DRAFT

ENVIRONMENTAL ASSESSMENT (EA)

AIR NATIONAL GUARD

CONVERSION OF C-130H TO C-130J-30 AIRCRAFT AT THE 165TH AIRLIFT WING AT SAVANNAH/HILTON HEAD INTERNATIONAL AIRPORT

SAVANNAH, GEORGIA

Department of the Air Force
Air National Guard

May 2022

This page is intentionally left blank.

ACRONYMS AND ABBREVIATIONS

#	number
%	percent
≥	greater than or equal to
§	Section
165 AW	165th Airlift Wing
ACAM	Air Conformity Applicability Model
ACM	asbestos-containing materials
ACS	American Community Survey
AFFF	aqueous film-forming foam
AFI	Air Force Instruction
AICUZ	Air Installations Compatible Use Zones
ANG	Air National Guard
APE	Area of Potential Effects
BASH	Bird/Wildlife Aircraft Strike Hazard
BCC	Birds of Conservation Concern
BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practice
BWC	bird watch condition
C	candidate
C TIT	turbine inlet temperature in degrees Celsius
C&D	construction and demolition
CATEX	categorical exclusion
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DAF	Department of the Air Force
dB	decibels
dBA	A-weighted decibels
DNL	Day-Night Average Sound Level
DoD	Department of Defense
E	endangered
EA	Environmental Assessment
EBS	Environmental Baseline Survey
EIS	Environmental Impact Statement
EO	Executive Order
EPA ID	Environmental Protection Agency Identification
ERP	Environmental Restoration Program
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FONSI	Finding of No Significant Impact
GA	Georgia
GA SHPO	Georgia State Historic Preservation Office
GCMP	Georgia Coastal Management Program
GHG	greenhouse gas
GWRD	Georgia Wildlife Resources Division
HEF	high expansion foam
HFC	hydrofluorocarbon
HM	hazardous materials
HP	horsepower
HW	hazardous wastes
HWMP	Hazardous Waste Management Plan
IPAC	Information for Planning and Consultation
IR	Installation Restoration
JRB	Joint Reserve Base
LBP	lead-based paint
L_{max}	maximum sound level
MBTA	Migratory Bird Treaty Act
MCAS	Marine Corps Air Station
mi	miles
mph	miles per hour
msl	mean sea level
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAS	Naval Air Station
NDI	Nondestructive Inspection
NEI	National Emissions Inventory
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association

NGB	National Guard Bureau
NHPA	National Historic Preservation Act
NOA	Notice of Availability
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
O&M	operation and maintenance
O.C.G.A.	Official Code of Georgia Annotated
O_3	ozone
OSHA	Occupational Health and Safety Administration
Pb	lead
PFC	perfluorocarbon
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonic acid
PM_{10}	particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$	particulate matter less than or equal to 2.5 micrometers in diameter
ROI	region of influence
RPZ	Runway Protection Zone
SAF/IE	Assistant Secretary of the Air Force (Installations, Environment & Energy)
SAV	Savannah/Hilton Head International Airport
SC	South Carolina
SF_6	sulfur hexafluoride
SO_x	sulfur oxides
SQG	small quantity generator
SVN	Hunter Army Airfield
SWPPP	stormwater pollution prevention plan
T	threatened
TBD	to be determined
TMDL	total maximum daily load
tpy	tons per year
UFC	Unified Facilities Criteria
U.S.	United States
USACE	U.S. Army Corps of Engineers
USC	United States Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound
WHMP	Wildlife Hazard Management Plan

DRAFT
FINDING OF NO SIGNIFICANT IMPACT
FOR CONVERSION OF C-130H TO C-130J-30 AIRCRAFT AT THE 165TH AIRLIFT WING AT SAVANNAH/HILTON HEAD INTERNATIONAL AIRPORT

SAVANNAH, GEORGIA

The Department of the Air Force (DAF) proposes to convert Air National Guard (ANG) C-130H to C-130J-30 "Super Hercules" aircraft at the 165th Airlift Wing (165 AW) located at the Savannah/Hilton Head International Airport (SAV), Savannah, Georgia. ANG is a directorate within the National Guard Bureau (NGB), as described in Department of Defense Directive 5105.77, dated 30 October 2015. NGB prepared an Environmental Assessment (EA) to consider the potential effects to the human and natural environment associated with the one-for-one replacement of aircraft, facility construction or renovation, and small changes in personnel numbers.

NGB prepared the EA pursuant to the National Environmental Policy Act (NEPA) of 1969 (42 United States Code 4321–4347), Council on Environmental Quality (CEQ) *National Environmental Policy Act Implementing Regulations Revisions* (40 Code of Federal Regulations [CFR] Parts 1500–1508) (2022), and the Environmental Impact Analysis Process (32 CFR Part 989, formerly promulgated as Air Force Instruction 32-7061). NGB is the lead agency for the NEPA analysis.

PURPOSE/NEED: The DAF proposes to convert eight ANG C-130H to new C-130J-30 "Super Hercules" aircraft with improved performance and enterprise safety at the 165 AW located at SAV in Savannah, Georgia. The Proposed Action would modify facilities, replace aging aircraft, reduce manpower requirements, lower operating costs, and provide life cycle cost savings.

Implementing the basing action was approved by the Secretary of the Air Force in November 2019. The purpose of the conversion is to improve mission readiness, enhance long-term viability of the enterprise, and reduce stress on maintainers and facilities. The action is needed to continue airlift support and natural disaster relief missions to meet state and national objectives using modern aircraft with advanced technology.

PROPOSED ACTION: The Proposed Action is to replace C-130H aircraft with C-130J-30 "Super Hercules" aircraft. The C-130J reduces manpower requirements, lowers operating and support costs, and provides life cycle cost savings over the C-130H models. Compared to older C-130 aircraft, the "J" model climbs faster and higher, flies farther at a higher cruise speed, and takes off and lands in a shorter distance.

The Proposed Action would include the construction and renovation of select facilities and adjustment of personnel to support the beddown of up to eight C-130J-30 aircraft; none of the projects would be dependent on the number of these aircraft. The number of aircrew would be reduced from six to four per aircraft, while the maintenance crew would increase by three to six, depending on the need for aircraft composite specialists.

ALTERNATIVES: NEPA, CEQ regulations, and 32 CFR Part 989 require that a federal agency consider reasonable alternatives to a proposed action. During the screening process, the action alternatives involved implementing a range of projects needed to accommodate the new mission. Screening factors included no construction or development constraints that would result in major ground disturbance, excessive construction costs, or schedule delays; continued operation and maintenance of old and new aircraft until conversion is complete; and ability to adhere to fire codes and Unified Facilities Criteria to the maximum extent practicable.

Alternative 1: Alternative 1 is the work required for Initial Operations Capability, which includes improvements needed to accept the C-130J-30 aircraft and mission set if they were to happen "today." Under Alternative 1, C-130H aircraft would be replaced one-for-one by C-130J-30 aircraft and the only construction project would consist of restriping and installing new mooring/tie-down points in the 165 AW parking apron to allow for parking of the longer aircraft. No new fire detection systems would be installed, and the Nondestructive Inspection (NDI) Building would stay the same size as it is currently.

Alternative 2 (Preferred Alternative): Alternative 2 is the 10-Year Capital Improvement Plan, which consists of facility modifications required for the unit to operate the C-130J-30 mission set successfully for the next 10 years. Alternative 2 is the preferred alternative. Under Alternative 2, C-130H aircraft would be replaced one-for-one by C-130J-30 aircraft. Proposed projects would include the restriping and mooring in the parking apron, as discussed under Alternative 1, plus installing new fire detection and suppression systems in Buildings 1905 and 1923, constructing new maintenance shops within Building 1905, and expanding the NDI Building (1930). Under Alternative 2, the 165 AW would implement the projects listed in Table 1.

Table 1. Proposed Construction Projects

Project	Description
Parking Apron	Conduct restriping and install moorings (aircraft tie-downs) on the 165th Airlift Wing parking apron.
Buildings 1905 and 1923	Install new fire suppression and detection systems and items necessary to meet fire codes/National Fire Protection Association 101. No hangar door or exterior work is included.
Building 1905	Construct freestanding interior shop spaces located on the southeast and southwest corners of the existing interior hangar bay floor.
Building 1930	Expand the Nondestructive Inspection (NDI) Building (865 square feet) to the northwest side.

No Action Alternative: The CEQ regulations at 40 CFR 1502.14(d) specifically require analysis of the "No Action Alternative" in all NEPA documents. The No Action Alternative serves as the baseline against which the Proposed Action can be evaluated to identify impacts to the natural and built environments. Under the No Action Alternative, aircraft would not be transitioned from C-130H to C-130J-30, no new construction/renovation would occur, and personnel counts would remain the same. Under the No Acton Alternative, the C-130H aircraft would continue to operate; maintenance costs would increase; and eventually, the aircraft would become obsolete and not

comply with airspace and structural integrity requirements (Military.com, 2014). The DAF has been performing ongoing upgrades to the C-130H aircraft to extend the life out to 2040 (Military.com, 2014). Although the No Action Alternative does not meet the selection factors or fulfill the purpose and need of the action, it has to be carried forward for detailed analysis in the EA as required under NEPA.

ENVIRONMENTAL EFFECTS

Potential impacts associated with the Proposed Action are summarized below.

Noise – Construction noise would be temporary and localized to the flight line area. Impacts would be minor in context of the flight-line acoustic environment. C-130J-30 aircraft operations at SAV would be similar to ongoing 165 AW operations in terms of operations tempo and procedures followed. The difference in maximum noise levels generated by C-130J-30 aircraft overflights versus C-130H aircraft is less than 2 decibels, and the two aircraft types would not be expected to be distinguishable to most people based on sound alone. The number of off-airport acres affected by noise equal to or greater than 65 A-weighted decibel (dBA) day-night level (DNL) would not change. No residences would be affected by noise levels 65 dBA DNL or greater, and DNL at representative sensitive locations would increase by 0.1 dBA DNL or less. DNLs at off-station training locations would change by levels substantially below impact significance thresholds.

Air Quality – Chatham County is in attainment for all criteria pollutants. Emissions from construction projects would be temporary and short term. Emissions from the implementation of Alternative 2 would be slightly higher than Alternative 1, but neither would generate significant quantities of any pollutants. There would be a net decrease in most pollutants associated with the newer aircraft's improved fuel economy. As a result, there would be no significant impacts to air quality.

Safety – Because the number of aircraft operations and training would remain the same between the C-130H and C-130J-30, there would be no change to Runway Protection Zones or the risk of bird/wildlife-aircraft strike at the 165 AW or SAV or any of the auxiliary airfields. Based on past safety records, no significant impacts to safety would be expected under either Alternatives 1 or 2.

Cultural Resources – Under Alternative 1, there would be no effect on cultural resources. Under Alternative 2, there would be no adverse effect on historic buildings and structures. NGB consulted with Georgia State Historic Preservation Office (GA SHPO) and provided additional information on 17 December 2021 and 15 February 2022. GA SHPO responded on 07 March 2022 indicating "no adverse effect."

Biological Resources – Under both Alternative 1 and Alternative 2, no natural habitat would be affected. Alternatives 1 and 2 would have no effect on the pondberry, bald eagle, eastern black rail, red knot, red-cockaded woodpecker, wood stork, eastern indigo snake, gopher tortoise, southern hognose snake, or frosted flatwoods salamander. Alternatives 1 and 2 would not likely jeopardize the continued existence of any state-listed bird species or result in an overall decrease in population diversity, abundance, or fitness. Therefore, no significant impacts would be anticipated to biological resources.

Water Resources – Alternative 1 would not involve ground-disturbing activities; therefore, there would be no impacts to water resources. Under Alternative 2, construction projects could result in generation of stormwater and sedimentation. Best management practices, such as using silt fences, covering soil stockpiles, providing secondary containment for the temporary storage of hazardous liquids, and establishing buffer areas near intermittent streams, as appropriate, would minimize the potential for stormwater and sedimentation impacts to receiving waters and wetland areas; therefore, impacts to water resources would not be significant.

Coastal Zone Management – The NGB has determined that the Proposed Action is not reasonably likely to affect a land use, water use, or natural resource of Georgia's coastal zone. The Proposed Action would be consistent to the maximum extent practicable with the enforceable policies of the Georgia Coastal Management Program. Georgia Coastal Resources Division concurred on 20 September 2021.

Hazardous Materials and Wastes – Under Alternative 1, minor amounts of hazardous wastes would be generated during restriping. The contractor would use a self-contained system to remove the existing paint and collect wastewater. This would be disposed of in accordance with regulatory requirements. Under Alternative 2, hazardous waste would also be generated from restriping, removal of the fire suppression and detection systems, and construction of the 865-square-foot building addition. Implementation of the 165 AW Hazardous Waste Management Plan would ensure safe handling of hazardous materials and wastes.

Maintaining and operating C-130J-30 aircraft would require using hazardous materials and would generate hazardous wastes. These materials and wastes would be similar to those currently generated at the 165 AW during aircraft maintenance and operation. Existing facilities and established procedures are in place for the safe handling, use, and disposal of hazardous materials and wastes at the 165 AW. Therefore, there would be minor impacts to hazardous materials and hazardous wastes.

Environmental Justice – Although the 65-dBA DNL or greater noise contours extend into several block groups and census tracts within Chatham County, the contours do not extend into any land areas designated for residential use. As such, no populations and, therefore, no minority or low-income populations, reside within the 65-dBA DNL or greater noise contours associated with 165 AW aircraft operations under either existing conditions or Alternatives 1 and 2. No disproportionately high or adverse human health or environmental effects to environmental justice communities have been identified under Alternatives 1 or 2.

Protection of Children – Runway Protection Zone (RPZ) boundaries do not extend into areas of residential land use; therefore, no populations, including children, reside within the existing RPZs. Furthermore, no schools, parks, hospitals, or other locations where sensitive populations (i.e., children and elderly) may congregate exist within the boundaries of the RPZs. As a result, no disproportionate environmental health or safety risks to children have been identified under Alternatives 1 or 2.

PUBLIC NOTICE: NEPA, 40 CFR Parts 1500–1508, and 32 CFR Part 989 require public review of the EA before approval of the Finding of No Significant Impact and implementation of the Proposed Action. A Notice of Availability for public review of the Draft EA was published in the *Savannah Morning News* on 31 May 2022 and 18 June 2022. The Draft EA was made available

for public review at the Live Oak Public Libraries, Bull Street Library, 2002 Bull Street, Savannah, GA 31408. The Draft EA was also available for review at the following web site:

https://www.165aw.ang.af.mil/Resources/Environmental/

Through the Interagency and Intergovernmental Coordination for Environmental Planning process, the NGB notified relevant federal, state, and local agencies and allowed them 30 days to make known their environmental concerns specific to the Proposed Action. TBD discussion of comments received. Copies of all correspondence and agency letters received are provided in Appendix A (*Interagency and Intergovernmental Coordination*) of the EA.

FINDING OF NO SIGNIFICANT IMPACT

After careful review of the potential effects of this Proposed Action, I have concluded that the Proposed Action would not have a significant impact on the quality of the human or natural environment or generate significant controversy. Accordingly, the requirements of the NEPA, CEQ regulations, and 32 CFR Part 989 et seq. have been fulfilled, and an Environmental Impact Statement is not necessary and will not be prepared.

_____ _____

MARC V. HEWETT, P.E., GS-15, DAF Date
Chief, Asset Management Division

This page is intentionally left blank.

DISCLOSURE STATEMENT

This Draft Environmental Assessment (EA) is provided for public comment in accordance with the National Environmental Policy Act (NEPA), the President's Council on Environmental Quality (CEQ) NEPA Regulations (40 Code of Federal Regulations [CFR] Parts 1500–1508), and 32 CFR Part 989, *Environmental Impact Analysis Process (EIAP)*.

The EIAP provides an opportunity for public input on National Guard Bureau (NGB) decision-making, allows the public to offer inputs on alternative ways for NGB to accomplish what it is proposing, and solicits comments on NGB's analysis of environmental effects. Public commenting allows NGB to make better, informed decisions. Letters or other written or oral comments provided may be published in the EA. As required by law, comments provided will be addressed in the EA and made available to the public. Providing personal information is voluntary. Any personal information provided will be used only to identify your desire to make a statement during the public comment portion of any public meetings or hearings or to fulfill requests for copies of the EA or associated documents. Private addresses will be compiled to develop a mailing list for those requesting copies of the EA. However, only the names of the individuals making comments and specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the Final EA.

This page is intentionally left blank.

TABLE OF CONTENTS

APPENDICES

TABLES

FIGURES

1.0 PURPOSE OF AND NEED FOR ACTION

1.1 Introduction

The Department of the Air Force (DAF) proposes to convert Air National Guard (ANG) C-130H to C-130J-30 "Super Hercules" aircraft at the 165th Airlift Wing (165 AW) located at the Savannah/Hilton Head International Airport (SAV), Savannah, Georgia. National Guard Bureau (NGB) prepared this Environmental Assessment (EA) to consider potential effects to the human and natural environment associated with the one-for-one replacement of aircraft, facility construction or renovation, and small changes in personnel numbers. Proposed construction would begin in 2022. ANG is a directorate within NGB, as described in Department of Defense (DoD) Directive 5105.77, NGB, dated 30 October 2015 (DoD, 2015).

NGB has prepared this EA pursuant to the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] Sections 4321–4347), Council on Environmental Quality (CEQ) *National Environmental Policy Act Implementing Regulations* (40 Code of Federal Regulations [CFR] Parts 1500–1508) (2022), and the Environmental Impact Analysis Process (32 CFR Part 989, formerly promulgated as Air Force Instruction [AFI] 32-7061). NGB is the lead agency for this NEPA analysis.

1.2 Purpose and Need

The DAF proposes to convert eight ANG C-130H to new C-130J-30 "Super Hercules" aircraft with improved performance and enterprise safety at the 165 AW located at SAV, Savannah, Georgia. The Proposed Action would modify facilities, replace aging aircraft, reduce manpower requirements, lower operating costs, and provide life cycle cost savings.

The Secretary of the Air Force endorsed the basing action, pending NEPA analyses, in November 2019. The purpose of the conversion is to improve mission readiness, enhance long-term viability of the enterprise, and reduce stress on maintainers and facilities. The action is needed to continue airlift support and natural disaster relief missions to meet state and national objectives using modern aircraft with advanced technology.

1.3 Location and Background

ANG leases approximately 290 acres in the southeast and northwest quadrants of SAV from the Savannah Airport Commission and licenses the property back to the State of Georgia for use by the Georgia ANG **(Figure 1-1)**. SAV is located in eastern Georgia, east of Interstate 95.

The 165 AW was created in 1946 and currently flies C-130H cargo aircraft to provide air transport and strategic airlift of personnel, equipment, and supplies. ANG's federal mission is to mobilize and assist during wartime and provide support during national emergencies. The combat-ready units conduct training, mobilization readiness, and humanitarian and contingency operations.

ANG's Federal Mission
• Maintain well-trained, equipped units available for prompt mobilization during war, and provide assistance during national emergencies. • During peacetime, the combat-ready and support units are assigned to DAF major commands to carry out training, mobilization readiness, and humanitarian and contingency operations.

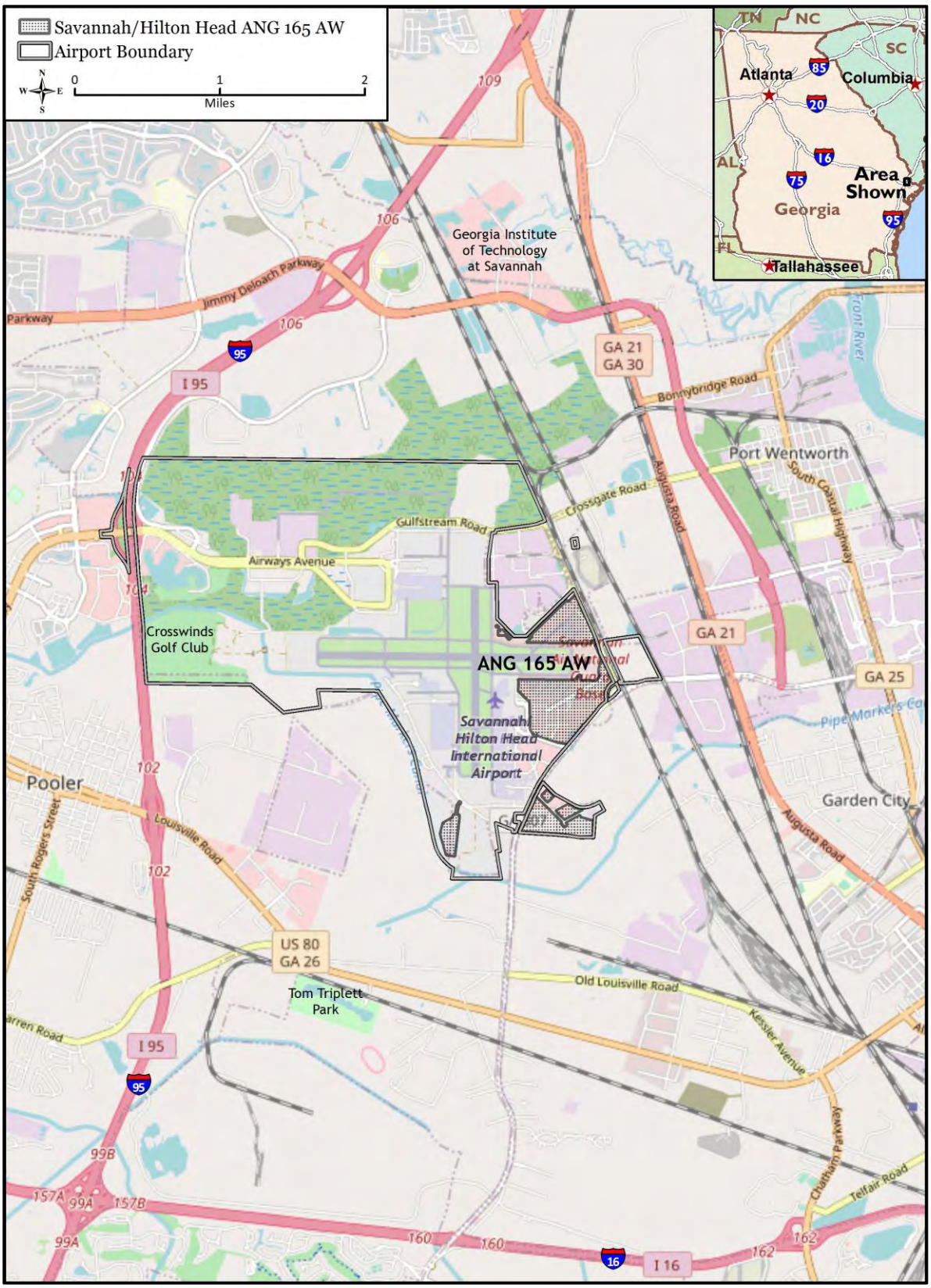


Figure 1-1. Site Location Map

When not mobilized or under federal control, Georgia ANG reports to the Governor of Georgia. The state mission is to protect life and property and preserve public safety. ANG provides emergency relief support during natural disasters, search and rescue, maintenance of essential public services, and counterdrug operations.

1.4 Interagency/Intergovernmental Coordination and Consultation

1.4.1 Interagency Coordination and Consultations

Scoping is an early and open process for identifying the resources to be addressed in the EA and concerns related to a Proposed Action. Per the requirements of Executive Order (EO) 12372, *Intergovernmental Review of Federal Programs*, federal, state, and local agencies with jurisdiction that could be affected by the Proposed Action were notified during preparation of this EA. Appendix A (*Interagency and Intergovernmental Coordination*) of this EA contains a list of agencies consulted with during this analysis and copies of subsequent correspondence.

The Georgia Department of Natural Resources Coastal Resources Division stated in a letter dated 20 September 2021 that the Proposed Action is consistent with the applicable policies of the Georgia Coastal Management Program (GCMP), and the Program has no objection to the proposed activity (Appendix A, *Interagency and Intergovernmental Coordination*).

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 affected by activities on federally administered lands. NGB invited four tribes who have expressed a historical or cultural interest in the area to consult on the proposed actions—Alabama-Quassarte Tribal Town, Catawba Indian Nation, Coushatta Tribe of Louisiana, and Muscogee (Creek) Nation. No responses were received from the tribes.

1.4.3 Historic Preservation

Cultural resources are governed by federal laws and regulations, including the National Historic Preservation Act (NHPA). A federal agency's responsibility for protecting historic properties is defined primarily by Section 106 and 110 of the NHPA. Section 106 requires federal agencies to take into account the effects of their undertakings on historic properties. Section 110 of the NHPA requires federal agencies to establish—in conjunction with the Secretary of the Interior—historic preservation programs for the identification, evaluation, and protection of historic properties.

Cultural resources listed in the National Register of Historic Places (NRHP) or eligible for listing in the NRHP are "historic properties" as defined by the NHPA. The list was established under the NHPA and is administered by the National Park Service on behalf of the Secretary of the Interior. The NRHP includes properties on public and private land. Properties can be determined eligible for listing in the NRHP by the Secretary of the Interior or by a federal agency official with concurrence from the applicable State Historic Preservation Officer. An NRHP-eligible property has the same protections as a property listed in the NRHP. The historic properties include archaeological and architectural resources. NGB consulted with Georgia State Historic Preservation Office (GA SHPO) and provided additional information on 17 December 2021 and 15 February 2022. GA SHPO responded and concluded "no adverse effect" on 07 March 2022 (Appendix A, *Interagency and Intergovernmental Coordination*).

1.5 Related Laws, Regulations, and Permits

NGB has prepared this EA based upon federal and state laws, statutes, regulations, and policies pertinent to the implementation of the Proposed Action as listed in **Table 1-1**.

Table 1-1. Federal and State Environmental Laws and Regulations

Regulation	Agency	Action	Regulated Activity
National Environmental Policy Act 42 USC § 4321 *et seq.*	U.S. Environmental Protection Agency	EA and Finding of No Significant Impact or EIS	Major federal actions that have the potential to significantly impact the quality of the human environment
Clean Air Act 42 USC § 7401 *et seq.*	U.S. Environmental Protection Agency	Federal actions that result in air emissions	Compliance with National Ambient Air Quality Standards
Clean Water Act 42 USC § 1251 *et seq.*	U.S. Army Corps of Engineers	Section 401, 402, 404 permits, as applicable	Actions that affect waters of the United States
National Historic Preservation Act, as amended 54 USC § 306108	Advisory Council on Historic Preservation, Georgia Department of Natural Resources, Historic Preservation Division	Section 106 consultation	Federal undertakings that affect properties listed on or determined eligible for listing on the NRHP
Resource Conservation and Recovery Act 42 USC § 6901 *et seq.*	U.S. Environmental Protection Agency	Hazardous waste management and corrective action	Treatment, storage, and disposal of any generated waste classified as hazardous
Toxic Substances Control Act 15 USC § 2601–2629	U.S. Environmental Protection Agency	Treatment of lead-based paint and asbestos-containing material in accordance with regulatory requirements	Treatment and disposal of lead-based paint and asbestos-containing materials in accordance with regulatory requirements and ANG policies
Endangered Species Act 16 USC § 1531 *et seq.*	U.S. Fish and Wildlife Service, Georgia Department of Natural Resources	Agency consultation for effects on endangered species	Federal actions potentially affecting threatened and endangered species
Migratory Bird Treaty Act 16 USC § 703–712	U.S. Fish and Wildlife Service	Agency consultation for effects on migratory birds	Federal action potentially affecting migratory birds
EO 11990, *Protection of Wetlands*	U.S. Environmental Protection Agency	Avoid to the extent possible the long- and short-term adverse impacts to wetlands, and avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative.	Federal actions potentially affecting wetland areas

Table 1-1. Federal and State Environmental Laws and Regulations

Regulation	Agency	Action	Regulated Activity
EO 13112, *Invasive Species*	National Invasive Species Council	Prevent the introduction of invasive species, and control economic, ecological, and human health impacts.	Federal actions potentially introducing invasive species
Coastal Zone Management Act 16 USC § 1451 *et seq.*	National Oceanic and Atmospheric Administration, Georgia Department of Natural Resources, Coastal Resources Division	Coastal Consistency Determination	Federal actions that may affect coastal resources

§ – Section; ANG – Air National Guard; EA – Environmental Assessment; EIS – Environmental Impact Statement; EO – Executive Order; NRHP – National Register of Historic Places; U.S. – United States; USC – United States Code

1.6 Public and Agency Review of the Environmental Assessment

A Notice of Availability (NOA) of the Draft EA and Draft Finding of No Significant Impact (FONSI) was published in the *Savannah Morning News*, announcing the availability of the EA for review on 31 May 2022 and 18 June 2022. The NOA invited the public to review and comment on the Draft EA. The Draft EA and Draft FONSI were made available for a 30-day public comment period to solicit the input of the public, agencies, and other interested parties. The public and agency review period ended on 29 June 2022. The public and agency comments are provided in Appendix A (*Interagency and Intergovernmental Coordination*).

This page is intentionally left blank.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 Scope of the Analysis

The analysis presented in this EA focuses on the effects associated with replacing C-130H aircraft with C-130J-30 aircraft, proposed new construction and/or renovation (e.g., adding to and/or altering) of facilities, and personnel changes. This EA presents resources that could be potentially impacted and incorporates information by reference to reduce paperwork, keep the analysis concise, and minimize extraneous background data.

The region of influence (ROI) for each alternative is primarily within the construction and/or renovation areas of the base, but also includes the noise zones. The following resource areas were considered:

- Noise
- Air Quality
- Safety
- Cultural Resources
- Biological Resources
- Water Resources
- Coastal Zone
- Hazardous Materials/Waste
- Environmental Justice
- Protection of Children

Resources carried forward are discussed in Chapter 3.0 (Affected Environment and Environmental Consequences).

Subsequent to internal review, the following resource areas were eliminated from further analysis:

Airspace: The Proposed Action would not include the creation of any new Federal Aviation Administration (FAA)-designated controlled airspace or the redesignation of any existing airspace. All FAA-designated controlled airspace would remain unchanged when compared to existing conditions. All aircraft operations associated with the 165 AW would continue to take place within existing FAA-designated controlled airspace. There would be no changes in flight operations that would conflict with existing civilian, commercial, or military use of the regional airspace. Current airspace management procedures would continue. Pilots would continue to avoid obstacles in congested areas by at least 1,000 feet vertically and 2,000 feet horizontally and outside congested areas by at least 500 feet in all directions. As a result, airspace was not carried forward for detailed analysis in this EA.

Land Use: Proposed construction projects would occur on previously developed and/or paved areas. Current land use classifications would not change, and only a small building addition would occur on land that is currently maintained as a sidewalk and lawn. As a result, land use was not carried forward for detailed analysis in this EA.

Infrastructure: The Proposed Action would have a negligible decrease in the number of personnel, and construction impacts would be minor. Design and construction of the fire detection system would comply with applicable stormwater pollution prevention requirements; therefore, infrastructure was not carried forward in this EA.

Traffic and Transportation: Personnel numbers would remain similar to existing conditions. The proposed construction would require use of heavy equipment and worker commutes that would generate short-term increases in traffic. The local roadway infrastructure would be sufficient to support these activities, and effects would be negligible. Because most of the work would take place on-site, road closures or detours would not occur. Contractors and construction vehicles would coordinate with the Base Civil Engineer to minimize conflicts with other airport traffic. As a result, transportation was not carried forward for detailed analysis in this EA.

Visual Resources: Equipment used during the proposed construction projects could create a short-term visual effect; however, the visual environment of the 165 AW is typical of an airfield setting. During construction, most work would be interior to the base, but there could be some construction equipment along with delivery trucks and stockpiling of construction materials visible from an adjacent off-base industrial park. Following completion of construction, these effects would be negligible; therefore, visual resources were not carried forward for detailed analysis in this EA.

