental impact analysis process.

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Col Dee Jay Katzer Date

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GLOSSARY OF ABBREVIATIONS AND ACRONYMS

ACAM	Air Conformity Applicability Model
ACC	Air Combat Command
ABW	Air Base Wing
ACHP	Advisory Council for Historic Preservation
ADAIR	Adversary Air
ADP	Area Development Plan
AFB	Air Force Base
AFI	Air Force Instruction
AFMAN	Air Force Manual
AICUZ	Air Installation Compatible Use Zone
AQCR	Air Quality Control Region
AMU	Aircraft Maintenance Squadron
APE	Area of Potential Effect
APOE	Aerial Port of Embarkation
AST	Aboveground Storage Tank
AT/FP	Antiterrorism/Force Protection
BLDG	Building
BMP	Best Management Practices
CAA	Clean Air Act
CATM	Combat Arms Training and Maintenance
CBPA	Chesapeake Bay Preservation Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, & Liability Act
CFR	Code of Federal Regulations
CH_4	Methane
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_{2e}	Carbon Dioxide Emissions
COA	Course of Action
COC	Contaminants of Concern
CRM	Cultural Resources Management
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DCGS	Distributed Common Ground System
DD	Decision Document
DGS	Distributed Ground Station
DoD	Department of Defense
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EO	Executive Order
EOD	Explosive Ordinance Disposal
EPA	Environmental Protection Agency
ERG	Environmental Research Group
ERP	Emergency Restoration Program
ESQD	Explosives Safety Quantity Distance

FONPA	Finding of No Practicable Alternative
FONSI	Finding of No Significant Impact
FFE	Finished Floor Elevation
FS	Fighter Squadron
FTA	Fire Training Area
FTS	Fighter Training Squadron
FTU	Formal Training Unit
FW	Fighter Wing
GCIC	Global Cyberspace Integration Center
GHG	Green House Gases
GIS	Geographic Information Systems
HAF	Headquarters Air Force
HAP	Hazardous Air Pollutants
HTA	Heavier Than Air
HQ	Headquarters
ICRMP	Integrated Cultural Resources Management Plan
IDP	Installation Development Plan
IFS	Installation Facilities Standards
INRMP	Integrated Natural Resource Management Plan
IPaC	Information for Planning and Consultation
IRP	Installation Restoration Program
ISR	Intelligence, Surveillance, Reconnaissance
ISRW	Intelligence, Surveillance, Reconnaissance Wing
JBLE	Joint Base Langley-Eustis
QD	Quantity Distance
LMOC	Live Mission Operations Capability
LTA	Lighter than Air
LUC	Land Use Control
MAJCOM	Major Command
MBTA	Migratory Bird Treaty Act
MMRP	Military Munitions Response Program
MWR	Military Morale, Welfare and Recreation
NAAQS	National Ambient Air Quality Standards
NASA	National Aeronautics and Space Administration
NEPA	National Environmental Policy Act
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NFRAP	No Further Remedial Action Planned
NHPA	National Historic Preservation Act
NOA	Notice of Availability
NOAA	National Oceanographic and Atmospheric Administration
NO_x	Nitrogen Oxides
NO_2	Nitrogen Dioxide
N_2O	Nitrous Oxide
NPS	National Park Service
NRHP	National Register of Historic Places
O_3	Ozone
OU	Operable Unit
PCB	Polychlorinated Biphenyl

PM	Particulate Matter
Pb	Lead
QD	Quantity Distance
RA	Remedial Action
RCRA	Resource Conservation and Recovery Act
RMA	Resource Management Area
RPA	Resource Protection Area
ROCA	Record of Conformity Analysis
ROD	Record of Decision
ROI	Return on Investment
RPA	Resource Protection Area
SAP	Special Access Program
SCIF	Sensitive Compartmentalized Information Facility
SCOG	Supply Chain Operations Group
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO_2	Sulphur Dioxide
SOx	Sulphur Oxides
TPH	Total Petroleum Hydrocarbons
tpy	Tons per year
TS/SCI	Top Secret/Sensitive Compartmentalized Information
UFC	United Facilities Criteria
US	United States
USACE	United States Army Corps of Engineers
USAF	United States Air Force
USC	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Services
UXO	Unexploded Ordnance
V-CRIS	Virginia Cultural Resources Information System
VDEQ	Virginia Department of Environmental Quality
VDHR	Virginia Department of Historic Resources
VOC	Volatile Organic Compounds
WG	Wing

1.0 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

This Environmental Assessment (EA) addresses the potential impacts associated with consolidating cyber functions at Joint Base Langley-Eustis, Langley Air Force Base (JBLE-Langley), Virginia. Multiple proposed activities are outlined in the Intelligence, Surveillance, Reconnaissance (ISR) Campus Area Development Plan (ADP) and include actions which allow for evolving, mixed-use development at the installation [Urban Collaborative, 2019]. The 480th and 363d ISR Wings (ISRW), the 755th ISRG (US Air Force [USAF] Reserve), and the 192d Wing (Virginia ANG) support the ISR functions across the installation. Together with Headquarters (HQ) Air Combat Command (ACC) priorities have been identified for installation development activities that are centered on the development of the ISR Area Campus. While some activities may be implemented in a phased approach within the next 6 – 11 years, other activities are at the planning stage and are expected to be evaluated depending on capacity, development requirements, and Headquarters Air Force (HAF) programming needs. The ISR Campus ADP is the primary driver referenced for the types of activities expected with this project; however, the Regulating Plan is the driver for the ISR Campus ADP. This EA was prepared to evaluate the potential environmental impacts of the proposed project in compliance with the National Environmental Policy Act of 1969 (NEPA) (42 United States Code [USC] 4331 et seq.), the regulations of the President's Council on Environmental Quality (CEQ) that implement NEPA procedures (Title 40 Code of Federal Regulations [CFR] §§ 1500-1508) [(The Sep. 14, 2020 version of CEQ NEPA rules is being used, 85 FR 43304-43376], the Air Force Environmental Impact Assessment Process Regulations at 32 CFR Part 989, and Air Force Instruction 32-7061 [U.S. Air Force, 2003].

The intent of the ongoing process of installation development at JBLE-Langley is to provide infrastructure improvements necessary to support the mission of the 633d Air Base Wing (ABW) and tenant units. The ISR Campus ADP identifies requirements for the improvement of the physical infrastructure and functionality of JBLE, including current and future mission and facility requirements, development constraints and opportunities, and land use relationships.

JBLE-Langley is located in the Coastal Plain/Tidewater region of Virginia, in an area known as the Virginia Peninsula. It is situated just north of Hampton, Virginia and is on the western edge of the Chesapeake Bay. It is approximately 80 miles southeast of Richmond, Virginia and occupies 2,883 acres of land. It was established in 1916 and has hosted a variety of missions and aircraft types throughout its history. JBLE-Langley is home to the 633d ABW. The primary tenant mission at JBLE Langley is that of the 1st Fighter Wing (FW), which has three squadrons. The 27th Fighter Squadron (FS) and the 94 FS both fly the F-22 Raptor airframe, and the 71st Fighter Training Squadron (FTS) flies the T-38A. The 192 Wing (WG), an Air National Guard unit, augments the 1 FW by integrating its flight crews with the 27 FS and 94 FS. The 633d ABW and 1 FW accomplish their base support and air operation missions through several subordinate groups. JBLE-Langley is also home to HQ ACC. Permanent beddown of the F-22 Formal Training Unit (FTU) mission at JBLE-Langley is currently underway. With this, the following units will be relocated to JBLE-Langley: 43 FS, 43 Aircraft Maintenance Squadron (AMU), the 2nd FTS, and the 325th Training Support Squadron. Figure 1.1 illustrates the regional location of JBLE-Langley.

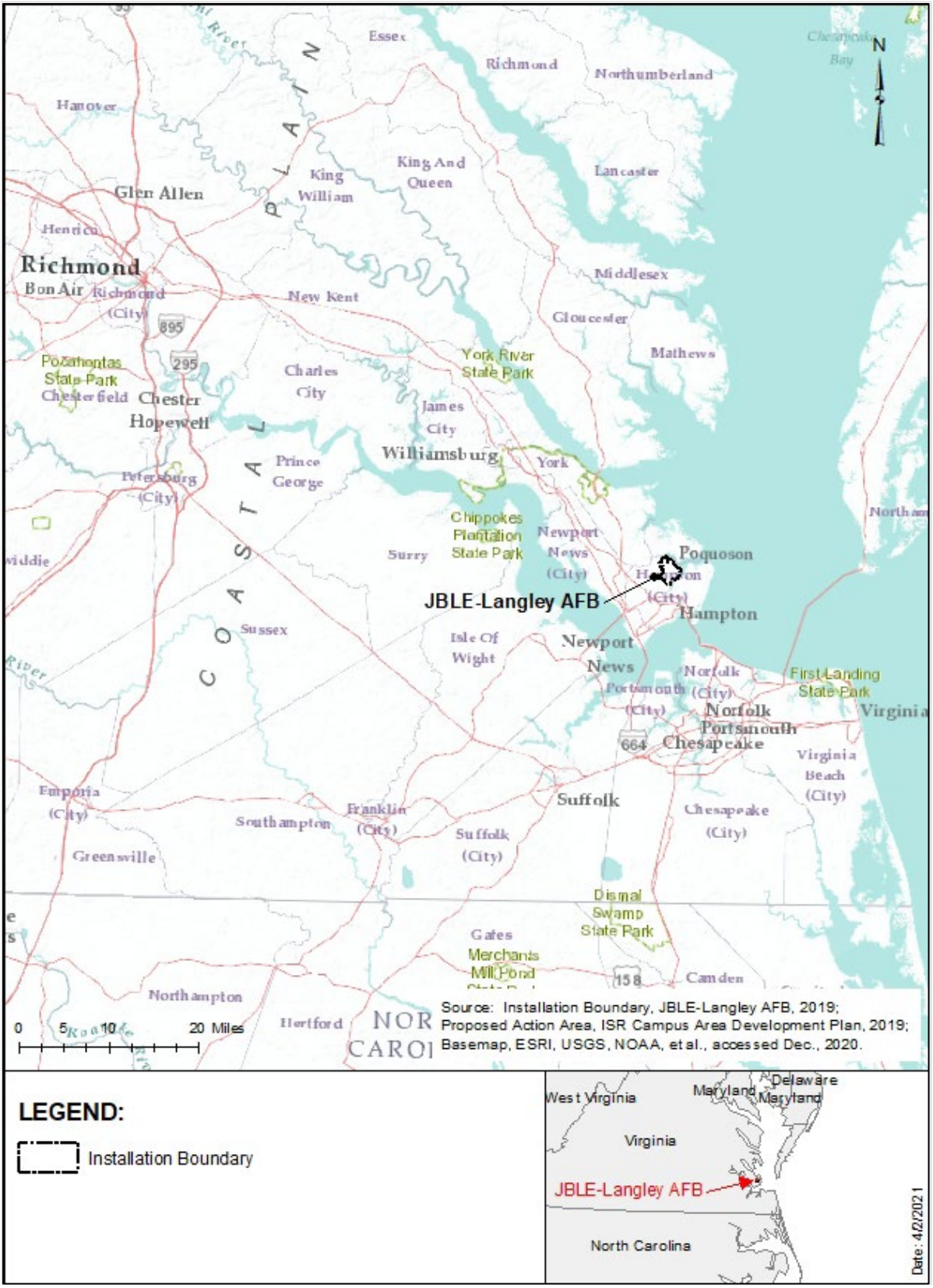

Figure 1.1: Location of JBLE-Langley AFB

In recent years, JBLE-Langley has also been home to emerging ISR operations and is currently home to the 480 and 363 ISR Wings, which oversee the Global Cyberspace Integration Center (GCIC) and the Distributed Common Ground System (DCGS). JBLE-Langley is also an aerial port of embarkation (APOE) for the rapid deployment of fighter aircraft, supporting forces and units from neighboring military installations to meet worldwide mission requirements [Mason & Hanger, 2017].

The intent of the 633d ABW and HQ ACC is to streamline NEPA compliance and facilitate the installation development process by evaluating in one integrated document the potential impacts on the environment of the project proposed for execution at JBLE-Langley.

The information presented in this document will serve as the basis for deciding whether the proposed action would result in a significant impact to the environment, requiring the preparation of an Environmental Impact Statement (EIS), or whether no significant impacts would occur, in which case a Finding of No Significant Impact (FONSI) would be appropriate. If the execution of any of the proposed action would involve "construction" in a wetland as defined in Executive Order (EO) 11990, *Protection of Wetlands*, or "action" in a floodplain under EO 11988, *Floodplain Management* as amended by EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*, a Finding of No Practicable Alternative (FONPA) would be prepared in conjunction with the FONSI.

1.2 PURPOSE OF PROPOSED ACTION

The purpose of the proposed action is to address deficiencies of function and capability in the facilities and infrastructure at JBLE-Langley that are no longer being used, are deteriorating, or meeting evolving needs. Development of the ISR campus at JBLE-Langley will support current and future ISR-related missions. Because the ISR requirements are expected to grow, security and safety are priorities and allow for mission synergy. Consolidation of cyber functions will afford the opportunity for mixed-use development which will benefit the entire Installation. Left unchecked, these deficiencies would degrade the ability of the installation to meet Air Force, Department of Defense (DoD), State and/or Federal requirements, and to support current and future mission requirements. The proposed action has a specific purpose and need, which is presented in Table 1.1 and further described in section 1.3.

Table 1.1: Purpose and Need for Proposed Action

Project Name	Purpose of the Action	Need for the Action
ISR Campus Area Development	*The purpose of the ISR Campus Area Development is to support ISR activities and address planning needs for organizations throughout the installation.*	*The ISR campus is needed to consolidate cyber functions on the installation and allow for an advancing, mixed-use development for the entire installation.*

1.3 NEED FOR PROPOSED ACTION

The need for the proposed action at JBLE-Langley is to provide and maintain infrastructure that is adequate to the needs of 633d ABW and its tenant units, and to do so in a manner that:

- Meets applicable DoD installation master planning criteria, consistent with Unified Facilities Criteria (UFC) 2-100-01, *Installation Master Planning*.

- Aligns with the 2011 Air Force Civil Engineering Strategic Plan [U.S. Air Force, 2011a].
- Meets current Air Force requirements for functional space, consistent with Air Force Manual 32-1084, *Facility Requirements* [U.S. Air Force, 2016].
- Meets applicable DoD antiterrorism/force protection criteria, consistent with UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings,* and the Air Force Installation Force Protection Guide.
- Reduces the consumption of fuel, energy, water, and other resources; maximizes the use of existing facilities; and reduces the footprint of unnecessary or redundant facilities and infrastructure in accordance with EO 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis* dated January 25, 2021.
- *Efficient Federal Operations* (the Energy Policy Act of 2005, and the Air Force's 20/20 by 2020 initiative).
- Provides reliable utilities and an efficient transportation system to support JBLE-Langley, consistent with Air Force Manual 32-1084.
- Supports and enhances the morale and welfare of personnel assigned to the installation, their families, and civilian staff, consistent with Department of Defense Instruction 1015.10, *Military Morale, Welfare, and Recreation (MWR) Programs* (6 July 2009).
- Conforms to the Joint Base Langley-Eustis Installation Facilities Standards (IFS) Vol. 1 [JBLE, 2018a], which helps to ensure a consistent and coherent architectural character throughout JBLE-Langley.

1.4 INTERAGENCY/INTERGOVERNMENTAL COORDINATION AND CONSULTATIONS

1.4.1 Interagency Coordination and Consultations

Scoping is an early and open process for developing the breadth of issues to be addressed in the EA and for identifying significant concerns related to a proposed action. Per the requirements of Intergovernmental Cooperation Act of 1968 (42 U.S.C. 4231(a)) and EO 12372, Federal, state, and local agencies with jurisdiction that could be affected by the proposed actions were notified during the development of this EA.

Appendix A contains the list of agencies consulted during this analysis. Copies of correspondence will be included after the 30-day public comment period.

1.4.2 Government to Government Consultations

EO 13175, *Consultation and Coordination with Indian Tribal Governments* directs Federal agencies to coordinate and consult with Native American tribal governments whose interests might be directly and substantially impacted by activities on federally administered lands. Consistent with that executive order, DoD Instruction 4710.02, *Interactions with Federally-Recognized Tribes*, and Air Force Instruction (AFI) 90-2002, *Air Force Interaction with Federally-recognized Tribes*, federally-recognized tribes that are historically affiliated with the JBLE-Langley geographic region will be invited to consult on all proposed undertakings that have a potential to affect properties of cultural, historical, or religious significance to the tribes. The tribal consultation process is distinct from NEPA consultation or the interagency coordination process, and it requires separate notification of all relevant tribes. The timelines for tribal consultation are also distinct from those of other consultations. The JBLE-Langley point-of-contact for Native American tribes is the Installation Commander.

The Native American tribal governments that will be coordinated or consulted with regarding these actions are listed in Appendix A.

1.4.3 Other Agency Consultations

Per the requirements of Section 7 of the Endangered Species Act and implementing regulations, Migratory Bird Treaty Act (MBTA), and the CZMA, findings of effect and request for concurrence will be transmitted to the Commonwealth of Virginia and the US Fish and Wildlife Service/National Marine Fisheries Service.

As part of the state agency review discussed in Section 1.5, the Virginia Department of Historic Resources (as the State Historic Preservation Officer [SHPO]) reviewed this EA and requested JBLE-Langley consult directly to satisfy Section 106 of the National Historic Preservation Act and implementing regulations (36 CFR Part 800). Completion of Section 106 review with the SHPO is required to determine if there are any adverse effects on historic properties. The Section 106 review has been completed with the documentation presented in Appendix A.

Correspondence regarding the findings and concurrence and resolution of any adverse effect will be included in Appendix A.

1.5 PUBLIC AND AGENCY REVIEW OF EA

Because the Proposed Action area coincides with wetlands and/or floodplains, it is subject to the requirements and objectives of EO 11990, *Protection of Wetlands* and EO 11988, *Floodplain Management* as amended by EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*. The Air Force published early notice that the proposed action would occur in a floodplain/wetland in the newspapers of record (listed below) on 23-24 May 2021. The notice also solicited public comment on the proposed action and any practicable alternatives. The comment period for public and agency input on these projects ended on 18 June 2021.

A Notice of Availability (NOA) of the Draft EA and FONSI/FONPA was published in the newspaper of record (listed below), announcing the availability of the EA for review on 27-28 March 2022. The NOA invited the public to review and comment on the Draft EA. The public and agency review period ends on 27 April 2022. The NOA and public and agency comments are provided in Appendix A.

The NOA and early notice of project execution in a floodplain/wetland was published in the following newspaper: The Daily Press, Newport News, Virginia (VA).

Copies of the Draft EA and FONSI/FONPA were also made available for review at the following locations:

Bateman Library (BLDG 161) 42 Ash Avenue Langley AFB, VA 23665	Hampton Library 4207 Victoria Boulevard Hampton, VA 23669	Poquoson Library 500 City Hall Avenue Poquoson, VA 23662

1.6 DECISION TO BE MADE

The EA evaluates whether the proposed action would result in significant impacts on the human environment. If significant impacts are identified, JBLE-Langley would undertake mitigation to reduce impacts to below the level of significance, undertake the preparation of an EIS addressing the proposed action, or abandon the proposed action.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

The Proposed Action evaluates project alternatives separately. This project is based on the anticipated activities as outlined in the LMOC CCD (Urban Collaborative, 20120). This includes initiatives for facility construction; infrastructure improvements and construction; and demolition. Figure 2.1 illustrates the location on JBLE-Langley for the Proposed Action.

2.2 SELECTION STANDARDS FOR PROJECT ALTERNATIVES

The scope and location of the Proposed Action and, where applicable, alternatives, have undergone extensive review by JBLE-Langley, Master Planning Division and the U.S. Army Engineering and Support Center at Huntsville. Other stakeholders including, 633d Civil Engineering Squadron personnel, local government agencies, and supporting installation and Air Force staff specialists all participated in the ISR Campus Development workshop to identify the activities associated with the Proposed Action.

Potential alternatives to the Proposed Action were each evaluated based on four universal selection standards, which were applied to all alternatives. The Proposed Action included selection standards applicable solely to that single project; project-specific selection standards are introduced in Section 2.3.1, where applicable.

Standard 1: The alternative(s) must meet the purpose of the Proposed Actions, to remedy deficiencies in the infrastructure of JBLE-Langley. The alternative(s) must also address the need to provide and maintain infrastructure that is adequate to support the installation's mission and applicable Air Force, State, and Federal requirements. It must also satisfy the purpose of and need for each project (see Sections 1.2 and 1.3).

Standard 2: The alternative(s) must make as much use as possible of existing land and facilities, avoid creating or maintaining redundant space or infrastructure, avoid or minimize operational inefficiencies, and represent the most cost-effective and sustainable alternative.

Standard 3: The alternative(s) must be consistent with the Regulating Plan zoning requirements, applicable installation architectural compatibility guides, and relevant legal and regulatory requirements, and must accommodate applicable, known man-made and natural development constraints (e.g., explosive quantity-safety distances, imaginary surfaces associated with the installation's runways, wetlands - the relevant constraints may vary depending on the project).

Standard 4: The alternative(s) must maintain or improve the quality of life enjoyed by personnel and dependents at JBLE-Langley.

Planning initiatives detailed in the JBLE Installation Development Plan (IDP) [Mason & Hanger, 2017], evaluated nine planning districts for JBLE-Langley. Each planning district was fully evaluated to consider: operational, natural, environmental, built/historic buildings, location of archaeological sites, capacity opportunities, sustainability development indicators, energy use, asset optimization and space use, Major Command (MAJCOM) and tenant initiatives, and mission requirements. A brief description of each District evaluated along with the development constraints detailed in the ADP [Urban Collaborative, 2019] are summarized here:

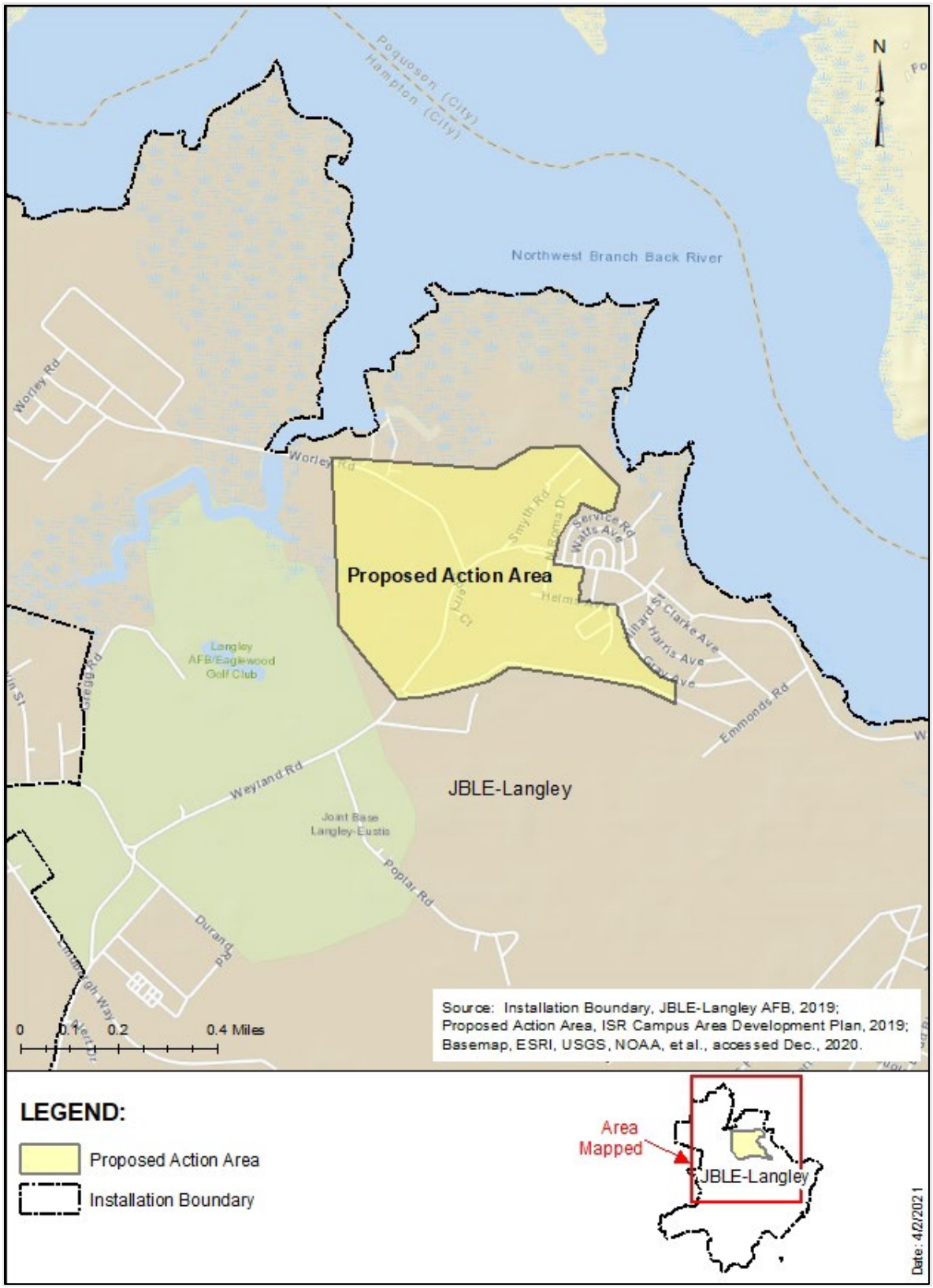

Figure 2.1: Location on JBLE-Langley for the Proposed Action

District 1, Heavier-Than-Air (HTA), is located south of Sweeney Boulevard and east of Nealy Avenue. The King Street Bridge enters JBLE-Langley at the southwest corner of the HTA District. It is the historic core of the base, and its main functions include privatized officer housing and ACC headquarters. District 1 has limited development opportunities due to Historic District limitations and Clear Zone restrictions.

District 2, Lighter-Than-Air (LTA), is located in the northeastern section of the base primarily to the east of Roma Road and north of the LTA Bypass. Development potential in this district is somewhat limited due to the existing historic facilities and operational impacts from airfield operations (particularly noise impacts). It is also isolated from core base community support facilities and experiences high winds off the shoreline which restrict land uses and construction types on the eastern edge of the district. Anti-terrorism (AT) standoff distances are met by only a few existing structures.

District 3, Shellbank District, is located in the southern section of the installation south of Sweeney Boulevard and west of Nealy Avenue. It serves as the center of JBLE-Langley's commercial and base service activities. The LaSalle Gate is in this district and serves as the primary entrance to the base from the south. This area is effectively "built-out," with only a handful of readily available development sites within the district.

District 4, Flightline East District, has most of the facilities located between the main runway and Sweeney Boulevard. This area is used primarily to support the Maintenance and Operations Groups and has only a single development parcel at the intersection of Sweeney Blvd. and Nealy Ave. It is also the primary parking area for F-22 aircraft.

District 5, Flightline West District, is used primarily for aviation-based facilities, including hangars, runways, taxiways, and aircraft parking. Development opportunities are limited to near the flightline. Incompatible uses, airfield restrictions, and lack of connections to the Shellbank District all present challenges within the district.

District 6, Flightline North District, runs along the width of the base between the runway and Lee Road, Weyland Bypass, LTA Bypass, and Ward Road. This district contains a partially abandoned golf course along the west end of the runway and runways and taxiways to the east. This area lies within the footprint of the Historic Bombing Range and construction will require coordinating with a UXO contractor. It is also isolated from existing population centers and has limited development opportunities due to operational and natural constraints.

District 7, North Base District, is located primarily to the north of Weyland Road and the LTA Bypass. It is already a built-up area and includes a mix of uses, including administrative, industrial, and recreational open space. Features of this district include a golf course in the western half of the district, the emerging ISR campus in the east, and easy access to NASA Langley Research Center. Operational constraints exist and extend from the North Flightline District into the North Base District. Also, the North Base District is isolated from existing population centers and UXO remnants on the old golf course restrict expansion of the ISR campus in that direction without UXO removal. However, this district could accommodate a wide range of mission or community-related functions. Given its separation from the historically populated areas of JBLE-Langley, this district has potential to site sensitive functions that currently are in the Shellbank District.

District 8, Munitions District, is a sparsely developed industrial area located at the north of the installation. Due to the potentially hazardous nature of munitions operations, it is separated from other

areas of the base with a large amount of open space and a perimeter fence. There is limited development potential due to ESQD restrictions.

District 9, Bethel Recreation District, located south of the Langley Family Housing area and Big Bethel Reservoir has a variety of recreational uses. Given the privatization of the housing in this district, there is currently few development opportunities within this district. Opportunities for partnership with the reservoir/recreation area with outside entities exist. There are no known environmental issues at this district.

In May 2020, two of the planning districts were combined reducing the number of planning districts to eight. Flightline East and Flightline West were combined into Flightline South. District 7, the North Base District, which currently has some ISR Campus facilities, emerged as the best location to consolidate cyber functions and further develop the ISR Campus based on the analysis performed in both the IDP and the ADP. Therefore, the other seven District locations were removed from further consideration.

The IDP guides long-range development of JBLE-Langley and fully analyzed the North Base District where the ISR Campus emerged. Key recommendations from the IDP for District 7 include consolidate as many ISR, Supply Chain Operations Group (SCOG), and related functions as possible into a walkable campus. In January 2019, an ADP workshop was held to evaluate solutions to support not only ISR needs, but address planning needs for organizations throughout the installation. Stakeholders developed a vision for the campus that guided planning needs for organizations throughout the installation [Urban Collaborative, 2019]. Ultimately a vision for the campus was developed to guide future development:

> To enable a culture of innovation that supports the physical, mental, and spiritual well-being of our warfighters, we will create a walkable campus with connected quads framed by multi-use buildings.

The three major goals are: 1) a walkable campus, 2) connected quads, 3) framed by multi-use buildings. The ADP presents an evaluation matrix that was used to numerically evaluate design alternatives for the site and then perform a quantitative alternative analysis of three Course of Action (COA) Design Alternatives. COA1, (Status Quo), scored the lowest at 12%. COA2, a planned scenario based on known projects and future unknown projects that require expandability while trying to keep development costs to a minimum scored 83%. COA3, the preferred design alternative, is a planned scenario based on known projects and future unknown projects that require expandability, with less concern on existing planned development. COA3 scored the highest at 88% overall. The results ultimately revealed the preferred design alternative should be based on COA3 and located in District 7.

2.3 PROPOSED ACTIONS AND ALTERNATIVES

The NEPA and the CEQ regulations mandate the consideration of reasonable alternatives to the proposed actions. “Reasonable alternatives” are those that also could be utilized to meet the purpose of and need for each proposed action.

The NEPA process is intended to support flexible, informed decision-making; the analysis provided by this EA and feedback from the public and other agencies will inform decisions made about whether, when, and how to execute the proposed actions. Among the alternatives evaluated for each project is a No-Action alternative. The No-Action alternative will substantively analyze the consequences of not

undertaking the proposed action, not simply conclude no impact, and will serve to establish a comparative baseline for analysis.

The scope, location, and objectives of the proposed action is described here. This section also presents reasonable and practicable alternatives, for projects where multiple viable courses of action exist. Those alternatives are assessed relative to the universal selection standards and project-specific selection standards, where applicable. Alternatives that met all four selection standards were considered reasonable and retained for consideration in this EA. Alternatives that did not meet one or more of the standards were considered unreasonable and are not retained for consideration in the EA.

2.3.1 Facility Construction Projects

Project C1: ISR Campus Area Development

Under this project, general construction and infrastructure improvement activities would occur to support the development of the ISR Campus. New buildings would be constructed to be above the known flood zone and in accordance with UFC 3-201-01 [USACE et al, 2021b]. Construction of the buildings would include site preparation, a concrete foundation, roof system, electrical system, and ventilation. A few existing buildings and parking lots may be evaluated for demolition in an area that is already developed. Proper off-site demolition material disposal would be completed. Materials would be recycled to the fullest extent possible, and all trucks used to haul materials would be covered to prevent materials from littering roadways and surrounding areas. Debris not reused, recycled, or considered as inert waste would be disposed in an appropriate, local landfill. After demolition, the land would be developed or landscaped to support the specific mission for which the area would be used. Any utilities to these structures would be disconnected prior to demolition and new utilities would comply with the regulating plan. Improvements to existing roads and the construction of new roads are also under evaluation to support anticipated traffic flow, mitigate safety hazards, and to support future revenue generating projects. As the goal of the ISR Campus ADP includes creating a walkable campus with connected quads, road improvements are expected to include sidewalks and tree-lined streets. The proposed project map is shown in Figure 2.2.

Additional Project-Specific Selection Standards: Buildings must meet the three goals as identified in the ISR Campus Plan: 1) Create a walkable campus, 2) Include connected quads, and 3) Frame quads with multi-use buildings.

Alternatives Considered but Eliminated from Further Analysis: According to the IDP, a total of nine planning districts were evaluated as possibilities to locate the ISR Area Campus. Major and minor planning constraints including operational, natural and environmental, built/historic buildings, and archaeological sites were considered. Installation capacity opportunities, sustainability development indicators, energy use, asset optimization and space use, MAJCOM and tenant initiatives, and mission requirements were also considered. The IDP identified District 7, the North Base District, as the best location to situate the ISR campus. This district met the initial screening Standards 1 – 4 and emerged as the best location to situate the ISR campus as detailed in Section 2.2. The ISR Campus ADP further evaluated District 7 with additional project-specific selection standards and performed a quantitative alternative analysis of three COA design alternatives. The results ultimately revealed that the preferred design alternative should be based on COA3 and located in District 7. Therefore, the other Districts were not analyzed further.

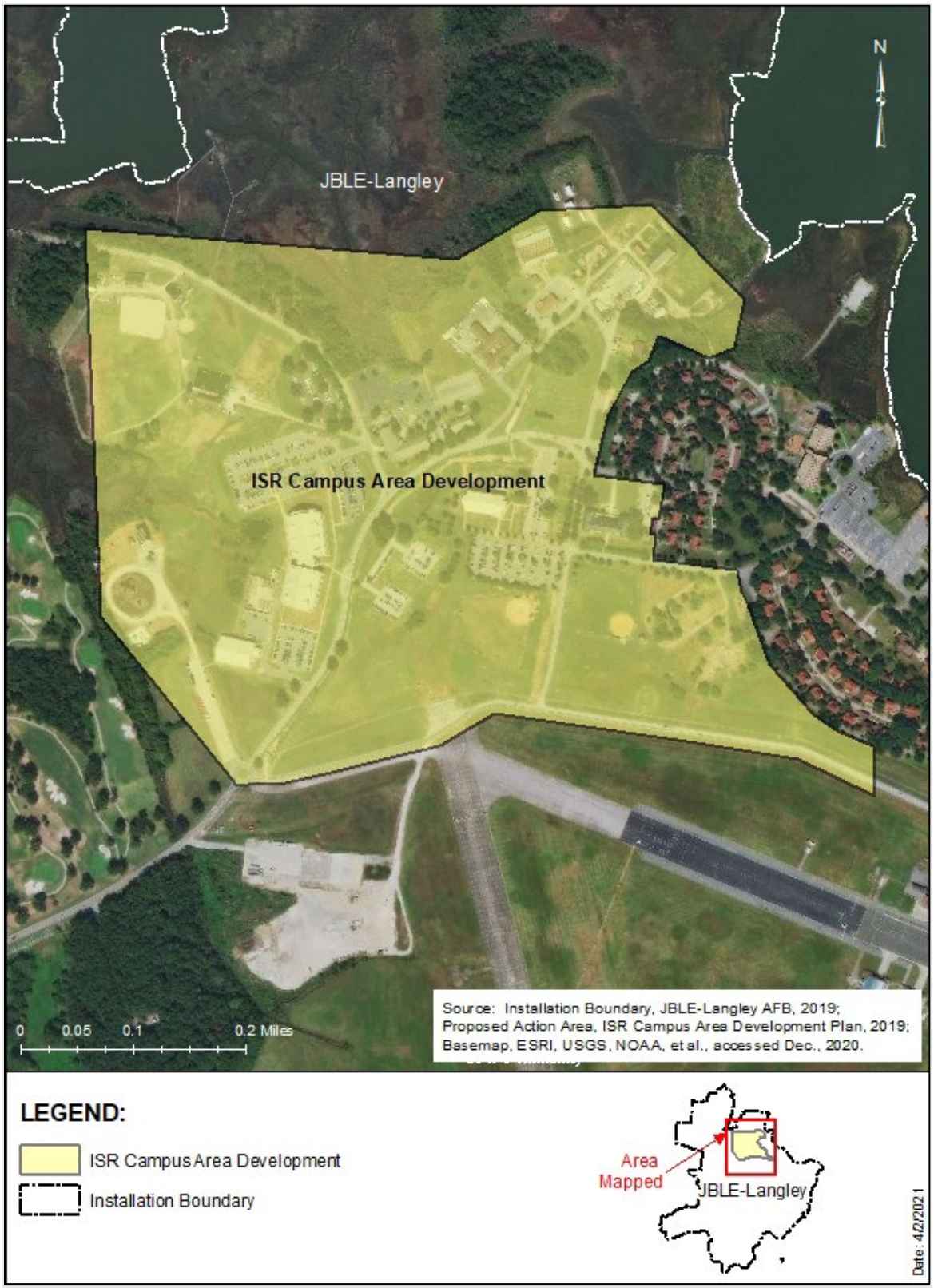

Figure 2.2: Proposed Project Map

Alternatives Considered for this Project:

No-Action Alternative C1: Under the No-Action Alternative, this project would not be implemented, resulting in no change in the status quo. The existing infrastructure used to support ISR activities would continue to be maintained. A walkable campus with connected quads framed by multi-use buildings would not be achieved and some operational mission buildings would be isolated from the ISR Campus. Synergy between ISR functions would not exist and the infrastructure would not be able to support rapidly changing and increasing mission requirements. The need for a more secure area would not be met. Future services and amenities in the project area would be limited. This is considered unreasonable because the overall goal of the ISR Campus ADP is consolidation in a more secure area that allows for rapid growth and synergy between ISR functions. Consolidation will in turn enable a culture of innovation that supports physical, mental, and spiritual well-being for all tenants, civil and military alike. The No-Action Alternative will be carried forward for further analysis, consistent with CEQ regulations, to provide a baseline against which the impacts of the action alternative can be assessed.

3.0 AFFECTED ENVIRONMENT

The Region of Influence (ROI) for the Proposed Action is JBLE-Langley, unless otherwise specified below for a particular resource area where a resource would have a different ROI.

3.1 SCOPE OF THE ANALYSIS

This chapter describes the current conditions of the environmental resources, either man-made or natural, that would be impacted by implementing the Preferred Alternative or the No Action Alternative.

Based on the scope of the Proposed Action, resource areas with minimal or no impacts were identified through a preliminary screening process. The following describes those resource areas not carried forward for a detailed analysis, along with the rationale for their elimination.

Regardless of the alternative selected, the following resources have been previously evaluated in the Final Environmental Assessment for Installation Development at Joint Base Langley-Eustis, VA [JBLE-Langley, 2016]. There has also been recent applicable analysis performed in the "Environmental Impact Statement (EIS) Fifth Generation Formal Training Unit Optimization" [USACE et al., 2021]. The proposed action is similar in context with the proposed actions in the 2016 EA, with construction and demolition as the focal action with additional appropriate correlation with some activities within the EIS. The 2016 EA included some of the individual buildings proposed for the ISR campus. In the spirit of 32 CFR § 989.10, § 989.14 and the "Instructions for Use of the EA Template Air Force Environmental Assessments", if a resource is not impacted or has been found to have only minor impacts in previously completed environmental analyses, the source document should be cited, and no further discussion is needed. Therefore, the following environments have been removed from further evaluation after having been determined the environment would not pose a significant impact in the Final Environmental Assessment for Installation Development at Joint Base Langley-Eustis, VA dated September 2016 and/or the Environmental Impact Statement Fifth Generation Formal Training Unit Optimization:

As a result of the preliminary EIAP analysis, the Proposed Action was determined to have no effect on several resources; therefore, these resources were eliminated from detailed analysis in this EA. The resources that were eliminated from detailed analysis and the rationale for their elimination are presented in the subsections below:

Aesthetics and Visual Resources

Aesthetics and Visual Resources are fully analyzed within the referenced 2016 EA (of which some of the proposed campus buildings are included). Criteria used to determine if a significant impact to this resource area include having a substantial adverse impact on a scenic vista or viewshed; substantially damaging scenic resources, including, but not limited to, primary/secondary ridgelines, trees, rock outcroppings, and historic buildings; Substantially degrading the existing visual character or quality of the site and its surroundings; or, create a new source of substantial light or glare that would adversely impact day or nighttime views in the area. The proposed ISR campus is planned to be placed in an area with existing buildings and parking lots (some of which will be incorporated into the campus layout). Smaller parking lots enhance the visual environment by increasing the ratio of landscaped area to paved area and allowing more conformance to natural topography. Parking lots between and behind buildings can reduce the visual impact from the circulation system and increase pedestrian access from walkway

systems. The campus will be an improvement over current conditions as the walkable, interconnected quad layout will be aesthetically pleasing, with no threat that the significance criteria will be exceeded.

Biological/Natural Resources

Special Species status was verified using US Fish and Wildlife Information for Planning and Consultation (IPaC) reports generated on July 5, 2021. No critical habitat, refuge lands, or fish hatcheries exist in the proposed project area. Both the City of Hampton and the ISR campus areas were checked. The July 5, 2021 verification ensured consistency with the referenced 2016 EA, which also indicated no critical habitat, refuge lands or fish hatcheries in existence in the City of Hampton.

The August 2021 updated INRMP indicates that an in-depth species survey around the Big Bethel Reservoir that includes birds is on-going, but that to date, no new discoveries of rare threatened or endangered species have been reported (JBLE-Langley, 2021). A bird survey using acoustic survey methods to verify presence or absence of certain birds is programmed for FY23 at JBLE-Langley. Therefore, at the time this EA was prepared, no new discoveries of rare threated or endangered species at JBLE-Langley have been reported. This includes the Eastern Black Rail, which is the only species indicated as a potential visitor to JBLE-Langley as per the IPaC. There are no known critical habitats as indicated in the paragraph above.

Earth Resources

Geology. The Proposed Action would not involve any activity that would adversely affect subsurface geological formations. Further development of the ISR campus including construction and demolition activities, would be conducted using standard methods that would have no appreciable impact on geology. Excavation is expected to be conducted only to depths necessary for the facility foundations and utility connections. For these reasons, the Proposed Action would have no appreciable effect on geology.

Soils. Because the Proposed Action will be conducted in an already built-up area, adverse effects on soils will not occur. Construction activities would not be conducted during periods of wet weather and would be staged to allow for stabilization of disturbed soils. Fugitive dust control techniques, such as watering and stockpiling, would be implemented to minimize adverse impacts and would comply with applicable regulations.

Topography. The topography where the Proposed Action will occur is level to gently sloping. Buildings will therefore not be built on a highly sloped site so the finished floor elevation will not impact the surrounding topography.

Land Use

The existing ISR Campus is located in an area that is already built up and disturbed by past development. The general construction and demolition activities would occur only within areas that correlate with compatible land use types or may be permitted with specific restrictions to ensure that development within those areas is not disruptive to the installation's missions. For these reasons, the Proposed Action would have no appreciable effect on Land Use.

Noise

Noise generated from construction and demolition activities under the Proposed Action, would temporarily increase ambient noise levels in and around the site. However, the increased noise levels would be intermittent and limited to daytime working hours during the overall construction/demolition period. The Proposed Action would have no appreciable effect on noise.

Socioeconomics/Environmental Justice

The Proposed Action would not impact the number of persons currently working at JBLE-Langley or living in the local area. However, the proposed action would have a beneficial impact after the structures are built since more services and housing would potentially be made available for servicemen, their families, and employees who work at the installation. During the construction and demolition work, there would be negligible impacts on the local economy. For these reasons, the Proposed Action would have no appreciable effect on the local demographics, local economy, number of persons living in on-base or off-base housing, number of children attending schools in the area, or demand for emergency services (medical, police, and firefighting).

Water Resources

Surface water. JBLE-Langley is located between the Northwest and Southwest Branches of the Back River, a tributary of Chesapeake Bay. In general, drainage for the area ultimately flows into Chesapeake Bay via the Back River, Newmarket Creek, Brick Kiln Creek, and Tabbs Creek. Construction in the Proposed Action area has little to no surface water with the exception of wetland resources which are fully analyzed in this EA. The installation's stormwater system consists primarily of drainage ditches in more undeveloped areas, and underground piping in developed areas. Compliance with applicable federal and state law will be followed to protect the nation's waters and discharge of any pollutant into any jurisdictional waters of the U.S. as defined in 40 CFR § 230.3(s) will be prohibited unless appropriate permitting requirements have been met. For these reasons, the Proposed Action will have no appreciable effect on surface water.