Geological Resources: Proposed new facilities include restriping and mooring on existing pavement, interior work in buildings, and a small building addition. As a result, ground disturbance would be negligible; therefore, geological resources were not carried forward for detailed analysis in this EA.

Socioeconomics: Personnel numbers would have a negligible decrease; therefore, there would not be a major change to socioeconomics (e.g., employment or population) due to the Proposed Action.

2.2 Selection of Aircraft Conversion Locations

Candidate Locations with C-130H Aircraft
• Bradley Air Guard Station, Connecticut (103d Airlift Wing) • Great Falls Air Guard Station, Montana (120th Airlift Wing) • Louisville ANG Base, Kentucky (123d Airlift Wing) • McLaughlin Air Guard Base, West Virginia (130th Airlift Wing) • NAS JRB Fort Worth, Texas (136th Airlift Wing) • Cheyenne Air Guard Station, Wyoming (153d Airlift Wing) • Savannah Air Guard Base, Georgia (165th Airlift Wing) • Peoria Air Guard Station, Illinois (182d Airlift Wing)

In November of 2019, the Secretary of the Air Force approved the enterprise definition and basing criteria for this aircraft conversion, which included all ANG C-130H locations except those with a formal training unit or LC-130 special mission aircraft. Each location in the enterprise was then scored against the basing criteria, and the results were presented to the Secretary of the Air Force. In March of 2020, the Secretary of the Air Force selected eight candidate locations from the thirteen considered. The Secretary of the Air Force then authorized use of virtual site surveys to further narrow the candidate locations. As part of the virtual site visits, alternatives for each location were developed to (1) assess the minimum amount of construction required, assuming the aircraft were arriving, and minimal costs were to be expended; and (2) develop a 10-year capital improvement plan to identify costs to operate and maintain the C-130J-30 aircraft.

The findings of the virtual site surveys were presented in a report dated 26 June 2020. Factors to screen and compare candidate locations for the new aircraft included the following:

- Operations
    - Aircraft capability/capacity
    - Weather
    - Elevation
    - Runway length
- Staffing
- Capacity
    - Operational facilities
    - Ramp/parking
    - Aircraft maintenance facilities
    - Logistics
- Environmental
    - Land use
    - Air quality
- Cost of new construction and renovation projects

In November 2020, the DAF announced the selection of locations to receive C-130J-30 "Super Hercules" aircraft to replace aging C-130H aircraft. The selected facilities included the following:

- Louisville ANG Base, Kentucky
- McLaughlin ANG Base, West Virginia
- Naval Air Station (NAS) Joint Reserve Base (JRB) Fort Worth, Texas
- Savannah ANG Base, Georgia

After reviewing the proposed federal actions, NGB determined that a categorical exclusion was the appropriate NEPA action for the NAS JRB Fort Worth, McLaughlin ANG, and Louisville ANG locations. The construction requirements associated with a historic building at Savannah ANG was determined to require an EA for the beddown of the C-130J-30 aircraft; therefore, this EA only discusses the Savannah ANG Base.

2.3 Proposed Action

The Proposed Action is to replace C-130H aircraft with C-130J-30 "Super Hercules" aircraft. The C-130J-30 reduces manpower requirements, lowers operating and support costs, and provides life cycle cost savings over the C-130H models (DAF, 2020a). Compared to older C-130s, the "J" model climbs faster and higher, flies farther at a higher cruise speed, and takes off and lands in a shorter distance (DAF, 2020a).

The Proposed Action would include the construction and renovation of select facilities and adjustment of personnel to support the beddown of up to eight C-130J-30 aircraft; none of the projects would be dependent on the number of these aircraft. The number of aircrew would be reduced from six to four per aircraft, while the maintenance crew would increase by three to six, depending on the need for aircraft composite specialists.

2.3.1 Comparison of Aircraft

The C-130J-30 model features major system improvements, including an advanced two-pilot flight station with fully integrated digital avionics, color displays, and state-of-the-art navigation that

includes a dual navigation system and Global Positioning System (DAF, 2020a). The aircraft also has fully integrated defensive systems, new turboprop engines with six-bladed all-composite propellers, and digital autopilot (DAF, 2020a). In addition, the C-130J-30 has improved fuel economy, environmental and ice protection, and an enhanced cargo-handling system (DAF, 2020a).

Photo credit: Tech. Sgt. Joseph Harwood

C-130H Aircraft

Photo credit: Tech. Sgt. Joseph Harwood

New C-130J-30 Aircraft

Dimensions for the two models of aircraft are presented in **Table 2-1**.

Table 2-1. Comparison of C-130H and C-130J-30 Aircraft Dimensions

Dimensions	C-130H	C-130J-30
Length	97 feet, 9 inches	112 feet, 9 inches
Height	38 feet, 10 inches	38 feet, 10 inches
Wingspan	132 feet, 7 inches	132 feet, 7 inches
Engines	4 - Allison T56-A-15 turboprops 4,591 HP 4 blades	4 - Rolls-Royce AE 2100D3 turboprops 4,700 HP 6 blades
Cargo	41 feet long	56 feet long
Speed	366 mph	410 mph
Range (Normal Payload)	1,208 mi	1,956 mi

HP – horsepower; mi – miles; mph – miles per hour
Source: (DAF, 2018)

2.3.2 Aircraft Operations

Definitions
Sortie – Departure, practice approaches (if any), and full-stop landing at SAV equals one sortie.
Operation – Any departure from or approach to an airfield. Closed-pattern events include a departure segment and an arrival segment; therefore, include two operations.

Table 2-2 shows existing and proposed aircraft operations at SAV.

Proficiency sorties are typically two hours in duration and may include precision/non-precision instrument takeoffs, approaches, touch-and-go, and full-stop landings.

Airdrop sorties are typically two and a half hours in duration and would be single aircraft or two to four aircraft formation departures to approved drop zones for personnel, container bundle, and heavy equipment airdrops.

SAV does not have approved drop zones or assault landing zones. Plantation Airpark and Hunter Army Airfield (SVN) serve as the predominant off-base training fields (**Figure 2-1** and **Table 2-3**). Occasionally, the 165 AW uses Marine Corps Air Station (MCAS) Beaufort or Brunswick (15 percent). The distribution of sorties to a particular destination may vary within a given week depending on conditions. Aircraft operations and training would be similar to existing conditions.

Table 2-2. Comparison of C-130H and C-130J-30 Aircraft Operations

Aircraft Operation	Existing (C-130H)	Alternative 1 or 2 (C-130J-30)
Number of Aircraft	7 (programmed for 8)	8
Operations per Year	1,180	1,180
Daytime Operations (7:00 a.m. to 10:00 p.m.)	1,170	1,170
Nighttime Operations (10:00 p.m. to 7:00 a.m.)	10	10
Average Hours per Sortie	2	2
Drill Weekends per Year	12	12
Maintenance Engine Runs per Year	180	180

Table 2-3. Current and Projected Use of Training Facilities

Name	Existing Use	Projected Use
Plantation Airpark, GA	35%	35%
Hunter Army Airfield, GA	35%	35%
Brunswick, GA or MCAS Beaufort, SC	15%	15%
Remagen Landing Zone/Fort Stewart	7 days every 3 to 5 years Equipment drops	7 days every 3 to 5 years Equipment drops
North Field/Dobbins Air Reserve Base	Once per quarter	Once per quarter

% – percent; GA– Georgia; MCAS – Marine Corps Air Station; SC – South Carolina

2.3.3 Personnel

The number of aircrew would be reduced from six to four per aircraft, while maintenance personnel would change slightly depending on the need for specialists to maintain the aircraft composites. **Table 2-4** shows the personnel requirements for the C-130H and C-130J-30 aircraft.

Figure 2-1. Location of Training Facilities

Table 2-4. Comparison of Personnel Requirements

Personnel	C-130H		C-130J-30		Change
	Per Aircraft	Total (7 aircraft)	Per Aircraft	Total (8 aircraft)	
Aircrew	6	42	4	32	-10
Maintenance	3	21	3	24 (+3) Plus 3 composite specialists Total = 27[1]	+3 +6[1]
TOTAL	9	63	7	56 59[1]	-7 -4[1]

1. With three composite specialists

2.4 Alternative Selection Factors

The action alternatives considered implementing a range of projects needed to accommodate the new mission. Screening factors for the project alternatives included the following:

- No construction or development constraints that would result in major ground disturbance, excessive construction costs, or schedule delays
- Allowance for continued operation and maintenance (O&M) of old and new aircraft until conversion is complete
- Adherence to fire codes and Unified Facilities Criteria (UFC)

2.5 Alternatives

2.5.1 Alternative 1

Alternative 1 is the work required for Initial Operations Capability, which includes improvements needed to accept the C-130J-30 aircraft and mission set if they were to happen "today." Under Alternative 1, C-130H aircraft would be replaced one-for-one by C-130J-30 aircraft, and the only construction project would consist of restriping and installing new mooring/tie-down points in the 165 AW parking apron for parking of the longer aircraft. No new fire detection systems would be installed, and the size of the Nondestructive Inspection (NDI) Building would not change.

Aircraft Conversion

Under Alternative 1, C-130H aircraft would be replaced one-for-one by C-130J-30 aircraft. Eight new aircraft would be beddown at the 165 AW. **Table 2-1** shows the comparison of aircraft dimensions, and **Table 2-2** compares operations.

Construction Projects

Under Alternative 1, the existing retroreflective paint striping and markings would be removed and replaced in accordance with the latest published UFC 3-260-04, *Airfield and Heliport Marking*. The approved parking layout for up to eight primary aircraft authorization assigned C-130J-30 aircraft would be developed. Approximately 16 additional aircraft mooring points would be installed within the existing 165 AW concrete-pavement parking apron, in accordance with the latest published Unified Facilities Guide Specifications 34 73 13, *Aircraft Tiedowns*. **Figure 2-2** shows representative parking locations.

Personnel Changes

Under Alternative 1, aircrew would be reduced from six to four per aircraft, while maintenance would be increased by three to six, depending on the need for aircraft composite specialists. Overall, personnel numbers would change slightly.

2.5.2 Alternative 2 (Preferred Alternative)

Alternative 2 is the 10-Year Capital Improvement Plan, which consists of facility modifications required for the unit to operate the C-130J-30 mission set successfully for the next 10 years. Alternative 2 is the preferred alternative. Under Alternative 2, C-130H aircraft would be replaced one-for-one by C-130J-30 aircraft. Proposed projects would include restriping and mooring in the parking apron, as discussed under Alternative 1, plus installing new fire detection and suppression systems in Buildings 1905 and 1923, constructing new maintenance shops within Building 1905, and an 865-square-foot expansion to the NDI Building (1930). Project locations are shown on **Figure 2-3**.

Aircraft Conversion

Similar to Alternative 1, C-130H aircraft would be replaced one-for-one by C-130J-30 aircraft under Alternative 2. Eight new aircraft would be beddown at the 165 AW.

Construction Projects

Under Alternative 2, several building renovations would occur as described below.

Restriping and Mooring the 165 AW Parking Apron. Alternative 2 would require conducting restriping and mooring in the parking apron. **Figure 2-3** shows the tentative parking locations.

Building 1905. This project would remove the aircraft maintenance hangar high-bay ceiling-mounted, heat-based fire detection system and replace it with an infrared-light-based fire detection system. The existing high-bay ceiling-mounted high expansion foam (HEF) fire suppression system would be decommissioned and removed, and the existing high-bay wet sprinkler system would be modernized in compliance with the Assistant Secretary of the Air Force (Installations, Environment & Energy) (SAF/IE) Sundown Policy of Aircraft Hangar Foam Fire Suppression Systems. The following would be replaced and/or upgraded:

Building 1905, North Elevation, View Looking Northwest

- Associated hangar bay wall-mounted notification devices (horns/strobes)
- Fire pumps
- Fire alarm control panel(s)
- Foam releasing panel
- Other fire riser support equipment located inside interior fire pump control room as necessary to install detection system and modernize the high-bay wet sprinkler system

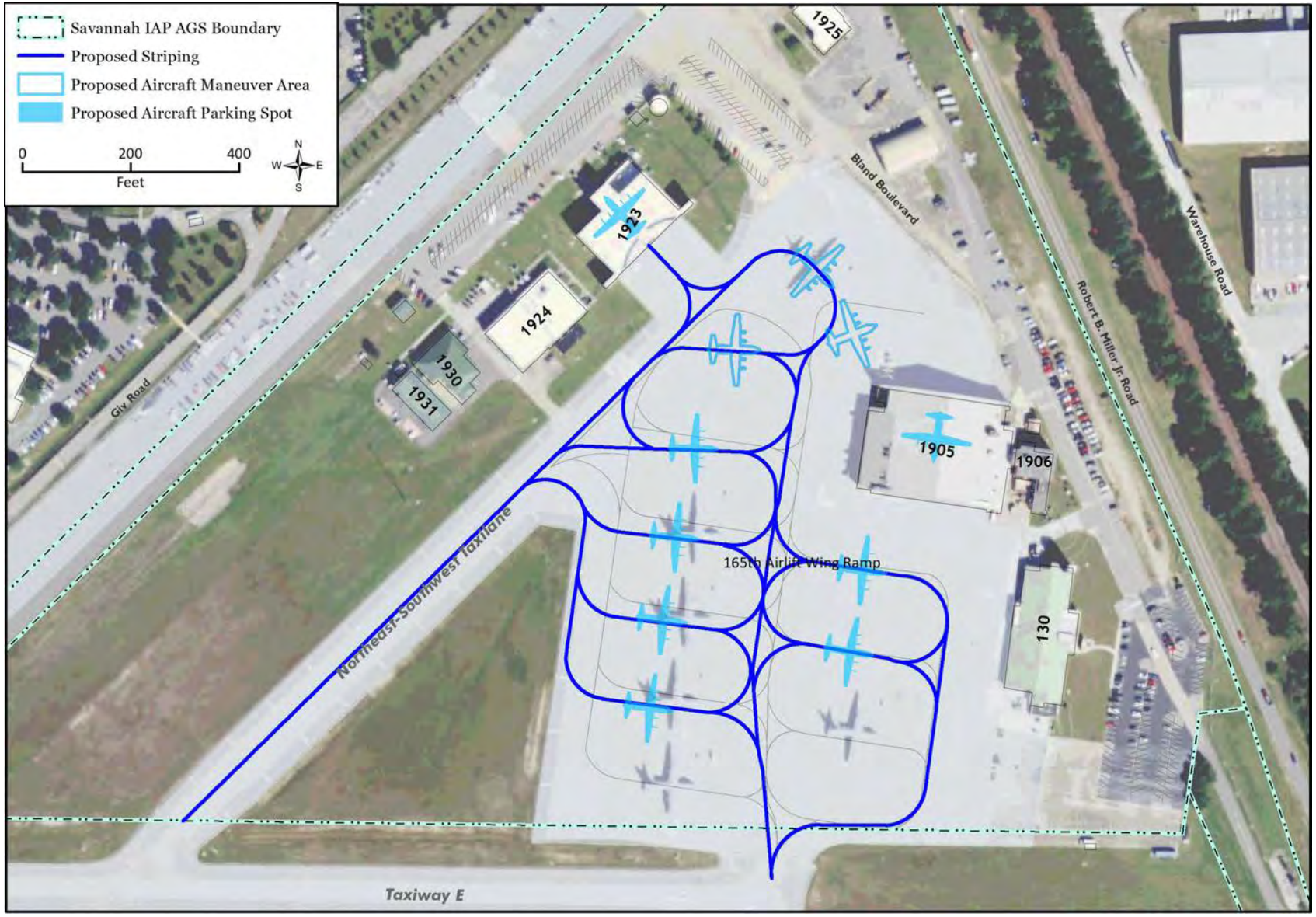


Figure 2-2. Alternative 1

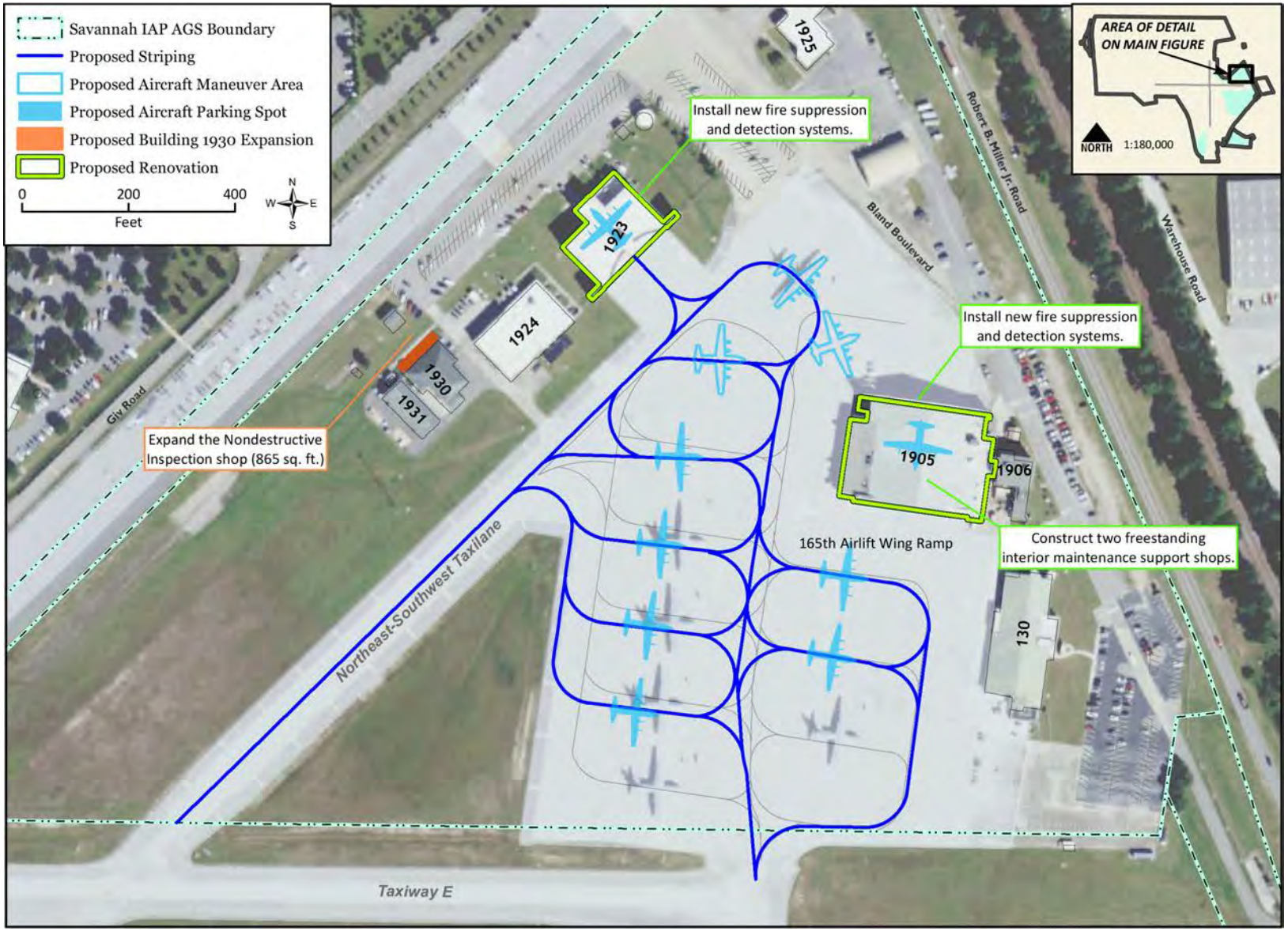
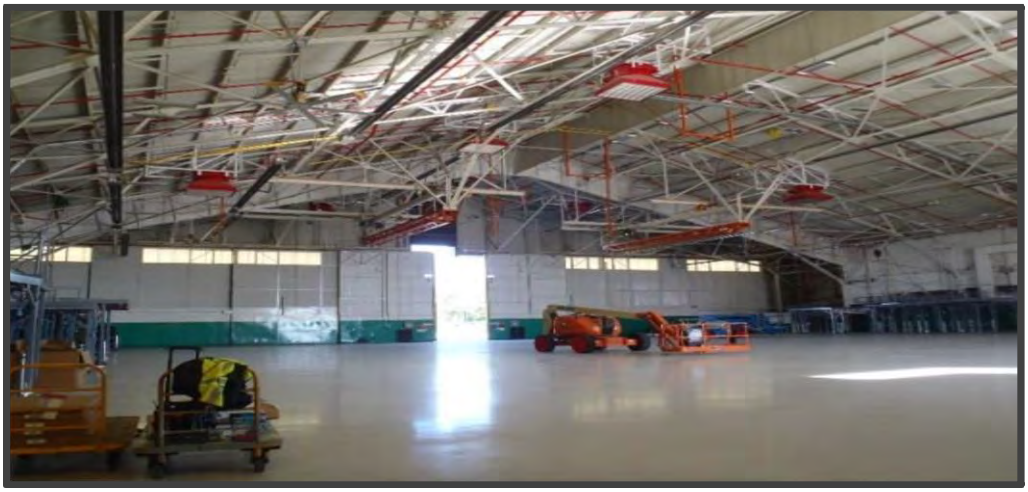


Figure 2-3. Alternative 2 (Preferred Alternative)



Building 1905, View Looking Southwest (interior)

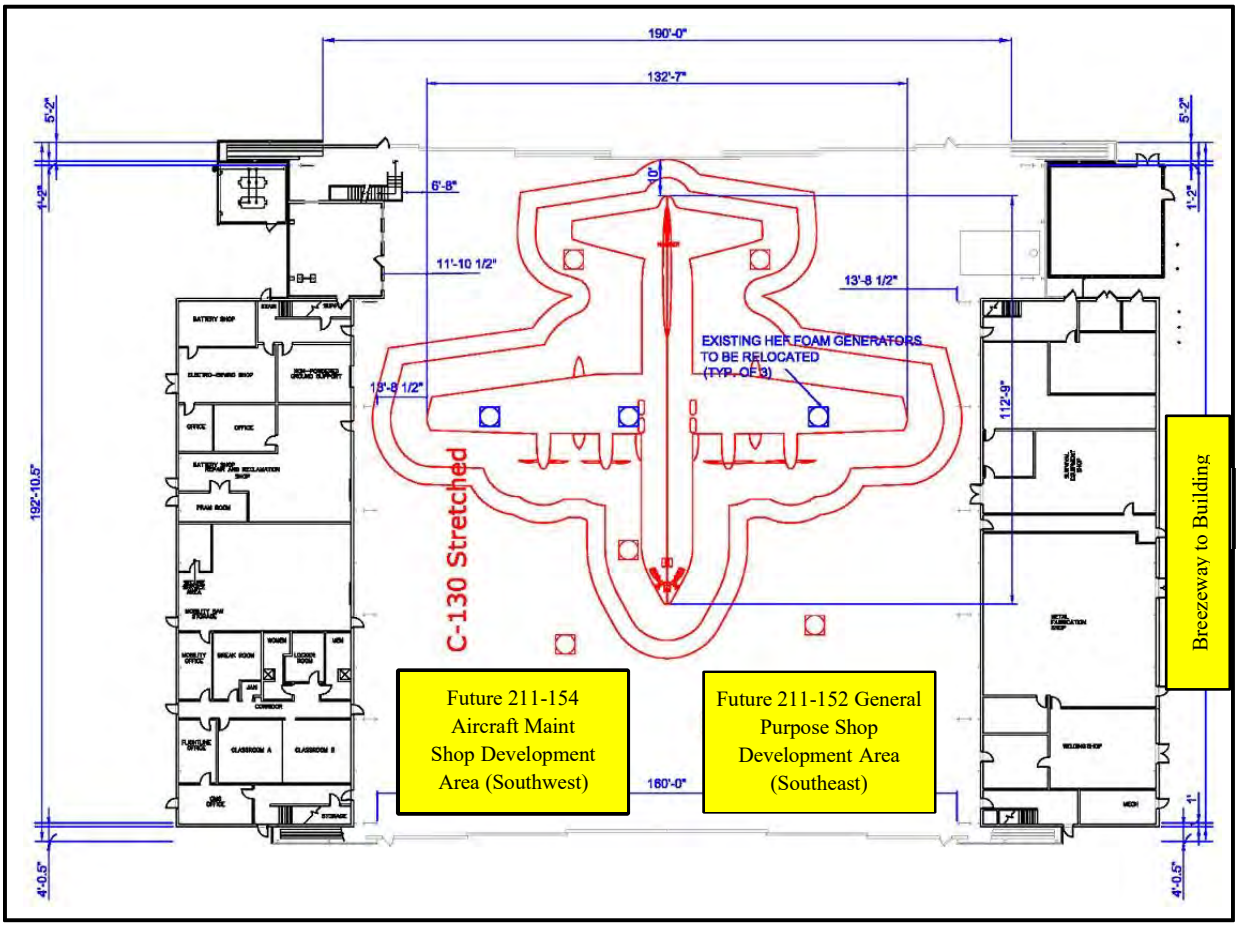


Figure 2-4. Building 1905 Interior Floor Plan, View North

These improvements would ensure that the interior hangar bay could accommodate the C-130J-30 aircraft (**Table 2-1** compares the aircraft dimensions of C-130H and C-130J-30).

In addition, the improvements would ensure compliance with the latest published National Fire Protection Association (NFPA) 101, *Life Safety Code* (safe personnel egress); UFC 4-211-01, *Aircraft Maintenance Hangars* (hazardous locations); and UFC 3-600-01, *Fire Protection Engineering for Facilities*.

This project also includes construction of two freestanding interior aircraft maintenance support shops in accordance with UFC 1-200-01, *DoD Building Code*.

Building 1923. In Building 1923, the aircraft maintenance hangar high-bay ceiling-mounted, heat-based fire detection system would be removed and replaced with an infrared-light-based fire detection system. The existing high-bay ceiling-mounted "buckeye" HEF fire suppression system would be removed, and the existing high-bay wet sprinkler system would be modernized in compliance with the SAF/IE Sundown Policy for Aircraft Hangar Foam Fire Suppression Systems. The following equipment would be replaced or upgraded:

Building 1923

- Associated hangar bay wall-mounted notification devices (horns/strobes)
- Fire pumps
- Fire alarm control panel(s)
- Foam releasing panel
- Other fire riser support equipment located inside interior fire pump control room, as necessary, to install the new detection and high-bay wet sprinkler system

These improvements would ensure the interior hangar bay could accommodate the C-130J-30 aircraft and that the hangar bay remains compliant with latest published NFPA 101, *Life Safety Code* (safe personnel egress); UFC 4-211-01, *Aircraft Maintenance Hangars* (hazardous locations); and UFC 3-600-01, *Fire Protection Engineering for Facilities*.

Building 1930. An 865-square-foot addition would be constructed on the northwest side of the existing building to accommodate additional

Building 1930 Proposed Expansion on the Northwest Side

NDI Building space in accordance with the latest published UFC 1-200-01, *DoD Building Code*.

Table 2-5 summarizes the proposed construction projects under Alternative 2.

Table 2-5. Proposed Construction Projects Under Alternative 2 (Preferred Alternative)

Project	Description
Parking Apron	Conduct restriping and install moorings (aircraft tie-downs) on the 165th Airlift Wing parking apron.
Buildings 1905 and 1923	Install new fire suppression and detection systems and items necessary to meet fire codes/National Fire Protection Association 101. No hangar door or exterior work is included.
Building 1905	Construct freestanding interior shop spaces located on the southeast and southwest corners of the existing interior hangar bay floor.
Building 1930	Expand the Nondestructive Inspection (NDI) Building 865 square feet to the northwest side.

Personnel Changes

Under Alternative 2, aircrew would be reduced from six to four per aircraft, while maintenance would increase by three to six, depending on the need for aircraft composite specialists. Overall, personnel numbers would be expected to change slightly.

2.5.3 No Action Alternative

The CEQ regulations at 40 CFR 1502.14(d) specifically require analysis of the "No Action Alternative" in all NEPA documents. The No Action Alternative serves as the baseline against which the Proposed Action can be evaluated to identify impacts to the natural and built environments. Under the No Action Alternative, aircraft would not be converted from C-130H to C-130J-30, no new construction/renovation would occur, and personnel counts would remain the same. Under the No Acton Alternative, the C-130H aircraft would continue to operate; maintenance costs would increase; and eventually, the aircraft would become obsolete and not comply with airspace and structural integrity requirements (Military.com, 2014). The DAF has been performing ongoing upgrades to the C-130H aircraft to extend the life out to 2040 (Military.com, 2014). Although the No Action Alternative does not meet the selection factors or fulfill the purpose and need of the action, it has to be carried forward for detailed analysis in this EA as required under NEPA.

2.6 Comparison of Alternatives

Table 2-6 presents and compares the environmental consequences associated with implementation of the Proposed Action and No Action Alternative. Chapter 3.0 (Affected Environment and Environmental Consequences), provides a detailed description of the affected environment and analysis of the environmental consequences.

Table 2-6. Comparison of Alternatives

Resource	Alternative 1	Alternative 2 (Preferred Alternative)	No Action Alternative
Noise	▪ Construction noise would be temporary and localized to the flight line area. Impacts would be very minor in context of the flight-line acoustic environment. ▪ C-130J-30 operations at SAV would be similar to ongoing 165 AW operations in terms of operations tempo and procedures followed. C-130J-30 aircraft overflights generate L_{max} less than 2 dB different from C-130H aircraft L_{max} in equivalent configurations, and the two aircraft types are not expected to be distinguishable to most people based on sound alone. ▪ The number of off-airport acres affected at ≥ 65 dBA DNL would not change. ▪ No residences would be affected at ≥ 65 dBA DNL, and DNL at representative sensitive locations would increase by 0.1 dBA DNL or less. ▪ DNL at off-station training locations would change by levels that are substantially below impact significance thresholds.	▪ Construction noise would be temporary and localized to the flight line area. Impacts would be minor, but greater than Alternative 1 in context of the flight-line acoustic environment. ▪ C-130J-30 operations at SAV would be similar to ongoing 165 AW operations in terms of operations tempo and procedures followed. C-130J-30 aircraft overflights generate L_{max} less than 2 dB different from C-130H aircraft L_{max} in equivalent configurations, and the two aircraft types are not expected to be distinguishable to most people based on sound alone. ▪ The number of off-airport acres affected at ≥ 65 dBA DNL would not change. ▪ No residences would be affected at ≥ 65 dBA DNL, and DNL at representative sensitive locations would increase by 0.1 dBA DNL or less. ▪ DNL at off-station training locations would change by levels that are substantially below impact significance thresholds.	Noise levels at SAV and at training locations would remain the same as current conditions, and no additional noise impacts would occur.
Air Quality	Emissions from implementation of Alternative 1 would not generate significant quantities of any pollutants. There would be a net decrease in most	Emissions from implementation of Alternative 2 would be slightly higher than under Alternative 1 but would not generate significant quantities of any	Under the No Action Alternative, air emissions would remain at current baseline levels, and there would be no impact to air quality in the ROI. Most emissions would not

Table 2-6. Comparison of Alternatives

Resource	Alternative 1	Alternative 2 (Preferred Alternative)	No Action Alternative
	pollutants. As a result, there would be no significant impacts to air quality under Alternative 1.	pollutants. There would be a net decrease in most pollutants. As a result, there would be no significant impacts to air quality under Alternative 2.	decrease without the conversion to the newer aircraft.
Public Health and Safety	Because the number of aircraft operations and training would remain the same for the C-130H and C-130J-30 aircraft, there would be no change to RPZs or the risk of bird/wildlife-aircraft strike at the 165 AW, SAV, or any of the auxiliary airfields under Alternative 1.	Because the number of aircraft operations and training would remain the same for the C-130H and C-130J-30 aircraft, there would be no change to RPZs or the risk of bird/wildlife-aircraft strike at the 165 AW, SAV, or any of the auxiliary airfields under Alternative 2.	There would be no change from existing conditions. The aircraft would not be replaced, and there would be no improved avionics or composite propellers.
Cultural Resources	There would be no effect on cultural resources under Alternative 1.	There would be no adverse effect on historic buildings and structures under Alternative 2. GA SHPO concurred with NGB's finding of "no adverse effect" on 07 March 2022.	There would be no change from existing conditions. Building 1905 would not be upgraded with the new fire detection and suppression system.
Biological Resources	▪ There would be no effect to the eastern black rail, wood stork, eastern indigo snake, gopher tortoise, frosted flatwoods salamander, and pondberry. ▪ Alternative 1 would not likely jeopardize the continued existence of a state-listed bird species or result in an overall decrease in population diversity, abundance, or fitness. ▪ No significant impacts would be anticipated to biological resources under Alternative 1.	▪ No natural habitat would be affected. ▪ There would be no effect to the eastern black rail, wood stork, eastern indigo snake, gopher tortoise, frosted flatwoods salamander, and pondberry. ▪ Alternative 2 would not likely jeopardize the continued existence of a state-listed bird species or result in an overall decrease in population diversity, abundance, or fitness. ▪ No significant impacts would be anticipated to	There would be no change from existing conditions.

Table 2-6. Comparison of Alternatives

Resource	Alternative 1	Alternative 2 (Preferred Alternative)	No Action Alternative
		biological resources under Alternative 2.	
Water Resources	There are no ground-disturbing activities; therefore, there would be no impacts to water resources under Alternative 1.	▪ There would be no direct impacts to receiving waters and wetlands under Alternative 2. ▪ Construction projects could result in generation of stormwater and sedimentation. BMPs would minimize the potential for stormwater and sedimentation impacts to receiving waters and wetland areas.	There would be no change from current conditions.
Coastal Zone	NGB has determined that Alternative 1 is not reasonably likely to affect a land use, water use, or natural resource of Georgia's coastal zone. The Proposed Action would be consistent to the maximum extent practicable with the enforceable policies of the GCMP. Georgia Coastal Resources Division concurred on 20 September 2021.	NGB has determined that Alternative 2 is not reasonably likely to affect a land use, water use, or natural resource of Georgia's coastal zone. The Proposed Action would be consistent to the maximum extent practicable with the enforceable policies of the GCMP. Georgia Coastal Resources Division concurred on 20 September 2021.	There would be no change from current conditions.
Hazardous Materials/Waste	▪ Minor amounts of hazardous materials and waste would be generated from the restriping project. ▪ Wastes from aircraft maintenance would be similar to those currently generated.	▪ Hazardous materials and waste would be generated from restriping, as well as the removal of the fire suppression and detection systems and the building addition. ▪ Wastes from aircraft maintenance would be similar to those currently generated.	There would be no change from current conditions.
Environmental Justice	▪ No disproportionately high and adverse human health or environmental effects to environmental justice	▪ No disproportionately high and adverse human health or environmental effects to environmental	▪ There would be no change from current conditions.

Table 2-6. Comparison of Alternatives

Resource	Alternative 1	Alternative 2 (Preferred Alternative)	No Action Alternative
	communities have been identified under Alternative 1.	justice communities have been identified under Alternative 2.	▪ No disproportionately high and adverse human health or environmental effects to environmental justice communities have been identified under the No Action Alternative.
Protection of Children	▪ No disproportionate environmental health risks or safety risks to children have been identified under Alternative 1.	▪ No disproportionate environmental health risks or safety risks to children have been identified under Alternative 2.	▪ There would be no change from current conditions. ▪ No disproportionate environmental health risks or safety risks to children have been identified under the No Action Alternative.

≥ – greater than or equal to; 165 AW – 165th Airlift Wing; BMP – best management practice; dB – decibels; dBA – A-weighted decibels; DNL –- Day-Night Average Sound Level; GA SHPO – Georgia State Historic Preservation Office; GCMP – Georgia Coastal Management Program; ROI – region of influence; RPZ – Runway Protection Zone; SAV – Savannah/Hilton Head International Airport

This page is intentionally left blank.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the environmental conditions and potential environmental impacts resulting from implementing the Proposed Action and alternatives. This chapter also provides information to serve as a baseline from which to identify and evaluate environmental changes likely to result from implementation of the Proposed Action. Baseline conditions represent current conditions, and potential environmental impacts are assessed by resource and alternative.

In compliance with NEPA, CEQ guidelines, and 32 CFR Part 989 et seq., the description of the affected environment and impacts focuses on those resources and conditions potentially subject to impacts. These resources and conditions include noise, air quality, public health and safety, cultural resources, biological resources, water resources, coastal zone, hazardous materials/waste, environmental justice, and protection of children.

Cumulative Impacts

Cumulative impacts to environmental resources result from incremental effects of proposed actions when combined with other past, present, and reasonably foreseeable future projects in the ROI. Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies (federal, state, and local) or individuals. In accordance with NEPA, a discussion of cumulative impacts resulting from projects that are proposed, or anticipated over the foreseeable future, is required. Past, present, and reasonably foreseeable future actions that are proposed for 165 AW and at SAV are shown in **Table 3-1**.

Table 3-1. Past, Present, and Reasonably Foreseeable Future Actions

Proponent	Action Name	NEPA
165 AW	Parking Apron Ramp Extension	CATEX
165 AW	Replacement of the Floor in Hangar 1905	TBD
SAV	Airport Improvement Projects	2020 EA and FONSI

165 AW – 165th Airlift Wing; CATEX – categorical exclusion; EA – Environmental Assessment; FONSI – Finding of No Significant Impact; NEPA – National Environmental Policy Act; SAV – Savannah/Hilton Head International Airport; TBD – to be determined

Parking Apron Ramp Extension. Expansion of the parking apron and shoulder is a current mission project required for the C-130H model. The 165 AW proposes to add a 40-foot-wide concrete addition and a 25-foot asphalt shoulder.

Replacement of the Floor in Building (Hangar) 1905. A potential future project may be to replace the floor in Building (Hangar) 1905. All work would be internal.

SAV Improvement Projects. An EA was prepared and a FONSI was signed in 2020 for airport improvements at SAV. The Proposed Action included the following:

- Relocation of the air cargo facility and construction of new facilities
- Improvements to segments of Taxiway A and Taxiway G
- Improvements to the North Apron (reconstruction and new construction)
- Redevelopment of the general aviation area including new construction
- Drainage improvements in the southeast quadrant

Environmental Trends

Environmental trends to be considered with this Proposed Action could include climate change and the potential increase in SAV aircraft traffic.

Climate. According to the National Oceanic and Atmospheric Administration Centers for Environmental Information (NOAA, 2022), the following holds true:

- Temperatures in Georgia have risen by 0.8 degrees Fahrenheit, with the warmest consecutive 5-year interval experienced from 2019 to 2020, and heat wave intensity is projected to increase.
- Although precipitation is projected to increase, changes are expected to be small compared to the normal variability.
- An increase in hurricanes and tropical storms could result in more frequent heavy rains.
- Global sea level has risen approximately 7 to 8 inches and is projected to rise by 1 to 4 feet by 2100, increasing the frequency, extent, and severity of coastal flooding. Due to low elevation along the coast, sea level rise is projected to impact water management systems, property, tourism, and agriculture.

Chatham County has relatively flat terrain and low coastal elevations, ranging from sea level at the coast and 50 feet in the northwestern portion of the county where the airport is located (Georgia Air National Guard, 2014). Flat surfaces can result in poor stormwater drainage from a major storm event. The highest elevation in Chatham County is located at SAV (ANG, 2020a). The runway elevation is approximately 45 feet above sea level (Georgia Air National Guard, 2014). The highest point on the 165 AW property is 45.5 feet above mean sea level (msl) at Building 1905 (ANG, 2020a). The land gradually slopes south to 6 feet msl at the end of Darque Road near Building 917, the lowest elevation on the 165 AW property.

The flood zones are defined based on 100- and 500-year storms. These storms are rated according to how much rain falls within a certain time period. On average, once in 100 years (a 1 percent chance), 10 inches of rain will fall within a 24-hour time period in Savannah; this type of storm would be considered a 100-year storm (Savannah, 2021). A much higher rate of rainfall within a 24-hour time period would classify the storm as a 500-year storm. Hurricanes can result in 20 inches of rain in less than 24 hours, which would represent similar conditions as experienced in a 500-year storm (Savannah, 2021). The 165 AW is not located within the 100-year floodplain, as shown in Figure 3-6. With a 500-year storm or hurricane, the 165 AW would experience flooding. In addition, Chatham County is projected to have a major risk of flooding over the next 30 years and is investing in flood risk reduction projects (Flood Factor, n.d.).

Air Traffic at SAV. Air traffic at SAV, as described in the Terminal Area Forecast and Updated Master Plan, projects future growth. The Master Plan Update shows total aircraft growth of 0.9 percent through 2035 (SAV, 2014). With the COVID-19 pandemic, aircraft operations numbers at SAV and other airports have declined, and there is uncertainty when numbers are expected to rebound to pre-pandemic conditions and/or achieve growth.

3.1 Noise

3.1.1 Definition of the Resource

Noise is unwanted sound that interferes with normal activities or otherwise diminishes the quality of the environment. Responses to noise vary widely according to the characteristics of the sound source,

the time of day, the distance between the noise source and the person hearing the sound, and the sensitivity and expectations of the person hearing the sound. Characteristics of a sound that affect how the sound is perceived include its level and frequency. Sound level is described using a logarithmic unit of measure, the decibel (dB). Differences in sound levels of less than 3 dB are typically not noticeable by a person with normal hearing in a non-laboratory setting. Sound intensities that have been adjusted to account for the differential sensitivity of human ears to various frequencies are termed "A-weighted dB" (dBA). **Figure 3-1** lists typical levels (in dBA) of common sounds.

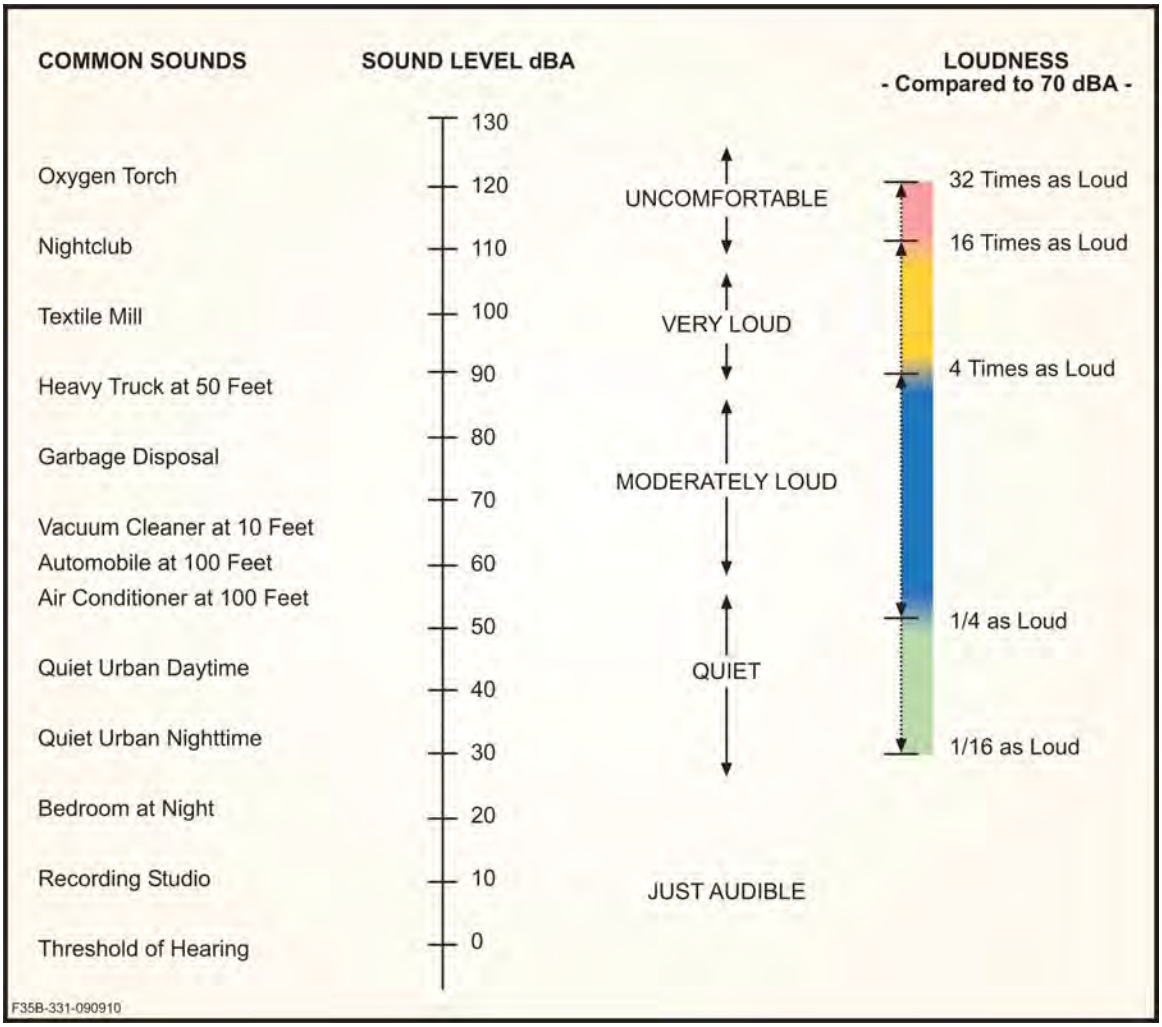


Figure 3-1. Typical A-Weighted dB Levels of Common Sounds

The way a sound changes over time is also important to how it is perceived. An aircraft overflight, for example, becomes louder as the aircraft approaches and then becomes quiet again as the aircraft recedes into the distance. Several noise metrics have been created to describe time-varying sound levels. The maximum sound level metric is simply the highest sound level reached during a single event.

Actual sound environments are a complex mixture of many time-varying sounds. The Day-Night Average Sound Level (DNL) metric is used to describe complex acoustic environments by summing individual noise events and averaging the acoustic energy over a 24-hour period. This

metric reflects the maximum noise levels of events, the duration of the events, and the number of events that occur. The DNL metric adds 10 dB to events that occur between 10:00 p.m. and 7:00 a.m. to account for the increased intrusiveness of noise events that occur late at night when ambient noise levels are normally lower than during the daytime.

The DNL metric does not provide specific information on the number of noise events or the specific individual sound levels that occur. For example, a DNL of 65 dB could result from a few very noisy events or a large number of quieter events. The DNL metric has been found to correlate with the percentage of people highly annoyed by noise and is used in land use planning. According to DoD and FAA guidelines, all land uses are considered compatible with noise levels below 65 dBA DNL (DoD Instruction 4165.57, *Air Installations Compatible Use Zones (AICUZ)*) (Federal Aviation Administration, 2020). Golf courses are considered generally compatible with noise levels as high as 79 dBA DNL, although minimum structural noise attenuation values are recommended for any structures on golf courses exposed at or above 70 dBA DNL. Land uses that are not particularly sensitive to noise, such as most categories of manufacturing and industry, are considered generally compatible at noise levels as high as 84 dBA DNL.

3.1.2 Affected Environment

Aircraft operations are the dominant noise source on and near SAV. Other noise sources in the area include the operation of ground vehicles (e.g., trucks and cars) and equipment (e.g., lawn mowers).

165 AW C-130H aircraft conduct 3.5 airfield operations per average annual day, while other aircraft conduct 258.3 airfield operations per average annual day on SAV runways (DAF, 2021a). Thus, C-130H operations make up approximately 1 percent of the roughly 95,600 airfield operations conducted annually at SAV (Savannah Airport Commission, 2020). Civilian aircraft operations are the dominant contributor to overall noise levels at SAV, and the contribution of 165 AW operations to overall DNL is relatively small.

Noise levels at and near SAV were modeled using approved DoD and FAA software. Operations noise levels of the 165 AW were calculated using the DoD noise modeling program, Noisemap (version 7.2), and the contributions of other (non-165 AW) aircraft operations were calculated using FAA's Aviation Environment Design Tool (version 3d). The results of FAA and DoD noise models were summed to yield overall aircraft operations noise levels. As much as 1,885 acres on and near SAV are at 65 dBA DNL or above, with only 283 acres (15 percent) off airport property; 1,449 acres (77 percent) owned by SAV and not leased by the 165 AW and 153 acres (8 percent) leased by the 165 AW. Land uses on and near SAV exposed to 65 dBA DNL or greater include transportation corridors, industrial land uses, undeveloped land, and a golf course. All existing land uses appear to be compatible with baseline noise levels, in accordance with DoD and FAA guidelines. No residences or points of interest are exposed to noise levels exceeding 65 dBA DNL. Noise levels at several representative noise-sensitive locations near SAV are substantially lower than 65 dBA DNL (**Table 3-2**).

The 165 AW C-130H aircraft training at locations other than SAV include landings, departures, and airdrops. Ongoing 165 AW training operations at these training locations are incidental to the primary uses of each facility, as described below, and their contribution to overall noise levels is relatively minor.

Table 3-2. DNL at Representative Points of Interest

Location Description	Latitude (degrees north)	Longitude (degrees west)	DNL (dBA)
Courtney Station Apartments	32.131083	81.250610	60.5
Port Wentworth Elementary School	32.142497	81.158129	48.7
Trailer Park on Route 21	32.120188	81.166529	54.7

dBA – A-weighted decibels; DNL – Day-Night Average Sound Level

Plantation Airpark. This airfield supports approximately 13,000 aircraft operations annually (AirNav.com, 2021), equating to about 36 operations per average annual day. Approximately 35 percent of 165 AW training is conducted at Plantation Airpark (see **Table 2-3**).

Hunter Army Airfield. This busy military installation supports H-60, AH-64, and H-47 helicopters. Approximately 35 percent of 165 AW C-130H aircraft training is conducted at this location (see **Table 2-3**), which equates to about one visit every other day.

Brunswick, Georgia or Marine Corps Air Station Beaufort, South Carolina. Brunswick Golden Isles Airport supports approximately 27,700 aircraft operations annually (AirNav.com, 2021). MCAS Beaufort is home to seven squadrons operating F/A-18C/D, F-35B, and UC-12F aircraft. Approximately 15 percent of 165 AW C-130H aircraft training is conducted at either Brunswick Golden Isles Airport or MCAS Beaufort (see **Table 2-3**), equating to less than 65 visits per year (1 every five days on average) split between both locations.

Remagen Landing Zone (Fort Stewart). This landing zone is used by multiple units, including the units based at SVN. The 165 AW conducts operation drops at Remagen Landing Zone very infrequently (seven days every three to five years).

3.1.3 Environmental Consequences

Changes in noise levels were assessed against DoD and FAA impact thresholds to determine significance. DoD NEPA implementing regulations at 32 CFR Part 989 do not establish any universally applicable quantitative noise impact significance thresholds. FAA regulations contained in FAA Order 1050.1F state that increases at noise-sensitive locations of greater than 1.5 dB DNL, where the end-state noise level is 65 dBA DNL or greater, are significant impacts.

3.1.3.1 Alternative 1

Construction. Construction under Alternative 1 would be limited to restriping and addition of aircraft mooring points on the aircraft parking apron. This project may involve the use of heavy equipment (e.g., crane), which can generate noise levels as high as 85 dBA at a distance of 50 feet (Federal Highway Administration, 2006). Noise generated during construction would be temporary and localized on and near the 165 AW parking apron. High noise levels occur on a regular basis on the parking apron because of aircraft operations, and the noise sensitivity of nearby land uses is relatively low. Construction noise would be temporary and would have no effect on long-term DNL. Therefore, construction noise impacts under Alternative 1 would not be significant.

Aircraft Operations at SAV. The operations of C-130J-30 aircraft at SAV would be similar to the currently ongoing operations of C-130H aircraft. The number of sorties flown annually would

remain at 540. Late at night, 165 AW sorties would continue to be rare, making up approximately 2 percent of initial arrivals and a negligible percent of other operation types. Local procedures (e.g., flight paths, traffic pattern altitudes, etc.) flown by C-130J-30 aircraft would also remain the same as those used by C-130H aircraft currently.

C-130H and C-130J-30 aircraft noise levels are very similar, as shown in **Table 3-3**. The noise levels of the two aircraft differ by less than 3 dB and, due to other aspects of the acoustic signatures (e.g., dominant frequencies), it would be expected that most listeners would be unable to distinguish between the two aircraft types based on sound alone.

Table 3-3. Maximum Noise Level (L_{max}) of C-130H and C-130J-30 Aircraft Overflights[1]

Operation	Aircraft	Engine Power Setting	L_{max} (dBA)[2]
Takeoff	C-130H	970 C TIT	84.6
	C-130J-30	6400 HP	84.7
Approach/Intermediate	C-130H	580 C TIT	83
	C-130J-30	1400 HP	84.1

dBA – A-weighted decibels; C TIT – turbine inlet temperature in degrees Celsius; HP – horsepower; L_{max} – maximum noise level
1. Noise levels stated are at a distance of 1,000 feet, measured under acoustic conditions at 59 degrees Fahrenheit and 70 percent humidity.
2. Noise levels derived using Noisemap modeling suite with BaseOps interface.

Noise contours under Alternative 1 were calculated using the same methods used to calculate baseline noise levels (see Section 3.1.2, Affected Environment) and are overlaid on baseline contours in **Figure 3-2**. It is difficult to discern the two sets of contour lines in the map, because they often differ in location by only a few feet. Differences are small, because 165 AW operations are a relatively minor contributor to overall noise levels at SAV. The noise levels generated by C-130J-30 aircraft are very similar to those generated by C-130H aircraft, and the operational tempo and procedures proposed to be flown by C-130J-30 aircraft are very similar to those currently flown by the C-130H.

As shown in **Table 3-4**, the total number of acres at or above 65 dBA DNL would increase by 1, from 1,885 to 1,886. The number of off-airport acres within the 65-dBA DNL noise contour would remain the same at 283. The increase of 1 acre would occur on SAV-owned land. No residences would be affected at noise levels at or greater than 65 dBA DNL under Alternative 1.

Table 3-4. Alternative 1 Acres Affected by Elevated Noise Levels

Land Category	Acres Exposed at ≥ 65 dBA DNL		
	Baseline	Proposed Action	Change
Off-Airport	283	283	0
Airport (not including the 165 AW)	1,449	1,450	1
165 AW	153	153	0
Total	1,885	1,886	1

≥ – greater than or equal to; 165 AW – 165th Airlift Wing; dBA – A-weighted decibels; DNL – day-night average sound level

Noise levels at representative sensitive locations would increase by 0.1 dB DNL or less under Alternative 1 (**Table 3-5**). Noise levels at the locations studied would remain well below 65 dBA DNL.

Table 3-5. Alternative 1 DNL Change at Representative Points of Interest

Location Description	DNL (dB)		
	Baseline	Proposed	Change
Courtney Station Apartments	60.5	60.6	0.1
Port Wentworth Elementary School	48.7	48.7	0.0
Trailer Park on Route 21	54.7	54.7	0.0

dB – decibels; DNL – Day-Night Average Sound Level

Aircraft Operations at Training Locations. The number and types of C-130 operations at training locations would remain the same after conversion from C-130H to C-130J-30 aircraft (**Table 2-2**). Current training locations for the 165 AW, at which airdrops are conducted, would continue to host airdrops from the same altitudes. Locations that currently support landing operations would continue to support landing operations. The two aircraft types generate similar noise levels (**Table 3-3**) and would not be expected to be distinguishable to most people based on sound alone. Because the difference in noise levels between the C-130H and C-130J-30 aircraft is small, and because all other aspects of 165 AW operations at these locations would remain the same, the change in DNL generated by 165 AW operations as a result of the proposed aircraft conversion would be minimal. As noted in Section 3.1.2 (Affected Environment), 165 AW operations make up a relatively small fraction of ongoing aircraft operations at each training location. In this context, noise impacts of the proposed 165 AW conversion would be minimal and would remain well below noise level change thresholds at which significant impacts could occur.

3.1.3.2 Alternative 2 (Preferred Alternative)

Construction. Construction under Alternative 2 would include the project proposed under Alternative 1 plus interior renovation projects in Buildings 1905 and 1923 and a small building expansion project (Building 1923). Construction noise would be localized to an area on and near the construction site. All of the projects proposed under Alternative 2 would occur in the flight line area, where elevated noise levels are common and where the noise sensitivity of nearby land uses is relatively low. Construction would be temporary, lasting only for the duration of the project and would not affect long-term DNL. Based on these considerations, construction noise impacts under Alternative 2 would not be significant.

Aircraft Operations at SAV. Because the operations of C-130J-30 aircraft at SAV under Alternative 2 would be identical to those under Alternative 1, noise levels under Alternative 2 would be the same as described for Alternative 1. Changes in noise levels would be minor, mirroring those described in Section 3.1.3.1 (Alternative 1). Aircraft operations noise impacts at SAV under Alternative 2 would not be significant.

Aircraft Operations at Training Locations. Under Alternative 2, C-130J-30 aircraft operations at training locations would also be identical to those conducted under Alternative 1. As with Alternative 1, noise impacts would not be significant.

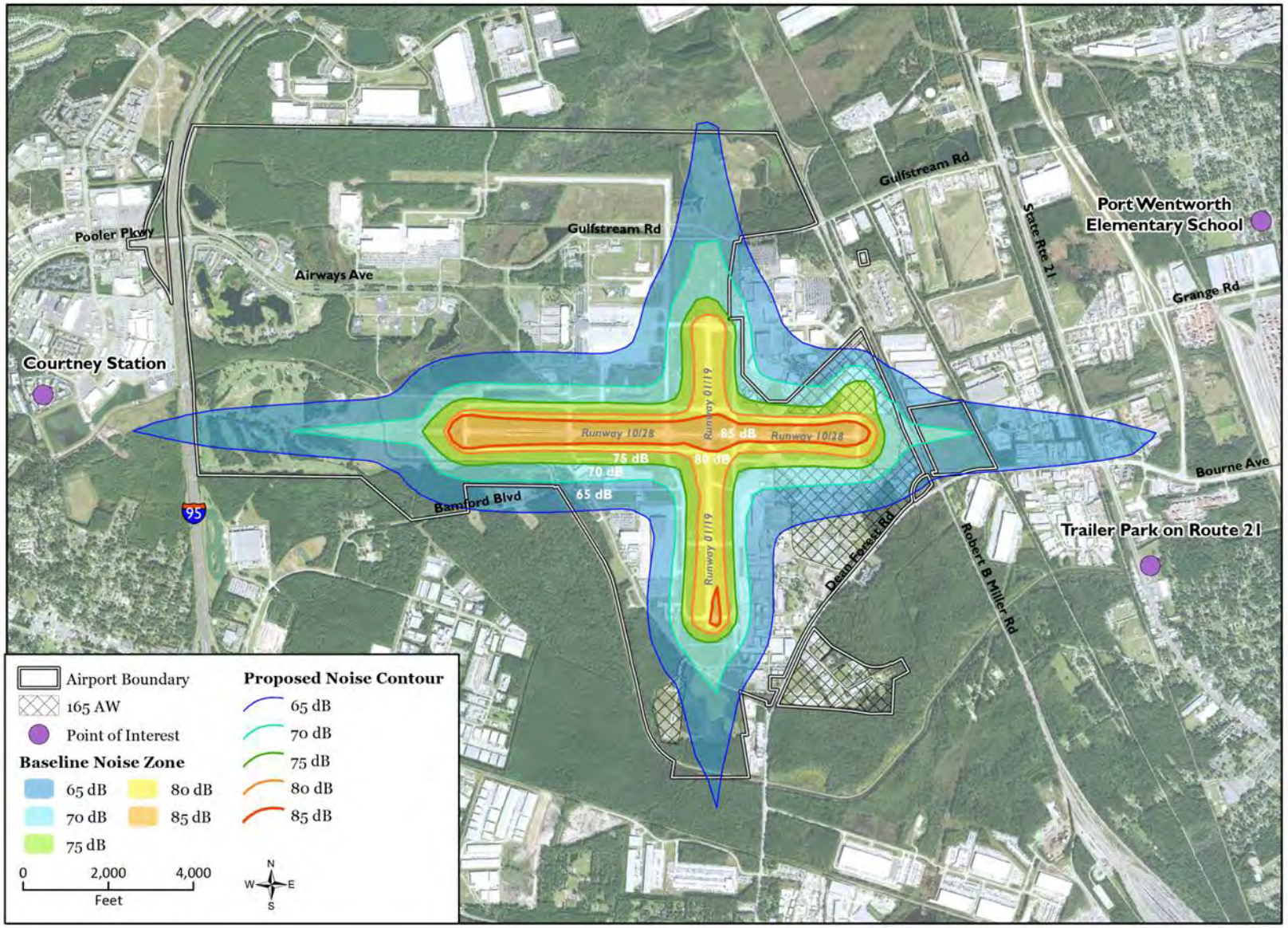


Figure 3-2. Proposed Noise Contours

3.1.3.3 No Action Alternative

Under the No Action Alternative, construction associated with the C-130J-30 aircraft conversion would not take place; therefore, there would be no temporary construction noise impacts. The 165 AW would continue to operate C-130H aircraft in the manner in which they are being operated currently. Noise levels at SAV and at training locations would remain the same, and no minor additional noise impacts would occur compared to conversion of the aircraft.

3.1.4 Cumulative Impacts

Construction associated with the proposed extension of the 165 AW parking apron ramp and replacement of the floor in Building (Hangar) 1905 would generate noise at the same time and locale as the C-130J-30 aircraft conversion. As noted in Section 3.1.3.1 (Environmental Consequences, Alternative 1), construction noise would be localized to the area near the construction site and temporary, lasting only for the duration of the project. The construction projects associated with the Proposed Action and with other 165 AW projects would occur in the flight line area, where noise levels are elevated on a regular basis and the noise-sensitivities of nearby land uses are low. The combined noise impacts of the Proposed Action with other 165 AW projects would be minimal and not significant.

Noise associated with airport improvement projects considered in the EA for the SAV Short-Term Development Program could also overlap with the C-130J-30 aircraft conversion Proposed Action (Savannah Airport Commission, 2020). For the same reasons discussed above, construction noise associated with SAV improvements would have minimal noise impacts when combined with construction noise associated with the proposed C-130J-30 aircraft conversion. Construction of new air cargo facilities as part of the short-term development program would be expected to result in an additional nine aircraft turnarounds per average annual day, which would occur in the context of 261 aircraft operations per average day overall. The potential effect of this change on noise levels was found to be below thresholds for detailed analysis using methods described in FAA Order 1050.1F. The combined noise impacts of the Proposed Action with effects described in the EA for the SAV Short-Term Development Program would be minimal and would not be significant.

Air traffic at SAV, as described in the Terminal Area Forecast and Updated Master Plan, projects future growth; however, with the COVID-19 pandemic, aircraft operations numbers at SAV have declined, and there is uncertainty when numbers are expected to rebound to pre-pandemic conditions and/or achieve growth. Although uncertainty exists, potential future growth impacts when combined with the Proposed Action could pose additive noise effects. Additional NEPA documentation, as appropriate, would be prepared by FAA to address noise and other potential impacts.

3.2 Air Quality

3.2.1 Definition of the Resource

Air quality is determined by the type and amount of pollutants emitted into the atmosphere, the size and topography of the affected air basin, and the prevailing meteorological conditions. Pollutants such as ozone (O_3), carbon monoxide, nitrogen dioxide, sulfur dioxide, lead (Pb), and particulate matter, are considered criteria air pollutants for which an ambient air quality standard has been set by the United States (U.S.) Environmental Protection Agency (USEPA).