Groundwater. The three water bearing units beneath JBLE-Langley are the Water Table Aquifer, the Yorktown-Eastover Aquifer, and the Chickahominy-Piney Point Aquifer. The groundwater beneath JBLE-Langley is not a practical source of irrigation or potable water. The potable water is supplied by the City of Newport News Water Works and is ultimately sourced from the Chickahominy River. For these reasons, the Proposed Action will not impact groundwater resources.

Floodplains. The discussion of floodplains is tiered from the 2016 EA, which describes that JBLE-Langley is almost entirely within the 100-year floodplain. Given this fact, there is no other practicable alternative within the footprint of JBLE that would actually avoid the 100-year floodplain. Although the Proposed Action may have an irreversible and irretrievable impact on floodplains, the Proposed Action would only impact a small portion of the 100-year floodplain area. Additionally, the potential demolition of buildings within the 100-year floodplain would represent a long-term, minor, beneficial effect. The Proposed Action would not have significant impacts associated with floodplains.

Coastal zone management areas (CZMA). The VDEQ is responsible for oversight and implementation of Virginia's Coastal Zone Management Program established in 1986 which is comprised of state agencies

and local governments that administer enforceable laws, regulations, and policies to protect the Commonwealth's coastal resources. Federal lands, including JBLE-Langley, are statutorily excluded from the coastal zone pursuant to Section 304 of the CZMA. CZMA requires that federal agencies be consistent with enforceable policies of state coastal zone management programs when conducting or supporting activities within or outside the coastal zone that affect land use, water use, or natural resources of the coastal zone. The Proposed Action would not have a significant impact to land use, water use, or natural resources of the coastal zone. For these reasons, the Proposed Action will not impact the CZMA but would still be subject, to the maximum extent practicable, enforceable policies of the states coastal zone management program to ensure federal consistency.

3.2 AIR INSTALLATION COMPATIBLE USE ZONE (AICUZ)

3.2.1 AICUZ

The purpose of the AICUZ (Air Installation Compatible Use Zone) Program is to protect health, safety and welfare from noise and hazards through compatible development in the airport environment. The program was instituted by the Department of Defense to address the problem of land development surrounding military air installations. It provides for the development and implementation of a plan to determine those land areas for which development should be significantly influenced by the operation of the airfield. These land areas are then designated as the AICUZ for that installation. Per, 32 CFR §989.32 (Noise), EIAP land use analysis is required as it relates to aircraft noise impacts originating from air installations and in accordance with procedures outlined in AFI 32-7063, AICUZ program. The Air Force's guidance on the AICUZ Program can be found in AFI 32-1015 (2019, updated 2021). The noise contours depicted in Figure 3.1 are based on typical operations and flight tracks during normal operations.

Weather conditions, wind, pilot technique, and other air traffic can cause some lateral deviation within the traffic pattern around a runway (JBLE-Langley, 2020).

3.2.2 Encroachment

The Department of Defense AICUZ Program was initiated to protect the public's health, safety and welfare and to prevent encroachment from degrading the operational capability of military air installations in meeting national security objectives. The proposed action area is located in a built-up area that is part of the overall footprint of JBLE-Langley in the North Base District.

3.3 AIR QUALITY

Air quality refers to the condition of the air within our surroundings. Good air quality is clean, clear, and free from pollutants. It is measured by assessing a variety of pollution indicators. Poor air quality can affect or harm human health and/or the environment. The Clean Air Act (CAA) requires the EPA to set National Ambient Air Quality Standards (NAAQS) (40 CFR Part 50) for six principal pollutants which can be harmful to public health and the environment. Per the CAA, there are two types of national ambient air quality standards: *Primary* standards provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. *Secondary* standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. Table 3.1 presents the most recently established standards for the six principal pollutants (NAAQS Table | Criteria Air Pollutants | US EPA).

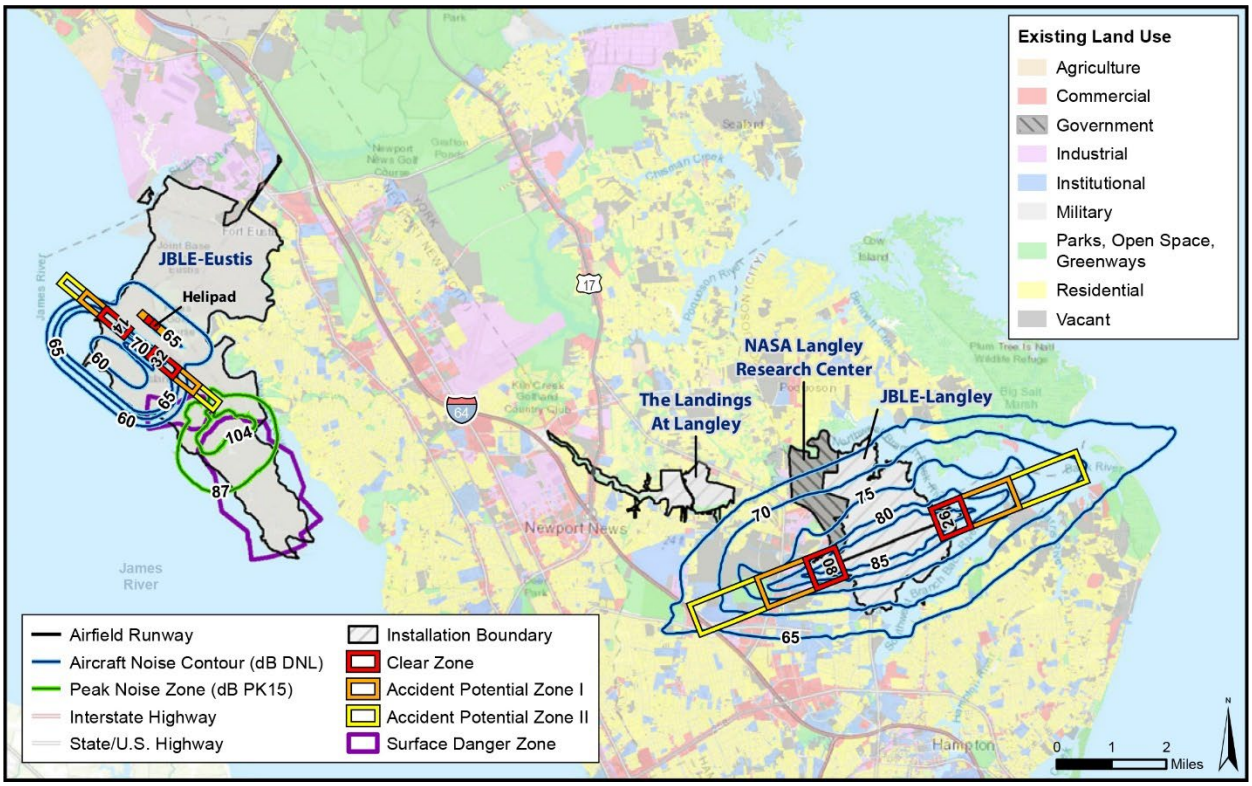

Figure 3.1: 2020 AICUZ Noise Contours, Clear Zones, Accident Potential Zones, and Surface Danger Zones for Joint Base Langley-Eustis

Source: JBLE-Langley Public Brochure, AICUZ Study, 90% draft, March 2020.
Note: The aircraft operations and small arms operations noise contours shown on this map use different noise metrics.

Table 3.1 National Ambient Air Quality Standards

Pollutant [links to historical tables of NAAQS reviews]	Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)	primary	8 hours	9 ppm	Not to be exceeded more than once per year
		1 hour	35 ppm	
Lead (Pb)	primary and secondary	Rolling 3 month average	0.15 µg/m^3 (1)	Not to be exceeded
Nitrogen Dioxide (NO_2)	primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	primary and secondary	1 year	53 ppb (2)	Annual Mean
Ozone (O_3)	primary and secondary	8 hours	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hour

Pollutant [links to historical tables of NAAQS reviews]		Primary/ Secondary	Averaging Time	Level	Form
					concentration, averaged over 3 years
Particle Pollution (PM)	$PM_{2.5}$	primary	1 year	12.0 µg/m^3	annual mean, averaged over 3 years
		secondary	1 year	15.0 µg/m^3	annual mean, averaged over 3 years
		primary and secondary	24 hours	35 µg/m^3	98th percentile, averaged over 3 years
	PM_{10}	primary and secondary	24 hours	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)		primary	1 hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

Source: USEPA, NAAQS table. Accessed [https://www.epa.gov/criteria-air-pollutants/naaqs-table, 2021].

Notes:

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m3 as a calendar quarter average) also remain in effect.

(2) The level of the annual NO_2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.

(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O_3 standards are not revoked and remain in effect for designated areas. Additionally, some areas may have certain continuing implementation obligations under the prior revoked 1-hour (1979) and 8-hour (1997) O_3 standards.

(4) The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO_2 standards or is not meeting the requirements of a State Implementation Plan (SIP) call under the previous SO_2 standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.

(5) Units of measure for the standards are parts per million (ppm) by volume, parts per billion (ppb) by volume, and micrograms per cubic meter of air (µg/m^3).

The ROI for the air quality impacts analysis for criteria pollutants and their precursors is the applicable attainment, nonattainment, or maintenance area surrounding the proposed demolition, construction, and operational activities.

3.3.1 Hazardous Air Pollutants

The United States Environmental Protection Agency (USEPA) sets national standards, called National Emission Standards for Hazardous Air Pollutants (NESHAPS), to control and reduce hazardous air

pollutant (HAP) emissions from major stationary sources as well as from *minor* area sources. A *major* source of HAPs is defined as any stationary facility or source that directly emits or has the potential to emit 10 tons per year or more of any single HAP or 25 tons per year or more of total HAPs combined. An area source is any stationary source that is not a major source. Military aircraft are mobile sources and HAP emissions from this source category are not regulated under Section 112(b) of the 1990 CAA Amendments. Mobile source emissions would be the primary HAPs emitted during construction.

3.3.2 General Conformity Rule

The USEPA designates an area as in attainment when it complies with the NAAQS. Areas that violate these ambient air quality standards are designated as nonattainment areas. Areas that have improved air quality from nonattainment to attainment are designated as attainment/maintenance areas. Areas that lack monitoring data to demonstrate attainment or nonattainment status are designated as unclassified and are treated as attainment areas for regulatory purposes. When an area is designated in nonattainment and/or in maintenance, the CAA Section 176(c), General Conformity Rule, is applied. The intent of this rule is to ensure that Federal actions do not adversely affect the timely attainment of air quality standards in areas of nonattainment or maintenance.

3.3.3 Greenhouse Gas Emissions

Greenhouse gases (GHGs) are gases that trap heat in the atmosphere. Natural processes and human activities generate these emissions. Three most common GHGs are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Each GHG is assigned a global warming potential and is standardized to carbon dioxide (CO_2), which has a global warming potential value of one. A GHG is multiplied by its global warming potential to calculate the total equivalent emissions of carbon dioxide (CO_2e). The accumulation of GHGs in the atmosphere regulates the earth's temperature. Observations show that warming of the climate is unequivocal. The global warming observed over the past 50 years is due primarily to human-induced emissions of heat-trapping gases. These emissions come mainly from the burning of fossil fuels (coal, oil, and gas), with contributions from forest clearing, agricultural practices, and other activities. The potential effects of GHG emissions from the proposed action is by nature global. Given the global nature of climate change and the current state of the science, it is not useful at this time to attempt to link the emissions quantified for local actions to any specific climatological change or resulting environmental impact. Nonetheless, the GHG emissions from the proposed action has been quantified to the extent feasible in this EA for information and comparison purposes.

EO 13693, *Planning for Federal Sustainability in the Next Decade*, outlines policies intended to ensure that federal agencies evaluate climate change risks and vulnerabilities and manage the short- and long-term effects of climate change on their operations and mission. The EO specifically requires federal agencies to measure, report, and reduce their GHG emissions from both their direct and indirect activities. *Direc*t activities include sources the agencies own and control and the generation of electricity, heat, or steam they purchase. *Indirect* activities include actions of their vendor supply chains, delivery services, and employee travel and commuting. Per 40 CFR § 98.1, a reference point of 25,000 metric tons was identified below which mandatory GHG reporting is not required. In 2007, Virginia set a target to reduce GHG emissions to thirty percent below 2000 levels by 2025.

JBLE-Langley

JBLE-Langley is located in the Hampton Roads Intrastate Air Quality Control Region (AQCR) (40 CFR § 81.93). Norfolk-Virginia Beach-Newport News, Virginia, also referred to as the "Hampton Roads Area", is designated attainment for all criteria pollutants except the 1997 8-hour ozone NAAQS, for which the Area is a maintenance area [USEPA, 2020a]. As a result, air emissions of the O_3 precursors of nitrogen

oxides (NO_x) and volatile organic compounds (VOCs) for the proposed action were compared against the conformity applicability thresholds.

Mobile sources, such as vehicle and aircraft emissions, are not regulated under permitting requirements and are not covered under existing stationary source permitting requirements. Table 3.2 presents the current conditions emission inventories for JBLE-Langley and the city of Hampton [USEPA, 2020b] to provide a background for the role JBLE-Langley operations play in regional air emissions. JBLE-Langley operates under a Stationary Source State Operating Permit, the details of which may be found in the Final EIS Fifth Generation Formal Training Unit Optimization report, February 2021.

As indicated in Table 3.2, current HAP emissions are very small at 0.83 tons per year, and aircraft and other mobile sources comprise just 0.04 tons per year of the total. This represents 0.08 percent of the city of Hampton emissions.

Table 3.2: Joint Base Langley-Eustis Current Emissions Summary

Location	VOCs	CO	NO_x	SO_2	PM_{10}	$PM_{2.5}$	HAPs
JBLE-Langley Stationary Sources[1]	8.72	13.51	23.33	1.00	1.86	1.74	0.79
JBLE-Langley Mobile Sources[2,3]	32.28	441.90	188.10	15.98	27.27	22.84	0.04
Total JBLE-Langley	***41.00***	***455.41***	***211.43***	***16.98***	***29.13***	***24.58***	***0.83***
City of Hampton[4]	3,674	13,671	2,570	151	538	278	964.42
Percent of City of Hampton Emissions	1.12	3.33	8.23	11.24	5.41	8.84	0.08

Sources: [1]JBLE-Langley 2019; [2]AECOM 2017; [3]Air Force 2019a; [4]USEPA 2020b.

Note: The table above is based on the findings of the JBLE EIS. The units are in tons/year. The results for the current Proposed Action, ISR Campus Development are available in Appendix C. The general conformity rule does not apply to the proposed action.

A Detailed Air Conformity Applicability Model (ACAM) Report is provided in Appendix C. It provides an overview of assumptions used for the air quality analysis. Additionally, Appendix C includes a Record of Conformity Analysis (ROCA) for NO_X and VOCs, the precursors for ozone, and includes information for the remaining criteria pollutants (CO, SO_2, $PM_{2.5}$, PM_{10}). The ROCA documents that the requirements of the General Conformity Rule do not apply to the proposed action.

Training Airspace

Training airspace areas are not associated with the proposed action area. As a result, aircraft operation air emissions are not considered further in this analysis.

General Construction/Proposed Action Area

The USEPA sets national standards, called NESHAPS, to control and reduce hazardous air pollutant (HAP) emissions from *major* stationary sources as well as from *minor* "area sources." A major source of HAPs is defined as any stationary facility or source that directly emits or has the potential to emit 10 tons per year or more of any single HAP or 25 tons per year or more of total HAPs combined. An area source is any stationary source that is not a major source. Mobile source emissions would be the primary HAPs emitted during construction. The heavy equipment used during construction would likely vary in age and have a range of pollution reduction effectiveness. The construction equipment would be operated

intermittently for the duration of the proposed action and would produce negligible ambient HAPs in a localized area as depicted in the ACAM model (see Appendix C).

3.4 CULTURAL RESOURCES

Section 106 of the National Historic Preservation Act (NHPA), as amended, and its implementing Code of Federal Regulation (36 CFR Part 800) require federal agencies to define an Area of Potential Effect (APE) and consider the direct and indirect effects of their undertakings on historic properties (archaeological and architectural) that are eligible for or listed in the National Register of Historic Places (NRHP). Additionally, the NHPA affords the SHPO and in some cases the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on the effects of proposed undertakings. Ideally commencing at the early stages of project planning, the Section 106 process seeks to accommodate historic preservation concerns with the needs of federal undertakings through consultation among agency officials and other interested parties. The goal of this consultation is to identify historic properties directly or indirectly effected by the undertaking, assess potential effects, and seek ways to avoid, minimize, or mitigate any adverse effects. As part of the state agency review, JBLE-Langley is required to consult directly with the Virginia Department of Historic Resources (VDHR, which is the SHPO) to satisfy the implementing regulations of Section 106 of the NHPA. Note that the NEPA analysis does not replace or negate the need for Section 106 review, therefore, any undertaking that has the potential to affect the physical landscape or viewshed are subject to review for possible adverse effects to historic properties. Coordination with the SHPO is required in all cases.

3.4.1 Archaeological Sites

Background research for archaeological and architectural resources was conducted through VDHR's Virginia Cultural Resource Information System (V-CRIS) on June 21, 2021. According to V-CRIS, the entirety of the proposed ISR Campus was previously subjected to archaeological survey efforts, and no archaeological resources were documented within this area [see Hunter and Jones 1989, Libbon 2018, Moore and Blanton 2005, Wheaton, et al. 1991]. Therefore, the proposed undertaking does not have the potential to significantly affect archaeological sites eligible for or listed in the NRHP. This area does contain two previously recorded "archaeological locations," however, they do not require further consideration due to their modern nature and/or disturbed context in which they were recorded. Archaeological sites in this EA will therefore not be analyzed further.

3.4.2 Architectural Resources

Section 106 of the NHPA requires evaluation of NRHP eligibility for all properties 50 years of age or older as well as properties less than 50 years of age using Criteria Consideration G to determine if they are of exceptional importance and therefore have achieved significance within the last 50 years (e.g., properties critical to the Cold War [1947-1991] or NASA properties used for the Space Shuttle Program [1969-2010]). Regardless of previous determinations regarding NRHP eligibility, DHR requests that surveys be updated every five years to determine if significance has been lost due to alterations or gained due to the passage of time and new understandings of a resource's history. The following summary is based on a review of available geographic information systems (GIS) data, the 2019 JBLE-Langley Integrated Cultural Resources Management Plan (ICRMP) [JBLE-Langley, 2019], and confirmed by the Installation.

GIS data provided by JBLE-Langley illustrates 22 buildings within the proposed ISR Campus footprint (Table 3.3). Of these, 12 meet the 50-year threshold and all have been evaluated for their NRHP eligibility. Four of the 12 buildings have previously been determined *eligible* for listing in the NRHP, with

the remaining eight determined *not eligible*. Another ten buildings are less than 50 years old. Three of the ten buildings that are less than 50 years of age have previously been *determined not eligible* for listing on the NRHP. While the remaining seven are listed as *not evaluated* (JBLE-Langley, 2022). Of the buildings that are currently known to be less than 50 years of age that have not been evaluated for their NRHP status, one building (Bldg. No. 1025) falls within the Cold War and NASA Space Shuttle Program eras, and six other buildings fall within the late NASA era. If the original function of these buildings is directly related to those associated activities/operations, they may require NRHP evaluation utilizing Criteria Consideration G of the "National Register Criterion for Evaluation." In accordance with response from the Section 106 consultations (see Appendix A, email dated February 11, 2022 from DHR to JBLE-Langley), a Phase I architectural survey is no longer necessary, since the *determined not eligible* buildings, are not eligible for listing in the NRHP either as contributing to the Langley Field Historic District or Individually. Also, DHR concurs with the Air Force's "No Adverse Effect" determination on the condition that it is consulted further once rehabilitation plans for Buildings 1004 and 1007 are more fully developed.

Table 3.3: Architectural Resources within the Proposed Action Area

Bldg No.	Date	Bldg. Name	NRHP Status
801	1932	Operations Directorate	Eligible
847	2006	Softball Field LTA	Not Evaluated[1,2]
1004	1917	74 ACS	Eligible
1006	2008	Small Arms Range Control	Not Evaluated[1,3]
1007	1917	Rod & Gun Club (Vacant)	Eligible
1011	2009	Vet Clinic	Not Evaluated[1,2]
1016	1959	Small Arms Range Control	Determined Not Eligible
1017	2009	Logistic Support Center (Supply Chain Operations Group)	Not Evaluated[1,2,3]
1018	1940	Combat Arms Training and Maintenance (CATM)	Eligible
1025	1993	74 ACS (633 Comm)	Not Evaluated[1,3]
1026	1990	622 CF (Reserve Forces Training)	Determined Not Eligible
1027	1993	Education Center	Determined Not Eligible
1030	1984	Canine Kennels	Determined Not Eligible[3,4]
1031	1934	MWR Supply/NAF Storage	Determined Not Eligible
1037	1934	MWR Supply and NAF Central Storage	Determined Not Eligible
1038	1932	Riding Stables	Determined Not Eligible
1041	1930	Riding Stables	Determined Not Eligible
1042	1942	Riding Stables	Determined Not Eligible
1044	1942	Riding Stables	Determined Not Eligible
1302	2009	DCGS (480th ISRW)	Not Evaluated[1,3]
1303	1963	Firemen Training Facility	Determined Not Eligible
1308	2009	DCGS Maintenance Storage (DGS-1)	Not Evaluated[1,2,3]

Source: Building footprints, date and name, JBLE-Langley, 2020; NRHP Status, ICRMP, 2019 and JBLE-Langley, 2022.
Notes:
[1]Although less than 50 years of age, this Installation does not believe that the building meets the threshold of "exceptional importance" under NRHP Criteria Consideration G.
[2]Identified as *unknown* in the 2019 ICRMP.
[3]Although less than 50 years of age, this building may require evaluation under NRHP Criteria Consideration G.
[4]Identified as *not evaluated* in the 2019 ICRMP.

Additionally, the eastern most portion of the proposed ISR Campus lies within the proposed Langley Field Historic District (ca. 1917 to 1945) [VDHR, 2021] and the LTA District [Mason & Hangar, 2017]. A draft nomination form was first prepared for this district in 1995 by the Southeast Regional Office of the National Historic Landmarks Program of the National Park Service (NPS). While it was not submitted for listing, the NPS determined that the district was eligible in 1997. In 2005, a revised nomination was prepared by the Langley Airforce Base Cultural Resources Manager, however, again was not submitted for listing in the NRHP. Should nomination of this district be pursued again, it will require another revision to update the period of significance, areas of significance, and survey forms for all individual properties within the boundary regardless of age to determine the number of contributing and non-contributing buildings and whether enough integrity remains to be listed. As of the last draft, the individual resources that compose the proposed district illustrate the evolution of construction within the Army Air Corps and are associated with the development of Langley Field, the Army Air Corps, and the National Advisory Committee on Aeronautics (NASA's forerunner). There were 244 contributing properties, including aircraft operations facilities; administration, residential, and recreational facilities; wind tunnels; laboratories; runways; taxiways; road systems; and landscape features. All demolition, construction, and the associated visual effects inside and within the viewshed of this historic district are subject to evaluation under Section 106 of the NHPA. However, the buildings that are within the footprint of the proposed ISR Campus Area have been evaluated under Section 106 of the NHPA and have satisfied the Section 106 requirements (see Appendix A).