The baseline standards for criteria pollutant concentrations are the National Ambient Air Quality Standards (NAAQS) and state air quality standards. These standards represent the maximum allowable atmospheric concentration that may occur and still protect public health and welfare. Based on measured ambient air pollutant concentrations, USEPA designates whether areas of the United States meet the NAAQS. Those areas demonstrating compliance with the NAAQS are considered "attainment" areas, while those areas not in compliance are known as "nonattainment" areas. Once a designated nonattainment area achieves requirements listed in the Clean Air Act to improve air quality, USEPA can designate the area as a maintenance area. For those areas that cannot be classified based on available information for a particular pollutant are "unclassifiable" and are treated as attainment areas until proven otherwise.

Greenhouse gases (GHGs) are gases that trap heat in the atmosphere. These emissions are generated by both natural processes and human activities. The accumulation of GHGs in the atmosphere regulates the Earth's temperature. Climate projections for the United States indicate continued warming in all seasons, higher heat indices, increased drought, and more intense hurricanes (IPCC, 2007). USEPA has determined that the combined emissions of six GHGs (carbon dioxide [CO_2], methane [CH_4], nitrous oxide [N_2O], hydrofluorocarbons [HFCs], perfluorocarbons [PFCs], and sulfur hexafluoride [SF_6]) in the atmosphere may "reasonably" be anticipated to endanger public health and welfare (Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, Final Rule [42 USC Section 7401 et seq.]) and, thus, should be considered pollutants covered under the Clean Air Act. Currently, there are no standards similar to the NAAQS for GHGs.

3.2.2 Affected Environment

An air emissions inventory qualitatively and quantitatively describes the amount of emissions from a facility or within an area. Emissions inventories are designed to locate pollution sources, define the type and size of the sources, characterize emissions from each source, and estimate total mass emissions generated over a period, normally 1 year. Inventory data establish relative contributions to air pollution by classifying sources and determining the adequacy, as well as the necessity, of air regulations.

For comparison purposes, **Table 3-6** presents USEPA's 2017 National Emissions Inventory (NEI) data for Chatham County (USEPA, 2021a). The county data include emissions from point, area, and mobile sources. Point sources are stationary sources that can be identified by name and location. Area sources are point sources whose emissions are too small to track individually, such as a home or small office building, or a diffuse stationary source, such as wildfires or agricultural tilling. Mobile sources are any kind of vehicle or equipment with a gasoline or diesel engine, an aircraft, or a ship. Two types of mobile sources were considered—on-road and non-road. On-road mobile sources consist of vehicles such as cars, light trucks, heavy trucks, buses, engines, and motorcycles. Non-road sources include aircraft, locomotives, diesel and gasoline boats and ships, personal watercraft, lawn and garden equipment, agricultural and construction equipment, and recreational vehicles.

To provide for a more conservative analysis, Chatham County was selected as the ROI instead of the USEPA-designated Air Quality Control Region, which is a much larger area. To identify impacts, calculated air emissions were compared with the annual total emissions in the ROI as represented in the 2017 NEI. Chatham County is currently in attainment for all pollutants (USEPA,

2021b). Because Chatham County is in attainment for all criteria pollutants, a general conformity analysis was not required.

Table 3-6. Baseline Emissions Inventory for Chatham County

County	Emissions (tpy)						
	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_x	VOCs	Pb
Chatham County	44,898	12,314	3,763	1,755	6,869	20,835	0.20

CO – carbon monoxide; NO_x – nitrogen oxides; Pb – lead; PM_{10} – particulate matter less than or equal to 10 micrometers in diameter; $PM_{2.5}$ – particulate matter less than or equal to 2.5 micrometers in diameter; SO_x – sulfur oxides; tpy – tons per year; VOC – volatile organic compound
Source: (USEPA, 2021a)

Of the six primary GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6), HFCs, PFCs, SF_6, and nitrogen trifluoride are generated in very small quantities and most often by very specific niche industries, such as electronic component manufacturing. Therefore, CO_2, CH_4, and N_2O are the primary GHGs of concern analyzed in this EA. Each GHG has an estimated global warming potential, which is a function of its atmospheric lifetime and its ability to absorb and radiate infrared energy emitted from the Earth's surface.

GHGs were calculated and analyzed in terms of carbon dioxide equivalent (CO_2e), which is a term that describes various GHGs in a common unit based on the amount of CO_2 that would have the equivalent warming potential.

Table 3-7 provides the current USEPA 2017 NEI GHG inventory for Chatham County. While there are currently no regulatory thresholds for GHGs, this provides a point of reference for evaluating potential climate change impacts from implementation of the Proposed Action and alternatives within the scope of NEPA.

Table 3-7. Baseline Greenhouse Gas Emissions Inventory for Chatham County

County	Emissions (tpy)			
	CO_2	CH_4	N_2O	CO_2e
Chatham County	5,956,390	8,723	73	6,196,137

CO_2 – carbon dioxide; CH_4 – methane; CO_2e – carbon dioxide equivalents; N_2O – nitrous oxide; tpy – tons per year
Source: (USEPA, 2021b)

3.2.3 Environmental Consequences

Total net direct and indirect emissions associated with Alternatives 1 and 2 were estimated through an Air Conformity Applicability Model (ACAM) on a calendar-year basis for the start of the action through achieving "steady state" (i.e., net gain/loss upon action fully implemented) emissions. The ACAM analysis uses the latest and most accurate emissions estimation techniques available; all algorithms, emissions factors, and methodologies used are described in detail in the Air Emissions Guide for Air Force Mobile Sources (DAF, 2020b) and the Air Emissions Guide for Air Force Transitory Sources (DAF, 2020c).

Because the ROI is classified as being in attainment for all pollutants, "Insignificance Indicators" were used for comparison. Although not applicable in a regulatory capacity, these indicators provide an indication of the significance of potential impacts to air quality based on current ambient air quality relative to the NAAQS. These insignificance indicators are as follows:

- The 250 tons per year (tpy) Prevention of Significant Deterioration major source threshold for actions occurring in areas that are "Clearly Attainment" (i.e., not within 5 percent of any NAAQS)
- The General Conformity Rule *de minimis* values (25 tpy for Pb and 100 tpy for all other criteria pollutants) for actions occurring in areas that are "Near Nonattainment" (i.e., within 5 percent of any NAAQS)

These indicators do not define a significant impact; however, they do provide a threshold to identify actions that are insignificant. Any action with net emissions below the insignificance indicators for all criteria pollutants is considered so insignificant that the action would not cause or contribute to an exceedance on one or more NAAQS. For further detail on insignificance indicators, see Chapter 4 of the *Air Force Air Quality Environmental Impact Analysis Process (EIAP) Guide, Volume II - Advanced Assessments* (DAF, 2019).

3.2.3.1 Alternative 1

Table 3-8 provides the net emissions for Alternative 1 compared against the *de minimis* levels. A comparison to the ROI baseline NEI emissions is also provided to give another point of comparison for the context and intensity of the potential impacts. There are currently no thresholds for GHGs, so GHG emissions are provided (as CO_2e) in comparison to regional baseline emissions only.

Table 3-8. Alternative 1 Emissions

	Annual Emissions (tpy)							
	CO	**NO_x**	**PM_{10}**	**$PM_{2.5}$**	**SO_x**	**VOCs**	**Pb**	**CO_2e**
Alternative 1 Emissions	-13.908	1.687	1.488	0.474	-0.146	-10.012	0.000	-458.9
Significance Indicator Threshold	250	250	250	250	250	250	25	-
Exceedance?	No	No	No	No	No	No	No	-
ROI Baseline Emissions	44,898	12,314	3,763	1,755	6,869	20,835	0.20	6,196,137
Percentage of Baseline	*-0.03%*	*0.01%*	*0.04%*	*0.03%*	*0.00%*	*-0.05%*	*0.00%*	*-0.01%*

% – percent; CO – carbon monoxide; CO_2e – carbon dioxide equivalent; NO_x – nitrogen oxides; Pb – lead; PM_{10} – particulate matter less than or equal to 10 micrometers in diameter; $PM_{2.5}$ – particulate matter less than or equal to 2.5 micrometers in diameter; SO_x – sulfur oxides; tpy – tons per year; VOC – volatile organic compound

Emissions associated with the conversion to C-130J-30 aircraft and associated airfield operations at the 165 AW would not generate significant quantities of any pollutants. There would be a net decrease in most pollutants. Therefore, there would be no significant impacts to air quality under Alternative 1.

3.2.3.2 Alternative 2 (Preferred Alternative)

Table 3-9 provides the net emissions for Alternative 2 compared against the insignificance indicator levels. A comparison to the ROI baseline NEI emissions is also provided to give another point of comparison for the context and intensity of the potential impacts. There are currently no thresholds for GHGs, so GHG emissions are provided (as CO_2e) in comparison to regional baseline emissions only.

Table 3-9. Alternative 2 (Preferred Alternative) Emissions

	Annual Emissions (tpy)							
	CO	**NO_x**	**PM_{10}**	**$PM_{2.5}$**	**SO_x**	**VOCs**	**Pb**	**CO_2e**
Alternative 2 Emissions	-13.397	2.054	-0.144	0.487	-0.144	-11.032	0.000	-342.2
Significance Indicator Threshold	250	250	250	250	250	250	25	-
Exceedance?	No	No	No	No	No	No	No	-
ROI Baseline Emissions	44,898	12,314	3,763	1,755	6,869	20,835	0.20	6,196,137
Percentage of Baseline	*-0.03%*	*0.02%*	*0.00%*	*0.03%*	*0.00%*	*-0.05%*	*0.00%*	*-0.01%*

% – percent; CO – carbon monoxide; CO_2e – carbon dioxide equivalent; NO_x – nitrogen oxides; Pb – lead; PM_{10} – particulate matter less than or equal to 10 micrometers in diameter; $PM_{2.5}$ – particulate matter less than or equal to 2.5 micrometers in diameter; SO_x – sulfur oxides; tpy – tons per year; VOC – volatile organic compound

Emissions associated with the conversion to C-130J-30 aircraft and associated airfield operations at the 165 AW would not generate significant quantities of any pollutants. Although emissions would be slightly higher than under Alternative 1, there would be a net decrease in most pollutants. Therefore, there would be no significant impacts to air quality under Alternative 2.

3.2.3.3 No Action Alternative

Under the No Action Alternative, the C-130H aircraft would not be converted to the C-130J-30 model, and there would be no changes to existing air quality. Air emissions would remain at current baseline levels, and there would be no impact to air quality in the ROI. Most emissions would not decrease without the conversion to the newer aircraft.

3.2.4 Cumulative Impacts

The Proposed Action, in combination with the past, present, and reasonably foreseeable future actions described in Chapter 3.0 (Affected Environment and Environmental Consequences), would not be expected to significantly affect air quality or to result in exceedances of the NAAQS. GHG emissions would decrease for both Alternative 1 and Alternative 2, compared to current operations, by approximately 458.9 and 342.2 CO_2e tpy, respectively. This represents approximately one one-hundredth of 1 percent (0.01 percent) of Chatham County's annual GHG emissions and a nominal decrease in U.S. emissions. Climate change impacts under Alternative 1 or 2 would likely involve weather and other natural events that could impact aircraft operations, such as more extensive, violent storms (IPCC, 2015). While foreseeable actions would likely contribute increased GHGs to the atmosphere, these would primarily be minor and temporary during construction and renovation phases due to operation of fossil fuel combusting equipment.

3.3 Safety

3.3.1 Definition of the Resource

Safety applies to activities in the air and on the ground associated with aircraft flights and O&M. Flight safety is governed by AFI 91-202, *The US Air Force Mishap Prevention Program*. Land use compatibility and flight safety is managed under the FAA Runway Protection Zones (RPZs), DoD AICUZ, and the Bird/Wildlife Aircraft Strike Hazard (BASH) program.

Ground safety applies to both O&M activities that support operations and Emergency Management, including fire response. Performance of day-to-day O&M activities by the 165 AW

is in accordance with applicable DAF safety and Occupational Health and Safety Administration (OSHA) regulations. Contractors working on the installation must prepare safety plans and follow applicable OSHA requirements. Ground safety is not discussed further in this section because ground O&M activities at the 165 AW would continue to be conducted using the same processes and procedures as under baseline conditions.

The ROI for safety is the 165 AW and SAV, lands immediately adjacent to the 165 AW and SAV, and local areas within the flight patterns of the C-130 aircraft.

3.3.2 Affected Environment

Bird/Wildlife Aircraft Strike Hazard - From 1 June 2019 to 5 May 2020, 104 wildlife strikes were recorded at SAV (Burke, 2021). The majority (46) of bird/wildlife species involved in strikes could not be identified.

The 165 AW BASH plan provides specific guidance and assigns responsibilities in developing an effective bird/wildlife-strike hazard reduction program for the 165 AW. The BASH plan also addresses the following auxiliary airfields: SVN and Remagen Landing Zone/Drop Zone. In addition, SAV O&M staff implement wildlife hazard management activities, as outlined in 14 CFR 139.337. The 165 AW contracts additional wildlife hazard management services through U.S. Department of Agriculture Wildlife Services (ANG, 2020b).

Regional bird and wildlife strike hazards would be similar for SAV, SVN, and the Remagen Landing Zone/Drop Zone. Eastern Georgia is within the Atlantic Flyway for migratory birds. The proximity of these airfields to the eastern shoreline influences the types and numbers of birds in the area.

The 165 AW BASH plan has two phases—Phase I is outside the migratory season (1 November through 31 March), and Phase II is during the migratory season (1 April through 31 October) (ANG, 2020b). Aircraft are operated corresponding to the current bird watch conditions (BWCs) categorized as "Low," "Moderate," or "Severe." Severe BWCs require that supervisors and aircrews thoroughly evaluate the mission need before operating. Takeoffs and landings are not authorized unless there is an emergency or other contingency, and pilots should avoid training below 3,000 feet above ground level. Moderate conditions require increased vigilance and caution by supervisors and aircrew. Multiple approaches and traffic pattern activity are ceased, and geographic areas and land features where birds have been identified are avoided to the maximum extent practicable.

The BASH plan also establishes implementation procedures and actions to minimize the potential of bird/wildlife-aircraft strikes. Such measures include controlling broad-leaved weeds, controlling pests, eliminating standing water, maintaining grass heights between 7 and 14 inches, maintaining vegetation in drainage ditches as short as possible, surveying hangars and buildings to ensure birds are not using structures for roosting or nesting, and other measures to discourage bird presence and nesting at the 165 AW (ANG, 2020b).

Runway Protection Zones - In accordance with DoD Instruction 4165.57 (incorporating Change 2, August 21, 2018), the DAF developed an AICUZ program to limit the risk of people and facilities in areas exposed to a higher risk from aircraft accidents and to promote land use compatibility with noise exposure. DoD defines RPZs based on historical data that shows most aircraft mishaps occur on or near the runway, with the likelihood of mishaps diminishing with

distance. RPZs, defined as follows, do not predict the likelihood of an aircraft mishap but rather indicate the most likely location of an aircraft accident, if one were to occur:

- The area immediately beyond the end of a runway is the "Clear Zone," an area that possesses a high potential for accidents. It has traditionally been acquired for ownership by the government and kept clear of obstructions to flight.
- RPZ I is the area beyond the Clear Zone, which possesses a significant potential for accidents.
- RPZ II is an area beyond RPZ I, having a measurable potential for accidents.

For FAA joint-use airfields, RPZs are used. The RPZs are trapezoidal zones extending outward from the ends of active runways at commercial airports and delineate those areas recognized as having the greatest risk of aircraft mishaps, most of which occur during takeoff or landing. Development restrictions within RPZs are intended to discourage incompatible land use activities from being established in these areas. The RPZ dimension for a particular runway end is a function of the type of aircraft and minimum approach visibility associated with that runway end. **Figure 3-3** shows the RPZs for SAV.

The DAF defines four categories of aircraft mishaps: Classes A, B, C, and High Accident Potential. Class A mishaps result in loss of life, permanent total disability, a total cost in excess of $2.5 million, destruction of an aircraft, or damage to an aircraft beyond economical repair. Class B mishaps result in total costs of more than $600,000, but less than $2.5 million, or result in permanent partial disability but do not result in fatalities. Class C mishaps involve costs of more than $60,000, but less than $600,000, or a loss of worker productivity of more than eight hours. High Accident Potential represents minor incidents not meeting any of the criteria for Classes A, B, or C. This section focuses on Class A mishaps because of their potential to affect private property or the public.

Based on historical data on mishaps for C-130 aircraft and under all conditions of flight, the military services calculate Class A mishap rates per 100,000 flying hours for each type of aircraft in the inventory. It should be noted that these mishap rates do not consider combat losses due to enemy action. The Class A mishap rate per 100,000 flying hours can be used to understand the probability of accidents. Actual mishaps result from many factors, not simply the amount of aircraft flying time.

Flight statistics for C-130 aircraft mishaps have been tallied since calendar year 1955. Since entering the DAF inventory, C-130 aircraft have flown approximately 20 million hours (DAF, 2021b). During this time, C-130 aircraft have experienced 164 Class A mishaps (DAF, 2021b). For the last five years, the average annual Class A mishap was 0.80 (DAF, 2021b).

There are well-established procedures for responding to aircraft mishaps on non-DAF property. When normal scheduled flying is in progress, the 165 AW maintains highly trained fire department emergency response teams, which are available to respond to aircraft crashes off-site. The 165 AW also maintains mutual aid agreements with local fire departments that detail each party's responsibility when responding to an aircraft mishap.

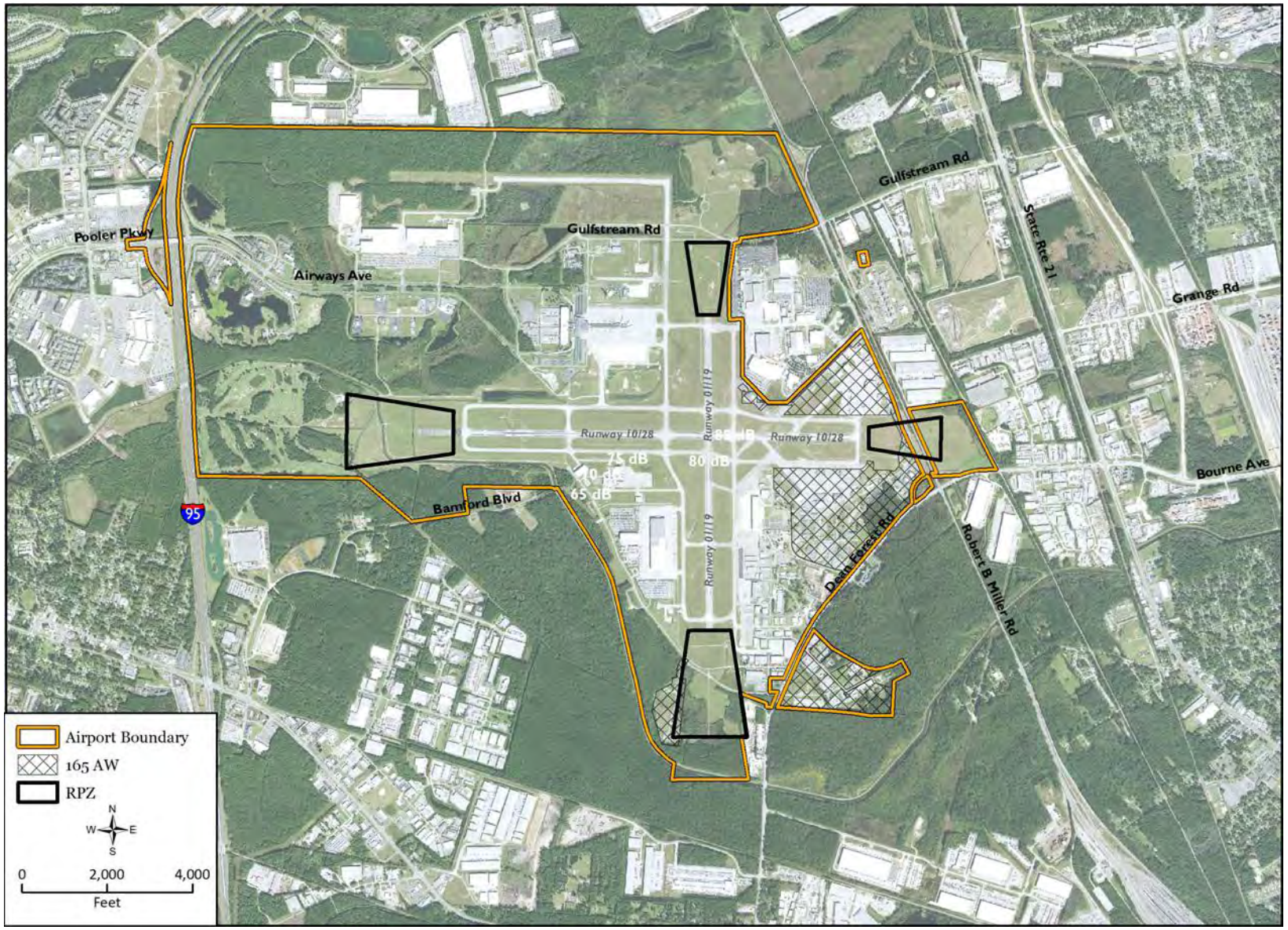


Figure 3-3. Runway Protection Zones for Savannah/Hilton Head International Airport

3.3.3 Environmental Consequences

This analysis evaluates safety relative to the degree of increases or decreases in safety risks to military personnel, the public, and property. For example, a comparison of the number of aircraft Class A mishaps or bird/wildlife-aircraft strikes from current flight operations compared to the projected operational tempo (i.e., number of proposed aircraft sorties) is used to evaluate any change in safety. A significant impact would occur with a new or unique safety risk (over those which are associated with typical operations) to military personnel or the public from implementation of the Proposed Action.

3.3.3.1 Alternative 1

Bird/Wildlife Aircraft Strike Hazard - Because the number of aircraft operations and training would remain the same for the C-130H and C-130J-30 aircraft, there would be no change to the risk of bird/wildlife-aircraft strikes at the 165 AW/SAV or any of the auxiliary airfields. The BASH plan and Wildlife Hazard Management Plan (WHMP) would reduce bird/wildlife-aircraft strike risk. No significant impacts to public safety from bird/wildlife-aircraft strikes would be expected under this alternative.

Runway Protection Zones - Because the number and tempo of aircraft operations and training would remain the same between the C-130H and C-130J-30 aircraft, there would be no change to RPZs at the 165 AW/SAV or any of the auxiliary airfields. Based on the past safety records, no significant impacts to public safety would be expected under this alternative. The operations of C-130H aircraft would be the same as projected for the new C-130J-30 aircraft; therefore, the mishap rate would be similar. In addition, a new aircraft with upgraded avionics and improved composite propellers could result in lower mishap rates.

3.3.3.2 Alternative 2 (Preferred Alternative)

Bird/Wildlife Aircraft Strike Hazard - Because the number of aircraft operations and training would remain the same for the C-130H and C-130J-30 aircraft, there would be no change to the risk of bird/wildlife-aircraft strikes at the 165 AW/SAV or any of the auxiliary airfields. The BASH plan and WHMP would reduce bird/wildlife-aircraft strike risk. No significant impacts to public safety from bird/wildlife-aircraft strikes would be expected under this alternative.

Runway Protection Zones - Because the number and tempo of aircraft operations and training would remain the same for the C-130H and C-130J-30 aircraft, there would be no change to RPZs at the 165 AW/SAV or any of the auxiliary airfields. Based on the past safety records, no significant impacts to public safety would be expected under this alternative. The operations of C-130H aircraft would be the same as projected for the new C-130J-30 aircraft; therefore, the mishap rate would be similar. In addition, a new aircraft with upgraded avionics and improved composite propellers could result in lower mishap rates.

3.3.3.3 No Action Alternative

Bird/Wildlife Aircraft Strike Hazard - There would be no change to the risk of bird/wildlife-aircraft strikes at the 165 AW/SAV or any of the auxiliary airfields with the continued operation of the C-130H aircraft under the No Action Alternative. The BASH plan and WHMP would reduce bird/wildlife-aircraft strike risk.

Runway Protection Zones - Under the No Action Alternative, there would be no change to current baseline conditions. Therefore, the C-130H aircraft would continue the current mission, and there would be no changes to RPZs. Aircraft would continue to be maintained. The new aircraft with upgraded avionics and improved composite propellers would not replace current aircraft, and mishap rates would remain the same.

3.3.4 Cumulative Impacts

Bird/Wildlife Aircraft Strike Hazard - The Proposed Action would not change the risk of bird/wildlife-aircraft strikes at the 165 AW/SAV or any of the auxiliary airfields. Therefore, the combination of past, present, and reasonably foreseeable future actions and the Proposed Action Alternatives/No Action Alternative would not result in additive effects to bird/wildlife-aircraft strike risk at the 165 AW/SAV.

Runway Protection Zones - The Proposed Action would not change the tempo of operations at the 165 AW or SAV. Therefore, when considered with other planned actions, the Proposed Action Alternatives/No Action Alternative would not result in additive effects to safety.

Potential increases in air traffic have been forecast for SAV, but increases are uncertain at this time due to the COVID-19 pandemic.

3.4 Cultural Resources

3.4.1 Definition of the Resource

Cultural resources are any prehistoric or historic district, site, building, structure, or object considered important to a culture, subculture, or community for scientific, traditional, religious, or other purposes. These resources include archaeological, historic architectural, and traditional cultural resources. Archaeological resources are locations where prehistoric or historic activity measurably altered the earth or produced deposits of physical remains (e.g., arrowheads, bottles). Historic architectural resources include standing buildings and other structures of historic or aesthetic significance. Architectural resources generally must be more than 50 years old to be considered for inclusion in the NRHP. However, more recent structures (such as Cold War-era resources) may warrant protection if they have the potential to gain significance in the future and are considered extraordinary in nature. Traditional cultural resources are associated with cultural practices and beliefs of a living community that are rooted in its history and are important in maintaining the continuing cultural identity of the community.

Historic properties (as defined in 36 CFR 60.4) are significant archaeological, architectural, or traditional resources listed in, or eligible for listing in, the NRHP. Historic properties are evaluated for potential adverse effects from an action, as are significant traditional cultural resources identified by Native American tribes or other groups. In 1998, the DoD promulgated its American Indian and Alaska Native Policy, which emphasizes the importance of respecting and consulting with tribal governments on a government-to-government basis (DoD Instruction 4710.02; AFI 90-2002). The Policy requires an assessment, through consultation, of the effect of proposed DoD actions on tribal resources, tribal rights, and Indian lands. The Area of Potential Effects (APE) for cultural resources consists of the areas of the 165 AW that would be directly affected by ground-disturbing activities and building additions and alterations (**Figure 3-4**). For the purposes of cultural resources analysis, the APE was considered equivalent to the ROI, as defined by 36 CFR 800.16(d).

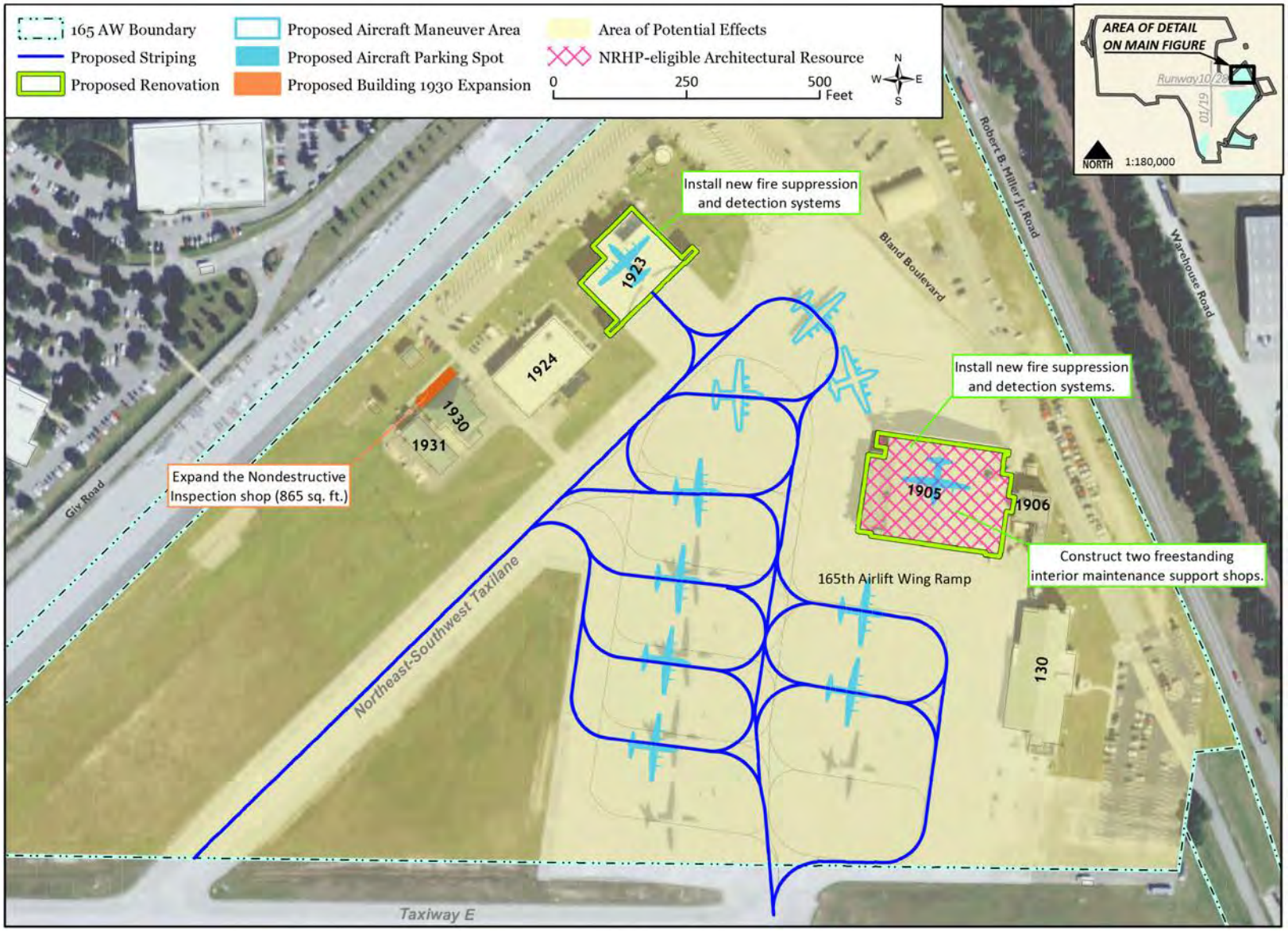


Figure 3-4. Cultural Resources Area of Potential Effects and Alternatives 1 and 2 Projects

3.4.2 Affected Environment

NGB has conducted three architectural inventories (ANG, 2000b; ANG, 2017a; ANG, 2020a). During the course of the inventories, NGB determined two buildings (1401 and 1905) eligible for inclusion in the NRHP, of which one (Building 1905) (**Figure 3-4**) is located within the APE.

No traditional cultural properties or places of traditional religious and cultural significance have been identified in the APE.

3.4.3 Environmental Consequences

Analysis of potential effects to cultural resources considers both direct and indirect effects. Direct effects may be the result of physically altering, damaging, or destroying all or part of a resource; altering characteristics of the surrounding environment that contribute to the importance of the resource; introducing visual, atmospheric, or audible elements that are out of character for the period the resource represents (thereby altering the setting); or neglecting the resource to the extent that it deteriorates or is destroyed

3.4.3.1 Alternative 1

Because there would be no ground disturbance, there is no potential for Alternative 1 to result in effects to archaeological resources. Restriping and installing new mooring/tie-down points in the 165 AW parking apron would have no effect on Building 1905, Maintenance Hangar. Operations of the C-130J-30 aircraft would not perceptibly change the noise setting (Section 3.1, Noise) of any NRHP-listed or -eligible property in, or in the vicinity of, the APE.

Effects to Native American traditional resources from Alternative 1 would not be anticipated. No traditional cultural properties or places of traditional religious and cultural significance have been identified in the APE. In accordance with NHPA Section 106 and EO 13084, *Consultation and Coordination with Indian Tribal Governments*, NGB consulted on a government-to-government basis with the federally recognized Tribes listed in Section 1.4.2 (Government-to-Government Consultations). The consultation correspondence with the federally recognized Indian tribal governments that were consulted regarding the Proposed Action is included in Appendix A (*Interagency and Intergovernmental Coordination*). No comments were received from tribal governments.

3.4.3.2 Alternative 2 (Preferred Alternative)

Alternative 2 would have no adverse effect on historic buildings and structures. Buildings planned for renovation are listed in **Table 3-10**. The only building eligible for listing in the NRHP in the APE is Building 1905 (Maintenance Hangar), which is proposed for interior modifications only. NGB consulted with GA SHPO on interior modifications, including constructing two stand-alone shops in the southern portion of the hangar, and GA SHPO concurred with NGB's finding of "no adverse effect" to Building 1905 on 21 April 2021 (GA SHPO, 2021). Proposed construction of an addition to Building 1930 would occur on its northwest elevation, opposite Building 1905, which would not affect its visual setting. Operations of the C-130J-30 aircraft would not perceptibly change the noise setting (Section 3.1, Noise) of any NRHP-listed or -eligible property in, or in the vicinity of, the APE.

Effects to archaeological resources would not be anticipated. All construction projects would be located in areas of the 165 AW APE that have been surveyed and found not to contain archaeological resources and/or have been disturbed through prior installation development (ANG, 2000a). It would not be expected that undiscovered cultural resources would be found during implementation of the Proposed Action; however, in the event of an inadvertent discovery during ground-disturbing operations, all work would cease, and the 165 AW Environmental Office would be contacted immediately in order to notify the unit commander/supervisor, Cultural Resources Program Manager at NGB/A4VN, and other relevant officials.

Effects to Native American traditional resources from Alternative 2 would not be anticipated and would be as described for Alternative 1.

In accordance with 36 CFR Part 800, the regulations implementing Section 106 of the NHPA, the 165 AW is consulting with GA SHPO and has requested concurrence with NGB's finding that the Proposed Action would have "no adverse effect" to historic properties (Appendix A, *Interagency and Intergovernmental Coordination*). GA SHPO responded on 07 March 2022 indicating "no adverse effect."

Table 3-10. Summary of NRHP Status Recommendations of Buildings Planned for Renovation or Modification Under Alternative 2 (Preferred Alternative)

Building	Function	Year Built	Action[1]	NRHP Eligibility[2]
1905	Aircraft maintenance hangar and shops	1959	Interior modifications (new fire suppression and detection systems; construct freestanding interior shop spaces located on the southeast and southwest corners)	Eligible
1923	Aircraft maintenance hangar	1984	Interior modifications (new fire suppression and detection systems)	Not eligible[3]
1930	Nondestructive Inspection Building	2001	Addition (865 square feet)	Not eligible

GA SHPO – Georgia State Historic Preservation Office; NRHP – National Register of Historic Places
1. See Section 2.5.2 (Alternative 2 (Preferred Alternative)) and **Table 2-5** for additional project details.
2. Source: (ANG, 2020a)
3. GA SHPO has not yet concurred on this determination.

3.4.3.3 No Action Alternative

Under the No Action Alternative, there would be no aircraft replacement or associated construction and renovation projects. There would be no effects to historic properties located at the 165 AW. Properties would continue to be managed in accordance with the applicable federal laws, regulations, and DoD and AFIs. NRHP-eligible Building 1905 would not be upgraded with the new fire detection and suppression system.

3.4.4 Cumulative Impacts

Two of the foreseeable actions discussed in Chapter 3.0 (Affected Environment and Environmental Consequences) have the potential to interact with the Proposed Action. The EA for the SAV Improvement Projects concluded there would be no adverse effects to cultural resources. For the

potential replacement of the floor in NRHP-eligible Building (Hangar) 1905, NGB would complete NHPA Section 106 consultation prior to taking any action, which would avoid or resolve any adverse effects. The Proposed Action would not result in an adverse effect to cultural resources; therefore, there would be no additive effect with other planned actions. NGB would consult with the State Historic Preservation Office if and when the floor replacement project in Building 1905 would be proposed and would result in avoidance or resolution of any adverse effects.

3.5 Biological Resources

3.5.1 Definition of the Resource

Biological resources include the plant and animal species, habitats, and ecological relationships of the land and water areas within the ROI (165 AW, SAV, and auxiliary airfields) affected by the Proposed Action. Particular consideration is given to sensitive species, those species protected under federal or state law, including threatened and endangered species and migratory birds.

The Endangered Species Act (ESA) (16 USC Sections 1531–1544) provides for the conservation of endangered and threatened species and the ecosystems on which they depend. Under the ESA, federal agencies must consult with the U.S. Fish and Wildlife Service (USFWS) or National Marine Fisheries Service to ensure that proposed actions are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat. For any action that is likely to adversely affect a federally listed species, the federal action agency must obtain an Incidental Take Statement. In addition to federal protection, certain species are given protection under state law. In Georgia, the Georgia Wildlife Resources Division (GWRD) designates state protection status. Federal candidate species and state-listed species are given consideration during planning of projects, but they have no protection under the ESA.

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) (16 USC Sections 703–712) and EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*. The MBTA prohibits actions resulting in the pursuit, capture, killing, and/or possession of any protected migratory bird, nest, egg, or parts thereof. The USFWS maintains a list of designated migratory birds occurring in various regions of the United States. 50 CFR 21.3 allows for the incidental take of migratory birds for military readiness activities where activities would not result in a significant adverse effect on a population of migratory birds. It is DoD policy to promote and support Partners in Flight in the protection and conservation of neo-tropical migratory birds and their habitat by protecting vital habitat, enhancing biodiversity, and maintaining healthy and productive natural systems consistent with the military mission. Birds of Conservation Concern (BCC) are a subset of MBTA-protected species identified by the USFWS as those in the greatest need of additional conservation action to avoid future listing under the ESA. BCC have been identified at three geographic scales—National, USFWS Regions, and Bird Conservation Regions. Bird Conservation Regions are the smallest geographic scale at which BCC have been identified, and the lists of BCC species at this scale are expected to be the most useful for governmental agencies to consider in complying with the MBTA and EO 13186 (USFWS, 2008).

The Bald and Golden Eagle Protection Act (16 USC Sections 668–668d) makes it illegal to take, possess, sell, barter, offer to sell, transport, export, or import bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*). Taking may only be allowed for scientific, exhibition, or religious purposes or for seasonal protection of flocks.

EO 13112, *Invasive Species*, states that no federal agency shall authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive non-native species in the United States or elsewhere. Invasive non-native species are species introduced from other countries or regions of the United States that threaten native plants and animals by altering the composition, structure, and function of native ecosystems.

3.5.2 Affected Environment

Vegetation – The affected environment for vegetation consists of the portion of land where the proposed 865-square-foot addition to Building 1930 is proposed. Vegetation at this location consists of maintained lawn. No natural habitats or vegetation is present. Therefore, vegetation is not carried through for additional analysis in this assessment.

Wildlife – Wildlife potentially affected by the construction projects associated with the Proposed Action consist of those species that occur in the airfield environment including waterfowl, raptors, blackbirds, bobcats, red foxes, raccoons, and turtles (Burke, 2021).

Sixteen species of migratory birds have been identified by the USFWS as birds of particular concern at the 165 AW (USFWS, 2021). These species consist of raptors, wading birds, shorebirds, and perching birds. A bald eagle nest is located in a wooded section at the northwest portion of SAV.

Special Status Species – The USFWS Information for Planning and Consultation site identifies the federally listed (threatened or endangered) species, ESA candidate species, and critical habitat that may occur in the vicinity of SAV. The GWRD Georgia Biodiversity Portal (http://georgiabiodiversityportal.org) was used to identify state-listed species. **Table 3-11** presents these species. Of the federally listed species, only the frosted flatwoods salamander has designated critical habitat. The frosted flatwoods salamander critical habitat is not present at the 165 AW.

Table 3-11. Federally and State-Listed Species Potentially Present at the 165 AW/SAV[1]

Common Name	Scientific Name	Federal Status	State Status
Plants			
Pondberry[2]	*Lindera melissifolia*	E	E
Birds			
Bald Eagle	*Haliaeetus leucocephalus*	BGEPA	T
Eastern Black Rail[2]	*Laterallus jamaicensis* ssp. *jamaicensis*	T	T
Red Knot	*Calidris canutus rufa*	T	T
Red-cockaded Woodpecker	*Picoides borealis*	E	E
Wood Stork[2]	*Mycteria americana*	T	E
Reptiles			
Eastern Indigo Snake[2]	*Drymarchon corais couperi*	T	T
Gopher Tortoise[2]	*Gopherus polyphemus*	C	T
Southern Hognose Snake	*Heterodon simus*	None	T
Amphibians			
Frosted Flatwoods Salamander[2]	*Ambystoma cingulatum*	T	T

Table 3-11. Federally and State-Listed Species Potentially Present at the 165 AW/SAV[1]

Common Name	Scientific Name	Federal Status	State Status

BGEPA – Bald and Golden Eagle Protection Act; C – candidate; E – endangered; GWRD – Georgia Wildlife Resources Division; IPAC – Information for Planning and Consultation; T – threatened
1. Marine and aquatic habitat species included in the IPAC and GWRD lists are not in the affected environment and omitted from the list.
2. On IPAC list
Sources: (USFWS, 2021); (Georgia Department of Wildlife Resources, 2021)

Upon review of available data, reports, surveys, previous consultations performed at SAV, and the construction projects associated with the Proposed Action, the following ESA-listed species were dismissed from analysis because these species have not been recorded at SAV and would not be expected to be present at SAV: pondberry, eastern black rail, wood stork, eastern indigo snake, gopher tortoise, and frosted flatwoods salamander (Coppola, 2019; Savannah Airport Commission, 2018; Savannah Airport Commission, 2020).

3.5.3 Environmental Consequences

Impacts to biological resources could result from implementation of the Proposed Action, including direct physical impacts, habitat alteration/loss, and short-term disturbance during construction.

The analysis of biological resources considered potential impacts to vegetation communities and wildlife, including special status species. Projected conditions were compared with baseline conditions, considering regional habitat availability and species populations, and a determination was made as to whether impacts would be adverse. An adverse impact would degrade habitat quality, diminish species health, or result in the taking of a protected species. Impacts to biological resources would be considered significant if implementation of the proposed projects would jeopardize the continued existence of a species or result in an overall decrease in population diversity, abundance, or fitness.

3.5.3.1 Alternative 1

Wildlife and Special Status Species. No natural habitat would be affected by this alternative, being the only project would occur on existing pavement. Noise from construction would not be expected to affect biological resources, as animals in the vicinity of the airport would be acclimatized and habituated to noise from human activities. No significant impacts to wildlife and no effect to special status species (bald eagle, red knot, red-cockaded woodpecker, and southern hognose snake) would be expected to result under Alternative 1.

State-Listed Birds. The Proposed Action would not likely jeopardize the continued existence of a species or result in an overall decrease in population diversity, abundance, or fitness. Consequently, no significant adverse impacts to biological species would occur with implementation of the Proposed Action. The BASH plan and WHMP (Section 3.3.2, Safety, Affected Environment) would reduce bird/wildlife-aircraft strike risk. No significant impacts would be anticipated related to biological resources. As a result, there would be no effect to state-listed birds (bald eagle, red knot, and red-cockaded woodpecker) under Alternative 1.

3.5.3.2 Alternative 2 (Preferred Alternative)

Wildlife and Special Status Species. This alternative consists of internal renovations and a small addition to Building 1930 that would be constructed in a developed area. Therefore, impacts to the natural environment would be minimal. Noise from construction would not be expected to affect biological resources, as animals in the vicinity of the airport would be acclimatized and habituated to noise from human activities. As a result, there would be no significant impacts to wildlife and no effect to special status species (bald eagle, red knot, red-cockaded woodpecker, and southern hognose snake) under Alternative 2.

State-Listed Birds. Because the number of aircraft operations and training events would remain the same between the C-130H and C-130J-30 aircraft, there would be no change to the risk of BASH at the 165 AW, SAV or any of the auxiliary airfields. The BASH plan and WHMP (Section 3.3.2, Safety, Affected Environment) would reduce bird/wildlife-aircraft strike risk. As a result, there would be no effect to state-listed birds (bald eagle, red knot, and red-cockaded woodpecker) under Alternative 2.

3.5.3.3 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur. As a result, there would be no change to biological resources from construction noise and no significant impacts to biological resources. Aircraft and operations would remain the same as current conditions.

3.5.4 Cumulative Impacts

The 165 AW Proposed Action and additional planned projects would not disturb habitat, except for small amounts of maintained lawn. No increase in flight operations would occur. Therefore, the combination of past, present, and reasonably foreseeable future actions and the Proposed Action alternatives/No Action Alternative would not result in additive effects to biological resources at the 165 AW/SAV.

3.6 Water Resources

3.6.1 Definition of the Resource

Water resources analyzed in this EA include surface water and groundwater. The ROI for water resources is the 165 AW, specifically focused on stormwater quality from disturbed areas and impervious surfaces, as well as any potentially receiving waters off 165 AW leased property.

Surface Water. Surface waters generally consist of wetlands, lakes, rivers, and streams and are used for irrigation, power generation, recreation, flood control, and maintaining human health.

The Clean Water Act (CWA) regulates “waters of the United States.” Waters of the United States include coastal and inland waters, lakes, rivers, ponds, streams, intermittent streams, and “other” waters that, if degraded or destroyed, could affect interstate commerce. The full regulatory definition of waters of the United States is provided in the CWA. The goal of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

The CWA Section 303(d) requires that Georgia identify impaired waters and establish total maximum daily loads (TMDLs) for pollutants causing impairment (303(d) list). A TMDL includes a calculation of the maximum amount of a pollutant that can be present in a waterbody and still meet water quality standards.

Under the CWA, Section 401 requires a federal license or permit to conduct activities that may result in the discharge of a pollutant into a water of the United States. A certification must be obtained from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all federal projects that may affect state water quality must also comply with the CWA Section 401.

Under the CWA Section 402, it is illegal to discharge pollutants from a point or non-point source into any water of the United States without an applicable National Pollutant Discharge Elimination System (NPDES) permit. The State of Georgia has authority to implement and enforce the NPDES provisions of the CWA, while USEPA retains oversight responsibilities.

Construction activities in Georgia that disturb 1 or more acres must be covered under the USEPA NPDES Construction General Permit. To obtain coverage under the permit, a notice of intent must be submitted, and a stormwater pollution prevention plan (SWPPP), among other requirements, must be developed and submitted.

Sites where soils are exposed to environmental variables (i.e., water and wind) are subject to erosion. Sedimentation occurs when soil particles are suspended in surface runoff or wind and are deposited in streams or other waterbodies. Sediments affect water clarity, decrease oxygen levels in water, and transport pollutants.

Wetland. Wetland areas are regulated by the U.S. Army Corps of Engineers (USACE) under the CWA Section 404 as a subset of all waters of the United States. Wetlands are defined by USEPA and USACE as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." Wetlands generally include "swamps, marshes, bogs and similar areas."

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

Floodplains. Floodplains are areas of low-level ground present along rivers, stream channels, large wetlands, or coastal waters. The functions of floodplain ecosystems include natural moderation of floods, flood storage and conveyance, groundwater recharge, and nutrient cycling. Floodplains also help to maintain water quality and often support a diverse array of plants and animals. In their natural vegetated state, floodplains slow the rate at which the incoming overland flow reaches the main waterbody. Floodplain boundaries are most often defined in terms of frequency of inundation, that is, the 100-year and 500-year flood. Floodplain delineation maps are generated by the Federal Emergency Management Agency and provide a basis for comparing the locale of the Proposed Action to the floodplains.

EO 11988, *Floodplain Management*, requires federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. Floodplains are shown in **Figure 3-5** and **Figure 3-6**. No proposed projects are within the 100-year floodplain (**Figure 3-6**) and, therefore, further analysis of potential impacts to floodplains is not included in this EA.

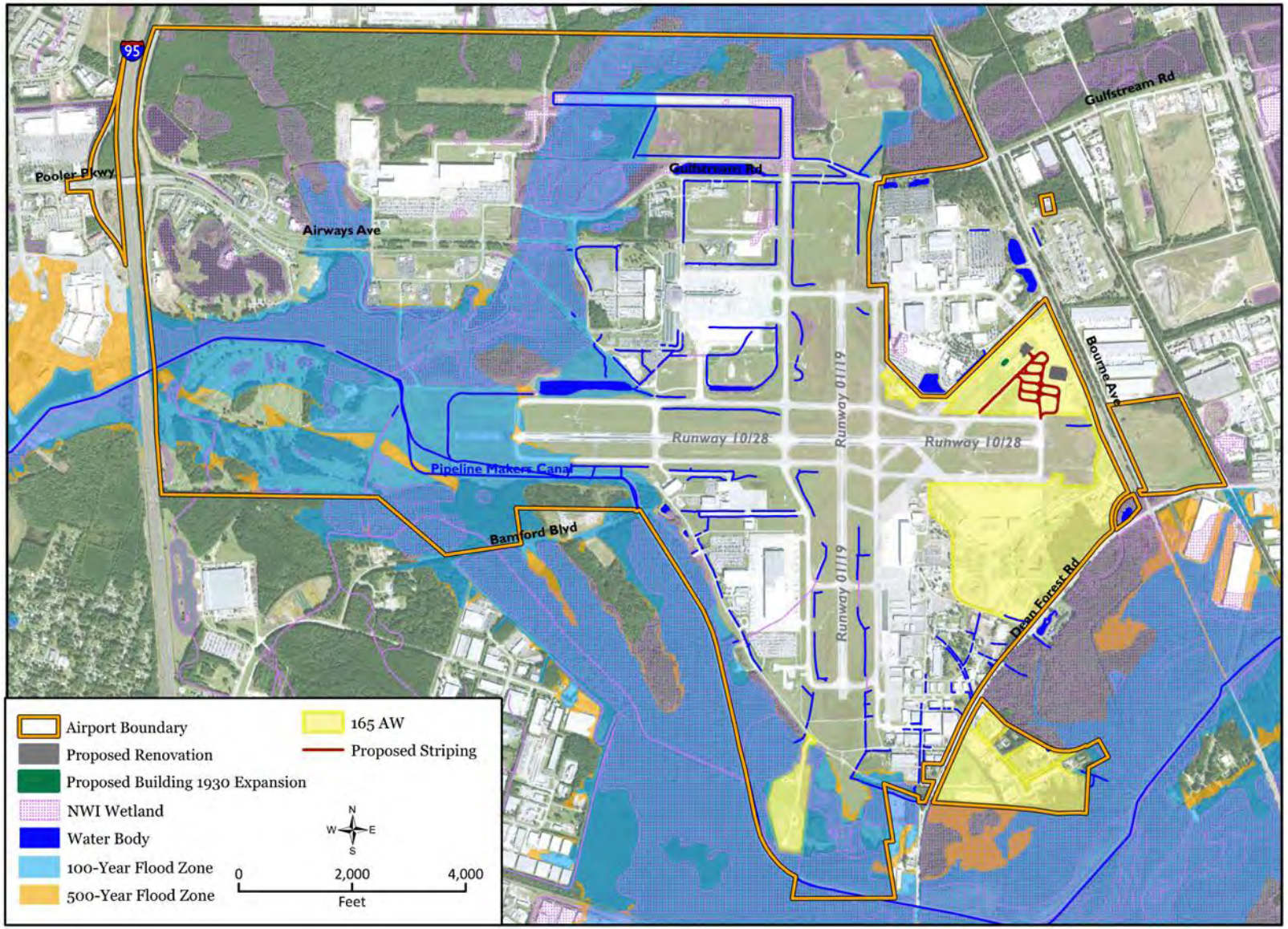


Figure 3-5. Floodplains and National Wetland Inventory Wetlands in the Vicinity of the 165 AW

Groundwater. Groundwater is water that exists in the saturated zone beneath the Earth's surface and includes underground streams and aquifers. It functions to recharge surface water and is used for drinking, irrigation, and industrial processes. Groundwater features include depth from the surface, aquifer or well capacity, quality, recharge rate, and surrounding geologic formations.

3.6.2 Affected Environment

Surface waters at the 165 AW are limited to several small non-tidal forested wetlands and mowed drainage for stormwater runoff. Therefore, the analysis in this EA focuses on the potential impacts to water resources related to ground disturbance from construction, stormwater and sedimentation, and wetlands associated with changes in impervious area.

Potential Receiving Waters. Drainage from the runways and taxiways owned and operated by SAV, located on the eastern and southern side of the airport, flows into tributaries of Pipemakers Canal, which in turn flows northeast to the Savannah River. Pipemakers Canal is on Georgia's 2016 303(d) list as being impaired for fecal coliform. The Savannah River is not impaired.

Stormwater. The 165 AW operates under Georgia Environmental Protection Division NPDES General Permit GAR050000: General Permit for Storm Water Discharges Associated with Industrial Activity. The goal of this permit is to improve water quality by reducing pollutants contained in stormwater discharge. A SWPPP has been developed in accordance with permit regulations (Defense Logistics Agency Installation Operations Energy, 2018).The main stormwater conveyance systems of the 165 AW begin near the main runways of SAV, collect runoff from the surrounding areas, and drain into the 165 AW conveyance system. The conveyance systems are composed of catch basins, drop inlets, culverts, grassed channels, concrete-lined channels, and small detention ponds (Defense Logistics Agency Installation Operations Energy, 2018).

Three main drainage systems collect stormwater and transport it to major collector channels and culverts. These conveyance systems flow in a southeasterly direction and ultimately into Pipemakers Canal. This canal circles the southern half of SAV and drains into the Savannah River. The only drainage run-on through the 165 AW is from SAV property (Defense Logistics Agency Installation Operations Energy, 2018).

Soils – Sedimentation Potential. Soils in the area of construction of the Building 1930 expansion (the only area to experience ground disturbance under the Proposed Action) consist of Chipley-Urban land complex. This soil has a K Factor (e.g., erosion susceptibility factor) of 0.02, but ranges from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water (NRCS, 2021). The site is of low topographic relief (e.g., flat). Therefore, the expansion site has extremely low potential to result in sedimentation to surface waters.

Wetlands. Figure 3-5 depicts National Wetland Inventory (NWI) wetlands in the vicinity of the 165 AW. NWI wetlands have not been issued a Jurisdictional Determination by USACE but are used to provide general information on the potential location, size, and type of wetlands for project planning purposes.

Wetlands at the 165 AW were delineated in 2016. The final wetland delineation report included nine wetlands, totaling 19.78 acres (**Figure 3-6)**. USACE issued a preliminary Jurisdictional Determination that verified the boundary of the wetlands. The wetlands are digressional in nature and consist of mature hardwood/pine systems, early successional mixed pine-hardwood, scrub/shrub emergent, and ditches (ANG, 2016).

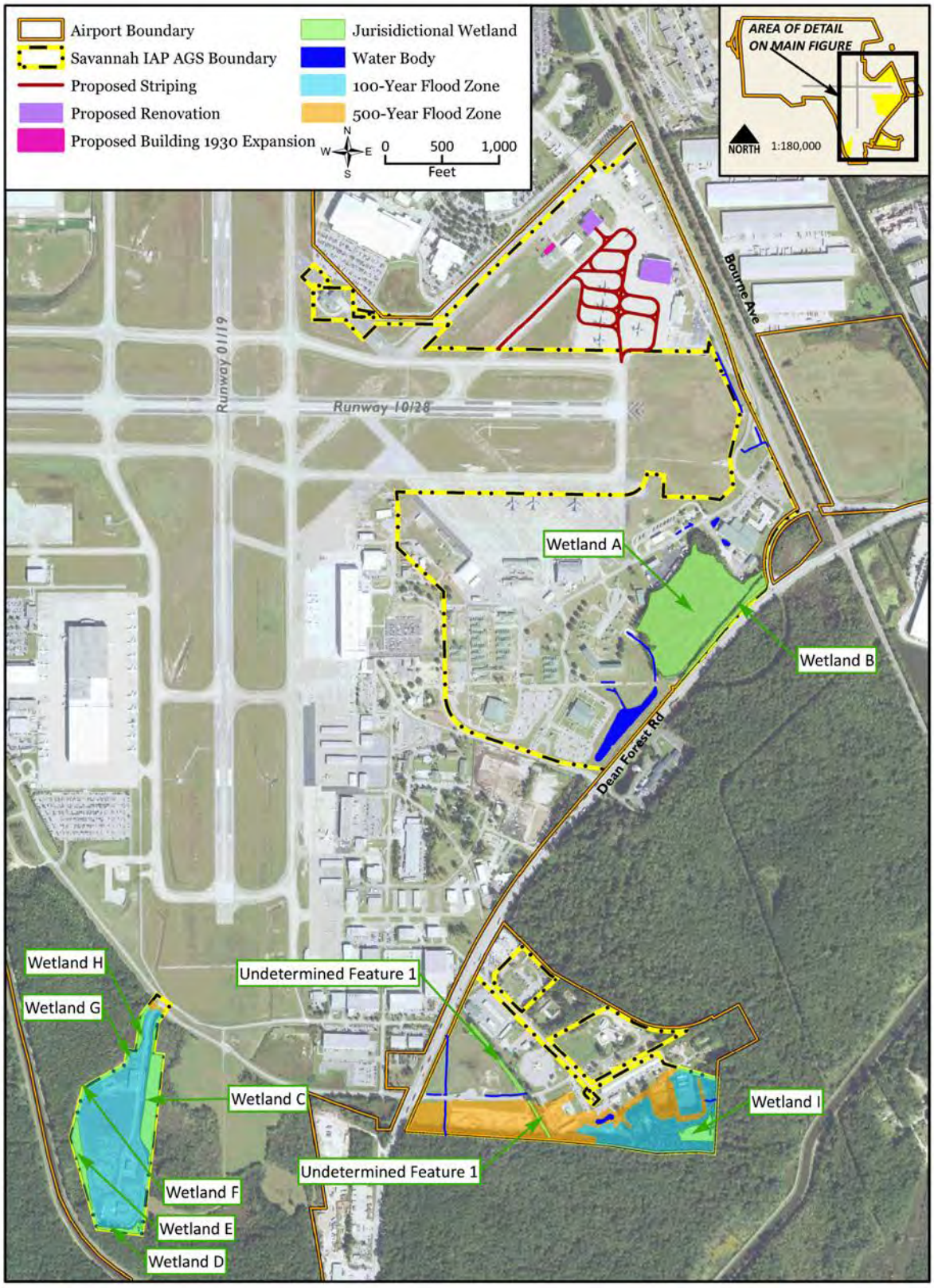


Figure 3-6. Floodplains and Jurisdictional Wetlands at the 165 AW

Groundwater. The surficial or water table aquifer occupies the surficial sediments of the Coastal Plain region. The aquifer is unconfined and underlain by clays of the Hawthorn Formation. Groundwater in the surficial aquifer occurs at 2 to 10 feet below ground surface (BB&E, 2017).

3.6.3 Environmental Consequences

When land is developed, the hydrology, or the natural cycle of water, can be altered. Replacement of vegetation with an impervious surface, such as concrete, eliminates any potential for infiltration and also speeds up delivery of the water to nearby drainage channels. Impacts on hydrology can result from land clearing, disruption of the soil profile, loss of vegetation, introduction of pollutants, new impervious surfaces, and an increased rate or volume of runoff after major storm events. Analysis of potential impacts to water resources considered siting of facilities in relation to potential soil limitations and removal of natural vegetation. If a proposed action were to substantially affect or be substantially affected by impacts from hydrology changes, these impacts would be considered significant. Generally, impacts can be avoided or minimized to a level of insignificance if proper construction techniques, erosion control measures, and structural engineering designs are incorporated into project development.

3.6.3.1 Alternative 1

Potential Receiving Waters. The proposed projects under Alternative 1 do not include activities that would result in discharges to surface waters. The Proposed Action would not affect the 303(d) status of any receiving waters.

Stormwater. No new industrial activities are part of Alternative 1. Therefore, Alternative 1 would have no impacts on stormwater.

Soils – Sedimentation Potential. There are no ground-disturbing activities under Alternative 1. Therefore, Alternative 1 would have no potential to result in sedimentation, and there would be no sedimentation impacts.

Wetlands. There are no activities occurring in or in the vicinity of wetlands under Alternative 1. Alternative 1 would not result in impacts to water resources at the 165 AW.

3.6.3.2 Alternative 2 (Preferred Alternative)

Potential Receiving Waters. The proposed projects do not include direct discharges to surface waters. However, when it rains, stormwater washes over the loose soil on a construction site, along with various materials and products being stored outside. As stormwater flows over the site, it can pick up pollutants such as sediment, debris, and chemicals from that loose soil and transport them to nearby waters.

The 165 AW has a NPDES General Permit for Stormwater Discharges Associated with Industrial Activity and an accompanying SWPPP. The SWPPP provides best management practices (BMPs) related to stormwater management and would be implemented during all phases of construction to prevent sediment from entering waters. These BMPs would minimize the potential for runoff from the construction sites reaching waters of the United States. These BMPs would include, but not be limited to, using silt fences, covering soil stockpiles, using secondary containment for the temporary storage of hazardous liquids, and establishing buffer areas near intermittent streams, as appropriate.

The proposed projects would not affect the 303(d) status of any receiving waterbodies. Stormwater BMPs would be implemented throughout all phases of construction to intercept construction site stormwater runoff and would not contribute to the impairments of the receiving waters. There would be no significant impacts to receiving waters as a result of the Proposed Action.

Stormwater. Impacts to stormwater could include increased potential for erosion and sedimentation due to grading, removal of vegetation, and exposure of soil during construction. These temporary negligible impacts would be reduced by the appropriate use of BMPs for controlling runoff, erosion, and sedimentation. Since ground disturbance associated with the Building 1930 addition would be under 1 acre, a General Permit for Discharges of Storm Water Associated with Construction Activity would not be required. However, construction would adhere to the 165 AW's SWPPP, which requires that construction areas be inspected regularly, and that sedimentation and erosion control devices be installed and maintained. No new industrial activities are a part of the Proposed Action. Because the Proposed Action would not result in the discharge of industrial stormwater and BMPs (as required by the SWPPP) would be used during construction of the Building 1930 addition, there would be no significant stormwater or water quality impacts.

Soils – Sedimentation Potential. Construction of the Building 1930 addition would require minor land disturbance and the exposure of soils. Impacts could include increased potential for erosion and sedimentation due to grading, removal of vegetation, and exposure of soil during construction. Affected soils would consist of Chipley-Urban land, which has the lowest possible erosion potential. Because the Building 1930 site is small, flat, and on previously developed land, the potential for erosion and sedimentation impacting area waters would be minimal. Short-term, minor impacts would be minimized by the appropriate use of BMPs, as required by the 165 AW's NPDES General Permit for Stormwater Discharges Associated with Industrial Activity for controlling runoff, erosion, and sedimentation.

Wetlands. No Proposed Action construction project sites are located within wetlands that have been verified by USACE as preliminary jurisdictional. However, wetlands, like other surface waters, can be negatively impacted by stormwater runoff resulting from adjacent land disturbance. The BMPs described above for stormwater runoff would be employed during all phases of construction to prevent any sediment or other contaminants from Alternative 2 from reaching these wetlands. Alternative 2 would not dredge or fill wetlands. Therefore, CWA Section 404/401 would not be required. There would be no impacts to wetlands as a result of Alternative 2.