3.4.3 Traditional Cultural Properties

According to the 2019 JBLE-Langley (ICRMP), no traditional cultural properties (TCP) or sacred sites have been identified at JBLE-Langley. The ICRMP notes that ten, federally-recognized Native American tribes have expressed interest or potential interest in cultural resources associated with the installation. The ten tribes are listed below and detailed in Appendix A, Interagency/Intergovernmental Coordination and Public Participation:

- Catawba Indian Nation,
- Chickahominy Indian Tribe,
- Chickahominy Indians Eastern Division (per installation request, Interagency/Intergovernmental Agency letters are not required for this tribe),
- Delaware Nation,
- Delaware Tribe of Indians (primarily interested in projects that occur in the most eastern counties of Virginia),
- Monacan Indian Nation (primarily interested in actions west of I-95 only),
- Nansemond Indian Nation,
- Pamunkey Indian Tribe,
- Rappahannock Tribe, Inc., and
- Upper Mattaponi Indian Tribe.

3.5 HAZARDOUS MATERIALS AND WASTE

3.5.1 Hazardous Materials and Waste, Pollution Prevention

Hazardous materials are defined by 49 CFR §171.8 as hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous

Materials Table (49 CFR § 172.101), and materials that meet the defining criteria for hazard classes and divisions in 49 CFR §173. *Hazardous wastes* are defined by the Resource Conservation and Recovery Act (RCRA) at 42 U.S.C. § 6903(5).

The Pollution Prevention Act of 1990, 42 U.S.C. 13101(b), established a national policy to prevent or reduce pollution at the source, whenever feasible.

The Hazardous Materials and Waste program at JBLE-Langley is also thoroughly discussed in both the 2016 Final Environmental Assessment for Installation Development at JBLE-Langley [JBLE-Langley, 2016] and the 2021 Environmental Impact Statement (EIS) Fifth Generation Formal Training Unit Optimization, JBLE-Langley-Eustis, VA, Eglin Air Force Base, Florida [USACE et al., Feb. 2021].

Hazardous Materials in construction and demolition waste must be properly managed in a manner that prevents pollution, protects the environment and conserves natural resources as indicated in the JBLE-Langley 633d Air Base Wing Environmental Special Conditions [JBLE-Langley, Feb. 2020]. Proper management includes identification, accumulation, and disposal. Identification and accumulation prior to disposal is the responsibility of the contractor performing the work. Implementation of the proposed action is expected to generate negligible amounts of demolition waste which will need to be disposed of in a manner which is both safe and appropriate and in compliance with [JBLE-Langley, Feb. 2020]. At this stage in planning, there is no known risk of radon, asbestos-containing materials or lead based paint-containing materials in buildings that may be demolished. Project-specific safety plans will address the safe handling and disposal of those potential hazards. Types of hazardous materials anticipated to be used during construction is consumable fuel for construction vehicles.

3.5.2 Environmental Restoration Program

JBLE-Langley's environmental cleanup program is managed under the DoD Environmental Restoration Program (ERP). There are two cleanup sub-programs under the ERP: The Installation Restoration Program (IRP) and the Military Munitions Response Program (MMRP). The ERP at Langley Air Force Base (AFB) began in June 1981. Sixty-three ERP sites have been identified since that time. In 1992, 15 sites were deleted or combined with other sites resulting in a total of 48 sites [JBLE-Langley, 2007].

There will be no construction conducted on ERP sites that have current land use controls or any active investigation or clean-up activities. The only site where a building is proposed was investigated, nothing of concern was found, and the site was closed with no further action needed (see discussion of site DP-09 below). ERP sites within the proposed action area include DP-09, FT-41, LF-17 (small portion 0.4 AC), OT-25, OT-38B, OT-40, and WP-14. The ERP sites are illustrated in Figure 3.2. Site details within the proposed action area are provided below:

DP-09: Abandoned Gas Cylinder Disposal Site, LTA Area - Site DP-09 is an Abandoned Gas Cylinder Disposal Site covering approximately 1.8 acres in the on-Base Housing Area in the Lighter Than Air (LTA) area in the north-central portion of the Base. A portion of this area includes the on-Base Housing Area. The area was reportedly used to bury gas cylinders used during the LTA dirigible work conducted from the 1920s to 1935. All buried cylinders found to date have either been empty or filled with sand. Site DP-09 is eligible for Air Force Environmental Restoration Account funding since LTA dirigible activities were conducted from the 1920s to 1935, and any contamination that may have occurred would be of a historical nature. Results from the geophysical investigation concluded that no magnetic anomalies were found that would indicate the presence of buried cylinders. The site is closed with the No Further Action Response Action Planned (NFRAP) Decision Document (DD) signed in 1997 [JBLE-Langley, 2007].

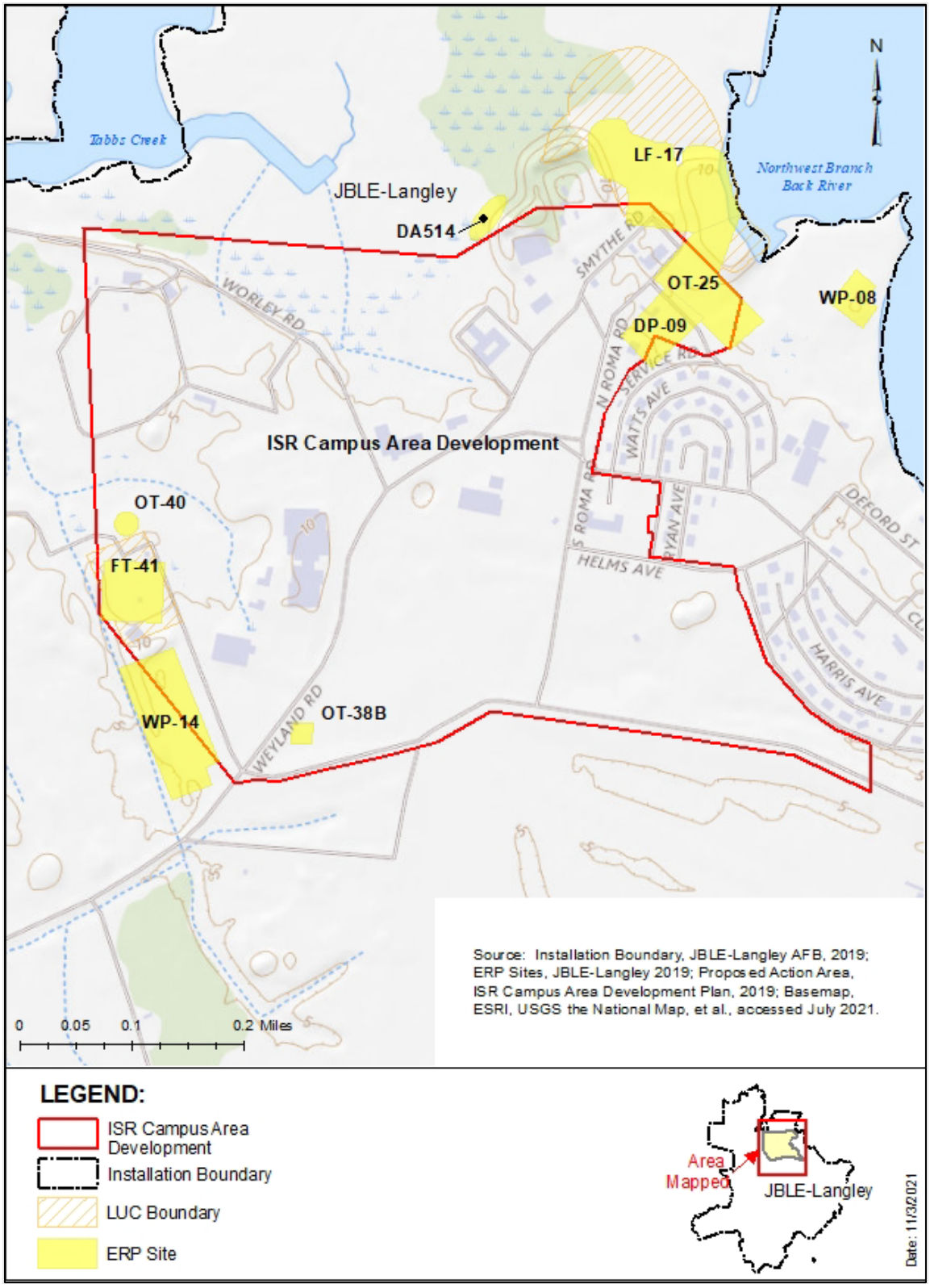

Figure 3.2: ERP Sites in the Vicinity of the Proposed Action Area

FT-41: Abandoned Fire Training Area, Firing-in Abutment, Building 1303 - Site FT-41 was an Abandoned Fire Training Area (FTA) covering approximately 0.5 acres near Site OT-40 and the firing-in abutment (Building 1303) between Weyland Road and Worley Road in the north-central portion of the Base. The primary contaminants of concern (COCs) are total petroleum hydrocarbons (TPH), toluene, dieldrin, and aldrin. The former FTA was first used in the early 1960s. The former FTA had no facilities to retain or collect unburned fuel. The fire training waste (run-off, foaming agents, etc.) may have migrated into nearby surface waters and eventually into Tabbs Creek. The area was also formerly used as a Bombing Practice Range, probably during the 1920s. Several practice bombs have been unearthed in this area.

The current FTA was constructed over the old FTA in 1985. The new fire training pit has an impermeable concrete liner, and the wastewater is collected and processed through an oil/water separator that enables unburned fuel to be collected before wastewater is discharged to the sanitary sewer. In 2008 remedial actions were implemented to provide erosion control addressing movement of contaminated sediment into the wetlands and monitoring was initiated to assess the success of the remedy and with land use controls (LUCs) were implemented to restricted use of the site. Groundwater underlying ERP Site FT041 is designated as parcel OT-64-41 and is associated with Operable Unit (OU) 52 (OU52). The 2018 Five Year Review Report stated that the remedy is in place and functioning. The selected remedy for this site was soil excavation and stabilization, on-site disposal, and area of enhanced soil cover in select areas. Remedy also includes LUCs. A proposed plan was submitted in March 2020 recommending no further action to address groundwater at parcel OT-64-41. In 2015 preliminary assessment activities were conducted to determine locations of potential environmental release of per-fluorinated compounds and based on the results a Site Inspection was recommend for FT-41 [JBLE-Langley, 2015].

LF-17: Abandoned Landfill, LTA Area - Site LF-17 is an Abandoned Landfill covering approximately 4.8 acres adjacent to the Back River near the old Entomology Building (Site OT-25) area in the LTA area. The primary COCs are pesticides and metals. The Landfill was used from 1917 to 1945, but documentation of the types of refuse materials that were deposited in the Landfill does not exist. Most of the landfill materials probably were municipal-type refuse. However, materials such as waste oil and solvents in drums, paints, thinners, batteries, tires, fabrics, fly ash from coal burning, and construction debris may have been deposited at the Site. The Site also includes a Trash Burning Pit (Site OT-38 Area C) that was used during the winter months when landfill operations were difficult due to high water table conditions. The Base Skeet Range presently occupies the area. Portions of the Site are considered wetlands. The selected remedy for this site included removal and off-site disposal of surface debris, in-situ stabilization, excavation and on-site disposal of waste and stabilized surface and subsurface soil, installation of a minimum of 2 feet of soil cover over the waste and stabilized soil, followed by grading and re-vegetation, and LUCs. The remedy was completed in 2009 and was found to be protective of human health and the environment. Post closure activities consist of semi-annual site inspection and maintenance activities and will be conducted as required by the applicable LUCs. Groundwater monitoring will be conducted to support the five-year review to demonstrate remedy protectiveness [JBLE-Langley, 2018b].

OT-25: Site OT-25 (Building 965), is the Old Entomology Building and Abandoned Pesticide/Herbicide Storage Area. This site covers approximately 3.9 acres in the LTA area in the north portion of the Base. The primary COCs were chlordane, dieldrin, and polychlorinated biphenyl (PCBs). The Site includes Building 965, which was demolished in 1996, and a nearby abandoned Storage Yard. Pesticide and herbicide management practices in the building and its surroundings have led to contamination of building materials, soil, and groundwater near the building. Drums containing pesticides and herbicides

were formerly stored on a gravel pad in a fenced area. On January 20, 1989, several hundred gallons of diesel fuel spilled from a 10,000- gallon aboveground storage tank (AST), situated on the southern side of Building 965, and spread out under the building. Base personnel pumped the fuel out from under the building. Site OT-25 is heavily overgrown by marsh grass and has apparently been used for the storage of equipment and disposal of assorted debris. The area falls within the tidally influenced zone adjacent to the Back River and becomes partially flooded at high tide. In 2007, the USAF issued a Record of Decision (ROD) identifying soil cover as the selected remedy for ERP Site OT-25. The remedial action (RA) for the selected remedy along with impacted soil removal was conducted in 2009. A 2-foot soil cover was installed over the remaining contaminated soil that posed unacceptable risks to human health and the environment. Land use controls were implemented at the site following completion of the RA. The LUC boundary only encompassed the soil cover area, as soil outside the cover did not pose an unacceptable risk. As a result of the RA, the area of ERP Site OT-25 was reduced from 3.9 to 0.57. The soil cover remedy for ERP Site OT-25 was evaluated during the most recent Five-Year Review and found to be functioning as designed and protective of human health and the environment [JBLE-Langley, 2018b].

OT-38B: Four Waste Oil and Trash Burn Areas, base-wide - Site OT-38 includes four waste oil and trash burn areas base-wide. These areas are referred to as Areas A through D and the primary COCs are TPH and PCBs. No documentation exists that indicates what was disposed of at the burning grounds at Langley AFB. However, interviews indicated that waste oils and solvents were burned in four pits from early 1917 to 1960. Site OT-38 is eligible for Air Force Environmental Restoration Account funding since the burn pits were in use prior to 1960, and any contamination that may have occurred would be of a historical nature. All OT-38 areas are considered closed [JBLE-Langley, 2007].

OT-40: Abandoned EOD Training Area, Firing-in Abutment, Building 1303 - Site OT-40 is an abandoned Explosive Ordnance Disposal (EOD) Training Area covering approximately 0.6 acres near Site FT-41 and the firing-in abutment (Building 1303) in the north-central portion of the Base. The primary COC was lead. Small-scale proficiency range operations for EOD training were conducted at the Site using light explosives with a limit of one blasting cap. Detonation of small explosive charges was conducted in the past with the permission of the Base Commander. The firing-in abutment was also used in the past for the sighting-in of machine guns from aircraft. The area was also formerly used as a bombing practice range, probably during the 1920s. Several practice bombs have been unearthed in this area. Base personnel indicated the Site has not been used for EOD purposes since the early 1980s. The firing-in abutment is still present and is surrounded by open ground. There was an area of stressed vegetation and stained ground at the rear of the structure, which might be associated with the former activities in this area; however, there is no other evidence at the site of EOD activities. Site OT-40 was eligible for Air Force Environmental Restoration Account funding since the EOD activities were conducted until the early 1980s, and any contamination would be of a historical nature. This site is closed with the No Further Remedial Action Planned (NFRAP) Decision Document (DD) signed on November 13, 1997 [JBLE-Langley, 2007].

WP-14: Abandoned Chemical Leach Pit - Site WP-14 is an Abandoned Chemical Leach Pit covering approximately 3.6 acres north of Pistol Butt Road near the firing-in abutment (Building 1303) in the north-central portion of the Base. The Site is the approximate location of an old chemical pit adjacent to the taxiway that was used for the collection of washdown and spills associated with loading pesticides onto spray planes (starting in the 1960s). The main contaminant entering the Leach Pit was malathion, which was used to control mosquitoes, but contamination from other pesticides is possible. The primary COCs are arsenic and dieldrin. The area was also formerly used as a bombing practice range, probably

during the 1920s. Several practice bombs have been unearthed in this area [JBLE-Langley, 2007]. A supplemental remedial investigation was conducted in 2012 and the groundwater at this site was determined to pose no actionable site-related risk under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and require no action. It is recommended that a no action Proposed Plan and ROD be prepared [JBLE-Langley, 2013].

3.6 SAFETY AND OCCUPATIONAL HEALTH

The following describes existing conditions for safety and occupational health at JBLE-Langley. Hazardous materials and waste are fully discussed in section 3.5. Flight safety is not directly associated with the proposed action, so it is not analyzed further in this EA. Explosives safety is discussed here.

3.6.1 Explosives Safety

A quantity distance (QD) arc defines levels of protection from blast based on relations between the quantity of explosive material and distance. A QD arc from the airfield munitions storage extends into the ISR Campus Development Action Area, running along the southern boundary just north of the airfield for approximately .3 miles. The QD arc extends approximately 260 feet north of the LTA Bypass. The arc is located in the southeast portion of the proposed action area.

A munitions haul route exists in the proposed action area on Weyland Road and there are plans to reroute this road to outside of the proposed ISR main campus area.

3.7 TRANSPORTATION

Transportation is the movement of goods and people between locations. Roadways, vehicles, sidewalks, and trails comprise the transportation system for JBLE-Langley as discussed in the 2016 Installation Development Environmental Assessment [JBLE-Langley, 2016]. JBLE-Langley is located approximately three miles northeast of Interstate 64, which provides regional access to the installation. As such, the ROI for analysis of potential transportation impacts is three miles and is fully characterized in the JBLE-Langley 2016 EA [JBLE-Langley, 2016] and the JBLE-Langley-Eustis EIS [USACE, 2021].

Specific transportation and infrastructure improvements are planned for the proposed action area to ensure future development needs are met. The ISR Campus ADP classified existing roads as good, fair, or poor and further characterized the need for additional parking spaces [Urban Collaborative, 2019]. One major liability in the current campus is Weyland Road, the current munitions haul route, that travels through the campus.

3.8 INFRASTRUCTURE AND UTILITIES

Infrastructure and utilities refer to the generation and transmission of potable water, sanitary wastewater and stormwater, and electricity generation as well as natural gas transmission and communications infrastructure, and the management of solid waste. Analyses of the utility conditions address the existing infrastructure (e.g., wells, water systems, wastewater treatment plants), current utility use, and any pre-defined capacity or limitations set forth in permits or regulations.

As defined by the Resource Conservation and Recovery Act (RCRA), "solid waste" means any garbage or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, resulting from industrial, commercial, mining, and agricultural operations, and from community activities. Solid waste management primarily relates to the availability of landfills to support a population’s residential, commercial, and industrial needs.

The ROI for potable water, wastewater, stormwater, electrical, natural gas, and communications is comprised of the existing infrastructure and utilities at JBLE-Langley, including on- and off-base housing. The ROI for solid waste includes the installation and surrounding areas which accept waste from JBLE-Langley.

JBLE-Langley is extensively developed, so utility conveyances and transmission lines already exist throughout the proposed action area where buildings would be demolished, replaced, and/or renovated. Within the proposed action area, there is no consistent or consolidated utility corridor. To meet future development needs, a consolidated utility corridor which is aligned with transportation is planned. The utility improvements would be developed and implemented before new construction begins and in accordance with applicable regulations.

3.9 WETLANDS AND CHESAPEAKE BAY PRESERVATION AREAS

3.9.1 Wetlands

Wetlands are defined in the USACE *Wetlands Delineation Manual* 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" (Environmental Laboratory, 1987). Wetlands provide essential functions including water quality improvement, groundwater recharge and discharge, pollution mitigation, nutrient cycling, wildlife habitat detention, and erosion protection. Wetlands resources are protected under Section 404 of the Clean Water Act (CWA) (33 U.S.C. § 1344). Wetlands on federal lands are further protected under EO 11990, Protection of Wetlands, which directs agencies to "minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands" when carrying out agency actions.

Wetlands at JBLE-Langley are comprised of both tidal and non-tidal wetlands. Three types of wetlands are indicated within the proposed action area, including Freshwater Emergent Wetland (0.73 AC), Freshwater Forested/Shrub Wetland (0.58 AC), Estuarine and Marine Wetland (15.7 AC) and Riverine (0.26 AC). However, less than 2 acres of wetlands are anticipated to be disturbed according to the ISR Campus ADP. The wetlands associated with the proposed action are depicted in Figure 3.3.