3.6.3.3 No Action Alternative

Under the No Action Alternative, the 165 AW would not implement the actions described above; therefore, no restriping, no addition of mooring points/tie-downs, and no soil disturbance would occur and there would be no impacts to water resources. As a result, there would be no temporary construction impacts from stormwater runoff and sedimentation as a result of the projects needed to support the aircraft conversion.

3.6.4 Cumulative Impacts

The combination of past, present, and reasonably foreseeable future actions (parking apron ramp expansion and SAV improvement projects) and the Proposed Action alternatives/No Action Alternative could result in additive effects to water resources at the 165 AW/SAV if these construction projects were implemented during the same period. BMPs and appropriate permits

would serve to minimize any additive impacts; therefore, no significant additive effects would be expected.

Future climate change trends could require managing more water from frequent extreme precipitation events and severe storms. Infrastructure improvements and other adaptation measures will be necessary.

3.7 Coastal Zone

3.7.1 Definition of the Resource

Through the Coastal Zone Management Act (CZMA), Congress established national policy to preserve, protect, develop, restore, or enhance resources in the coastal zone. The CZMA encourages coastal states to properly manage use of their coasts and coastal resources, prepare and implement coastal management programs, and provide for public and governmental participation in decisions affecting the coastal zone. The CZMA imparts an obligation upon federal agencies whose actions or activities affect any land use, water use, or natural resource of the coastal zone to carry them out in a manner consistent to the maximum extent practicable with the enforceable policies of federally approved state coastal management programs.

However, federal lands, which are "lands the use of which is by law subject solely to the discretion of the federal government, its officers, or agents," are statutorily excluded from a state's "coastal zone." If, however, the proposed federal activity affects coastal uses or resources beyond the boundaries of the federal property (i.e., has spillover effects), the CZMA Section 307 federal consistency requirement applies. As a federal agency, NGB is required to determine whether its proposed activities would affect the coastal zone. This takes the form of a consistency determination, a negative determination, or a determination that no further action is necessary.

3.7.2 Affected Environment

The 165 AW is located in Chatham County, which is included in Georgia's designated coastal zone. The 165 AW leases land from SAV and is not located on federal land. The Georgia Department of Natural Resources Coastal Resources Division is the lead agency for the GCMP and is responsible for enforcing the state's federally approved coastal management program. In 1998, Georgia received federal approval for its GCMP from the National Oceanic and Atmospheric Administration's Office for Coastal Management.

The GCMP has 33 enforceable policies, which are detailed in Section 3.7.3 (Environmental Consequences).

3.7.3 Environmental Consequences

The NGB reviewed Georgia's coastal policies to determine if a use or resource of Georgia's coastal zone would be impacted by the Proposed Action. The impact to Georgia's coastal zone would be considered significant if NGB could not conduct the proposed activity in a manner that would be fully consistent or consistent to the maximum extent practicable with the applicable enforceable policies of the Georgia Coastal Zone Management Program.

3.7.3.1 Alternative 1

NGB has determined that this alternative is not reasonably likely to affect a land use, water use, or natural resource of Georgia's coastal zone. The Proposed Action would be consistent to the maximum extent practicable with the enforceable policies of the GCMP.

3.7.3.2 Alternative 2 (Preferred Alternative)

NGB has determined that this alternative is not reasonably likely to affect a land use, water use, or natural resource of Georgia's coastal zone. The Proposed Action would be consistent with the enforceable policies of the GCMP, which are summarized in **Table 3-12**. The Georgia Department of Natural Resources Coastal Resources Division concurred that the Proposed Action is consistent with the applicable enforceable policies of the GCMP on 20 September 2021. Appendix A (*Interagency and Intergovernmental Coordination*) contains the concurrence letter.

Table 3-12. Alternative 2 (Preferred Alternative) Consistency Analysis

Enforceable Policy	Scope of Policy	Status of Consistency
Air Quality O.C.G.A. 12-9-1	Provides authority to the Environmental Protection Division to promulgate rules and regulations necessary to abate or to control air pollution for the state as a whole or from area to area, as may be appropriate.	NGB has conducted an air emissions analysis of the Proposed Action and found that it would not violate any air pollution statutes or ambient air quality standards. Therefore, the Proposed Action is consistent with this enforceable policy.
Coastal Management 2 O.C.G.A. 12-5-320	Provides enabling authority for the state to prepare and administer a coastal management program.	NGB has prepared this consistency determination in accordance with the Georgia Coastal Zone Management Program. Therefore, the Proposed Action is consistent with this enforceable policy.
Endangered Wildlife O.C.G.A. 27-3-130	Provides for identification, inventory, and protection of animal species that are rare, unusual, or in danger of extinction. Projects permitted under the authority of the Coastal Marshlands Protection Act, the Shore Protection Act, and the Revocable License require full compliance with the protection of endangered and protected species. Outside the jurisdiction of these laws, for those areas that are not public lands of Georgia, protection of endangered species is provided by the federal Endangered Species Act, which has jurisdiction over both private and public lands.	The Proposed Action is not permitted under the Coastal Marshlands Protection Act, the Shore Protection Act, or the Revocable License. However, SAV meets the definition of "public property," which is synonymous with "public lands" in Georgia, as it is real property located within the State of Georgia, in which a legal or equitable interest is held by a public authority (e.g., the SAV Commission). The Georgia Department of Wildlife Resources has identified 20 Georgia threatened or endangered wildlife species as occurring in Hydraulic Unit Code 0306010903, which encompasses SAV (Georgia Department of Wildlife Resources, 2021). The Proposed Action would not affect or disturb the habitat of any Georgia protected species. Because the Proposed Action will not intentionally capture, kill, or sell threatened and endangered species, the Proposed Action is consistent to the maximum extent practicable with this enforceable policy.
Environmental Policy	Requires that all state agencies and activities prepare an environmental	NGB is not a state agency. Therefore, this enforceable policy is not applicable to the Proposed

Table 3-12. Alternative 2 (Preferred Alternative) Consistency Analysis

Enforceable Policy	Scope of Policy	Status of Consistency
O.C.G.A. 12-16-1	effects report as part of the decision-making process.	Action. However, NGB is preparing a National Environmental Policy Act Environmental Assessment for the Proposed Action.
Erosion and Sedimentation Control O.C.G.A. 12-7-1	Requires that each county or municipality adopt a comprehensive ordinance establishing procedures governing land-disturbing activities.	The Proposed Action is exempt from the requirements of this enforceable policy as Proposed Action ground disturbance will be less than 1 acre and will not be within 200 feet of any state waters. However, NGB will follow the requirements of its National Pollutant Discharge Elimination System Storm Water Discharges Associated with Industrial Activity General Permit (# GAR050000) for construction erosion and sediment control. Therefore, the Proposed Action is consistent with this enforceable policy.
Hazardous Waste Management O.C.G.A. 12-8-60	Describes a comprehensive, statewide program to manage hazardous wastes through regulating hazardous waste generation, transportation, storage, treatment, and disposal.	The 165 AW is a small quantity generator of Hazardous Waste (EPA ID # GA3570026119). The Proposed Action will generate hazardous wastes through the operation and maintenance of C-130J-30 aircraft. It is not anticipated that the volumes and types of hazardous wastes generated by the Proposed Action would be meaningfully different from those generated from current operations. All hazardous wastes generated by the Proposed Action would be managed in accordance with all applicable regulations, as is currently done. Asbestos may occur in Building 1905 due to the age of the building. The Asbestos Operating Plan; best management practices; and applicable federal, state, local, and 165 AW regulations would be followed during the removal of the fire detection and suppression systems. Therefore, the Proposed Action is consistent with this enforceable policy.
Historic Areas O.C.G.A. 12-3-50	Provides the Department of Natural Resources with the powers and duties to "promote and increase knowledge and understanding of the history of this state from the earliest times to the present."	Prior to enacting the Proposed Action, NGB will perform National Historic Preservation Act Section 106 consultation with the Georgia Historic Preservation Division. Therefore, the Proposed Action is consistent with this enforceable policy.

– number; 165 AW – 165th Airlift Wing; EPA ID – Environmental Protection Agency Identification; NGB – National Guard Bureau; O.C.G.A. – Official Code of Georgia Annotated; SAV – Savannah/Hilton Head International Airport

3.7.3.3 No Action Alternative

Under the No Action Alternative, the 165 AW would not implement the Proposed Action; therefore, there would be no effects to coastal resources. There would be no temporary construction impacts needed to support the aircraft conversion and aircraft and operations would remain the same as under baseline conditions.

3.7.4 Cumulative Impacts

The combination of past, present, and reasonably foreseeable future actions and the Proposed Action alternatives/No Action Alternative would result in minor effects to coastal uses or resources at the 165 AW/SAV. With BMPs and agency consultation, additive effects would not be significant.

As discussed under Section 3.6 (Water Resources), future climate change trends could require infrastructure improvements and other adaptation measures. These projects would likely be investigated by DoD, other federal and state agencies, and the City of Savannah.

3.8 Hazardous Materials/Waste

3.8.1 Definition of the Resource

Hazardous materials (HM) are defined by the U.S. Department of Transportation as a substance or material that is capable of posing an unreasonable risk to health, safety, and property when transported in commerce. The term includes "hazardous substances, hazardous wastes (HW), 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 Part 173."

HW are defined by the Resource Conservation and Recovery Act (40 CFR Part 261) as a solid waste that because of its quantity, concentration, or physical, chemical, or infectious characteristics may (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or the environment when improperly managed.

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 established funding and the Superfund Amendments and Reauthorization Act of 1986 provided cleanup standards for releases of hazardous substances. In compliance with these Acts, the Environmental Restoration Program (ERP) is the DAF's initiative to identify, characterize, clean up, and restore sites contaminated with toxic and hazardous substances, low-level radioactive materials, petroleum products, or other pollutants and contaminants. The ERP has established a process to evaluate past disposal sites, control the migration of contaminants, identify potential hazards to human health and the environment, and remediate the sites. The Installation Restoration (IR) Program is a component of the ERP. The 165 AW must identify, investigate, and clean up hazardous waste disposal or release sites. IR sites are present at the 165 AW and shown in **Figure 3-7**.

The affected resources also include the potential presence of asbestos-containing materials (ACM) and lead-based paint (LBP) in structures. Asbestos is a naturally occurring mineral that is a very effective heat and sound insulator. Consequently, it was used in many buildings as a fire and noise retardant. Asbestos has been linked to several diseases, including lung cancer, and has not been used in construction materials since 1987. Friable (brittle) asbestos becomes hazardous when fibers become airborne and are inhaled. Pb was used as an additive and pigment in paints for many years prior to 1978; therefore, structures at the 165 AW that have multiple layers of older paint are potential sources of Pb. Pb has been associated with central nervous system disorders, particularly among children and other sensitive populations. Exposure to Pb is usually through inhalation during renovation and demolition activities or through ingestion of paint chips or Pb-contaminated drinking water.

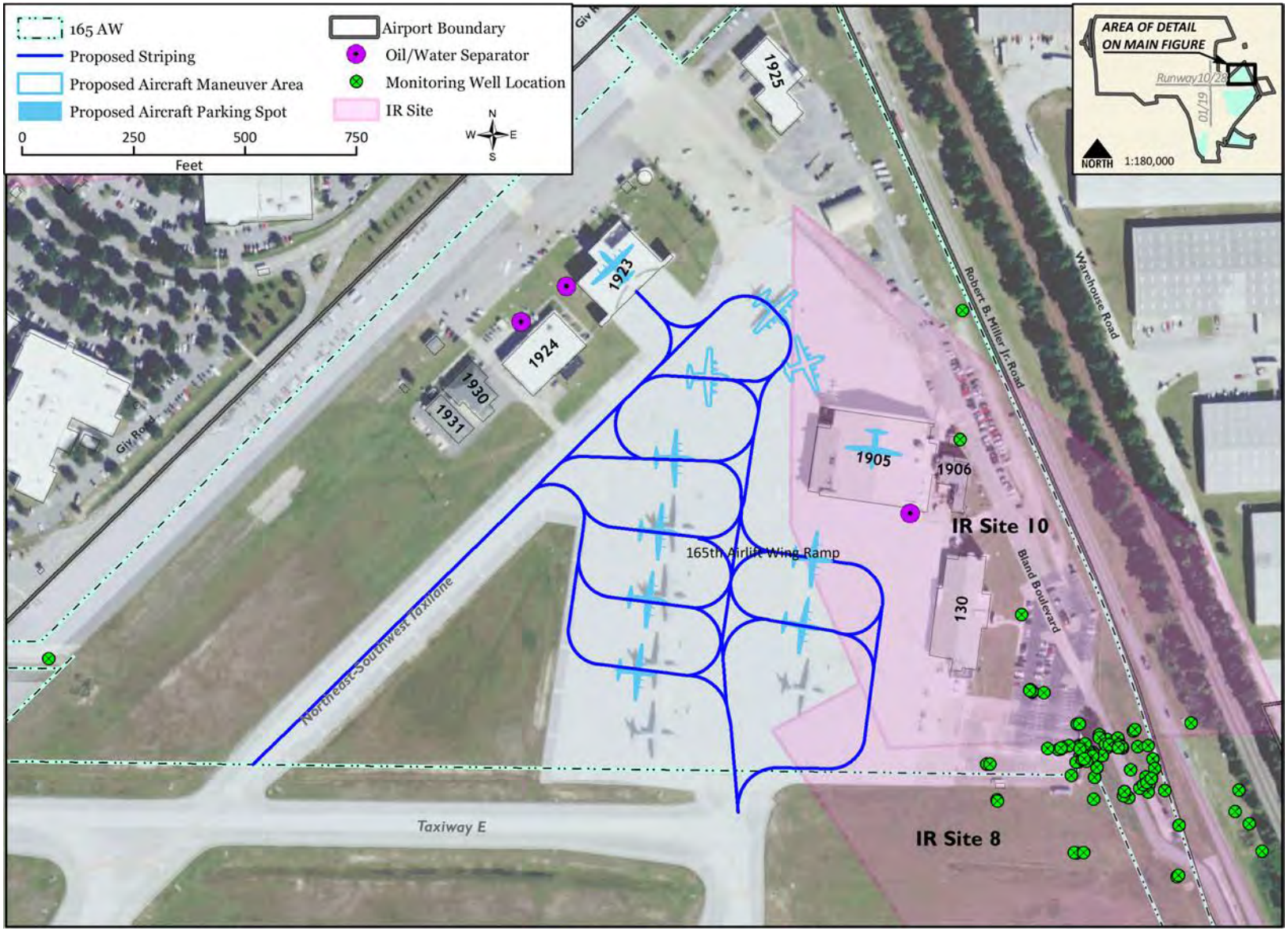


Figure 3-7. IR Sites

The ROI for HM and wastes is defined as the boundary of the 165 AW, including IR sites and other areas where HM would be used and HW would be generated as part of the Proposed Action.

3.8.1 Affected Environment

Hazardous Materials Management. Products containing HM are used by the 165 AW as part of day-to-day operations. To administer these materials, the 165 AW has implemented a comprehensive HM management program that features an established set of procedures designed to control the acquisition, storage, issue, and disposition of serviceable HM. Working in coordination with the Environmental Management, Bio-environmental, and Safety Offices, the program ensures that only approved products are purchased and stored, and that they are only issued to authorized users. Contractors conducting operations at the 165 AW are required to supply information to the 165 AW regarding any HM used.

Hazardous Waste Management. The 165 AW is regulated as a small quantity generator (SQG) of HW and maintains Environmental Protection Agency Identification number GA3570026119. Generators are required to monitor their waste-generating activities and to notify the Georgia Environmental Protection Division if they exceed their generator status. Additionally, Georgia requires SQGs that generate more than 1,000 kilograms of HW in any calendar month to comply with large quantity generator requirements for the time the waste is stored on-site. The 165 AW manages its waste in accordance with its Hazardous Waste Management Plan (HWMP). The HWMP ensures that the installation has guidance pertaining to all aspects of HW management in order to facilitate compliance with all federal, state, and local regulations (ANG, 2017b).

A variety of waste streams are generated at 165 AW as a result of the mission. This HW is initially accumulated at a satellite accumulation point and is later stored at the central accumulation site until it is transported off site.

HW is generated by aircraft, vehicle, and aviation support equipment maintenance activities and from petroleum, oils, and lubricants management and distribution. Types of hazardous and universal wastes generated include solvent contaminated rags, fuel contaminated rags, fuel filters, light ballasts, Pb, waste paint, used bead blasting media, and batteries (ANG, 2017b).

The 165 AW has implemented policies and procedures that identify HW generation areas and addresses the proper labeling, storage, and handling of these wastes, as well as record keeping, spill contingency and response requirements, and education and training of appropriate personnel.

Asbestos. Surveys at the 165 AW have identified ACM in older buildings (**Table 3-13**). The 165 AW's *Asbestos Management Plan* guides all activities associated with management of ACM in structures, which are typically managed in place, unless demolitions or renovations occur (ANG, 2017c).

Lead-Based Paint. No comprehensive surveys have been conducted to determine the presence and extent of LBP on/in buildings; however, the potential for LBP exists for buildings constructed prior to 1978. As shown in **Table 3-13**, Building 1905 may contain LBP. Testing for LBP is necessary prior to renovation, repairing, demolition, sanding, sandblasting, or maintenance activities that would involve or disturb painted surfaces.

Table 3-13. Potential Occurrence of ACM and LBP

EBS Data	Building 1905	Building 1923	Building 1930
Year Built	1959	1984	2001
ACM	Yes, floor tile, mastic, wallboard, thermal insulation	None	None
LBP	Possible	None	None

ACM – asbestos-containing materials; EBS – Environmental Baseline Survey; LBP – lead-based paint
Source: (ANG, 2007)

Solid Wastes. Day-to-day 165 AW operations generate municipal solid waste (refuse). Additionally, construction and demolition (C&D) debris may be occasionally generated from various projects. Typical C&D debris includes lumber, timber, reinforcing steel, piping, wiring, brick, plaster, masonry, metal, wallboard, roofing, insulation materials, concrete, asphalt, and packing/packaging materials. C&D debris must be managed to ensure the weights of debris diverted and debris disposed of are documented and tracked.

Although disposal of C&D debris is primarily the responsibility of contractors operating on the 165 AW, ANG installations are still required to track and report their amounts (tons disposed/diverted/recycled/mulched) and associated costs. Contractors must provide this information to the 165 AW and ensure that they adhere to the 165 AW's solid waste management policies.

It is ANG policy to make every effort to divert non-hazardous solid waste from landfills and incinerators through reuse, recycling, composting, or donating, while ensuring integrated non-hazardous solid waste management programs provide an economic benefit. In accordance with AFI 32-7080, *Pollution Prevention Program*, and AFI 32-7042, *Waste Management*, ANG requires that the following additional items are diverted/recycled from the waste stream as cost-effectively as possible: asphalt, metals, plastic, glass, used oil, lead acid batteries, and tires.

Installation Restoration (IR) Sites. In 1987, the Hazardous Materials Technical Center conducted a preliminary assessment at the 165 AW to identify potentially contaminated sites. Ten (10) potentially contaminated sites were identified, only one is active, and investigations have been concluded at the remainder with the determination of "no further action" by the Georgia Environmental Protection Division (SAIC, 2007; BB&E, 2017). IR Site 8, located on the eastern edge of the 165 AW, is the old 165 AW aircraft wash rack; it was used as an aircraft wash rack from approximately 1961 to 1983. Potential historical contaminants at IR Site 8 included paint solvents and degreasers, paints, and detergents (BB&E, 2017). This site is being actively remediated, and once groundwater and soil sampling results meet remedial objectives, the 165 AW will request a determination of "no further action" from the Georgia Environmental Protection Division (BB&E, 2017). The Final Operation and Maintenance Performance Monitoring Semiannual Letter Report, dated 02 February 2021, indicated that the sequential remediation strategy has been effective in permanently reducing volatile organic compound concentrations in groundwater at Site 8 (CH2M, 2021).

Perfluorooctane Sulfonic Acid (PFOS) and/or Perfluorooctanoic Acid (PFOA). PFOS/PFOA is part of a larger class of chemicals called per and polyfluoroalkyl substances, which are found in everyday items such as nonstick cookware, microwave popcorn bags, fast-food wrappers, water-resistant clothing, shampoo, dental floss, nail polish, and eye makeup. PFOS/PFOA is found

in firefighting foam known as aqueous film-forming foam, or AFFF. The 165 AW provides firefighting support through a fully functional fire department to all tenants of the airport visiting-unit aircraft. The 165 AW Fire Department has used AFFF for many years and continues to do so.

In May 2016, USEPA issued a health advisory under the Safe Drinking Water Act, recommending a 70 parts per trillion level of PFOS and/or PFOA in drinking water. In 2019, groundwater was added to the advisory and a level of 1.26 parts per million was established for soil. These chemicals have been identified as emerging contaminants due to the inconclusive human health risks and evolving regulatory standards.

To assess the 165 AW for PFOS/PFOA contamination in groundwater and soil, the DAF conducted a site investigation in 2017. While no soil samples contained PFOS/PFOA at or above the USEPA advisory level, 10 groundwater samples exceeded the USEPA advisory level (AECOM, 2017). The study recommended next steps to clarify the extent of contamination at the 165 AW and ultimately formulate and enact a remediation plan.

To reduce the potential for further contamination, the 165 AW converted to an environmentally safer AFFF in 2017 and discontinued use of AFFF (containing PFOS/PFOA) for training or another land release (flushing/testing equipment). Water used to flush equipment that uses AFFF (containing PFOS/PFOA) is now captured and disposed of instead of released into the environment. PFOS/PFOA containing AFFF is only used for emergency applications to prevent loss of life or aircraft. The 165 AW will move to non-PFOS/PFOA AFFF when available. Hangar fire suppression HEF systems do not contain PFOS/PFOA (ANG, 2020c).

3.8.2 Environmental Consequences

The analysis focused on how and to what degree the alternatives would affect HM use/management, hazardous waste generation and management, and IR sites. A significant impact would occur if implementation of the Proposed Action or alternatives resulted in the use of a new highly toxic material, change in the generation of hazardous/solid waste types or quantities that could not be accommodated by the current management system, or impacts to an existing IR site that would result in the release of contaminants or disruptions to remedial actions.

3.8.2.1 Alternative 1

Under Alternative 1, minor amounts of HW would be generated during restriping. The contractor would use a self-contained system to remove the existing paint and collect wastewater. This would be disposed of in accordance with regulatory requirements. Implementation of the 165 AW HWMP would ensure safe handling of HM and wastes.

Maintaining and operating C-130J-30 aircraft would require using HM and would generate HW. These materials and wastes would be similar to those currently generated at the 165 AW during aircraft maintenance and operation. Existing facilities and established procedures are in place for the safe handling, use, and disposal of HM at the 165 AW. O&M of aircraft associated with Alternative 1 would not affect the management of HM and wastes at the 165 AW. Therefore, there would be minor impacts that would not be significant to HM and HW.

3.8.2.2 Alternative 2 (Preferred Alternative)

Under Alternative 2, minor amounts of HW would be generated during restriping, as described under Alternative 1. Construction and renovation proposed under Alternative 2 would require the use of certain HM (e.g., paints, welding gasses, solvents, preservatives, sealants). The aircraft maintenance hangar fire detection system would be removed and replaced with an infrared-light-based fire detection system. Removal of this system would require proper disposal. Removal and disposal would be the responsibility of the construction contractor and requirements for the proper handling and disposal would be specified in the applicable contracts. The quantity of products containing HM used during construction would be minimal, and their use would be of short duration. The quantity of HW generated from renovation would be minor and would not be expected to exceed the capacities of existing hazardous waste disposal facilities. The 165 AW has established measures and programs for managing construction to ensure it is conducted in compliance with federal and state environmental laws and regulations.

ACM and materials containing regulated levels of LBP and polychlorinated biphenyls are assumed present in Building 1905 and would be removed before starting renovation. This work would be handled by a licensed contractor, and waste would be disposed of in accordance with all applicable federal, state, and local requirements. In accordance with Occupational Safety and Health Administration requirements, construction contractors would assess the potential for employee exposure to asbestos or Pb during construction/renovation and implement necessary engineering controls and use of personal protective equipment. With the incorporation of the appropriate procedures for handling special hazards during construction/renovation, Alternative 2 would not result in significant impacts related to these materials.

There are no active or closed (no further action) contaminated sites present at Building 1930. IR Site 8, the only active site, is over 1,500 feet southeast of the proposed Building 1930 addition. Therefore, this alternative would not affect or be affected by known contaminated sites.

Alternative 2 would not impact existing PFOS/PFOA material management, contamination, or remediation efforts. A new fire detection and suppression system would replace the old system, and PFOS/PFOA contamination investigations would continue as before. Therefore, there would be no impacts from PFOS/PFOA.

Maintaining and operating C-130J-30 aircraft would require the use and storage of HM and would generate HW. These materials and wastes would be similar to those currently found at the 165 AW during C-130H aircraft maintenance and operation. Existing facilities and established procedures are in place for the safe handling, use, and disposal of HM at the 165 AW. O&M of aircraft and facilities associated with Alternative 2 would not affect the management of HM and wastes at the 165 AW. Therefore, there would be minor impacts to HM and HW.

3.8.2.3 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to HM and wastes at the 165 AW. No new construction or equipment replacement would occur; therefore, no additional wastes would be generated. Aircraft O&M would be the same as under baseline conditions. Therefore, no significant impacts would occur with the No Action Alternative.

3.8.3 Cumulative Impacts

The combination of past, present, and reasonably foreseeable future actions and the Proposed Action alternatives/No Action Alternative could result in additive effects from HM and wastes at the 165 AW/SAV. Renovations at the 165 AW and SAV would generate HW, but it would be disposed of properly. Any ACM or LBP would be removed or secured, resulting in a beneficial effect.

3.9 Environmental Justice

3.9.1 Definition of the Resource

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires federal agencies to evaluate human health and environmental conditions in minority and low-income communities and to identify and address the potential disproportionately high and adverse human health or environmental effects on these communities. This section describes the distribution of race and poverty status in areas surrounding and potentially affected by the Proposed Action. USEPA defines "environmental justice" as "the treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies" (USEPA, 2020).

USEPA also defines minority and low-income populations as follows:

- Minority - populations of people who are not single-race white and not Hispanic but who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic (USEPA, 2020)
- Low-income - populations characterized by limited economic resources (USEPA, 2020)

3.9.2 Affected Environment

The resource areas assessed in this environmental justice analysis include noise, air quality, public health and safety, water resources, and hazardous materials/waste. The affected environment for this environmental justice analysis is based on the ROI identified for each of these resource areas.

3.9.2.1 Noise

The affected environment for this environmental justice analysis regarding noise impacts is the area within the 65-dBA DNL or greater noise contours generated by airborne noise associated with 165 AW aircraft operations. As stated in DoD Instruction 4165.57, *Air Installations Compatible Use Zones (AICUZ)*, DoD considers all land uses to be compatible at noise levels below 65 dBA DNL. Therefore, 65 dBA DNL or greater is considered the threshold for adverse impacts on populations, including environmental justice communities.

Under existing conditions, the 65-dBA DNL noise contours associated with 165 AW aircraft operations extend into four block groups within three census tracts, all of which are located in Chatham County, Georgia. **Table 3-14** presents the ethnic and poverty characteristics of the population within these census tracts and block groups from the most recent U.S. Census Bureau American Community Survey (ACS) 5-year estimates from 2015–2019.

The following block groups have either a minority population that exceeds 50 percent or has a higher percent of the total population comprised of minority and/or low-income compared to the census tract in which the block group is located:

- Block group 1 in census tract 106.03 has a minority population of 71 percent, which exceeds 50 percent of the population.
- Block group 1 in census tract 107.00 has a higher percent minority population (47.6 percent) compared to census tract 107.00 (45.7 percent).
- Block group 2 in census tract 108.03 has a higher percent low-income population (11.1 percent) compared to census tract 108.03 (8.3 percent).

Although the 65-dBA DNL or greater noise contours extend into several block groups and census tracts within Chatham County, the 65-dBA DNL or greater noise contours associated with 165 AW aircraft operations do not extend into any land areas designated as residential land use (**Figure 3-8**). Thus, there are no populations and, therefore, no minority or low-income populations that reside within the 65-dBA DNL or greater noise contours associated with 165 AW aircraft operations under existing conditions. As shown in **Figure 3-8,** there are also no sensitive noise locations such as schools and parks within the 65-dBA DNL or greater noise contours under baseline conditions.

Table 3-14. Environmental Justice Communities Within the Study Area and Within the 65-dBA DNL or Greater Noise Contours Under Baseline Conditions

Area	Within the Study Area						Within the 65-dBA DNL or Greater Noise Contours
		Minority		Low-Income			
	Total Population	Number	Percent	Population for Whom Poverty Is Calculated[1]	Number	Percent	Total Population[2]
Census Tract 106.03	2,095	1,487	71.0%	2,091	315	15.1%	0
Block Group 1[3]	2,095	1,487	71.0%	2,091	315	15.1%	0
Census Tract 107	26,753	12,229	45.7%	24,565	634	2.6%	0
Block Group 1	25,166	11,973	47.6%	23,046	315	1.4%	0
Block Group 2	1,248	194	15.5%	1,248	0	0.0%	0
Census Tract 108.03	10,648	4,305	40.4%	10,535	870	8.3%	0
Block Group 2	740	45	6.1%	740	82	11.1%	0

% – percent; dBA – A-weighted decibels; DNL – Day-Night Average Sound Level
1. "Population for Whom Poverty Is Calculated" may differ from the total population shown, because it does not take into account persons that are institutionalized, in military group quarters, and in college dormitories and unrelated individuals under 15 years old.
2. Airborne noise levels of 65 dBA DNL or greater do not extend into residential land use, and there are no populations that reside within the noise contours. Hence, there are no minority or low-income populations residing within the noise contours.
3. Only one block group exists within census tract 106.03 according to the American Community Survey 5-year estimates for 2015–2019. Therefore, the totals for the block group are identical to the census tract.
Source: (USCB, 2019a); (USCB, 2019b)

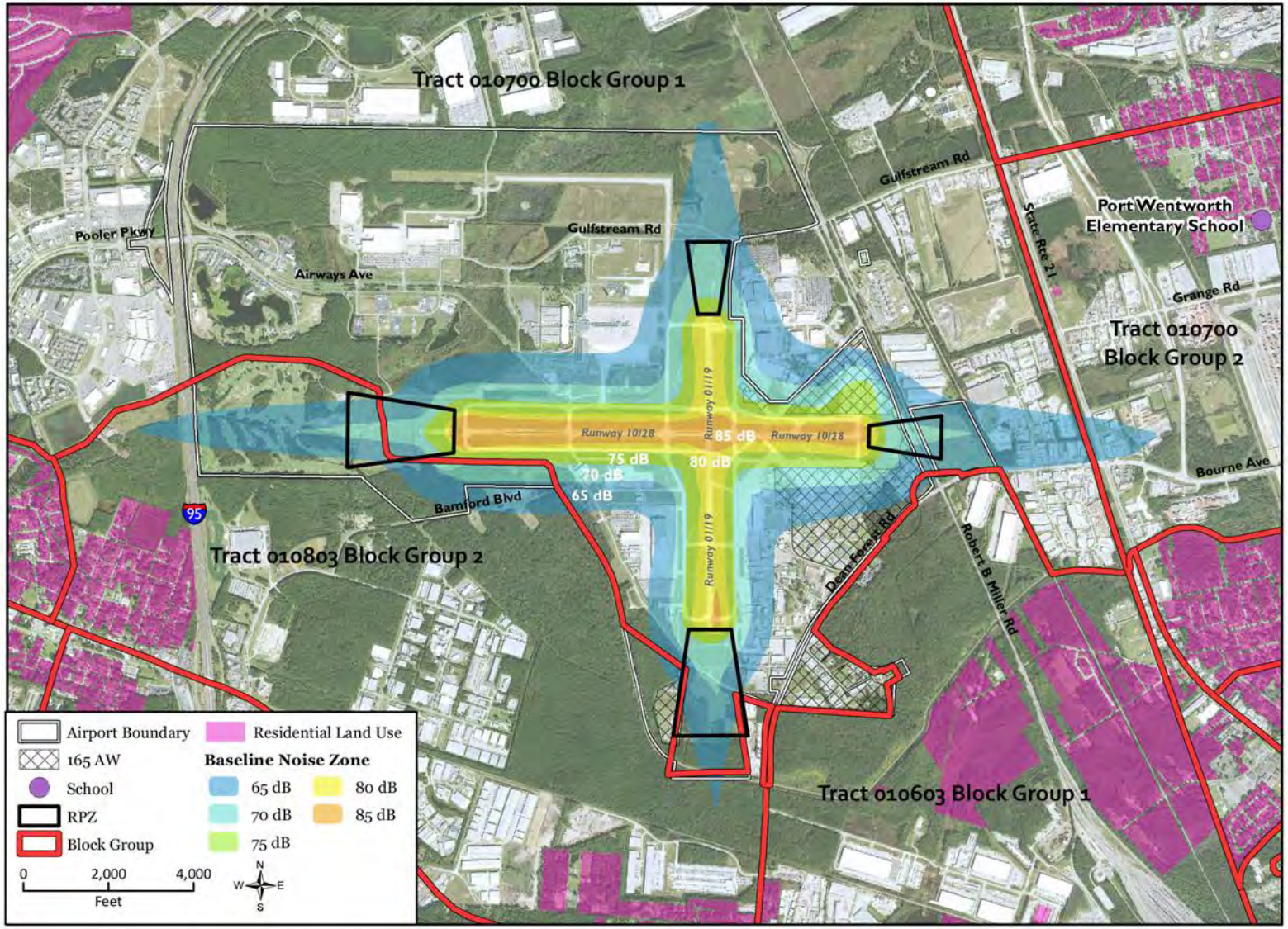


Figure 3-8. Environmental Justice Communities Within the Study Area and Within the 65-dBA DNL or Greater Noise Contours Under Baseline Conditions

3.9.2.2 Air Quality

Air quality in the affected environment is discussed in Section 3.2 (Air Quality). The ROI for air quality in this EA is identified as Chatham County, Georgia. The ethnic and poverty characteristics for Chatham County and the State of Georgia are shown in **Table 3-15**. As shown in **Table 3-15**, Chatham County has a higher percent of the total population that identifies themselves as minority (51.5 percent) compared to the state (47.3 percent). The percent of the total population in both the county and the state that are identified as low-income is 15.1 percent. Chatham County is in attainment for all six criteria pollutants according to the NAAQS.