3.9.2 Chesapeake Bay Preservation Area

The Chesapeake Bay Preservation Act (CBPA) was enacted by the Virginia General Assembly in 1988 and established a state-local cooperative program to improve water quality and reduce nonpoint source pollution while allowing reasonable development to continue. Chesapeake Bay Preservation Areas are designated in Virginia Administrative Code 9 VAC 25-830-10 et seq. and include Resource Protection Areas (RPAs) and Resource Management Areas (RMAs). The RPA includes tidal waters and wetlands, perennial streams, contiguous wetlands, plus a 100-foot buffer to these "core" components. The RMA includes all lands within 100 feet landward of the landward boundary of the RPA, plus all lands

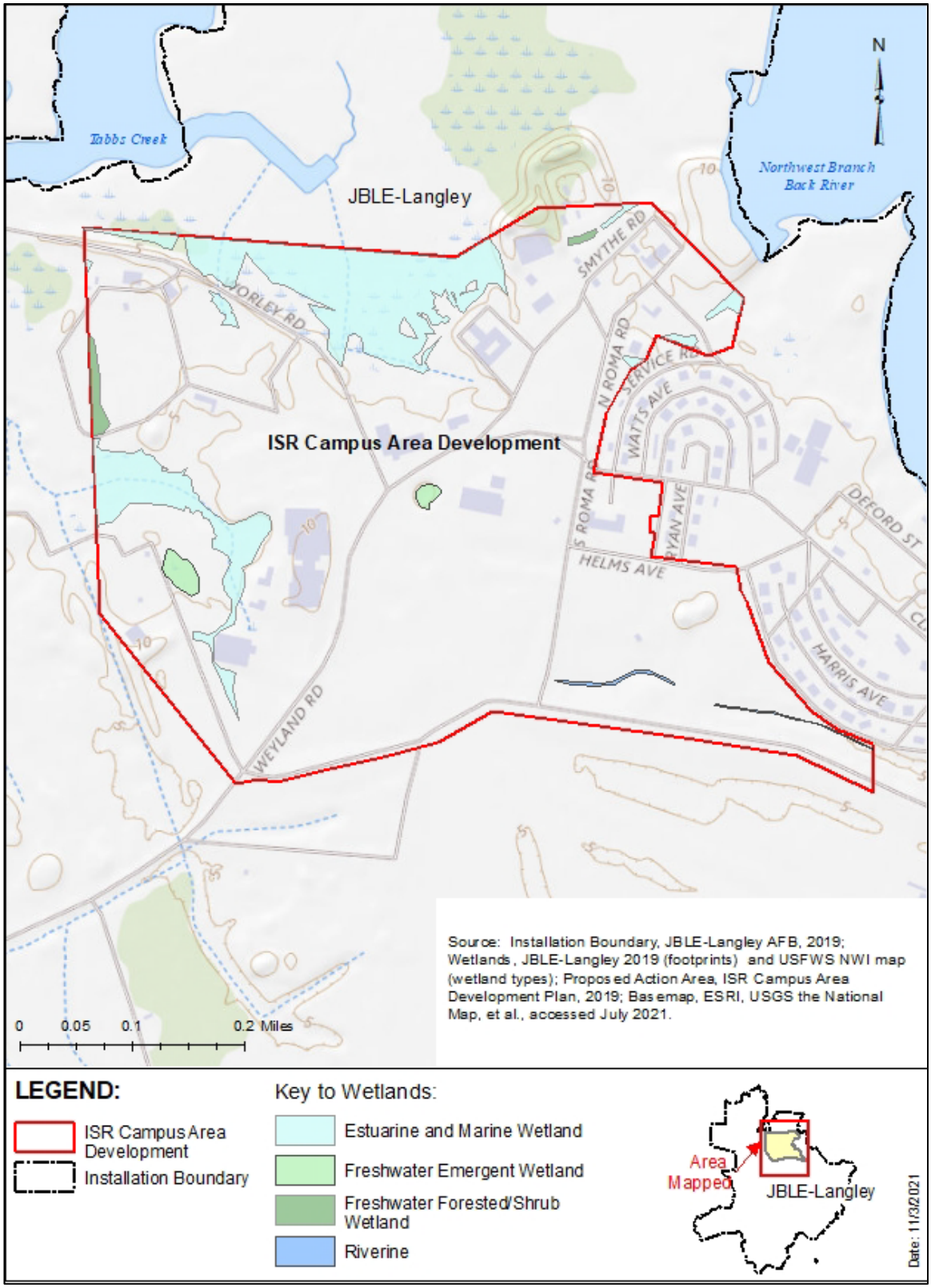

Figure 3.3: Wetlands in the Vicinity of the Proposed Action Area

containing slopes greater than 15 percent, highly erodible soils, and the 100-year floodplain. The Coastal Lands Management Program is administered by VDEQ's Water Division and 84 localities and is one of the enforceable policies of Virginia's Coastal Zone Management Program.

The Chesapeake Bay Preservation Act program for the City of Hampton includes designated RPAs and RMAs. The RPAs have a 100-foot buffer and RMAs have general performance criteria for disturbance activities.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

This chapter describes the potential environmental consequences that are likely to occur as a result of implementation of both alternatives that are being considered and analyzed. Impacts described in this chapter are evaluated in terms of type (positive/beneficial or adverse), context (setting or location), intensity (none, negligible, minor, moderate, severe), and duration (short-term/temporary or long-term/permanent). The type, context, and intensity of an impact on a resource are explained under each resource area. Unless otherwise noted, short-term impacts are those that would result from the activities associated with a project's construction and/or demolition phase, and that would end upon the completion of those phases. Long-term impacts are generally those resulting from the operation of a proposed project.

4.2 AIR INSTALLATION COMPATIBLE USE ZONE (AICUZ)

4.2.1 AICUZ

Evaluation criteria used to determine significance includes:

- Activities that would result in non-compliance with the Department of Defense Instruction Manual Number 4165.57 USD(A&S). Air Installations Compatible Use Zones (AICUZ), May 2, 2011, Updated August 31, 2018.

Proposed Action.

The proposed action is located outside of the clear and accident potential zones. However, it is possible that temporary and minor adverse hazards to the aircraft flight zone may occur. This is primarily related to temporary generation of smoke, steam, or dust because of the expected general construction activities. To mitigate the potential impact, project applicants will coordinate with the AICUZ Program administrators to ensure that the project is compatible with installation operations relative to these concerns. Therefore, there are no anticipated significant impacts due to the proposed action to the AICUZ areas.

No Action Alternative.

With the No Action Alternative there would be no ISR Campus development or related personnel or construction changes at JBLE-Langley and therefore, no impact.

4.2.2 Encroachment

Proposed Action.

The proposed action will be carried out within the overall footprint of JBLE-Langley in the North Base District. This area is already built-up and includes mixed-use industrial, open space, administrative, outdoor recreation, and community service land use types. Therefore, there are no anticipated encroachment issues associated with the proposed action. Compatible land-use development and support of local, long-range land-use planning efforts are in accordance with nationally recognized standards and the AICUZ program. Therefore, there are no anticipated significant impacts related to encroachment that would affect the AICUZ areas.

No Action Alternative.

With the No Action Alternative there would be no ISR Campus development or related personnel or construction changes at JBLE-Langley and therefore, no impact.

4.3 AIR QUALITY

Evaluation criteria used to determine significance includes activities that would:

- Increase ambient air pollution above any NAAQS;
- Contribute to an existing violation of any NAAQS;
- Interfere with or delay timely attainment of NAAQS;
- Expose people to HAPs in large quantities;
- Results in a substantial increase in the base's potential to emit GHGs; or
- Result in a substantial increase in the base's potential to emit GHGs.

Proposed Action.

Implementation of the Proposed Action would have short-term, negligible, adverse impacts to air quality primarily from general construction activity. Air emissions from general construction activities would be temporary and brief in duration. Criteria pollutant air emissions would be produced from the combustion of fuels in heavy equipment. Particulate matter air emissions, such as fugitive dust, would be produced from ground-disturbing activities and from the combustion of fuels in heavy equipment. Fugitive dust air emissions would be greatest during the initial site preparation and would vary from day to day depending on the work phase, level of activity, and prevailing weather conditions. The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked and the level of activity. Construction would incorporate best management practices (BMPs) and environmental control measures to minimize fugitive particulate matter air emissions. Additionally, the work vehicles are assumed to be well maintained and should use diesel particulate filters to reduce particulate matter air emissions. Construction workers commuting daily to and from the job sites in their personal vehicles would also result in criteria pollutant air emissions. HAP emissions associated with these activities would result from internal combustion engines and would be *de minimis.* Appendix C contains a summary of potential air emissions associated with the general construction activities.

As stated previously, the installation is in an area that has been designated as unclassified/attainment for all criteria pollutants. As Appendix C indicates, estimated annual air emissions from the Proposed Action throughout the anticipated duration is well below *de minimis* threshold limits; therefore, a General Conformity determination would not be required.

The Proposed Action would emit GHGs from the combustion of fossil fuels. Construction would generate approximately 813 metric tons per year (tpy) of CO2e during the project (16 years), but there would not be any continuing emissions. This GHG emission is approximately 3.3 percent of the CEQ reference point of 25,000 metric tpy (40 CFR § 98.1), below which a quantitative analysis of GHGs is not necessary. This is a negligible amount with respect to the existing conditions. These limited annual emissions of GHGs would not likely contribute to global climate change to any discernible extent. Potential changes to local temperature and precipitation patterns as a result of ongoing global climate change would not affect the ability to implement the Proposed Action.

Overall, there would be no significant impact to air quality with implementation of the Proposed Action.

No Action Alternative.

Implementation of the No Action Alternative would have no significant impacts to regional or local air quality as existing conditions would remain the same.

4.4 CULTURAL RESOURCES

36 CFR §800.16 establishes the APE as the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties (a prehistoric or historic district, site, building, structure, or object). The effect means alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the NRHP. National Park Service guidance outlines seven aspects of integrity to help evaluate eligibility and determine whether a property's character is adversely affected. They are the historic property's location, setting, design, materials, workmanship, feeling, or association. An effect is considered adverse when it diminishes one or more aspects of integrity. A "significant impact" under NEPA is defined as an unresolvable "adverse effect" under Section 106 of the NHPA. Although the potential for adverse effects to cultural resources was evaluated by the 2016 Installation Development EA, the current proposed footprint covers a larger area and encompasses additional buildings that have not previously been evaluated for their NRHP eligibility.

The CRM will review all proposed actions to identify those which may have an effect on cultural resources and coordinate the findings with the SHPO. The information gathered from the CRM/SHPO review will also be used to determine the significance of impact as defined by NEPA.

Proposed Action*.*

Implementation of the Proposed Action is not likely to affect archeological resources. As described in section 3.4.1, the entirety of the proposed ISR Campus was previously subjected to archaeological survey efforts, and no archaeological resources were documented within this area (see Hunter and Jones 1989, Libbon 2018, Moore and Blanton 2005, Wheaton, et al. 1991). However, if previously unidentified archaeological resources are discovered during the Proposed Action, work should cease, and JBLE-Langley should coordinate with the CRM, SHPO, and appropriate Native American tribes (if required) to avoid or mitigate potential effects (see ICRMP Standard Operating Procedures [JBLE-Langley, 2019]). However, given the extent of previous investigations, no significant impacts to the archeological resources are anticipated from implementation of the Proposed Action.

GIS data provided by JBLE-Langley illustrates 22 buildings within the proposed ISR Campus footprint (Table 3.3). Of these, 12 meet the 50-year threshold and all have been evaluated for their NRHP eligibility. Four of the 12 buildings have previously been determined *eligible* for listing in the NRHP, with the remaining eight determined *not eligible*. Another ten buildings are less than 50 years old. Three of the ten buildings that are less than 50 years of age have previously been *determined not eligible* for listing on the NRHP. While the remaining seven are listed as *not evaluated* (JBLE-Langley, 2022). Of the buildings that are currently known to be less than 50 years of age that have not been evaluated for their NRHP status, one building (Bldg. No. 1025) falls within the Cold War and NASA Space Shuttle Program eras, and six other buildings fall within the late NASA era. If the original function of these buildings is directly related to those associated activities/operations, they may require NRHP evaluation utilizing Criteria Consideration G of the "National Register Criterion for Evaluation." In accordance with response from the Section 106 consultations (see Appendix A, email dated February 11, 2022 from DHR to JBLE-Langley), a Phase I architectural survey is no longer necessary, since the *determined not eligible* buildings, are not eligible for listing in the NRHP either as contributing to the Langley Field Historic District or Individually. Also, DHR concurs with the Air Force's "No Adverse Effect" determination on the

condition that it is consulted further once rehabilitation plans for Buildings 1004 and 1007 are more fully developed.

No Action Alternative.

Implementation of the No Action Alternative would have no significant impacts on cultural resources as the area would remain in its current state.

4.5 HAZARDOUS MATERIALS AND WASTE

Evaluation criteria used to determine significance includes:

- The generation of a new waste stream that cannot be immediately or safely managed under existing protocols;
- The generation of an excessive quantity of waste that cannot be adequately or safely managed in accordance with the JBLE-Langley 633d Air Base Wing Environmental Special Conditions [JBLE-Langley, 2020] document and/or project specific plans;
- Non-compliance with site-specific land use controls; or
- Non-compliance with site-specific Records of Decision/Decision Documents.

Proposed Action.

No impact is anticipated due to the handling, use, storage or disposal of hazardous materials hazardous waste, or solid waste. Implementation of the proposed action is expected to generate negligible amounts of demolition waste. At this stage in planning, there is no known risk of radon, asbestos-containing materials or lead based paint-containing materials in buildings that may be demolished. Project-specific safety plans will address the safe handling and disposal of those potential hazards. Hazardous material use should be minimal, with the use of consumable fuel in construction vehicles. The contractor is subject to the guidelines set forth in the JBLE-Langley 633d Air Base Wing Environmental Special Conditions document, the requirements of which are written into each contract and dictates the procurement of permits, the development of planning documents, reporting, and appropriate handling and disposal of hazardous materials, hazardous waste and solid waste. The details for the contractual requirements are found in this document [JBLE-Langley, 2020]. There are no anticipated significant impacts due to the proposed action and the handling, use, storage or disposal of hazardous materials, hazardous waste or solid waste.

There will be no construction conducted on ERP sites that have current land use controls or any active investigation or clean-up activities. The only site where a building is proposed (site DP-09) was investigated, nothing of concern was found, and the site was closed with no further action needed. Therefore, there are no anticipated significant impacts due to the proposed action related to the sites subject to the ERP.

At this stage in planning, details of pollution prevention are not known, however, as per the JBLE-Langley 633d Air Base Wing Environmental Special Conditions document, the contractor would be required to report the usage of all hazardous materials to the Federal Government for all projects and contracts. Stormwater pollution prevention plans are also required (see JBLE-Langley, 2016).

No Action Alternative.

No significant impact will be experienced if the ISR Campus is not built.

4.6 SAFETY AND OCCUPATIONAL HEALTH (Explosives Safety)

Evaluation criteria used to determine significance includes:

- Any activity that would cause non-compliance with the Any action that would create non-compliance with the *Air Force Memorandum to Air Force Manual (AFMAN) 91-201, Explosives Safety Standards dated 9 March 2016*.

Proposed Action.

Minor, long-term beneficial impacts to explosives safety are anticipated from implementation of the Proposed Action. The LTA Bypass that now runs through a quantity distance (QD) arc from the airfield munitions storage will be realigned outside of the QD arc with implementation of the Proposed Action. Additionally, the munitions haul route that currently follows Weyland Avenue and Worley Road and passes through the middle of the ISR Campus, will be redirected to bypass the new development. It is anticipated that these actions will be completed early to mitigate safety hazards during the ISR Campus Development. Realignment of the LTA Bypass and the munitions haul route will improve long-term explosive safety. Implementation of the Proposed Action should not require the creation of new weapons storage, maintenance and/or loading areas, and new QD arc calculations would not be required. Therefore, there would be no significant impact due to explosives safety.

No Action Alternative.

With the No Action Alternative there would be no ISR Campus development or related personnel or construction changes at JBLE-Langley and therefore no significant impact would occur.

4.7 TRANSPORTATION

Evaluation criteria used to determine significance includes:

- Impacts would increase traffic on the installation and local roads in such a way that they would not be able to accommodate the additional vehicles;
- Impacts do not comply with local, state, or Federal laws and regulations; or,
- Impacts constitute a substantial risk to human health or the environment.

Proposed Action.

Implementation of the Proposed Action would result in moderate, long-term beneficial impact to traffic and transportation. Specific transportation and infrastructure improvements are planned to include the re-routing of the current munitions haul route around the perimeter, instead of through, the campus. It also enlarges an existing roundabout, making it safe for larger vehicles, then adjusts the LTA Bypass to move it out of the QD arc, which remedies a current safety violation. There will be no significant impact.

No Action Alternative.

There would be a moderate, long-term adverse impact to traffic and transportation if the proposed action is not implemented. In particular, if the LTA Bypass remains within the QD arc, the safety violation will remain, requiring a different remedy to that issue. There will be no significant impact.

4.8 INFRASTRUCTURE AND UTILITIES

The following thresholds were used to determine if an impact to utilities would be significant:

- Impacts would increase demands on utility systems in such a way that existing systems cannot accommodate those demands; or
- Impacts do not comply with local, state, or Federal laws and regulations.

Proposed Action.

There is little to no concern that the current utility structure as described in section 3.8 will be negatively impacted. Even if potable water is used by the construction workers, there is still ample capacity to avoid impact. Improvements consisting of a consolidated utility corridor (where none currently exists) will result in moderate, long-term beneficial impact. The improvements will also meet future development needs. There will be no significant impact.

No Action Alternative.

There will be a moderate, potentially short-term adverse impact if the ISR campus is not developed. There will potentially be future need for utility corridor improvements. There will be no significant impact.

4.9 WETLANDS

The following criteria was used to determine if an impact to wetlands resources would be significant:

- USACE has authority for delineating jurisdictional wetlands and evaluating wetland impacts not avoidable under Section 404 of the CWA. Impacts would be significant if they violate Federal or state surface water protection laws;
- Impacts constitute a substantial risk to aquatic animals and/or humans or contamination poses secondary health risks during the project life;
- Impacts would eliminate or sharply curtail existing aquatic life or human uses dependent on in-stream flows or water withdrawals during the project life;
- Impacts would place structures within a 100-year flood hazard area which violate Federal, state, or local floodplain regulations; or,
- Impacts would expose people or structures to a substantial risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.

Proposed Action.

Implementation of the Proposed Action could have long-term, moderate, adverse impacts to approximately 17 acres of wetlands located within the proposed action area. The proposed project may include eliminating a small portion, less than two acres of wetlands as appropriate due to capacity needs. There is no practicable alternative for the parking/capacity improvements. It would not be practical to relocate the buildings or parking lots because the buildings are currently situated to allow for a walkable campus and the parking lots are located to the sides and back of the buildings which is in agreement with the regulating plan. JBLE-Langley would submit a Joint Permit Application to the Virginia Marine Resources Commission which serves as a clearinghouse for the permitting process. All required permits would be acquired, and any mitigation would be conducted as a result of the loss of wetlands. JBLE-Langley has initiated consultation of the proposed project with the USACE. Any required

mitigation would be accomplished by a payment to the Virginia Aquatic Resources Trust Fund. No significant impact would occur to wetlands with implementation of the proposed plan.

No Action Alternative.

With the No Action Alternative there would be no ISR Campus development or related personnel or construction changes at JBLE-Langley and therefore no significant impact.

4.10 OTHER NEPA CONSIDERATIONS

4.10.1 Unavoidable Adverse Effects

This EA identifies any unavoidable adverse impacts that would be required to implement the Proposed Action and the significance of the potential impacts to resources and issues. Title 40 of the *Code of Federal Regulations* § 1508.27 specifies that a determination of significance requires consideration of context and intensity.

Unavoidable adverse effects would result from implementation of the Proposed Action. As discussed in Section 4, the Proposed Action would result in short-term, adverse effects associated with construction and potential demolition activities, including increased noise and air emissions (AICUZ), minor increases in traffic, use and generation of hazardous materials and wastes and generation of construction waste. None of these effects would be significant. All projects of the Proposed Action would occur within the 100-year floodplain. As most of JBLE-Langley occurs within the floodplain, there would be no practicable alternative.

Construction projects would have long-term, negligible, impacts to the floodplain. All new buildings must be constructed with a Finished Floor Elevation (FFE) of 10.9 feet or higher in order to be above the known floodzone. Demolition of buildings at JBLE-Langley, if undertaken, would have a long-term, negligible, beneficial impact to the floodplain.

Long-term, moderate adverse effect on a small portion of wetlands will occur, with every effort made to minimize the amount of affected wetland.

For the Proposed Action to be accomplished, these impacts will occur. The action is required to address deficiencies of function and capability in the facilities and infrastructure at JBLE-Langley that arise with buildings that are no longer being used, are deteriorating, and no longer meet evolving needs.

4.10.2 Relationship of Short-Term Uses and Long-Term Productivity

Short-term uses of the biophysical components of human environment include direct construction-related disturbances and direct effects associated with an increase activity that occurs over a period of less than 5 years. Long-term uses of human environment are those effects occurring over a period of more than 5 years, including permanent resource loss.

The Proposed Action would not result in an intensification of land use in the surrounding area. Development of the Proposed Action would not represent a significant loss of open space. The long-term beneficial effects of implementing the Proposed Action and other planned installation development activities would support the ongoing and future training missions and other readiness training and operational assignments.

The potential demolition activities at JBLE-Langley would contribute to USAF's goal of removing excess, obsolete, and underused infrastructure capacity and focusing time and funding.

4.10.3 Irreversible and Irretrievable Commitments of Resources

The irreversible environmental changes that would result from implementation of the Proposed Action involves the consumption of material, energy, and human resources.
The use of these resources are considered to be permanent. Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that use of these resources will have on future generations. Irreversible effects primarily result from use or destruction of a specific resource that cannot be replaced within a reasonable timeframe (e.g., energy and minerals).

Floodplains. The Proposed Action would occur in the 100-year floodplain. As JBLE-Langley is almost entirely within the 100-year floodplain, there is no practicable alternative. Although the Proposed Action would have an irreversible and irretrievable impact on floodplains, the Proposed Action would only impact a small portion of the 100-year floodplain in an area that is already fully developed. Additionally, the potential demolition of buildings within the 100-year floodplain would represent a long-term, minor, beneficial effect. The Proposed Action would not have significant impacts associated with floodplains.

Wetlands. There is a small (less than 2 acres) wetland area that would be affected. It has already been established that several locations were considered but the proposed location is the only practicable alternative. Although the Proposed Action would have an irreversible and irretrievable impact on wetlands, the Proposed Action would only impact a small portion of wetlands in the area. The Proposed Action would not have significant effects on wetlands.

Material Resources. Material resources used for the Proposed Action include building materials (for construction of facilities), concrete and asphalt (for parking lots), and various material supplies (for infrastructure) and would be irreversibly lost. Most of 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. No significant effects would be expected on energy resources used as a result of the Proposed Action, though any energy resources consumed would be irretrievably lost. These include petroleum-based products (e.g., gasoline and diesel fuel) and electricity. During construction, gasoline and diesel fuel would be used for the operation of construction vehicles. During operation, gasoline or diesel fuel would be used for the operation of privately owned and government-owned vehicles. Electricity would be used by operational activities. Consumption of these energy resources would not place a significant demand on the availability of energy resources in the region.

Human Resources. The use of human resources for construction and operation is considered an irretrievable loss, only in that it would preclude such personnel from engaging in other work activities. However, the use of human resources for the Proposed Action and alternatives represent employment opportunities and is considered beneficial.

4.11 PROJECTS WITH POTENTIAL CAUSAL RELATIONSHIP

This EA also considers the effects of potential causal relationships with other projects as required by 40 CFR § 1508.1(g). A causal relationship effect, as defined by 40 CFR §1508.1(g) includes considering those effects that occur at the same time and place as the proposed action or alternatives and may include effects that are later in time or farther removed in distance from the proposed action or alternatives. Such impacts can result from individually minor but collectively significant actions taking place over a period of time. As this document is using the new "causal relationship" terminology, other, recent documents may still have been influenced by the previous version of CEQ NEPA regulations, that used the term "cumulative". Where appropriate for previous documents, the term "cumulative" is retained.

Actions announced for the ROI for this project that could occur during the same time period as the proposed action are:

Air Force Actions
Recent past and ongoing military actions at JBLE-Langley were considered as part of the baseline or existing condition in the appropriate ROI. Each project identified in Table 4.1 was reviewed to consider the potential causal relationship effects of each action in combination with the proposed action. Potential overlap in affected area and project timing were considered.

JBLE-Langley is an active military installation that experiences continuous evolution of mission and operational requirements. All projects must comply with land use controls, which include safety and environmental constraints. JBLE-Langley, like other major military installations, requires new infrastructure repairs, sustainment, and improvements. These routine projects with minimal impacts are categorically excluded from the preparation of an EA or EIS and are not considered further for causal relationship effects. Table 4.1 lists the past, present, and reasonably foreseeable future major Air Force projects anticipated to occur on the base.

Table 4.1: Past, Present and Future Air Force Projects

Scheduled Project	Project Summary	Implementation Date	Relevance to Proposed Action	Potentially Affected Resources
Final Installation Development Plan for JBLE-Langley	Project evaluated potential impacts associated with identified priority installation development projects while the JBLE-Langley Installation Development is under revision. Final EA completed September 2016.	Priority installation projects are proposed to be constructed over the next 5 years.	Construction of priority installation projects may overlap with construction activities associated with the proposed action.	Acoustic Environment, Land Use, Air Quality, Socioeconomics – Income and Employment
Construct a new Live Mission Operations Capability (LMOC) Master Node Facility	The purpose of constructing a new LMOC Master Node Facility is to support exercise mission planning, execution, monitoring, and debriefing, as well as administrative functions. The facility requires Sensitive	Priority installation projects are proposed to be constructed over the next 5 years.	The need to construct the facility is to provide adequate and secure space to perform mission planning,	The LMOC EA is under preparation and therefore the potentially affected resources are actively being defined.

Scheduled Project	Project Summary	Implementation Date	Relevance to Proposed Action	Potentially Affected Resources
	Compartmentalized Information Facility (SCIF) areas, with both Special Access Program (SAP) and top Secret/Sensitive Compartmentalized Information (TS/SCI) capabilities.		execution, monitoring, and debriefing, as well as administrative functions.	
Renew the License with the Civil Air Patrol to Occupy the Former Aero Club	Project included renewing license with the Civil Air Patrol to occupy the former Aero Club; providing office and hangar space; adding parking on airfield parking ramp; using aviation gasoline fuel tank; and allowing for the potential addition of four aircraft over time (Categorical Exclusion).	Ongoing	Implementation could overlap with construction associated with the proposed action.	Airspace Management and Operations, Acoustic Environment, Air Quality
CAF ADAIR	Provide dedicated contract adversary Air (ADAIR) sorties to improve the quality of training and readiness of pilots of the 1 FS; includes the addition of 78 contracted maintainers and 15 contracted pilots.	2021	Implementation could overlap with training operations as part of proposed action.	Airspace Management and Operations, Acoustic Environment, Air Quality
Fifth Generation Formal Training Unit Optimization	Permanent beddown of the F-22 Formal Training Unit (FTU)	Fall 2021	Construction may overlap with the proposed action and the relocation of additional airplanes	Acoustic Environment, Cultural, Environmental Justice
Installation Infrastructure Capital Improvement Projects	Projects include construction, renovation, repair and demolition of infrastructure at JBLE-Langley, including a new Fuels System Maintenance Hangar and Fuels Automated System Complex, internal renovations of aircraft maintenance hangars, administrative facilities, and repair/replacement/addition of transportation, parking and utility systems. A total of	Ongoing	Construction may overlap with the proposed action.	Acoustic Environment, Air Quality, Socioeconomics – Income and Employment

Scheduled Project	Project Summary	Implementation Date	Relevance to Proposed Action	Potentially Affected Resources
	371,968 ft_2 would eventually be constructed and 22 buildings demolished.			
Airfield and Drainage Projects	Projects include drainage improvements and removal of wetlands in the airfield area, construction of airfield fence, construction of a new RV parking lot near Durand Loop, and drainage improvements at Brick Kiln Creek.	2021	Construction may overlap with the proposed action.	Water Resources (Wetlands, Water Quality), Natural Resources
Reforge Proof of Concept	This planned pilot training initiative would include up to eight advanced training aircraft (T-50 or similar aircraft) that would be leased to the Air Force and operate at JBLE-Langley for five years.	Spring 2021	Implementation could overlap with training operations as part of proposed F-22 FTU beddown implementation.	Airspace Management and Operations, Acoustic Environment, Air Quality

Notes: ADAIR = adversary air; AFB = Air Force Base; EA = Environmental Assessment; EIS = Environmental Impact Statement; FTU = formal training unit; ISR = Intelligence, Surveillance, and Reconnaissance; JBLE-Langley = Joint Base Langley-Eustis

Other Military/Government Actions

Past and ongoing military or government agency actions surrounding JBLE-Langley were considered as part of the baseline or existing condition in the appropriate ROI (Table 4.2). Each project summarized in this section was reviewed to consider the reasonably foreseeable and close causal relationships to the proposed action or alternatives. Potential overlap in the ROI and project timing were considered.

Table 4.2: Other Military/Government Actions

Scheduled Project	Project Summary	Implementation Date	Relevance to Proposed Action	Potentially Affected Resources
Establishment of Additional Restricted Area Airspace-6604 C/D/E at Wallops Flight Facility	National Aeronautics and Space Administration proposal for additional restricted airspace at Wallops Flight Facility, Accomack County, Virginia	Final EA, Sept 2016	Additional restricted airspace is adjacent to W-386 Warning Area.	Airspace Management and Operations

Scheduled Project	Project Summary	Implementation Date	Relevance to Proposed Action	Potentially Affected Resources
Atlantic Fleet Training and Testing	Navy proposal to conduct military readiness training activities using active sonar and explosives within existing range complexes and areas located in the Atlantic Ocean, Caribbean Sea, and the Gulf of Mexico. Final EIS complete in 2018.	ongoing	Atlantic Fleet Training and Testing activities are located and underlie military airspace described in the Action Alternative.	Airspace Management and Operations, Acoustic Environment, Safety, Biological Resources

Nonfederal Actions

Nonfederal actions such as new development or construction projects occurring in the area surrounding JBLE-Langley were evaluated to determine if reasonably close causal relationship impacts exist. The JBLE-Langley is bordered by the city of Hampton to the south and west, Poquoson to the north, NASA facilities to the northwest, and the Back River to the east. Developable land surrounding the installation is scarce. Zoning ordinances are in place to ensure that any future development immediately adjacent to the installation's boundaries are compatible with military aircraft operations to avoid encroachment within the installation's safety zones. As such, no future development projects surrounding JBLE-Langley are expected to result in incremental increases and therefore there is no expected effect from the proposed action.

Virginia Department of Transportation is executing a project to replace the northbound bridge over Brick Kiln Creek along Magruder Boulevard (VA-134). This project is located 2.2 miles northwest of JBLE-Langley. During demolition and construction, the intersection of Old Armistead Road and Magruder Boulevard will be closed. Also, during demolition and construction, northbound traffic will be routed to the southbound lane, making one lane of travel in each direction. As of Spring 2020, this project was occurring and is estimated to be completed in Spring 2021 [VDOT, 2020]. This nonfederal action was considered in the cumulative effects analysis for regional transportation system and gate access [USACE, 2021].

The Hampton Roads Bridge Tunnel Expansion Project was identified as a major transportation project in the Hampton Roads area which includes widening of portions of the Interstate I-64 corridor from I-564 in Norfolk to Settlers Landing Road in Hampton. However, this project is not located in the immediate vicinity of the installation and would not directly affect access to JBLE-Langley. This nonfederal action was considered in the cumulative effects analysis for biological resources in the 2021 EIS [USACE, 2021].

For this EA analysis, these announced actions are addressed to determine if causal relationship effects exist. These announced future actions would be evaluated under separate NEPA actions conducted by

the appropriate involved federal agency. Based on the best available information for these proposals by others, the Air Force cumulative impact analysis in USACE Feb. 2021 does consider them.

In accordance with 32 CFR § 989.10, the Environmental Impact Statement Fifth Generation Formal Training Unit Optimization [USACE, 2021] is referenced to provide current (2021) cumulative effect analysis of the past, present and future actions described.

Descriptions of the cumulative effects for the resource areas analyzed in this EA follow:

4.11.1 AICUZ

Proposed Action.

With the expectation of other work in the AICUZ area, it is possible that temporary and minor adverse hazards to the aircraft flight zone may occur. This is primarily related to temporary generation of smoke, steam, or dust because of the expected general construction activities. To mitigate the potential impact, project applicants will coordinate with the AICUZ Program administrators to ensure that the project is compatible with installation operations relative to these concerns. There is no concern of encroachment. Therefore, the proposed action is not anticipated to have a reasonably foreseeable or close causal relationship effect or significant impact to the AICUZ areas.

No Action Alternative.

With the No Action Alternative there would be no ISR Campus development or related personnel or construction changes at JBLE-Langley and therefore, no impact.

4.11.2 AIR QUALITY

Proposed Action.

Implementation of the Proposed Action would have short-term, negligible, adverse impacts to air quality primarily from general construction activity. Air emissions from general construction activities would be temporary and brief in duration. Air emissions are analyzed for reasonably foreseeable and reasonably close causal relationship effects, formerly referred to as “cumulative” effects pre-CEQ NEPA regulation update Sept. 14, 2020 (Title 40 Code of Federal Regulations [CFR] §§ 1500–1508) [(The Sep 14, 2020 version of CEQ NEPA rules is being used, 85 FR 43304-43376]. The addition of the minor impacts to air quality from the general construction activity cumulatively is negligible. The proposed action is not anticipated to contribute to cumulative significant impacts to the air quality nor does it have a reasonably foreseeable and reasonably close causal relationship.

No Action Alternative.

Implementation of the No Action Alternative would have no significant impacts to regional or local air quality as existing conditions would remain the same.

4.11.3 CULTURAL RESOURCES

It is not anticipated that the proposed action will have a reasonably close causal relationship effect or contribute to any impact on cultural resources. In addition to NEPA analysis, the cultural resources management (CRM) will review all proposed actions to identify those which may have an effect on cultural resources. The information gathered from the CRM review will also be used to determine the significance of impact as defined by NEPA.

No significant impacts to archeological or architectural resources are anticipated to have a reasonably foreseeable or have a reasonably close causal relationship from the effect of overlapping projects. Please see Section 106 consultation documentation in Appendix A.

No Action Alternative.

Implementation of the No Action Alternative would have no significant impacts on cultural resources as the area would remain in its current state.

4.11.4 ENVIRONMENTAL RESTORATION PROGRAM

Proposed Action.

There will be no construction conducted on ERP sites that have current land use controls or any active investigation or clean-up activities. The only site where a building is proposed (site DP-09) was investigated, nothing of concern was found, and the site was closed with no further action needed. No cumulative effect will occur, and a reasonably foreseeable and reasonably close causal relationship does not exist. No significant impact is anticipated.

No Action Alternative.

No significant impact will be experienced if the ISR Campus is not built.

4.11.5 SAFETY AND OCCUPATIONAL HEALTH (Explosives Safety)

Proposed Action.

Other projects may benefit from the improvements being made within the ISR campus with the rerouting of explosive transportation and the adjustment of the QD Arc. No significant impact is anticipated.

No Action Alternative.

With the No Action Alternative there would be no ISR Campus development or related personnel or construction changes at JBLE-Langley and therefore no significant impact in the affected environment on ground, explosive, or flight safety.

4.11.6 TRANSPORTATION

Proposed Action.

Other project implementation may find benefits with the transportation changes planned for the proposed action, with the enlarged roundabout, adjustments to the LTA Bypass and the new route for explosive transportation. There will be no significant impact.

No Action Alternative.

No significant impact is anticipated if the status quo remains.

4.11.7 INFRASTRUCTURE AND UTILITIES

Proposed Action.

The improvements to the utility corridor in the ISR campus are not anticipated to impact other planned projects, either adversely or as a result of having a reasonably close causal relationship in the foreseeable future.

No Action Alternative.

There will be no significant impact if the status quo remains.

4.11.8 WETLANDS

Proposed Action.

While the total amount of wetlands in the vicinity of the proposed action is 17 acres, the amount of wetlands impacted from the proposed plan is anticipated to be less than 2 acres. This small amount, added to anticipated wetlands loss due to other planned projects, is not anticipated to have a close causal relationship effect in the foreseeable future. In addition, all individual projects will be required to follow federal and state permitting guidelines including those with respect to wetland protection or mitigation, further indicating that no significant impact would occur. Work in wetlands require permitting through either the USACE or VDEQ and loss of wetlands requires payment into the Virginia Aquatic Resources Trust Fund. Even though the small amount of wetland loss anticipated with the Proposed Action does not constitute a significant impact, trust fund payment is still an appropriate mitigation activity.

No Action Alternative.

With the No Action Alternative there would be no ISR Campus development or related personnel or construction changes at JBLE-Langley and therefore no significant impact.

4.11.9 POTENTIAL MITIGATION MEASURES

While several potentially affected environments may have routine compliance activities that, if not performed would potentially contribute to greater insignificant impact, only water resources and air require specific mitigation activities to be performed to ensure no level of impact may occur. Air and work in wetlands require permitting through either the USACE or VDEQ and loss of wetlands requires payment into the Virginia Aquatic Resources Trust Fund. Even though the small amount of wetland loss anticipated with the Proposed Action does not constitute a significant impact, trust fund payment is still an appropriate mitigation activity.

5.0 LIST OF PREPARERS

This EA has been prepared under the direction of the Air Force Civil Engineer Center, USAF, JBLE-Langley AFB.

The individuals that contributed to the preparation of this EA are listed below.

Table 5.1: List of Preparers

Name/Organization	Education	Resource Area	Years of Experience
Teresa Stephens, ERG	BA, Geography	All	25
Katie Watson, ERG	MS, Safety Management BS, Community Health and Environmental Safety	All	29
Desiree Halsor, ERG	BS, Geosystems Engineering and Hydrogeology	Air (Existing Conditions and ACAM Model Review)	14
Amy Cervantes, ERG	MS, Civil Engineering BS, Environmental Engineering	Air (Existing Conditions and ACAM Model Review)	9
Sharon Shultz, ERG	BS, Geology	Environmental Restoration Program (Existing Conditions)	35+
Kay Toye, ERG	MA, Emergency and Disaster Management BA, Emergency and Disaster Management	Health and Safety, Hazardous and Toxic Materials and Waste (Exiting Conditions)	11
Niki Mills, ERG	MSc, Archaeological Information Systems BA, Anthropology	Cultural Resources (Existing Conditions)	20
Anna Maas, ERG	MUEP, Urban and Environmental Planning Certificate, Historic Preservation BAH, Architectural History Minor, Architecture	Cultural Resources (Existing Conditions)	20

6.0 PERSONS AND AGENCIES CONSULTED/COORDINATED

The following approved and verified, by JBLE-Langley, Persons and Agencies were contacted in the preparation of this EA as they could possibly be impacted by the proposed actions.

Table 6.1: Persons and Agencies Consulted/Coordinated

Federal Agencies	
Mr. Keith Boyd US Department of Agriculture Natural Resources Conservation Service 203 Wimbledon Lane Smithfield, VA 23430	Ms. Nora Theodore US EPA, Region III 1650 Arch Street Philadelphia, PA 19103
Ms. Cindy Schulz U.S. Fish and Wildlife Service 6669 Short Lane Gloucester, VA 23061	Ms. Nicole Woodward US Army Corps of Engineers Norfolk District 803 Front Street Norfolk, VA 23510
State Agencies	
Ms. Amy M. Ewing VA Department of Game & Inland Fisheries Environmental Services Section 4010 West Broad Street Richmond, VA 23230	Ms. Bettina Sullivan VA Department of Environmental Quality 629 East Main Street Richmond, VA 23219
Mr. Raymond T. Fernald VA Department of Game & Inland Fisheries P.O. Box 90778 Henrico, VA 23228	Mr. Tony Watkinson VA Marine Resources Commission Building 96 380 Fenwick Rd Ft. Monroe, VA 23651
Local Agencies	
Mr. Christopher DeHart 419 North Armistead Avenue Hampton, VA 23669	Mayor McKinley L. Price 2400 Washington Ave Newport News, VA 23607
Mr. Craig M. Galant, PE Department of Engineering 2400 Washington Ave Newport News, VA 23607	Mr. Bruce Sturk Director of Federal Facilities Support City of Hampton (Federal Facilities Support) 22 Lincoln Street 8th Floor, City Hall Hampton, VA 23669-3522

Mr. Andrew Griffey Hampton Wetland Board 22 Lincoln Street Hampton, VA 23669	Mayor Donnie Tuck 8th Floor, City Hall 22 Lincoln Street Hampton, VA 23669
Mayor W. Eugene Hunt, Jr. 500 City Hall Avenue Poquoson, VA 23662	Mr. J. Randall Wheeler City of Poquoson 500 City Hall Avenue Poquoson, VA 23662
Mr. Neil Morgan PO Box 532 Yorktown, VA 23690	
Tribal Agencies	
(See Appendix A for list of Tribal Agencies contacted.)	

7.0 REFERENCES

AFCEC. 2010. U. S. Air Force Air Conformity Applicability Model (ACAM), Version 4.5, Technical Documentation, January 2010.

Hunter, Robert and Joe Jones. 1989. *A Phase I Archaeological Survey on the Proposed MCP Sites, Langley Air Force Base. College of William and Mary Center for Archaeological Research, Williamsburg, Virginia. Virginia Department of Historic Resources report number HT-025.*

Joint Base Langley Eustis – Langley (JBLE-Langley). 2007. *Langley Air Force Base Environmental Restoration Program Site Summaries.* December 2007.

Joint Base Langley Eustis – Langley (JBLE-Langley). 2013. *Langley Air Force Base Supplemental Remedial Investigation for ERP Sits LF-05WP-14, SS-24, and OT-51 Associated with ERP Site OT-64 Basewide Groundwater.* July 2013.

Joint Base Langley Eustis – Langley (JBLE-Langley). 2015. *Joint Base Langley Final Preliminary Assessment Report for Perflourinated Compound at JBLE- Langley.* April 2015

Joint Base Langley Eustis – Langley (JBLE-Langley). 2016. *Final Environmental Assessment for Installation Development at JBLE-Langley, Virginia.* September 2016.

Joint Base Langley Eustis – Langley (JBLE-Langley). 2018a. *Joint Base Langley-Eustis Installation Facilities Standards (IFS) Vol. 1.* November 2018.

Joint Base Langley Eustis – Langley (JBLE-Langley). 2018b. *Final Third Five-Year Review Report of Selected Sites.* April 2018.

Joint Base Langley Eustis – Langley (JBLE-Langley). 2019. United States Air Force Integrated Cultural Resources Management Plan, Joint Base Langley-Eustis, Langley Air Force Base. 30 August 2019.

Joint Base Langley Eustis – Langley (JBLE-Langley). 2020. *Environmental Special Conditions.* 20 February 2020.

Joint Base Langley Eustis – Langley (JBLE-Langley). 2021. JBLE-Langley 2021 Integrated Natural Resources Management Plan (INRMP) Annual Review Summary Report. August 2021.

Joint Base Langley Eustis – Langley (JBLE-Langley). 2022. Email correspondence from Mr. Marc Holma, DHR, VA to Sherry Johnson, JBLE-Langley, ISR Campus Area Development. February 11, 2022.

Libbon, Jonathan. 2018. Phase I Archaeological Survey of Proposed Milcon Sites, Langley Air Force Base, Virginia. Colorado State University Center for Environmental Management of Military Lands, Fort Collins, Colorado. Virginia Department of Historic Resources report number HT-133.

Mason & Hanger. 2017. *Installation Development Plan, Joint Base Langley-Eustis, Virginia.* May 2017.

Moore, William H. and Dennis B. Blanton. 2005. *Archaeological Survey of 406 Acres, Langley Air Force Base, Hampton, Virginia. College of William and Mary Center for Archaeological Research, Williamsburg, Virginia. Virginia Department of Historic Resources report number HT-060.*

United States (US) Air Force. 2003. *Air Force Policy Instruction 32-7061: Environmental Impact Analysis Process.* March 2003.

United States (US) Air Force. 2011a. *Air Force Civil Engineering Strategic Plan*

United States (US) Air Force. 2016. *Air Force Manual 32-1084, Facility Requirements*. 26 Feb. 2016.

United States (US) Army Corps of Engineers et al., 2021. *Environmental Impact Statement (EIS) Fifth Generation Formal Training Unit Optimization, JBLE-Langley-Eustis, VA, Eglin Air Force Base, Florida.* Feb. 2021.

United States (US) Army Corps of Engineers, Naval Facilities Engineering Command, and Air Force Civil Engineer Center. 2021b. Unified Facilities Criteria (UFC), Civil Engineering. 1 April 2018, Change 5, 1 April 2021.

United States (US) Army Environmental Laboratory. 1987. Wetlands Delineation Manual. January 1987.

United States Environmental Protection Agency (USEPA). 2020a. Green Book National Area and County-Level Multi-Pollutant Information. Retrieved from: https://www.epa.gov/green-book/green-book-national-area-and-county-level-multi-pollutant-information.

United States Environmental Protection Agency (USEPA). 2020b. 2017 National Emission Inventory. Accessed at https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data. 2017.

Urban Collaborative, 2019. *ISR Campus Area Development Plan, Joint Base Langley-Eustis, Virginia.* November 2019.

Virginia Department of Transportation (VDOT). 2020. Route 134 Bridge Replacement. Retrieved from http://www.virginiadot.org/projects/hamptonroads/rt134_bridge.asp

Virginia Department of Historic Resources (VDHR). 2021. Virginia Cultural Resource Information System (V-CRIS). Retrieved from https:// https://vcris.dhr.virginia.gov/VCRIS.

Wheaton, Thomas R. Lawrence Abbott, Mary Beth Reed, Leslie Raymer, Theresa Hamby. 1991. *Archeological Site Survey and Testing, Langley Air Force Base, Virginia.* New South Associates, Stone Mountain, Georgia. Virginia Department of Historic Resources report number HT-033.

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APPENDICES

APPENDIX A

Interagency/Intergovernmental Coordination and Public Participation

<Date>

Ms. Brenda W. Cook
Deputy Base Civil Engineer
37 Sweeney Boulevard
Joint Base Langley-Eustis VA 23665-2107

<Name
Organization
Division of Organization if Necessary
ADDRESS>

Dear *<name>:*

The Department of the Air Force (Air Force) is issuing this letter to notify local, state and federal agencies of the intent to prepare an Environmental Assessment (EA) for a project associated with the proposed Intelligence, Surveillance, Reconnaissance (ISR) Campus Area Development Plan (ADP) at Joint Base Langley-Eustis (JBLE-Langley), Virginia. The EA will be prepared in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321-4347), the Council on Environmental Quality NEPA Implementing Regulations (40 CFR Parts 1500–1508) and Air Force Environmental Impact Analysis Process (EIAP) Air Force Instruction 32-7061 as promulgated at 32 CFR Part 989 to determine potential environmental effects of ISR Campus Area Development at JBLE-Langley.