Table 3-15. Environmental Justice Communities Within the Study Area for Air Quality

Area	Within the Study Area					
	Total Population	Minority		Low-Income		
		Number	Percent	Population for Whom Poverty Is Calculated[1]	Number	Percent
Chatham County	288,496	148,580	51.5%	275,812	41,529	15.1%
State of Georgia	10,403,847	4,917,992	47.3%	10,130,335	1,528,558	15.1%

% – percent
1. "Population for Whom Poverty Is Calculated" may differ from the total population shown, because it does not take into account persons that are institutionalized, in military group quarters, and in college dormitories and unrelated individuals under 15 years old.
Source: (USCB, 2019a; USCB, 2019b)

3.9.2.3 Safety

The environmental justice affected environment for safety impacts includes the areas within the RPZs. RPZs do not predict the likelihood of an aircraft mishap, but they predict the most likely location of an aircraft accident if one were to occur. RPZs are discussed in Section 3.3 (Safety).

Under baseline conditions, RPZs associated with 165 AW aircraft operations extend into two block groups with two census tracts located within Chatham County, Georgia. These include block group 2 in census tract 108.03 and block group 1 in census tract 107.00. The ethnic and poverty characteristics of these census tracts and block groups are shown in **Table 3-14**. The RPZ boundaries do not extend into residential land use areas; therefore, no populations, including minority or low-income populations, reside within the existing RPZs. There are also no schools or parks located within the boundaries of the RPZs (**Figure 3-8**).

3.9.2.4 Water Resources

Water resources in the affected environment are discussed in Section 3.6 (Water Resources). The ROI for water resources is defined in Section 3.6.1 (Water Resources, Definition of the Resource) as the 165 AW, as well as any potentially receiving waters located outside of 165 AW leased property. Since both the 165 AW and applicable receiving waters are within Chatham County, the county is defined as the ROI for this portion of the environmental justice analysis. The ethnic and poverty characteristics for Chatham County and the State of Georgia are shown in **Table 3-15** and discussed in Section 3.9.2.2 (Affected Environment, Air Quality).

3.9.2.5 Hazardous Materials/Waste

HM and waste in the affected environment are discussed in Section 3.8 (Hazardous Materials/Waste). The ROI for solid debris and HM and waste is defined as the boundary of the 165 AW, including contaminated sites and other areas where HM would be used and HW would be generated as part of the Proposed Action. There are no populations residing within the boundary of the 165 AW. The closest residence is located 0.8 miles west of IR Site 10 on the 165 AW. IR Site 10 is closed.

3.9.3 Environmental Consequences

Consistent with EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, NGB addressed disproportionate environmental and human health effects in minority and low-income communities. For low-income populations, any percentage of the affected area greater than the community as a whole (Chatham County) was considered disproportionate. For minorities, more than a 15 percent difference than the community as a whole is considered meaningfully greater and, therefore, disproportionate. The following resources were evaluated: noise, air quality, safety, water resources, and hazardous materials/waste.

3.9.3.1 Alternative 1

Noise

Similar to the No Action Alternative, under Alternative 1, noise contours of 65 dBA DNL or greater associated with NGB aircraft operations would extend into four block groups within three census tracts located in Chatham County, Georgia (Section 3.9.2.1, Affected Environment, Noise). Also similar to the No Action Alternative, the portions of the block groups and census tracts that are within the 65-dBA DNL or greater noise contours do not extend into residential land use. There are no populations (including minority or low-income populations) that reside within the affected area defined for noise impacts. There would be no disproportionately high and adverse human health or environmental effects to minority and low-income populations from noise due to aircraft operations under Alternative 1.

Noise from construction would be temporary and would remain within the boundaries of SAV (Section 3.1, Noise). As described in Section 2.1 (Scope of the Analysis), traffic and transportation impacts associated with construction activities would be negligible. Therefore, no disproportionately high and adverse human health or environmental effects to environmental justice communities from construction-related noise would be anticipated.

Air Quality

As discussed in Section 3.2 (Air Quality), this alternative would result in a decrease in most pollutants and would not cause exceedances of the NAAQS. Chatham County would remain in attainment for all six criteria pollutants under this alternative. Therefore, no disproportionately high and adverse human health or environmental effects to minority and low-income populations have been identified from impacts to air quality under Alternative 1.

Safety

As identified in Section 3.3 (Safety), the environmental justice affected area for safety for this analysis is defined as the area within the RPZs. The RPZs would not change under this alternative

compared to baseline conditions. There are no populations, hence no minority and low-income populations, that reside within the RPZs, as they do not extend into residential land use. There are also no schools, parks, or hospitals within the RPZs. There would be no disproportionately high and adverse human health or environmental effects to minority and low-income populations from impacts to safety under Alternative 1.

Water Resources

No impacts to water resources under Alternative 1 have been identified, as discussed in Section 3.6 (Water Resources). Therefore, no disproportionately high and adverse human health or environmental effects to minority and low-income populations from impacts to water resources have been identified under Alternative 1.

Hazardous Materials/Waste

As identified in Section 3.8 (Hazardous Materials/Waste), no effects from HM and HW were identified under Alternative 1 when compared to the No Action Alternative. The 165 AW manages its waste in accordance with its HWMP. Therefore, no disproportionately high and adverse human health or environmental effects to minority and low-income populations from HM and waste generated would be anticipated under Alternative 1.

3.9.3.2 Alternative 2 (Preferred Alternative)

Aircraft operations under this alternative would be the same as under Alternative 1 (**Table 2-2**). Therefore, potential impacts to environmental justice communities associated with aircraft operations under this alternative would be similar to those described under Alternative 1. No disproportionately high and adverse human health or environmental effects to environmental justice communities would be anticipated from aircraft operations under this alternative.

Several additional construction and renovation projects would occur under this alternative compared to Alternative 1. Proposed construction projects would occur on previously developed, maintained lawn, and/or paved areas within the boundary of SAV. The potential impacts from construction to environmental justice communities would be similar to those described under Alternative 1. No disproportionately high and adverse human health or environmental effects to environmental justice communities would be anticipated from construction activities under this alternative.

3.9.3.3 No Action Alternative

Under the No Action Alternative, there would be no construction and renovation projects; therefore, there would be no temporary construction impacts associated with noise, air quality, safety, water, and HM and waste on minority or low-income populations. Aircraft and operations would remain the same as baseline and would not result in disproportionately high and adverse human health or environmental effects on minority or low-income populations.

3.9.4 Cumulative Impacts

No disproportionately high and adverse impacts to environmental justice communities have been identified under the Proposed Action; therefore, the Proposed Action, in combination with past, present, and reasonably foreseeable future actions and environmental trends, would not be

anticipated to result in disproportionately high and adverse human health or environmental effects to environmental justice communities in the affected environment.

3.10 Protection of Children

3.10.1 Definition of the Resource

EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, was introduced on 21 April 1997 to address environmental health or safety risks that may disproportionately affect children. EO 13045 was intended to (1) prioritize the identification and assessment of environmental health and safety risks that may affect children, and to (2) ensure that federal agency policies, programs, activities, and standards address environmental and safety risks to children. This section identifies the distribution of children and locations in which numbers of children may be proportionately high (e.g., schools, childcare centers) in the affected environment. Children in this analysis refers to any person under the age of 18 years old.

3.10.2 Affected Environment

The resource areas considered for potential disproportionate health and safety risks to children include the following: noise, air quality, safety, water resources, and hazardous materials/waste. The affected environment for the assessment of potential disproportionate environmental health and safety risks to children is based on the ROI identified for each of these resource areas considered.

3.10.2.1 Noise

Studies show that environments with sustained high background noise can have a variety of direct and indirect effects on children, including the effects of noise on learning, cognitive abilities, and various noise-related physiological changes. Children residing under noise contours that are at levels of 65 dBA DNL or above are at a greater risk of experiencing these impacts. Therefore, the affected environment for this portion of the analysis is the area within the 65-dBA DNL or greater noise contours generated by airborne noise associated with 165 AW aircraft operations.

Under existing conditions, the 65-dBA DNL and greater noise contours associated with 165 AW aircraft operations extend into four block groups within three census tracts, all of which are located in Chatham County, Georgia. **Table 3-16** presents the total population and the number of children within these census tracts and block groups from the most recent U.S. Census Bureau ACS 5-year estimates from 2015–2019.

Although the 65-dBA DNL or greater noise contour extends into several block groups and census tracts within Chatham County, the noise contours of 65 dBA DNL or greater associated with 165 AW aircraft operations do not extend into any land areas designated as residential land use. Thus, there are no populations and, therefore, no children that reside within the 65-dBA DNL or greater noise contours associated with 165 AW aircraft operations under existing conditions. There are also no schools, childcare centers, parks, or other locations where sensitive populations (i.e., children and elderly) may congregate within the 65-dBA DNL or greater noise contours under baseline conditions.

Table 3-16. Children (Under 18 Years of Age) Within the Study Area and Within the 65-dBA DNL or Greater Noise Contours under Baseline Conditions

Area	Within the Study Area			Within the 65-dBA DNL or Greater Noise Contours
	Total Population	Number of Children (under 18 years)	Percent of Children (under 18 years)	Total Population[1]
Census Tract 106.03	2,095	446	21.3%	0
Block Group 1[2]	2,095	446	21.3%	0
Census Tract 107	26,753	5952	22.2%	0
Block Group 1	25,166	5,615	22.3%	0
Block Group 2	1,248	337	27.0%	0
Census Tract 108.03	10,648	2,810	26.4%	0
Block Group 2	740	116	15.7%	0

% – percent; 165 AW – 165th Airlift Wing; dBA – A-weighted decibels; DNL – Day-Night Average Sound Level
1. Airborne noise levels of 65 dBA DNL or greater do not extend into residential land use and, therefore, no populations reside within the noise contours. Hence, there are no children residing within the noise contours of 65 dBA DNL or greater associated with 165 AW aircraft operations.
2. Only one block group exists within census tract 106.03, according to the American Community Survey 5-year estimates for 2015–2019. Therefore, the totals for the block group are identical to the census tract.
Source: (USCB, 2019c)

3.10.2.2 Air Quality

The Clean Air Act requires USEPA to set NAAQS for six principal pollutants considered harmful to public health and the environment. These standards also protect the health of "sensitive" populations that may be more vulnerable to pollutants, such as asthmatics, children, and the elderly (Section 3.2, Air Quality*)*. The ROI for air quality in this EA is identified as Chatham County, Georgia. The number and percent of children (under 18 years of age) and elderly (over 65 years of age) populations in Chatham County and in the State of Georgia are shown in **Table 3-17**. As mentioned above, asthmatics (individuals with asthma), a chronic disease that affects the airways that carry oxygen in and out of the lungs, are considered sensitive populations (CDC, 2021). As of 2016, 8.9 percent of adults in Georgia had existing asthma symptoms compared to 7.0 percent in the nation, while 7.6 percent of children in Georgia had existing asthma symptoms compared to 8.3 percent in the nation (CDC, 2021).

According to 2016 data from the National Environmental Public Health Tracking Network (CDC, 2021), the annual ambient concentrations of particulate matter less than or equal to 2.5 micrometers in diameter ($PM_{2.5}$) in Chatham County was 8.3 micrograms per cubic meter. The national standard for annual $PM_{2.5}$ levels is 12.0 micrograms per cubic meter. Levels greater than 12.0 micrograms per cubic meter are more likely to affect health (CDC, 2021). That same year, Chatham County residents were exposed to unhealthy levels of O_3 for zero days (CDC, 2021).

Table 3-17. Children and Elderly Populations in Chatham County and Georgia

Area	Within the Study Area				
	Total Population	Number of Children (under 18 years)	Percent of Children (under 18 years)	Number of Elderly (over 65 years)	Percent of Elderly (over 65 years)
Chatham County	288,496	62,086	21.5%	43,050	14.9%
State of Georgia	10,403,847	2,505,240	24.1%	1,406,485	13.5%

% – percent
Source: (USCB, 2019c)

3.10.2.3 Safety

The affected environment for assessing safety impacts on children includes the areas within the RPZs. RPZs do not predict the likelihood of an aircraft mishap, but they predict the most likely location of an aircraft accident if one were to occur. RPZs are discussed in Section 3.3 (Safety).

Under baseline conditions, RPZs associated with 165 AW aircraft operations extend into two block groups, with two tracts located within Chatham County, Georgia. These block groups include block group 2 in census tract 108.03 and block group 1 in census tract 107.00. **Table 3-16** shows the number of children in these block groups and census tracts. RPZ boundaries do not extend into residential land use areas and, therefore, no populations including children reside within the existing RPZs. There are also no schools, parks, hospitals, or other locations where sensitive populations (i.e., children and elderly) may congregate within the boundaries of the RPZs.

3.10.2.4 Water Resources

Water resources in the affected environment are discussed in Section 3.6 (Water Resources). The ROI for water resources is defined in Section 3.6.1 (Water Resources, Definition of the Resource) as the 165 AW, as well as the areas potentially receiving waters outside of the 165 AW and SAV. Since the 165 AW and receiving waters are within Chatham County, the county is defined as the ROI for this portion of the assessment of potential disproportionate environmental health and safety risks to children. The number and percent of children in Chatham County and the State of Georgia are shown in **Table 3-17**.

3.10.2.5 Hazardous Materials/Waste

Children are uniquely susceptible to health injury resulting from exposures to chemical toxicants in the environment, due to their pattern of exposure and their biological vulnerability. HM and waste in the affected environment are discussed in Section 3.8 (Hazardous Materials/Waste). As stated in Section 3.8.1 (Hazardous Materials/Waste, Definition of the Resource), the ROI for solid debris and HM and waste is defined as the boundary of the 165 AW, including contaminated sites and other areas where HM would be used and HW would be generated as part of the Proposed Action. There are no populations residing within the boundary of the 165 AW and SAV. The closest school to an IR site on the 165 AW is Port Wentworth Elementary, located 1.7 miles east of IR Site 10. The closest residence is located 0.8 miles east of IR Site 10. IR Site 10 has been closed.

3.10.3 Environmental Consequences

Consistent with EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, NGB addressed disproportionate risks to children. Any percentage of the affected area greater than the community as a whole (Chatham County) is considered disproportionate. The following resources were evaluated: noise, air quality, safety, water resources, and hazardous materials/waste.

3.10.3.1 Alternative 1

Noise

Similar to the No Action Alternative, under Alternative 1, noise contours of 65 dBA DNL or greater associated with NGB aircraft operations would extend into four block groups within three census tracts located in Chatham County, Georgia (Section 3.10.2.1, Affected Environment, Noise). Similar to the No Action Alternative, the portions of the block groups and census tracts that are within the 65-dBA DNL or greater noise contours do not extend into residential land use. Therefore, no populations, including children, reside within the affected area defined as the 65-dBA DNL or greater noise contours for noise impacts. Noise from construction activities would be temporary and would remain within the boundaries of SAV. As described in Section 2.1 (Scope of the Analysis), traffic and transportation impacts associated with construction activities would be negligible. There would be no disproportionate environmental health risks or safety risks to children from noise under Alternative 1.

Air Quality

Very minor short-term and temporary air quality impacts associated with mobile-source emissions and fugitive dust would occur during restriping included under Alternative 1. As discussed in Section 3.2 (Air Quality), most aircraft operations air pollutants would decrease under Alternative 1. In addition, Chatham County would remain in attainment for all six criteria pollutants for which limits are set in the NAAQS to protect public health, including sensitive populations such as children, infants, and elderly.

Safety

As shown in Section 3.3 (Safety), the affected environment for safety for this analysis of potential disproportionate impacts and safety risks to children is defined as the area within the RPZs. The boundaries of the RPZs would not change under this alternative compared to baseline conditions. There are no populations, hence no children, that reside within the RPZs, as the boundaries do not extend into residential land use. There are also no schools, parks, or hospitals within the RPZs where sensitive populations (i.e., children and elderly) may congregate. There would be no disproportionate environmental health risks or safety risks to children from impacts to safety under Alternative 1.

Water Resources

No impacts to water resources under Alternative 1 have been identified, as discussed in Section 3.6 (Water Resources). Therefore, no disproportionate environmental health risks or safety risks to children from impacts to water resources have been identified under Alternative 1.

Hazardous Materials/Waste

As identified in Section 3.8 (Hazardous Materials/Waste), no effects from HM and HW were identified under Alternative 1 when compared to the No Action Alternative. The 165 AW manages its waste in accordance with its HWMP. Therefore, no disproportionate environmental health risks or safety risks from HM and waste generated would be anticipated under Alternative 1.

3.10.3.2 Alternative 2 (Preferred Alternative)

Noise

Aircraft operations under this alternative would be the same as under Alternative 1 (**Table 2-2**). This alternative would include construction and renovation projects. Noise from aircraft operations and construction under this alternative would be similar to that described for Alternative 1. There would be no disproportionate environmental health risks or safety risks to children from noise under Alternative 2.

Air Quality

Short-term and temporary air quality impacts associated with mobile-source emissions and fugitive dust would occur during construction. As discussed in Section 3.2 (Air Quality), most of the air emissions would decrease under Alternative 2. Under this alternative, Chatham County would remain in attainment for all six criteria pollutants for which limits are set in the NAAQS to protect public health, including sensitive populations such as children, infants, and elderly.

Safety

Safety impacts under Alternative 2 would be similar to those described for Alternative 1. There would be no disproportionate environmental health risks or safety risks to children from impacts to safety under Alternative 2.

Water Resources

No significant impacts to water resources were identified with implementation of BMPs during construction (Section 3.6, Water Resources). Therefore, no disproportionate environmental health risks or safety risks to children from impacts to water resources have been identified under Alternative 2.

Hazardous Materials/Waste

Similar to Alternative 1, no effects from HM and HW were identified under Alternative 2, when compared to the No Action Alternative. The 165 AW manages its waste in accordance with its HWMP. Therefore, no disproportionate environmental health risks or safety risks from HM and waste generated would be anticipated under Alternative 2.

3.10.3.3 No Action Alternative

Under the No Action Alternative, there would be no construction and renovation projects; therefore, there would be no temporary construction impacts associated with noise, air quality, safety, water, and HM and waste on children. Aircraft and operations would remain the same as baseline and would not result in disproportionate environmental or safety risks health.

3.10.4 Cumulative Impacts

Projects that could pose cumulative impacts could include construction and renovation projects at the 165 AW and SAV, including the parking apron ramp extension, replacement of the floor in Building (Hangar) 1905, and airport improvement projects. Adherence to applicable federal and state regulations and implementation of BMPs would minimize disproportionate environmental health and safety risks to the general public, including children; therefore, the Proposed Action, in combination with past, present, and reasonably foreseeable future actions, would not be anticipated to result in additive disproportionate environmental health and safety risks to children in the affected environment.

4.0 REFERENCES

AECOM. (2017). *Final Site Inspection Report, Air National Guard Phase II Regional Site Inspections for Per- and Polyfluoroalkyl Substances, Savannah Air National Guard Base.*

AirNav.com. (2021). *KJYL, Plantation Airpark, Sylvania, Georgia, USA.* Retrieved September 15, 2021, from Airport Information: http://airnav.com/airport/KJYL. October 7.

ANG. (2000a). *Phase 1 Archaeological Survey at the Georgia Air National Guard Base, Savannah International Airport, Chatham County, Georgia.* Prepared by PEER Consultants, P.C. and Duvall & Associates, Inc.

ANG. (2000b). *Architectural Survey of Georgia Air National Guard Base, Savannah International Airport, Savannah, Georgia, 2000.* Prepared by PEER Consultants, P.C. and Duvall & Associates, Inc.

ANG. (2007). *Final Environmental Baseline Survey Update.* Andrews AFB: Air National Guard.

ANG. (2016). *Wetland Delineation Report for Air National Guard - 165th Airlift Wing Combat Readiness Training Center.* 165th Airlift Wing. Prepared by ESI for the Georgia Air National Guard.

ANG. (2017a). *Georgia Air National Guard Cultural Resources Survey 2 Savannah/Hilton Head International Airport and Glynco Air National Guard Station.* Air National Guard.

ANG. (2017b). *Hazardous Waste Management Plan.* 165th Airlift Wing, Georgia Air National Guard. November.

ANG. (2017c). *Asbestos Plan.* 165th Airlift Wing, New Georgia Air National Guard. June.

ANG. (2020a). *Savannah/Hilton Head International Airport Air National Guard Base Integrated Cultural Resource Management Plan.* 165th Airlift Wing, Georgia Air National Guard.

ANG. (2020b). *165th Airlift Wing/Air Dominance Center Bird/Wildlife Aircraft Strike Hazard (BASH) Plan AFI 91-212.* Savannah: Air National Guard, 165 AW/ADC.

ANG. (2020c). *165th Airlift Wing - AFFF (PFOS/PFOA) Factsheet.* Air National Guard, 165 AW.

BB&E. (2017). *Installation Restoration Program Final Five Year Review Report, 165th Airlift Wing, Georgia Air National Guard.*

Burke, E. (2021). *Wildlife Hazard Management Analysis 2021 Savannah Hilton Head International Airport.* U.S. Department of Agriculture Wildlife Services.

CDC. (2021). *Center for Disease Control and Prevention; Chatham County Georgia*. Retrieved from Data from the National Environmental Public Health Tracking Network: https://ephtracking.cdc.gov/showInfoByLocationExt/?&FIPS=13051.

CH2M. (2021). *Final Operation and Maintenance Performance Monitoring Semiannual Letter Report (January to June 2020).* Atlanta.

Coppola, C. (2019). Email from Christopher Coppola, U.S. Fish and Wildlife Service, to Felicia Reeves, Federal Aviation Administration. *Early Coordination for Short-Term Development Program at Savannah/Hilton Head International Airport*. Townsend, Georgia. August 27.

DAF. (2018). *U.S. Air Force*. Retrieved June 18, 2021, from C-130 Hercules: https://www.af.mil/About-Us/Fact-Sheets/Display/Article/1555054/c-130-hercules/. June.

DAF. (2019). *Air Force Air Quality Environmental Impact Analysis Process (EIAP) Guide, Volume II - Advanced Assessments.* San Antonio, Texas: Air Force Civil Engineer Center. July.

DAF. (2020a). *Air Force Selects next C-130J Locations*. Retrieved December 3, 2020, from U.S. Air Force: https://www.af.mil/News/Article-Display/Article/2427896/air-force-selects-next-c-130j-lo/. Secretary of the Air Force Public Affairs. November 25.

DAF. (2020b). *Air Emissions Guide for Air Force Mobile Sources.* San Antonio, Texas: Air Force Civil Engineer Center. June.

DAF. (2020c). *Air Emissions Guide for Air Force Transitory Sources.* San Antonio, Texas. June: Air Force Civil Engineer Center.

DAF. (2021a). *Noise Report for C-130J Conversion at Savannah Air National Guard Base.* U.S. Air Force.

DAF. (2021b). *C-130 Flight Mishap HIstory*. Retrieved September 23, 2021, from Flight Statistics: https://www.safety.af.mil/Portals/71/documents/Aviation/Aircraft%20Statistics/C-130.pdf. September 23.

Defense Logistics Agency Installation Operations Energy. (2018). *Final Oil and Hazardous Substances Spill Prevention and Response Plan and Final Storm Water Pollution Prevention Plan, Georgia Air National Guard Base, Savannah/Hilton Head International Airport, Air National Guard Base, Savannah Georgia.*

DoD. (2015). *DoD Directive 5105.77 National Guard Bureau.* October 30.

Federal Aviation Administration. (2020). *FAA Order 1050.1F Desk Reference.* February.

Federal Highway Administration. (2006). *Roadway Construction Noise Model User's Guide.* U.S. Department of Transportation. January.

Flood Factor. (n.d.). *https://floodfactor.com/county/chatham-county-georgia/13051_fsid*. Retrieved December 22, 2021, from Chatham County, Georgia.

GA SHPO. (2021). *Building 1905 Concurrence Letter Dated 21 April 2021.*

Georgia Air National Guard. (2014). *Final Installation Development Plan.* Savannah.

Georgia Department of Wildlife Resources. (2021). *Georgia Biodiversity Portal*. Retrieved from Dasher Creek-Savannah River HUC10 WaterShed All Tracked Natural Elements With Georgia Protection Status: http://georgiabiodiversityportal.org/natels/element_lists?area=huc10&group=all_groups&areacode=0306010903&areaname=Dasher%20Creek-Savannah%20River%20HUC10%20WaterShed. August 19.

IPCC. (2007). *Climate Change 2007 The Physical Science Basis.* Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. New York: Cambridge University Press.

IPCC. (2015). *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II, and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.* Geneva, Switzerland: Intergovernmental Panel on Climate Change.

Military.com. (2014). *Air Force Works to Extend Life of C-130 Fleet. August 5*. Retrieved from Military News: https://www.military.com/dodbuzz/2014/08/05/air-force-works-to-extend-life-of-c-130-fleet

NOAA. (2022). *State Climate Summaries 2022 - Georgia.* National Centers for Environmental Information. Retrieved April 20, 2022, from https://statesummaries.ncics.org/chapter/ga/

NRCS. (2021). *Custom Soil Resource Report for Bryan and Chatham County, Georgia.* Natural Resources Conservation Service.

SAIC. (2007). *Environmental Baseline Survey Update, 165th Airlift Wing and the Combat Readiness Training Center, Georgia Air National Guard.*

SAV. (2014). *Savannah/Hilton Head International Airport Final Master Plan Update.*

Savannah. (2021). *Frequently Asked Questions Flood Protection Information*. Retrieved December 10, 2021, from Savannahga.gov: https://www.savannahga.gov/Faq.aspx?QID=346

Savannah Airport Commission. (2018). *Savannah/Hilton Head International Airport Wood Stork Rookery Environmental Assessment.*

Savannah Airport Commission. (2020). *Savannah/Hilton Head International Airport Short-Term Development Program Final Environmental Assessment.*

USCB. (2019a). *American Community Survey 5-Year Estimates (2015-2019), Hispanic or Latino Origin By Race.* Retrieved from U.S. Census Bureau: https://data.census.gov/cedsci/table?q=United%20States&text=B03002&g=0400000US13_050000US13051_1400000US13051010603,13051010700,13051010803_1500000US130510106031,130510107001,130510107002,130510107003,130510108032&tid=ACSDT5Y2019.B03002&hidePreview=true.

USCB. (2019b). *American Community Survey 5-Year Estimates (2015-2019), Population for Whom Poverty Status Is Determined.* Retrieved from U.S. Census Bureau: data.census.gov/cedsci/table?q=United%20States&text=Poverty&g=0400000US13_0500000US13051_1400000US13051010603,13051010700,13051010803_1500000US130510106031,130510107001,130510107002,130510107003,130510108032&tid=ACSDT5Y2019.B17021&hidePreview=true.

USCB. (2019c). *American Community Survey 5-Year Estimates (2015-2019), Sex By Age.* Retrieved from U.S. Census Bureau: https://data.census.gov/cedsci/table?q=United%20States&g=0400000US13_0500000US13051_1400000US13051010603,13051010700,13051010803_1500000US130510106031,130510107001,130510107002,130510107003,130510108032&tid=ACSDT5Y2019.B01001&hidePreview=true.

USEPA. (2020). *EJ 2020 Glossary*. Retrieved September 2021, from https://www.epa.gov/environmentaljustice/ej-2020-glossary.

USEPA. (2021a). *2017 National Emissions Inventory (NEI) Data*. Retrieved July 27, 2021, from United States Environmental Protection Agency: https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data#dataq. July 7.

USEPA. (2021b). *Georgia Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants*. Retrieved from United States Environmental Protection Agency: https://www3.epa.gov/airquality/greenbook/anayo_ga.html. August 8.

USFWS. (2008). *Birds of Conservation Concern 2008.* Arlington, Virginia: U.S. Department of Interior, U.S. Fish and Wildlife Service, Division of Migratory Bird Management.

USFWS. (2021). *Official Species List.* Athens, Georgia: Georgia Ecological Services Field Office. Retrieved from Endangered Species Reviews/Consultation.

This page is intentionally left blank.

5.0 PERSONS AND AGENCIES CONTACTED

Native American tribes and federal, state, and local agencies listed in Appendix A (*Interagency and Intergovernmental Coordination*) were contacted as part of NGB's Interagency and Intergovernmental Coordination process.

This page is intentionally left blank.

6.0 LIST OF PREPARERS

This EA was prepared collaboratively between NGB, DAF, 165 AW, and contractor preparers.