This letter also serves to invite early public and agency participation in determining the scope of environmental issues and alternatives and whether to prepare an environmental impact statement (EIS) or a finding of no significant impact (FONSI). To effectively define the full range of issues and concerns to be evaluated in the EA, the Air Force is soliciting scoping comments from interested local, state and federal agencies, interested American Indian tribes, and interested members of the public. This also serves to provide early notice of compliance with Executive Order (EO) 11990, "Protection of Wetlands" and EO 11988, "Floodplain Management." State and federal regulatory agencies with special expertise in wetlands and floodplains have been contacted to request comment.

The Proposed Action is to further develop the ISR Campus Area to support ISR activities and address planning needs for organizations throughout the installation. The ISR campus will consolidate cyber functions on the installation and allow for an advancing, mixed-use development for the entire installation. Under this project, general construction and infrastructure improvement activities would occur. This includes construction of new buildings, improvements of existing buildings, demolition activities, road and parking lot improvements or construction, and necessary improvements or replacement of affected utilities.

The ISR Campus ADP is necessary to provide infrastructure improvements required to support the mission of the 633d Air Base Wing (ABW) and tenant units. The ISR Campus ADP identifies requirements for the improvement of the physical infrastructure and functionality of JBLE-Langley, including current and future mission and facility requirements, development constraints and opportunities, and land use relationships. The estimated footprint of this project is 156 acres. Within the project area, there are approximately 17 acres of wetlands, 130 acres in the 100-year floodplain, and 23 acres in the 500-year floodplain. To comply with EO 11988, JBLE-Langley would design structures to reduce the risk of severe damage from flooding. Additionally, JBLE-Langley is heavily developed and provides minimal flood control for downriver areas. Therefore, the proposed project would not contribute to any measurable loss with regard to flood control capacity. To comply with EO 11990, JBLE-Langley will avoid, to the extent practicable, destruction or modification of wetlands within the project area. Loss of wetland acreage would likely require a U.S. Army Corps of Engineers Clean Water Act (CWA) Section 404(b) permit.

The EA will address potential environmental impacts from the proposed action and the range of reasonable alternatives, including a No-Action Alternative in which the proposed project would not be implemented. The EA will identify and evaluate potential impacts of all alternatives to land use, airspace, safety, noise, hazardous materials and solid waste, earth resources, water resources, air quality, cultural resources, biological resources, socioeconomics, and environmental justice.

Comments received by the Air Force during the scoping period and throughout the environmental process, will be considered in the preparation of the Draft EA. Scoping comments may be submitted to David Jennings by email at 633CES.CEIE.NEPAPublicComment@us.af.mil or by mail at 633 CES / CEIE, 37 Sweeney Blvd., JBLE-Langley, VA 23665.

Comments will be accepted at any time during the EA process. However, to ensure the Air Force has sufficient time to consider public input in the preparation of the Draft EA, scoping comments must be submitted within 30 days.

Sincerely

BRENDA W. COOK, DAFC
Deputy Base Civil Engineer

Table A.1: Tribal Contacts

Name	Title	Nation	Address
William Harris	Chief	Catawba Indian Nation	996 Avenue of the Nations Rock Hill, SC 29730
Caitlin Rogers	Tribal Historic Preservation Officer	Catawba Indian Nation	1536 Tom Steven Road Rock Hill, SC 29730
Stephen Adkins	Chief/Tribal Administrator	Chickahominy Indian Tribe	8200 Lott Cary Road Providence Forge, VA 23140
Wayne Adkins	First Assistant Chief/Chief Finance Officer & Section 106	Chickahominy Indian Tribe	8200 Lott Cary Road Providence Forge, VA 23140
Dana Adkins	Tribal Environmental Director	Chickahominy Indian Tribe	8200 Lott Cary Road Providence Forge, VA 23140
Gerald A. Stewart[1]	*Chief*	*Chickahominy Indians Eastern Division*	*2895 Mt. Pleasant Road Providence Forge, VA 23140*
Deborah Dotson	President	Delaware Nation	P.O. Box 825 Anadarko, OK 73005
Erin Thompson-Paden	Historic Preservation	Delaware Nation	P.O. Box 825 Anadarko, OK 73005
Katelyn Lucas	Historic Preservation Assistant	Delaware Nation	P.O. Box 825 Anadarko, OK 73005
Nekole Alligood[2]	Director of Cultural Resources & NAGPRA	Delaware Nation	P.O. Box 825 Anadarko, OK 73005
Brad KillsCrow[3]	*Chief, Oklahoma Headquarters*	*Delaware Tribe of Indians*	*5100 Tuxedo Blvd. Bartlesville, OK 74006*
Brice Obermeyer, PhD[3]	*Director, Section 106*	*Delaware Tribe of Indians*	*Emporia State University Roosevelt Hall, RM 212 1200 Commercial Street Emporia, KS 66801*
Susan Bachor[3]	*Delaware Tribal Historic Preservation Officer*	*Delaware Tribe of Indians*	*P.O. Box 64 Pocono Lake, PA 18347*
Kenneth Branham[4]	*Chief*	*Monacan Indian Nation*	*111 Highview Drive Madison Heights, VA 24572*
Pamela Johns Thompson	Assistant Chief	Monacan Indian Nation	111 Highview Drive Madison Heights, VA 24572
Earl L. Bass	Chief	Nansemond Indian Nation	1001 Pembroke Lane Suffolk, VA 23434
Keith F. Anderson	Assistant Chief and Environmental Program Director	Nansemond Indian Nation	1001 Pembroke Lane Suffolk, VA 23434
Robert Gray	Chief	Pamunkey Indian Tribe	1054 Pocahontas Trail King William, VA 23086
G. Anne Richardson	Chief	Rappahannock Tribe, Inc.	5036 Indian Neck Road Indian Neck, VA 23148
Faye Fortune	Contract Support	Rappahannock Tribe, Inc.	5036 Indian Neck Road Indian Neck, VA 23148

Name	Title	Nation	Address
Ellen Chapman	Tribal Secretary	Rappahannock Tribe, Inc.	5036 Indian Neck Road Indian Neck, VA 23148
Marion Werkheiser	Contract Support	Rappahannock Tribe, Inc.	5036 Indian Neck Road Indian Neck, VA 23148
W. Frank Adams	Chief	Upper Mattaponi Indian Tribe	13476 King William Rd King William, VA 23086
Leigh Mitchell	Environmental and Cultural Resources Support	Upper Mattaponi Indian Tribe	13476 King William Road King William, VA 23086
Reggie Tupponce	Tribal Administrator	Upper Mattaponi Indian Tribe	13476 King William Rd King William, VA 23086

Source: JLBE-Langley, 2021.

Notes:
[1]Per Installation request, Interagency Letters were not sent to this Nation.
[2]Contact information was not available at time of initial mailing; however, others in this Nation were provided with Interagency Letters.
[3]This Nation is only interested in projects that occur in the Eastern counties of Virginia.
[4]Chief Branham is only interested in projects that occur west of I-95.

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Sold To:
Environmental Research Group LLC - CU80115338
6049 Falls Rd
Baltimore, MD 21209

Bill To:
Environmental Research Group LLC - CU80115338
6049 Falls Rd
Baltimore, MD 21209

Affidavit of Publication

State of Illinois
County of Cook

Order Number: 6956957
Purchase Order:

This day, Jeremy Gates appeared before me and, after being duly sworn, made oath that:

1) He/she is affidavit clerk of Daily Press, a newspaper published by Daily Press, LLC in the city of Newport News and the state of Virginia
2) That the advertisement hereto annexed has been published in said newspaper on the dates stated below
3) The advertisement has been produced on the websites classifieds.pilotonline.com and https://www.publicnoticevirginia.com

Published on: **May 23, 2021; May 24, 2021**.

Jeremy Gates

Subscribed and sworn to before me in my city and state on the day and year aforesaid this 1 day of June, 2021

My commission expires November 23, 2024

Notary Signature

BRENDAN KOLASA
OFFICIAL SEAL
Notary Public, State of Illinois
My Commission Expires
November 23, 2024

Notary Stamp

VIRGINIA MEDIA

PUBLIC NOTICE
POTENTIAL TO IMPACT FLOODPLAINS AND WETLANDS, JOINT BASE LANGLEY-EUSTIS, LANGLEY AIR FORCE BASE, VIRGINIA

The Department of the Air Force (Air Force) is preparing an Environmental Assessment (EA) for a project associated with the proposed Intelligence, Surveillance, Reconnaissance (ISR) Campus Area Development Plan (ADP) at Joint Base Langley-Eustis (JBLE-Langley), Virginia. The project identified in the EA is subject to Executive Order (EO) 11988, Floodplain Management, and EO 11990, Protection of Wetlands. This notice complies with sections 2(a)(4) of EO 11988 and sections 2(a)(b) of EO 11990.

The Proposed Action is to further develop the ISR Campus Area to support ISR activities and address planning needs for organizations throughout the installation. The ISR campus will consolidate cyber functions on the installation and allow for an advancing, mixed-use development for the entire installation. Under this project, general construction and infrastructure improvement activities would occur. This includes construction of new buildings, improvements of existing buildings, demolition activities, road and parking lot improvements or construction, and necessary improvements or replacement of affected utilities.

The ISR Campus ADP is necessary to provide infrastructure improvements required to support the mission of the 633d Air Base Wing (ABW) and tenant units. The ISR Campus ADP identifies requirements for the improvement of the physical infrastructure and functionality of JBLE-Langley, including current and future mission and facility requirements, development constraints and opportunities, and land use relationships. The estimated footprint of this project is 156 acres. Within the project area, there are approximately 17 acres of wetlands, 130 acres in the 100-year floodplain, and 23 acres in the 500-year floodplain. To comply with EO 11988, JBLE-Langley would design structures to reduce the risk of severe damage from flooding. Additionally, JBLE-Langley is heavily developed and provides minimal flood control for downriver areas. Therefore, the proposed project would not contribute to any measurable loss with regard to flood control capacity. To comply with EO 11990, JBLE-Langley will avoid, to the extent practicable, destruction or modification of wetlands within the project area. Loss of wetland acreage would likely require a U.S. Army Corps of Engineers Clean Water Act (CWA) Section 404(b) permit.

The EA will address potential environmental impacts from the proposed action and the range of reasonable alternatives, including a No-Action Alternative in which the proposed project would not be implemented. The EA will be prepared in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321-4347), the Council on Environmental Quality NEPA Implementing Regulations (40 CFR parts 1500–1508) and Air Force Environmental Impact Analysis Process (EIAP) Air Force Instruction 32-7061 as promulgated at 32 CFR part 989 to determine potential environmental effects of ISR Campus

VIRGINIA MEDIA

Area Development at JBLE-Langley. The EA will serve as the basis for deciding whether the proposed action would result in a significant impact to the human environment, requiring the preparation of an environmental impact statement (EIS), or whether no significant impacts would occur, in which case a finding of no significant impact (FONSI) would be appropriate. The Air Force requests advance public comment to determine if there are any public concerns regarding the project's potential to impact floodplains and wetlands. The proposed project will be analyzed in a forthcoming EA and the public will have the opportunity to comment on the draft EA when it is released.
Please submit comments or requests by June 18, 2021 to David Jennings by email at 633CES.CEIE.NEPAPublicComment@us.af.mil or by mail at 633 CES / CEIE, 37 Sweeney Blvd., Langley AFB, VA 23665.

5/23, 5/24/21 6956957

PUBLIC NOTICE

NOTICE OF AVAILABILITY DRAFT ENVIRONMENTAL ASSESSMENT AND PROPOSED FINDING OF NO SIGNIFICANT IMPACT FOR THE INTELLIGENCE, SURVEILLANCE, RECONNAISSANCE (ISR) CAMPUS AREA DEVELOPMENT PLAN (ADP)

JOINT BASE LANGLEY-EUSTIS, VIRGINIA

An Environmental Assessment (EA) has been prepared to analyze the impacts of proposed Intelligence, Surveillance, Reconnaissance (ISR) Campus Area Development Plan (ADP) at Joint Base Langley-Eustis (JBLE-Langley), Virginia. The purpose of this project is to further develop the ISR Campus Area to support ISR activities and address planning needs for organizations throughout the installation. The ISR campus will consolidate cyber functions on the installation and allow for an advancing, mixed-use development for the entire installation.

The EA, prepared in accordance with the National Environmental Policy Act (NEPA), Council on Environmental Quality regulations, and Air Force instructions implementing NEPA; evaluates potential impacts of the alternative actions on the environment including the No-action Alternative. Based on this analysis, the Air Force has prepared a proposed Finding of No Significant Impact (FONSI).

An electronic version of the Draft FONSI and EA, dated March 2022, are available for public review in the Public Notices section of the JBLE-Langley Environmental web page at: www.jble.af.mil/About-Us/Units/Langley-AFB/Langley-Environmental/.

You are encouraged to submit written comments through 27 April 2022. Written comments should be provided to 633 CES / CEIE, 37 Sweeney Blvd., Langley AFB, VA 23665. Email comments may be sent to: 633CES.CEIE.NEPAPublicComment@us.af.mil.

If you have any questions, please contact Ms. Sherry Johnson: 633CES.CEIE.NEPAPublicComment@us.af.mil.

Confirmation Email of Sec. 106 Requirements Satisfied

From: Holma, Marc <marc.holma@dhr.virginia.gov>

Sent: Friday, February 11, 2022 9:16 AM

To: JOHNSON, SHERRY M GS-12 USAF ACC 633 CES/CEIE <sherry.johnson.4@us.af.mil>; JENNINGS, DAVID M GS-13 USAF

ACC 633 CES/CEIE <david.jennings.4@us.af.mil>

Subject: [Non-DoD Source] Intelligence, Surveillance, and Reconnaissance (ISR) Campus Area Development (2021-4679)

Dear Sherry,

David's emails of 2 and 7 February have cleared up many of my questions. I now concur that Bldgs. 847, 1006, 1017, 1011, 1025, 1038, 1041, 1042, 1044, 1302, and 1308 are not eligible for listing in the NRHP either as contributing to the Langley Field Historic District or individually. Therefore, Phase I architectural survey is no longer necessary.

The remaining issue, as far as I can tell, is the proposed rehabilitation work for the two buildings, Bldgs 1004 and 1007, that do contribute to the Langley Field Historic District. Because these two buildings are considered historic, DHR will want to review and comment on the proposed plans and scopes of work for the rehabilitation of Bldgs 1004 and 1007. However, I understand such plans may not be developed at this time. In order to allow the ISR Campus Area Development project to proceed, DHR is willing to concur with the Air Force's No Adverse Effect determination ***on the condition*** that it consult further with us once rehabilitation plans for Bldgs 1004 and 1007 are more fully fleshed out. Such consultation should occur as early in the planning process as possible in order to make modification to the designs based on our comments if necessary.

Sincerely, Marc

--

Marc Holma Architectural Historian

Division of Review and Compliance (804) 482-6090

marc.holma@dhr.virginia.gov

APPENDIX B

U.S. Fish & Wildlife Service, Information for Planning and Consultation (IPaC)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
Phone: (804) 693-6694 Fax: (804) 693-9032
http://www.fws.gov/northeast/virginiafield/

In Reply Refer To:
Consultation Code: 05E2VA00-2021-SLI-4551
Event Code: 05E2VA00-2021-E-13128
Project Name: Hampton, VA

July 05, 2021

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered

species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries

8.0 Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
(804) 693-6694

9.0 **Project Summary**

Consultation Code: 05E2VA00-2021-SLI-4551
Event Code: 05E2VA00-2021-E-13128
Project Name: Hampton, VA
Project Type: DEVELOPMENT
Project Description: ISR eval
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@37.0490983,-76.36763851147572,14z

Counties: Hampton and Newport News counties, Virginia

10.0 Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of National Oceanographic and Atmospheric Administration (NOAA) Fisheries[1], as United States Fish and Wildlife Service (USFWS) does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

11.0 Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

12.0 Birds

NAME	STATUS
Eastern Black Rail *Laterallus jamaicensis ssp. jamaicensis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10477	Threatened

13.0 Insects

NAME	STATUS
Northeastern Beach Tiger Beetle *Cicindela dorsalis dorsalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8105	Threatened

14.0 Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

15.0 USFWS National Wildlife Refuge Lands And FishHatcheries

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
Phone: (804) 693-6694 Fax: (804) 693-9032
http://www.fws.gov/northeast/virginiafield/

In Reply Refer To: July 05, 2021
Consultation Code: 05E2VA00-2021-SLI-4550
Event Code: 05E2VA00-2021-E-13126
Project Name: JBLE ISR Campus

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered

species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries

16.0 Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
(804) 693-6694

17.0 Project Summary

Consultation Code: 05E2VA00-2021-SLI-4550
Event Code: 05E2VA00-2021-E-13126
Project Name: JBLE ISR Campus
Project Type: DEVELOPMENT
Project Description: ISR Campus
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@37.1001325,-76.36074666240845,14z

Counties: Hampton County, Virginia

18.0 Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

19.0 Birds

NAME	STATUS
Eastern Black Rail *Laterallus jamaicensis ssp. jamaicensis*	Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/10477

20.0 Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

21.0 USFWS National Wildlife Refuge Lands And FishHatcheries

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges todiscuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR

APPENDIX C

Air Pollutant Emissions Calculations

C.1 INTRODUCTION

This air analysis provides estimated emissions for the proposed action at JBLE-Langley. Use of the ACAM model was implemented and the demolition, paving, and construction technologies were run. The model parameters were derived by referencing the ISR Campus Area Development Plan [Urban Collaborative, 2019] and were further refined to estimate the potential effects that correlate with the expected construction activities by term (short, mid, long, and capacity) as presented in the ISR Campus Area Development Plan. The preferred alternative, alternative 1, in which construction activities are anticipated to occur in different terms were estimated in the model.

Emissions were calculated for the National Ambient Air Quality Standards within the Hampton Roads Intrastate (HRI) Air Quality Control Region (AQCR) for nitrogen oxides (NOx), volatile organic compounds (VOCs), carbon monoxide (CO), sulfur dioxide (SO2), particulate matter measured as less than or equal to 2.5 microns in diameter (PM2.5), and particulate matter measured as less than or equal to 10 microns in diameter (PM10). Estimated Greenhouse Gas (GHG) emissions were also calculated and compared to the Council of Environmental Quality (CEQ) reference point of 25,000 metric tons per year (tpy).

The analysis was performed for construction periods during which paving, demolition, and building construction activities were accounted for concerning the proposed action. It should be noted that these calculations only account for mobile emissions and exclude stationary emissions sources such as boiler and generator equipment as this data was not available during the time of the analysis. Operation emissions were also not calculated because this type of data was not available during the time of the analysis. The paving activity is based on the use of asphalt because that is the technology associated with the ACAM model. The ACAM model version 5.0.17b was used to support this estimate.

The ACAM summary report follows.

AIR CONFORMITY APPLICABILITY MODEL REPORT

RECORD OF CONFORMITY ANALYSIS (ROCA)

1. General Information: The Air Force's Air Conformity Applicability Model (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 Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the General Conformity Rule (GCR, 40 CFR 93 Subpart B). This report provides a summary of the ACAM analysis.

a. Action Location:

Base: LANGLEY AFB
State: Virginia
County(s): York
Regulatory Area(s): Norfolk-Virginia Beach-Newport News (Hampton Roads), VA; NOT IN A REGULATORY AREA

b. Action Title: ISR Campus Area Development at JBLE-Langley

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2022

e. Action Description:

Proposed Action: The ISR Campus Area Development Plan identifies requirements for the improvement of the physical infrastructure and functionality of JBLE-Langley, including current and future mission and facility requirements, development constraints and opportunities, and land use relationships. This project includes initiatives for facility construction; infrastructure improvements and construction; repairs and renovations; and demolition.

Alternatives: No-Action alternative.

f. Point of Contact:

Name: Teresa A. Stephens
Title: Sr. IT Analyst
Organization: ERG, LLC
Email: teresa.stephens@envrg.com
Phone Number: 844-374-9675

2. Analysis: Total combined direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the "worst-case" and "steady state" (net gain/loss upon action fully implemented) emissions. General Conformity under the Clean Air Act, Section 1.76 has been evaluated for the action described above according to the requirements of 40 CFR 93, Subpart B.

Based on the analysis, the requirements of this rule are: _____ applicable
__X__ not applicable

AIR CONFORMITY APPLICABILITY MODEL REPORT

RECORD OF CONFORMITY ANALYSIS (ROCA)

Conformity Analysis Summary:

2022

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Norfolk-Virginia Beach-Newport News (Hampton Roads), VA			
VOC	0.570	100	No
NOx	3.344	100	No
CO	3.946		
SOx	0.008		
PM 10	0.170		
PM 2.5	0.170		
Pb	0.000		
NH3	0.002		
CO2e	737.8		
NOT IN A REGULATORY AREA			
VOC	0.570		
NOx	3.344		
CO	3.946		
SOx	0.008		
PM 10	0.170		
PM 2.5	0.170		
Pb	0.000		
NH3	0.002		
CO2e	737.8		

2023

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Norfolk-Virginia Beach-Newport News (Hampton Roads), VA			
VOC	0.570	100	No
NOx	3.344	100	No
CO	3.946		
SOx	0.008		
PM 10	0.170		
PM 2.5	0.170		
Pb	0.000		
NH3	0.002		
CO2e	737.8		
NOT IN A REGULATORY AREA			
VOC	0.570		
NOx	3.344		
CO	3.946		
SOx	0.008		
PM 10	0.170		
PM 2.5	0.170		
Pb	0.000		
NH3	0.002		
CO2e	737.8		

AIR CONFORMITY APPLICABILITY MODEL REPORT

RECORD OF CONFORMITY ANALYSIS (ROCA)

2024

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Norfolk-Virginia Beach-Newport News (Hampton Roads), VA			
VOC	0.570	100	No
NOx	3.344	100	No
CO	3.946		
SOx	0.008		
PM 10	0.170		
PM 2.5	0.170		
Pb	0.000		
NH3	0.002		
CO2e	737.8		
NOT IN A REGULATORY AREA			
VOC	0.570		
NOx	3.344		
CO	3.946		
SOx	0.008		
PM 10	0.170		
PM 2.5	0.170		
Pb	0.000		
NH3	0.002		
CO2e	737.8		

2025

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Norfolk-Virginia Beach-Newport News (Hampton Roads), VA			
VOC	0.570	100	No
NOx	3.344	100	No
CO	3.946		
SOx	0.008		
PM 10	0.170		
PM 2.5	0.170		
Pb	0.000		
NH3	0.002		
CO2e	737.8		
NOT IN A REGULATORY AREA			
VOC	0.570		
NOx	3.344		
CO	3.946		
SOx	0.008		
PM 10	0.170		
PM 2.5	0.170		
Pb	0.000		
NH3	0.002		
CO2e	737.8		

AIR CONFORMITY APPLICABILITY MODEL REPORT

RECORD OF CONFORMITY ANALYSIS (ROCA)

2026

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Norfolk-Virginia Beach-Newport News (Hampton Roads), VA			
VOC	0.570	100	No
NOx	3.344	100	No
CO	3.946		
SOx	0.008		
PM 10	0.170		
PM 2.5	0.170		
Pb	0.000		
NH3	0.002		
CO2e	737.8		
NOT IN A REGULATORY AREA			
VOC	0.570		
NOx	3.344		
CO	3.946		
SOx	0.008		
PM 10	0.170		
PM 2.5	0.170		
Pb	0.000		
NH3	0.002		
CO2e	737.8		

2027

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Norfolk-Virginia Beach-Newport News (Hampton Roads), VA			
VOC	0.733	100	No
NOx	4.172	100	No
CO	6.049		
SOx	0.013		
PM 10	0.219		
PM 2.5	0.170		
Pb	0.000		
NH3	0.005		
CO2e	1263.5		
NOT IN A REGULATORY AREA			
VOC	0.733		
NOx	4.172		
CO	6.049		
SOx	0.013		
PM 10	0.219		
PM 2.5	0.170		
Pb	0.000		
NH3	0.005		
CO2e	1263.5		

AIR CONFORMITY APPLICABILITY MODEL REPORT

RECORD OF CONFORMITY ANALYSIS (ROCA)

2028

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Norfolk-Virginia Beach-Newport News (Hampton Roads), VA			
VOC	0.733	100	No
NOx	4.172	100	No
CO	6.049		
SOx	0.013		
PM 10	0.219		
PM 2.5	0.170		
Pb	0.000		
NH3	0.005		
CO2e	1263.5		
NOT IN A REGULATORY AREA			
VOC	0.733		
NOx	4.172		
CO	6.049		
SOx	0.013		
PM 10	0.219		
PM 2.5	0.170		
Pb	0.000		
NH3	0.005		
CO2e	1263.5		

2029

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Norfolk-Virginia Beach-Newport News (Hampton Roads), VA			
VOC	0.733	100	No
NOx	4.172	100	No
CO	6.049		
SOx	0.013		
PM 10	0.219		
PM 2.5	0.170		
Pb	0.000		
NH3	0.005		
CO2e	1263.5		
NOT IN A REGULATORY AREA			
VOC	0.733		
NOx	4.172		
CO	6.049		
SOx	0.013		
PM 10	0.219		
PM 2.5	0.170		
Pb	0.000		
NH3	0.005		
CO2e	1263.5		

AIR CONFORMITY APPLICABILITY MODEL REPORT

RECORD OF CONFORMITY ANALYSIS (ROCA)

2030

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Norfolk-Virginia Beach-Newport News (Hampton Roads), VA			
VOC	0.733	100	No
NOx	4.172	100	No
CO	6.049		
SOx	0.013		
PM 10	0.219		
PM 2.5	0.170		
Pb	0.000		
NH3	0.005		
CO2e	1263.5		
NOT IN A REGULATORY AREA			
VOC	0.733		
NOx	4.172		
CO	6.049		
SOx	0.013		
PM 10	0.219		
PM 2.5	0.170		
Pb	0.000		
NH3	0.005		
CO2e	1263.5		

2031

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Norfolk-Virginia Beach-Newport News (Hampton Roads), VA			
VOC	0.733	100	No
NOx	4.172	100	No
CO	6.049		
SOx	0.013		
PM 10	0.219		
PM 2.5	0.170		
Pb	0.000		
NH3	0.005		
CO2e	1263.5		
NOT IN A REGULATORY AREA			
VOC	0.733		
NOx	4.172		
CO	6.049		
SOx	0.013		
PM 10	0.219		
PM 2.5	0.170		
Pb	0.000		
NH3	0.005		
CO2e	1263.5		

2032

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Norfolk-Virginia Beach-Newport News (Hampton Roads), VA			
VOC	0.362	100	No
NOx	2.082	100	No
CO	3.205		
SOx	0.007		
PM 10	0.076		
PM 2.5	0.071		
Pb	0.000		
NH3	0.002		
CO2e	639.1		
NOT IN A REGULATORY AREA			
VOC	0.362		
NOx	2.082		
CO	3.205		
SOx	0.007		
PM 10	0.076		
PM 2.5	0.071		
Pb	0.000		
NH3	0.002		
CO2e	639.1		

2033

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Norfolk-Virginia Beach-Newport News (Hampton Roads), VA			
VOC	0.362	100	No
NOx	2.082	100	No
CO	3.205		
SOx	0.007		
PM 10	0.076		
PM 2.5	0.071		
Pb	0.000		
NH3	0.002		
CO2e	639.1		
NOT IN A REGULATORY AREA			
VOC	0.362		
NOx	2.082		
CO	3.205		
SOx	0.007		
PM 10	0.076		
PM 2.5	0.071		
Pb	0.000		
NH3	0.002		
CO2e	639.1		

AIR CONFORMITY APPLICABILITY MODEL REPORT

RECORD OF CONFORMITY ANALYSIS (ROCA)

2034

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Norfolk-Virginia Beach-Newport News (Hampton Roads), VA			
VOC	0.362	100	No
NOx	2.082	100	No
CO	3.205		
SOx	0.007		
PM 10	0.076		
PM 2.5	0.071		
Pb	0.000		
NH3	0.002		
CO2e	639.1		
NOT IN A REGULATORY AREA			
VOC	0.362		
NOx	2.082		
CO	3.205		
SOx	0.007		
PM 10	0.076		
PM 2.5	0.071		
Pb	0.000		
NH3	0.002		
CO2e	639.1		

2035

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Norfolk-Virginia Beach-Newport News (Hampton Roads), VA			
VOC	0.362	100	No
NOx	2.082	100	No
CO	3.205		
SOx	0.007		
PM 10	0.076		
PM 2.5	0.071		
Pb	0.000		
NH3	0.002		
CO2e	639.1		
NOT IN A REGULATORY AREA			
VOC	0.362		
NOx	2.082		
CO	3.205		
SOx	0.007		
PM 10	0.076		
PM 2.5	0.071		
Pb	0.000		
NH3	0.002		
CO2e	639.1		

2036

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Norfolk-Virginia Beach-Newport News (Hampton Roads), VA			
VOC	0.362	100	No
NOx	2.082	100	No
CO	3.205		
SOx	0.007		
PM 10	0.076		
PM 2.5	0.071		
Pb	0.000		
NH3	0.002		
CO2e	639.1		
NOT IN A REGULATORY AREA			
VOC	0.362		
NOx	2.082		
CO	3.205		
SOx	0.007		
PM 10	0.076		
PM 2.5	0.071		
Pb	0.000		
NH3	0.002		
CO2e	639.1		

2037

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Norfolk-Virginia Beach-Newport News (Hampton Roads), VA			
VOC	0.625	100	No
NOx	4.022	100	No
CO	4.373		
SOx	0.011		
PM 10	0.161		
PM 2.5	0.157		
Pb	0.000		
NH3	0.010		
CO2e	1137.6		
NOT IN A REGULATORY AREA			
VOC	0.625		
NOx	4.022		
CO	4.373		
SOx	0.011		
PM 10	0.161		
PM 2.5	0.157		
Pb	0.000		
NH3	0.010		
CO2e	1137.6		

AIR CONFORMITY APPLICABILITY MODEL REPORT

RECORD OF CONFORMITY ANALYSIS (ROCA)

2038 - (Steady State)

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Norfolk-Virginia Beach-Newport News (Hampton Roads), VA			
VOC	0.000	100	No
NOx	0.000	100	No
CO	0.000		
SOx	0.000		
PM 10	0.000		
PM 2.5	0.000		
Pb	0.000		
NH3	0.000		
CO2e	0.0		
NOT IN A REGULATORY AREA			
VOC	0.000		
NOx	0.000		
CO	0.000		
SOx	0.000		
PM 10	0.000		
PM 2.5	0.000		
Pb	0.000		
NH3	0.000		
CO2e	0.0		

None of estimated emissions associated with this action are above the conformity threshold values established at 40 CFR 93.153 (b); Therefore, the requirements of the General Conformity Rule are not applicable.

_____ _____

Teresa A. Stephens, Sr. IT Analyst DATE

AIR CONFORMITY APPLICABILITY MODEL REPORT

RECORD OF CONFORMITY ANALYSIS (ROCA)

1. General Information

- Action Location
Base: LANGLEY AFB
State: Virginia
County(s): York
Regulatory Area(s): Norfolk-Virginia Beach-Newport News (Hampton Roads), VA; NOT IN A REGULATORY AREA

- Action Title: ISR Campus Area Development at JBLE-Langley

- Project Number/s (if applicable):

- Projected Action Start Date: 1 / 2022

- Action Purpose and Need:
The purpose of the ISR Campus Area Development is to support ISR activities and address planning needs for organizations throughout the installation. The ISR campus is needed to consolidate cyber functions on the installation and allow for an advancing, mixed-use development for the entire installation.

- Action Description:
Proposed Action: The ISR Campus Area Development Plan identifies requirements for the improvement of the physical infrastructure and functionality of JBLE-Langley, including current and future mission and facility requirements, development constraints and opportunities, and land use relationships. This project includes initiatives for facility construction; infrastructure improvements and construction; repairs and renovations; and demolition.
Alternatives: No-Action alternative.

- Point of Contact
Name: Teresa A. Stephens
Title: Sr. IT Analyst
Organization: ERG, LLC
Email: teresa.stephens@envrg.com
Phone Number: 844-374-9675

- Activity List:

Activity Type		Activity Title
2.	Construction / Demolition	Short-Term General Construction
3.	Construction / Demolition	Mid-Term General Construction
4.	Construction / Demolition	Long-Term General Construction
5.	Construction / Demolition	Capacity General Construction

Emission factors and air emission estimating methods come from the United States Air Force'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: York

Regulatory Area(s): NOT IN A REGULATORY AREA; Norfolk-Virginia Beach-Newport News (Hampton Roads), VA

- Activity Title: Short-Term General Construction

- Activity Description:

Short-term general construction activities are based on the ISR Campus Area Development Plan and include constructing 3 buildings, renovating 2 buildings, constructing 734 parking spaces, and making road improvements to Worley Rd., Weyland Rd., Smyth Rd. and Helm Ave.

- Activity Start Date

Start Month: 1
Start Month: 2022

- Activity End Date

Indefinite: False
End Month: 0
End Month: 2027

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	2.847512
SO_x	0.037913
NO_x	16.719579
CO	19.731076
PM 10	0.850391

Pollutant	Total Emissions (TONs)
PM 2.5	0.849410
Pb	0.000000
NH_3	0.011976
CO_2e	3689.2

2.1 Building Construction Phase

2.1.1 Building Construction Phase Timeline Assumptions

- Phase Start Date

Start Month: 1
Start Quarter: 1
Start Year: 2022

- Phase Duration

Number of Month: 60
Number of Days: 0

2.1.2 Building Construction Phase Assumptions

- General Building Construction Information

Building Category: Office or Industrial
Area of Building (ft^2): 121470
Height of Building (ft): 15
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

2.1.3 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	0.0797	0.0013	0.5505	0.3821	0.0203	0.0203	0.0071	128.81
Forklifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0274	0.0006	0.1265	0.2146	0.0043	0.0043	0.0024	54.457
Generator Sets Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0340	0.0006	0.2783	0.2694	0.0116	0.0116	0.0030	61.069
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0383	0.0007	0.2301	0.3598	0.0095	0.0095	0.0034	66.884
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0260	0.0003	0.1557	0.1772	0.0077	0.0077	0.0023	25.661

- 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	000.282	000.002	000.220	003.283	000.007	000.006		000.023	00323.276
LDGT	000.358	000.003	000.388	004.597	000.009	000.008		000.024	00417.298
HDGV	000.706	000.005	001.021	015.119	000.022	000.019		000.045	00770.239

LDDV	000.112	000.003	000.133	002.524	000.004	000.004		000.008	00313.527
LDDT	000.253	000.004	000.380	004.330	000.007	000.006		000.008	00445.483
HDDV	000.493	000.013	004.921	001.743	000.169	000.155		000.028	01496.485
MC	002.436	000.003	000.747	012.951	000.027	000.024		000.054	00397.607

2.1.4 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

2.2 Paving Phase

2.2.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 1
Start Quarter: 1
Start Year: 2022

- Phase Duration
Number of Month: 60
Number of Days: 0

2.2.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 453426

- 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	6
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

2.2.3 Paving Phase Emission Factor(s)

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

- 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	000.634	000.007	000.676	005.626	000.017	000.015		000.033	00364.981
LDGT	000.819	000.010	001.163	008.688	000.019	000.017		000.034	00487.852
HDGV	001.292	000.015	002.999	025.303	000.045	000.040		000.045	00760.330
LDDV	000.265	000.003	000.321	003.488	000.007	000.006		000.008	00370.175
LDDT	000.567	000.005	000.859	007.093	000.008	000.008		000.008	00577.145
HDDV	000.970	000.014	009.604	003.036	000.373	000.343		000.031	01589.614
MC	002.482	000.008	000.828	015.260	000.029	000.026		000.051	00398.308

2.2.4 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: York
Regulatory Area(s): NOT IN A REGULATORY AREA; Norfolk-Virginia Beach-Newport News (Hampton Roads), VA

- Activity Title: Mid-Term General Construction

- Activity Description:
General construction activities include demolishing a single building, constructing 9 buildings, constructing 2,922 parking spaces, and constructing/road improvements for Duncan Ave. and Roma Rd. (167,970 sq. ft.).

- Activity Start Date
Start Month: 1

Start Month: 2027

- Activity End Date
Indefinite: False
End Month: 0
End Month: 2032

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	3.666802
SO_x	0.063811
NO_x	20.858939
CO	30.243658
PM 10	1.094976

Pollutant	Total Emissions (TONs)
PM 2.5	0.849588
Pb	0.000000
NH_3	0.027323
CO_2e	6317.5

3.1 Demolition Phase

3.1.1 Demolition Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 60
Number of Days: 0

3.1.2 Demolition Phase Assumptions

- General Demolition Information
Area of Building to be demolished (ft^2): 30306
Height of Building to be demolished (ft): 37.5

- 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	000.282	000.002	000.220	003.283	000.007	000.006		000.023	00323.276
LDGT	000.358	000.003	000.388	004.597	000.009	000.008		000.024	00417.298
HDGV	000.706	000.005	001.021	015.119	000.022	000.019		000.045	00770.239
LDDV	000.112	000.003	000.133	002.524	000.004	000.004		000.008	00313.527
LDDT	000.253	000.004	000.380	004.330	000.007	000.006		000.008	00445.483
HDDV	000.493	000.013	004.921	001.743	000.169	000.155		000.028	01496.485
MC	002.436	000.003	000.747	012.951	000.027	000.024		000.054	00397.607

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

3.2 Building Construction Phase

3.2.1 Building Construction Phase Timeline Assumptions

- Phase Start Date

Start Month: 1
Start Quarter: 1
Start Year: 2027

- Phase Duration

Number of Month: 60
Number of Days: 0

3.2.2 Building Construction Phase Assumptions

- General Building Construction Information

Building Category: Office or Industrial
Area of Building (ft^2): 615974
Height of Building (ft): 37.5
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	7
Forklifts Composite	3	8
Generator Sets Composite	1	8
Tractors/Loaders/Backhoes Composite	3	7
Welders Composite	1	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

3.2.3 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	000.282	000.002	000.220	003.283	000.007	000.006		000.023	00323.276
LDGT	000.358	000.003	000.388	004.597	000.009	000.008		000.024	00417.298
HDGV	000.706	000.005	001.021	015.119	000.022	000.019		000.045	00770.239
LDDV	000.112	000.003	000.133	002.524	000.004	000.004		000.008	00313.527
LDDT	000.253	000.004	000.380	004.330	000.007	000.006		000.008	00445.483
HDDV	000.493	000.013	004.921	001.743	000.169	000.155		000.028	01496.485
MC	002.436	000.003	000.747	012.951	000.027	000.024		000.054	00397.607

3.2.4 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

3.3 Paving Phase

3.3.1 Paving Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 60
Number of Days: 0

3.3.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 1512090

- 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

3.3.3 Paving Phase Emission Factor(s)

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

- 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	000.634	000.007	000.676	005.626	000.017	000.015		000.033	00364.981
LDGT	000.819	000.010	001.163	008.688	000.019	000.017		000.034	00487.852
HDGV	001.292	000.015	002.999	025.303	000.045	000.040		000.045	00760.330
LDDV	000.265	000.003	000.321	003.488	000.007	000.006		000.008	00370.175
LDDT	000.567	000.005	000.859	007.093	000.008	000.008		000.008	00577.145
HDDV	000.970	000.014	009.604	003.036	000.373	000.343		000.031	01589.614
MC	002.482	000.008	000.828	015.260	000.029	000.026		000.051	00398.308

3.3.4 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)

4. Construction / Demolition

4.1 General Information & Timeline Assumptions

- Activity Location
County: York

AIR CONFORMITY APPLICABILITY MODEL REPORT

RECORD OF CONFORMITY ANALYSIS (ROCA)

Regulatory Area(s): NOT IN A REGULATORY AREA; Norfolk-Virginia Beach-Newport News (Hampton Roads), VA

- Activity Title: Long-Term General Construction

- Activity Description:
Long-term general construction activities include constructing 3 buildings and demolishing one building.

- Activity Start Date
Start Month: 1
Start Month: 2032

- Activity End Date
Indefinite: False
End Month: 0
End Month: 2037

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	1.809371
SO_x	0.032948
NO_x	10.407795
CO	16.026186
PM 10	0.377781

Pollutant	Total Emissions (TONs)
PM 2.5	0.356841
Pb	0.000000
NH_3	0.011273
CO_2e	3195.6

4.1 Demolition Phase

4.1.1 Demolition Phase Timeline Assumptions

- Phase Start Date
Start Month: 1
Start Quarter: 1
Start Year: 2032

- Phase Duration
Number of Month: 60
Number of Days: 0

4.1.2 Demolition Phase Assumptions

- General Demolition Information
Area of Building to be demolished (ft^2): 4744
Height of Building to be demolished (ft): 20

- 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

4.1.3 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	000.282	000.002	000.220	003.283	000.007	000.006		000.023	00323.276
LDGT	000.358	000.003	000.388	004.597	000.009	000.008		000.024	00417.298
HDGV	000.706	000.005	001.021	015.119	000.022	000.019		000.045	00770.239
LDDV	000.112	000.003	000.133	002.524	000.004	000.004		000.008	00313.527
LDDT	000.253	000.004	000.380	004.330	000.007	000.006		000.008	00445.483
HDDV	000.493	000.013	004.921	001.743	000.169	000.155		000.028	01496.485
MC	002.436	000.003	000.747	012.951	000.027	000.024		000.054	00397.607

4.1.4 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

4.2 Building Construction Phase

4.2.1 Building Construction Phase Timeline Assumptions

- Phase Start Date

Start Month: 1

Start Quarter: 1
Start Year: 2032

- Phase Duration
Number of Month: 60
Number of Days: 0

4.2.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 115600
Height of Building (ft): 20
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

4.2.3 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	000.282	000.002	000.220	003.283	000.007	000.006		000.023	00323.276
LDGT	000.358	000.003	000.388	004.597	000.009	000.008		000.024	00417.298
HDGV	000.706	000.005	001.021	015.119	000.022	000.019		000.045	00770.239
LDDV	000.112	000.003	000.133	002.524	000.004	000.004		000.008	00313.527
LDDT	000.253	000.004	000.380	004.330	000.007	000.006		000.008	00445.483
HDDV	000.493	000.013	004.921	001.743	000.169	000.155		000.028	01496.485
MC	002.436	000.003	000.747	012.951	000.027	000.024		000.054	00397.607

4.2.4 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

5. Construction / Demolition

5.1 General Information & Timeline Assumptions

- Activity Location

County: York

Regulatory Area(s): NOT IN A REGULATORY AREA; Norfolk-Virginia Beach-Newport News (Hampton Roads), VA

- Activity Title: Capacity General Construction

- Activity Description:

Capacity general construction activities include constructing 2 new buildings and 333 parking spaces.

- Activity Start Date
Start Month: 1
Start Month: 2037

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2037

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.624753
SO_x	0.011122
NO_x	4.021738
CO	4.372572
PM 10	0.161040

Pollutant	Total Emissions (TONs)
PM 2.5	0.157153
Pb	0.000000
NH_3	0.010240
CO_2e	1137.6

5.1 Building Construction Phase

5.1.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 1
Start Quarter: 1
Start Year: 2037

- Phase Duration
Number of Month: 12
Number of Days: 0

5.1.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 270000
Height of Building (ft): 56.25
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	7
Forklifts Composite	2	7
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

5.1.3 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	000.282	000.002	000.220	003.283	000.007	000.006		000.023	00323.276
LDGT	000.358	000.003	000.388	004.597	000.009	000.008		000.024	00417.298
HDGV	000.706	000.005	001.021	015.119	000.022	000.019		000.045	00770.239
LDDV	000.112	000.003	000.133	002.524	000.004	000.004		000.008	00313.527
LDDT	000.253	000.004	000.380	004.330	000.007	000.006		000.008	00445.483
HDDV	000.493	000.013	004.921	001.743	000.169	000.155		000.028	01496.485
MC	002.436	000.003	000.747	012.951	000.027	000.024		000.054	00397.607

5.1.4 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

5.2 Paving Phase

5.2.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 1
Start Quarter: 1
Start Year: 2037

- Phase Duration
Number of Month: 12
Number of Days: 0

5.2.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 153180

- 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
Cement and Mortar Mixers Composite	4	6
Pavers Composite	1	7
Paving Equipment Composite	2	6
Rollers Composite	1	7

- 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

5.2.3 Paving Phase Emission Factor(s)

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

- 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	000.634	000.007	000.676	005.626	000.017	000.015		000.033	00364.981
LDGT	000.819	000.010	001.163	008.688	000.019	000.017		000.034	00487.852
HDGV	001.292	000.015	002.999	025.303	000.045	000.040		000.045	00760.330
LDDV	000.265	000.003	000.321	003.488	000.007	000.006		000.008	00370.175
LDDT	000.567	000.005	000.859	007.093	000.008	000.008		000.008	00577.145
HDDV	000.970	000.014	009.604	003.036	000.373	000.343		000.031	01589.614
MC	002.482	000.008	000.828	015.260	000.029	000.026		000.051	00398.308

5.2.4 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)