NGB

Name	Organization/Agency	Role
Christine Yott	NGB/A4AM	NEPA Program Manager
Gwen Oster	NGB/A4AM	Project Manager
Jennifer Harty	NGB/A4VN	Cultural Resources Specialist
Melanie Frisch	NGB/A4VN	Natural Resources Specialist
Justin Jasiulevicius	NGB/A4VN	Natural Resources Specialist
Lt Col Steve Mills	NGB/A2/3/6/10MT	Tactical Airlift Branch Chief

HAF

Name	Organization/Agency	Role
John (Jay) Nash	HAF AF/4CPI	Review

165 AW

Name	Organization/Agency	Role
Francisco Orellana	165th Airlift Wing	Federal Environmental Manager
Lt Col Timothy Riley	165th Airlift Wing	Base Civil Engineer

Leidos

Name	Role	Years of Experience	Degree(s)
Peggy Farrell, PMP, QEP, CHMM	Project Manager Chapters 1.0 and 2.0, Safety	42	M.S., Natural Sciences and Environmental Studies B.A., Biology and Environmental Studies
Carmen Ward, PE., PMP	Quality Assurance/Quality Control	30	M.S., Environmental Engineering B.S., Chemical Engineering
Jay Austin	Noise	20	M.S., Environmental Science B.A., Biology
Brad Boykin	Air Quality	15	M.S., Biotechnology B.S., Biomedical Science
Joseph Jimenez, RPA	Cultural Resources	30	M.A., Anthropology B.A., Anthropology
Vincent Passaro, QEP	Biological Resources, Water Resources, Coastal Zone Consistency, and Hazardous Materials/Waste	20	M.S., Environmental Science B.S., Wildlife and Fisheries Science

Name	Role	Years of Experience	Degree(s)
Pam McCarty	Environmental Justice and Protection of Children	12	M.S., Industrial and Systems Engineering M.A., Economics B.S., Business Administration and Management
Heather Gordon	Geographic Information System(GIS)	21	M.S., Geography B.A., Environmental Studies and Planning
Tara Utsey	Formatting and Format Compliance	25	B.A., Liberal Arts
Heather Stepp	Editing	25	B.S., Environmental Engineering Technology
Jennifer Combs	Editing	32	B.S., Journalism

APPENDIX A
INTERAGENCY AND INTERGOVERNMENTAL COORDINATION

DRAFT Environmental Assessment for
ANG C-130H to C-130J-30 Aircraft Conversion

INTERAGENCY AND INTERGOVERNMENTAL COORDINATION

FEDERAL

Buddy Carter, Representative
U.S. House of Representatives, District 1
6602 Abercorn St., Suite 105B
Savannah GA 31405

Strant Colwell, Coastal Georgia Supervisor
U.S. Fish and Wildlife Service
4270 Norwich St.
Brunswick GA 31520

Christopher Militscher, Chief
NEPA Program Office
Environmental Protection Agency Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth St. SW
Atlanta GA 30303-8960

Jon Ossoff, Senator
U.S. Senate, State of Georgia
3280 Peachtree Rd.
Atlanta GA 30305

STATE/LOCAL

Michael Brown, City Manager
City of Savannah
PO Box 1027
Savannah GA 31402

Lawton Davis, District Health Director
Health Department
1395 Eisenhower Dr.
Savannah GA 31406

Mark Denmark, Asst. Director of Engineering
Savannah/Hilton Head International Airport
400 Airways Ave.
Savannah GA 31402

Jennifer Dixon, Program Manager
Environmental Review & Preservation Planning
Georgia Department of Natural Resources Historic Preservation Division
60 Executive Park South, NE
Atlanta GA 30329-2231

Manuel Dominguez, Director
Savannah Economic Development
801 E. Gwinnett St.
Savannah GA 31402

Environmental Protection Division
Georgia Department of Natural Resources
400 Commerce Center Dr.
Brunswick GA 31523

George Fidler, Director of Engineering
Savannah/Hilton Head International Airport
400 Airways Ave.
Savannah GA 31402

Georgia Department of Transportation
One Georgia Center
600 West Peachtree NW
Atlanta GA 30308

Dennis Jones, Director
Chatham Emergency Management Agency
124 Bull St., Room 140
Savannah GA 31401

Greg Kelly, Executive Director
Savannah/Hilton Head International Airport
400 Airways Ave.
Savannah GA 31402

Brian P. Kemp, Governor
Office of the Governor
206 Washington St., Suite 203,
State Capitol
Atlanta GA 30334

Bridget Lidy, Director
Planning and Urban Design
5515 Abercorn St.
Savannah GA 31405

Leah Michalak, Historic Preservation
Metropolitan Planning Commission
110 E. State St.
Savannah GA 31401

Kelie Moore, Federal Consistency Coordinator
Georgia Department of Natural Resources Coastal Resources Division
One Conservation Way, Suite 300
Brunswick GA 31520-8687

Michael O'Harra, Southern Regional Administrator
Federal Aviation Administration
1701 Columbia Ave.
College Park GA 30337

David Singleton, Library Executive Director
Live Oak Public Libraries
2002 Bull St.
Savannah GA 31401

Jessica Smith, Engineering
Savannah/Hilton Head International Airport
400 Airways Ave.
Savannah GA 31402

Anna Yellin, Environmental Review Coordinator
Georgia Department of Natural Resources Wildlife Resources
2067 U.S. Hwy 278, SE
Social Circle GA 30025

NATIVE AMERICAN TRIBES

Dr. Wenonah G. Haire
THPO
Catawba Indian Nation
1536 Tom Steven Road
Rock Hill SC 29730

William Harris
Chief
Catawba Indian Nation
996 Avenue of the Nations
Rock Hill SC 29730

David Hill
Principal Chief
Muscogee (Creek) Nation
PO Box 580
Okmulgee OK 74447

Linda Langley
THPO
Coushatta Tribe of Louisiana
PO Box 10
Elton LA 70532

Corain Lowe-Zepeda
THPO
Muscogee (Creek) Nation
PO Box 580
Okmulgee OK 74447

Samantha Robison
THPO
Alabama-Quassarte Tribal Town
PO Box 187
Wetumka OK 74883

David Sickey
Chairman
Coushatta Tribe of Louisiana
PO Box 818
Elton LA 70532

Wilson Yargee
Town King
Alabama-Quassarte Tribal Town
PO Box 187
Wetumka OK 74883

A.1 AGENCY CORRESPONDENCE

A.1.1 Example Agency Scoping Letter

NATIONAL GUARD BUREAU
3501 FETCHET AVENUE
JOINT BASE ANDREWS 20762-5157

9 September 2021

Ms. Christine Yott
NEPA Program Manager
Air National Guard Readiness Center, NGB/A4AM
3501 Fetchet Ave.
Joint Base Andrews MD 20762-5157

The Honorable Jon Ossoff
Senator
3280 Peachtree Rd.
Atlanta GA 30305

SUBJECT: National Guard Bureau 165 AW Conversion of C-130H Aircraft to C-130J-30 Aircraft Environmental Assessment

Dear Mr. Ossoff

The National Guard Bureau (NGB) proposes to replace eight Air National Guard C-130H model aircraft with new C-130J-30 model aircraft at the 165th Airlift Wing (165 AW) located at the Savannah/Hilton Head International Airport, Savannah, Georgia (Attachment 1). The purpose of the aircraft conversion is to improve mission readiness, enhance long-term viability of the enterprise, and reduce stress on maintainers and facilities. The action is needed to continue airlift support and natural disaster relief missions to meet state and national objectives using modern aircraft with advanced technology.

The Proposed Action would include the construction and renovation of select facilities and adjustment of personnel to support the beddown; none of these projects would be dependent on the number of C-130J-30 aircraft. The 165 AW would restripe the parking apron to allow for parking of the longer aircraft and construct and/or renovate select buildings, as summarized in the 165 AW Project List (Table 1) and shown in Attachment 2. Overall, total personnel would decrease by four or seven, depending on the need for aircraft composite specialists. The number of aircraft operations and locations of training facilities would remain consistent with current conditions.

Table 1. Proposed 165 AW Project List

Project	Description
Parking Apron	Conduct restriping and install moorings on the 165 AW parking apron (aircraft tie-downs).
Buildings 1905 and 1923	Install new fire suppression and detection systems and items necessary to meet fire codes/National Fire Protection Association 101. No hangar door or exterior work would be included.
Building 1905	Construct freestanding interior shop spaces located on the existing southeast and southwest corners of the existing interior hangar bay floor.
Building 1930	Expand the Nondestructive Inspection (NDI) shop (865 square feet) to the northwest side.

The NGB and 165 AW are interested in information or agency-specific preliminary comments that would alleviate or highlight areas of concerns preceding the Environmental Assessment (EA). Areas of concern may include potential effects to the following resource areas: noise, air quality, public health and safety, cultural resources, biological resources, water, coastal zone, hazardous waste/materials, and environmental justice. The NGB and 165 AW also request any information that your agency may have regarding other planned actions (e.g., proposed, ongoing, or recently completed projects) that could pose impacts when considered with the Proposed Action.

Please respond within 30 days of receipt to Christine Yott, NEPA Program Manager, ATTN: 165 AW C-130J Conversion EA, 3501 Fetchet Avenue, Joint Base Andrews MD 20762-5157 or by email at NGB.A4.A4A.NEPA.COMMENTS.Org@us.af.mil with the subject titled as ATTN: 165 AW C-130J Conversion EA. Thank you for your assistance.

Sincerely

YOTT.CHRISTINE.JUNE.1287505015 Digitally signed by YOTT.CHRISTINE.JUNE.1287505015 Date: 2021.09.03 08:10:57 -04'00'

CHRISTINE J. YOTT, GS-13, DAF
NEPA Program Manager

Attachments:
1 – 165 AW Location Map
2 – 165 AW/Savannah/Hilton Head International Airport Proposed Construction/Renovation Projects Location Map

A-1

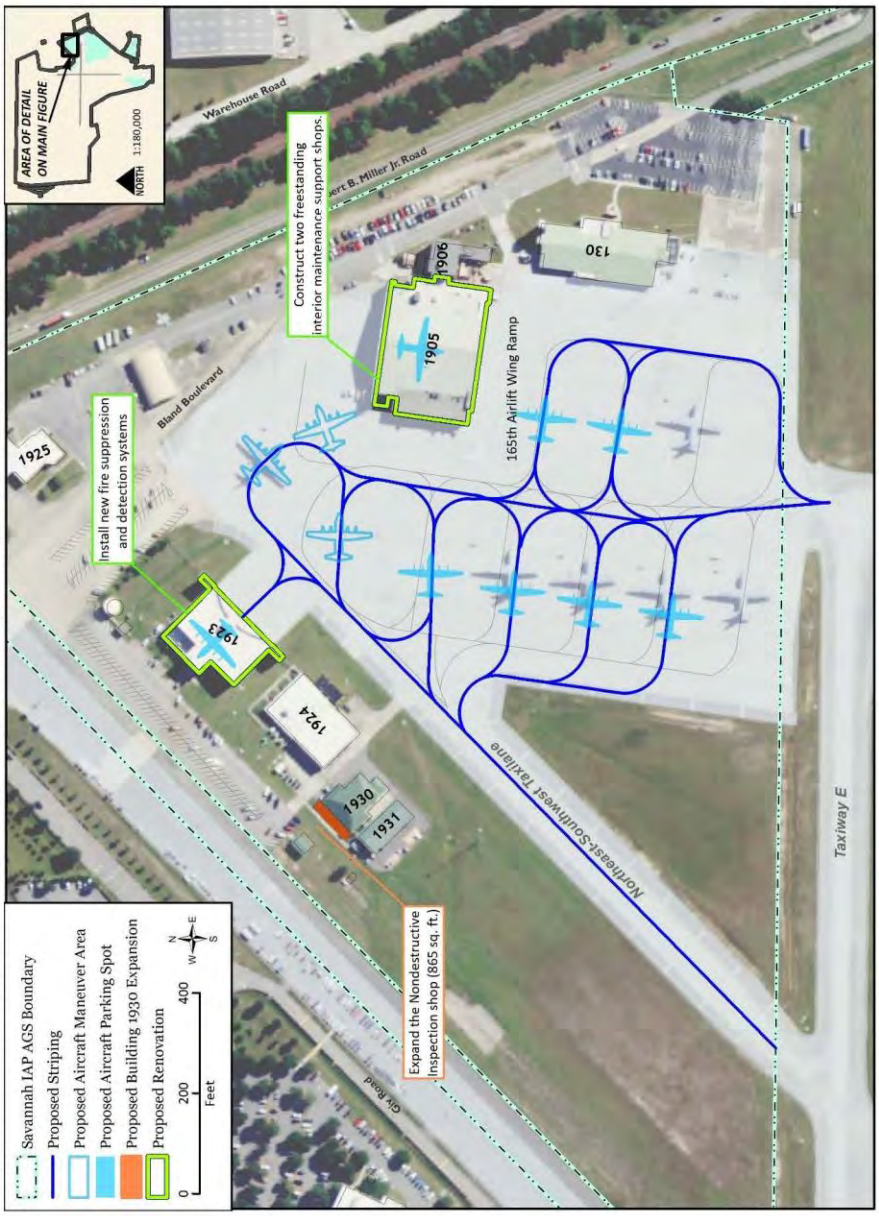
ATTACHMENT 1

Figure 1 – 165 AW Location Map

A-2

ATTACHMENT 2

Figure 2 – 165 AW/Savannah/Hilton Head International Airport Proposed Construction/Renovation Projects Location Map



A.1.2 SHPO Scoping Letter

NATIONAL GUARD BUREAU
3501 FETCHET AVENUE
JOINT BASE ANDREWS 20762-5157

21 September 2021

Ms. Jennifer L. Harty
Cultural Resources Program Manager (A4VN)
3501 Fetchet Avenue
Joint Base Andrews MD 20762

Georgia Department of Natural Resources
Attn: Jennifer Dixon
Historic Preservation Division
60 Executive Park South, NE
Atlanta GA 30329-2231

SUBJECT: National Guard Bureau 165 AW Conversion of C-130H Aircraft to C-130J-30 Aircraft Environmental Assessment

Dear Ms. Dixon

The National Guard Bureau (NGB) proposes to replace eight Air National Guard C-130H model aircraft with new C-130J-30 model aircraft at the 165th Airlift Wing (165 AW) located at the Savannah/Hilton Head International Airport, Savannah, Georgia (Attachment 1). The purpose of the aircraft conversion is to improve mission readiness, enhance long-term viability of the enterprise, and reduce stress on maintainers and facilities. The action is needed to continue airlift support and natural disaster relief missions to meet state and national objectives using modern aircraft with advanced technology.

In compliance with the National Historic Preservation Act (54 U.S.C. 300101), specifically Section 106 (54 U.S.C. 306108) and implementing regulations (36 CFR Part 800), which encourages the consideration of alternatives and early notice and involvement, the NGB is providing this information to the State Historic Preservation Officer.

The Proposed Action would include the construction and renovation of select facilities and adjustment of personnel to support the beddown; none of these projects would be dependent on the number of C-130J-30 aircraft. The 165 AW would restripe the parking apron to allow for parking of the longer aircraft and construct and/or renovate select buildings as summarized in the 165 AW Project List (Table 1) and shown in Attachment 2. Overall, total personnel would decrease by four or seven, depending on the need for aircraft composite specialists. The number of aircraft operations and locations of training facilities would remain consistent with current conditions.

Table 1. Proposed 165 AW Project List

Project	Description
Parking Apron	Conduct restriping and install moorings on the 165 AW parking apron (aircraft tie-downs).
Buildings 1905 and 1923	Install new fire suppression and detection systems and items necessary to meet fire codes/National Fire Protection Association 101. No hangar door or exterior work would be included.
Building 1905	Construct freestanding interior shop spaces located on the existing southeast and southwest corners of the existing interior hangar bay floor.
Building 1930	Expand the Nondestructive Inspection (NDI) shop (865 square feet) to the northwest side.

The 165 AW has previously consulted with the Georgia Historic Preservation Division (Georgia HPD) regarding proposed modifications (e.g., two separate interior shop spaces) to Building 1905, which was previously determined eligible for inclusion in the National Register of Historic Places. In a letter dated 19 April 2021 (reference HP-210326-003), the Georgia HPD concurred that the project would have no adverse effect (Attachment 3). In compliance with 36 CFR 800.2(c)(2), the NGB is also providing this information to the following tribes: Alabama-Quassarte Tribal Town, Catawba Indian Nation, Coushatta Tribe of Louisiana, and Muscogee (Creek) Nation.

The NGB and 165 AW are interested in information or agency-specific preliminary comments on historic properties that would alleviate or highlight areas of concerns preceding the Environmental Assessment (EA). Please respond within 30 days of receipt of this letter to Jennifer Harty, Cultural Resources Program Manager (A4), ATTN: 165 AW C-130J Conversion EA, 3501 Fetchet Avenue, Joint Base Andrews MD 20762-5157 or by email at NGB.A4.A4A.NEPA.COMMENTS.Org@us.af.mil with the subject titled as ATTN: 165 AW C-130J Conversion EA. Thank you for your assistance.

Sincerely

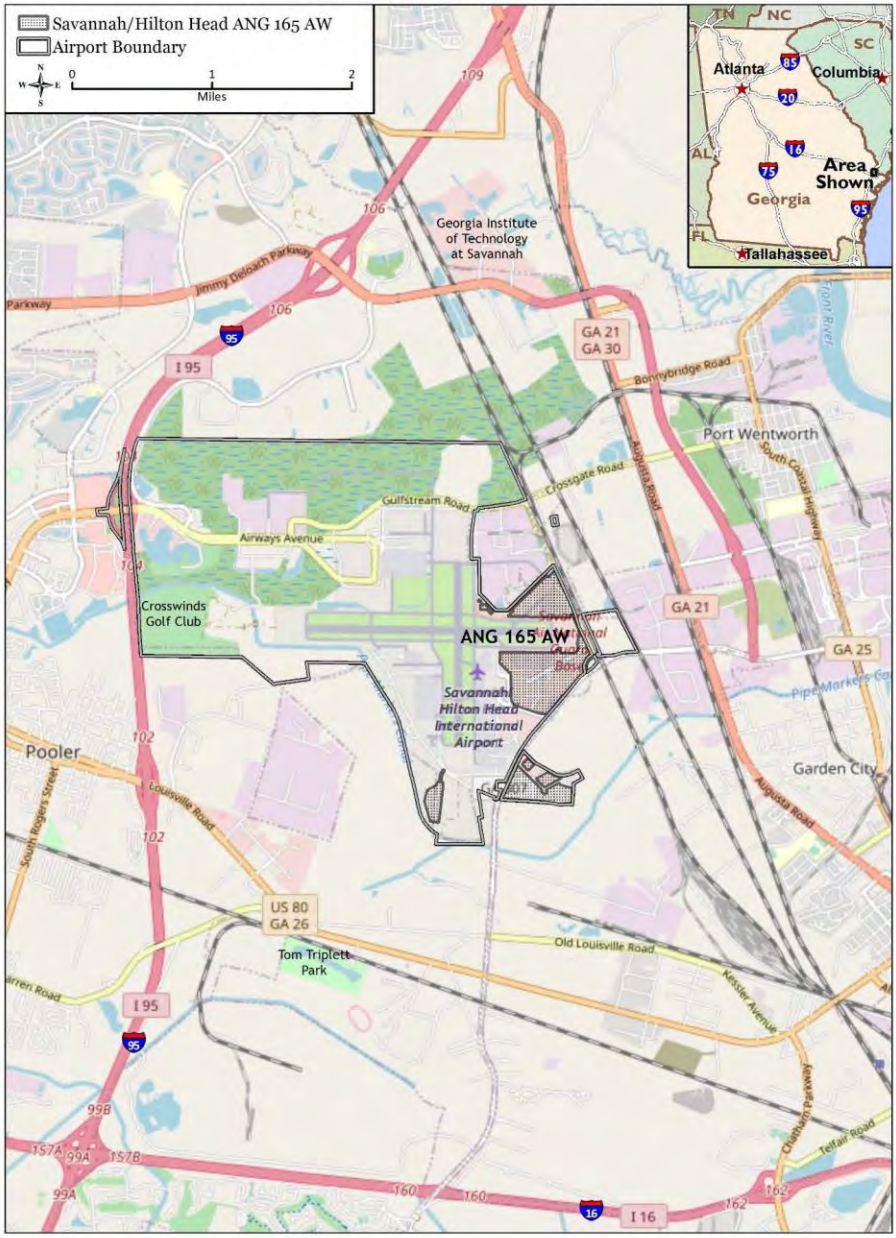
JENNIFER L. HARTY, GS-13, DAF
Cultural Resources Program Manager

Attachments:
1 – 165 AW Location Map
2 – 165 AW/Savannah/Hilton Head International Airport Proposed Construction/Renovation Projects Location Map
3 – GA SHPO Concurrence Letter for Building 1905

A-1

ATTACHMENT 1

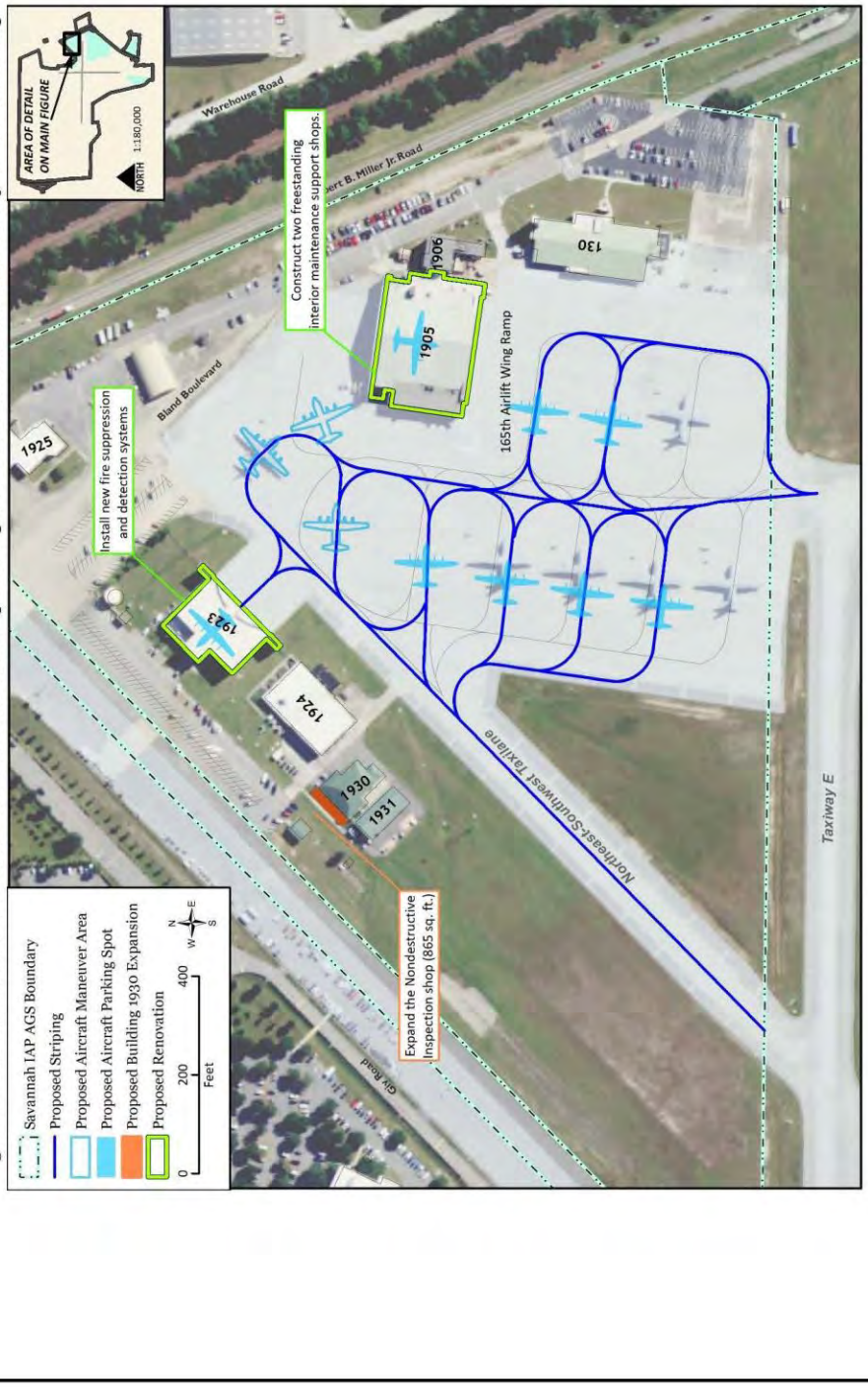
Figure 1 – 165 AW Location Map



A-2

ATTACHMENT 2

Figure 2 – 165 AW/Savannah/Hilton Head International Airport Proposed Construction/Renovation Projects Location Map



ATTACHMENT 3

Brian P. Kemp
Governor

Georgia® Department of Community Affairs

Christopher Nunn
Commissioner

April 19, 2021

Timothy M. Riley, PE, Lt Col
Commander/Base Civil Engineer
156th Airlift Wing (AMC)
1401 Robert B. Miller Jr. Drive
Garden City, Georgia 31408-9001
Attn: Francisco Orellana

RE: GAANG: Demolish Building 1906, Rehabilitate Building 1905,
Savannah/Hilton Head Airport, Savannah
Chatham County, Georgia
HP-210326-003

Dear Lt Col Riley:

The Historic Preservation Division (HPD) has reviewed the information submitted concerning the above referenced project. Our comments are offered to assist the US Department of the Air Force and Georgia Air National Guard (GAANG) in complying with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA).

The subject project consists of demolishing building 1906 and rehabilitating building 1905 by constructing two (2) stand-alone shops within the southern portion of the hangar and retaining the breezeway between the two buildings as a fire egress, which will be in-filled with bricks salvaged from building 1906. Based on the information provided and desktop research, HPD concurs that building 1906 is not eligible for listing in the National Register of Historic Places (NRHP). Additionally, HPD concurs that building 1905 is eligible for listing in the NRHP. Furthermore, HPD concurs that the subject project, as proposed, will have **no adverse effect** to historic properties that are eligible for listing in the NRHP, as defined in 36 CFR Part 800.5(d)(1). However, HPD would like to note that further changes to the hangar that would additionally diminish the sense of volume of space or alter the historic circulation pattern, such as building on top of or between the shops, could adversely affect the historic resource. As such, HPD recommends considering all alternatives prior to any further alterations.

This letter evidences consultation with our office for compliance with Section 106 of the NHPA. It is important to remember that any changes to this project as it is currently proposed will require additional consultation. HPD encourages federal agencies to discuss such changes with our office to ensure that potential effects to historic properties are adequately considered in project planning.

Please refer to project number **HP-210326-003** in any future correspondence regarding this project. If we may be of further assistance, please contact me at (404) 486-6376 or Jennifer.dixon@dca.ga.gov.

Sincerely,

Jennifer Dixon, MHP, LEED Green Associate
Program Manager
Environmental Review & Preservation Planning

60 Executive Park South, NE | Atlanta, GA 30329-2231 | 404-679-4940
www.dca.ga.gov | An Equal Opportunity Employer

From: OSTER, GWEN E CTR USAF ANG NGB/A4
To: Farrell, Peggy [US-US]
Subject: EXTERNAL: FW: 165th AW/ANG: Convert C-130H to C-130J-30, Associated Construction, Savannah/Hilton Head Airport, Chatham Co, HP 210928-007
Date: Monday, October 25, 2021 8:30:52 AM

Good Morning Peggy,

We received the below response from the Georgia Historic Preservation District. Would you be able to get back with Ms. Dixon in regards to the requested information?

Thank you,
Gwen

From: Jennifer Dixon <Jennifer.Dixon@dca.ga.gov>
Sent: Friday, October 22, 2021 10:18 AM
To: NGB A4/A4A NEPA COMMENTS Org <NGB.A4.A4A.NEPA.COMMENTS.Org@us.af.mil>
Subject: [Non-DoD Source] 165th AW/ANG: Convert C-130H to C-130J-30, Associated Construction, Savannah/Hilton Head Airport, Chatham Co, HP 210928-007

Ms. Harty,

In order to complete our review of the subject project under Section 106 of the NHPA, HPD is in need of additional information. In particular, eligibility assessment(s), and if previously conducted, SHPO concurrence, for all buildings/components within the proposed project's area of potential effect (APE), both direct and indirect. Additionally, please provide detailed scope of work descriptions for components (fire system upgrades, moorings, shop expansion, etc.), excluding interior shop spaces for Bldg 1905 (previously reviewed under HP 210326-003), unless the latter scope of work has changed since our previous review.

Thank you and we look forward to receiving the requested information, once available.

Learn more about our commitment to fair housing

Jennifer Dixon
Environmental Review and Preservation Planning Program Manager
Georgia Department of Community Affairs
60 Executive Park South, NE
Atlanta, Georgia 30329

Direct 4044866376
Jennifer.Dixon@dca.ga.gov

NATIONAL GUARD BUREAU
3501 FETCHET AVENUE
JOINT BASE ANDREWS 20762-5157

17 December 2021

Ms. Jennifer L. Harty
Cultural Resources Program Manager (A4VN)
3501 Fetchet Avenue
Joint Base Andrews MD 20762

Ms. Jennifer Dixon
Environmental Review and Preservation Planning Program Manager
Georgia Department of Community Affairs
60 Executive Park South, NE
Atlanta GA 30329

SUBJECT: Section 106 Consultation for National Guard Bureau 165 AW Conversion of C-130H Aircraft to C-130J-30 Aircraft

Dear Ms. Dixon

Thank you for your scoping comments received on October 22, 2021. I am providing additional information as requested to complete your review under Section 106 (54 U.S.C. 306108) of the National Historic Preservation Act (NHPA) and its implementing regulations (36 CFR Part 800).

As discussed in the scoping letter, the United States Air Force proposes to replace eight Air National Guard (ANG) C-130H model aircraft with new C-130J-30 model aircraft at the 165th Airlift Wing (165 AW) located at the Savannah/Hilton Head International Airport in Savannah, Georgia (Attachment 1). The purpose of the aircraft conversion is to improve mission readiness, enhance long-term viability of the enterprise, and reduce stress on maintainers and facilities. The action is needed to continue airlift support and natural disaster relief missions to meet state and national objectives using modern aircraft with advanced technology.

The National Guard Bureau (NGB) is preparing an Environmental Assessment to consider potential effects to the human and natural environment associated with the one-for-one replacement of aircraft, facility construction or renovation, and small changes in personnel numbers.

ANG is a tenant at the Savannah/Hilton Head International Airport and leases approximately 290 acres in the southeast and northwest quadrants of the airport (see Attachment 1). Development history at the present-day 165 AW begins with the establishment of an airfield at the location in 1930. The field eventually was used by the U.S. Army and became known as Hunter Field, which was expanded in 1941 when the City of Savannah purchased 590 acres at the site. The installation became Chatham Air Force Base in 1942. In 1946, the Department of Defense determined the base airfield to be surplus property, and much of the

installation returned to civilian control while certain portions of the base were occupied by the Air Reserve and the Georgia Army National Guard.

The present undertaking would include the modification and renovation of select facilities and adjustment of personnel to support the beddown; none of these projects would be dependent on the number of C-130J-30 aircraft. The 165 AW would restripe the parking apron to allow for parking of the longer aircraft and construct and/or renovate select buildings as summarized in Attachment 2. Overall, total personnel would decrease by four or seven, depending on the need for aircraft composite specialists. The number of aircraft operations and locations of training facilities would remain consistent with current conditions. Photographs of the buildings and areas of the base affected by the undertaking are provided in Attachment 3.

The area of potential effects (APE) is defined as the area of 165 AW in which all the proposed renovation and construction projects would occur (Attachment 2, Table 2-1). Maps showing the location of the project area, the APE, and the location of the proposed facilities projects are provided in Attachment 1.

NGB has conducted inventories of cultural resources at the 165 AW to identify historic properties. An archaeological survey completed in 2000 included pedestrian survey and shovel testing and identified no archaeological sites (ANG, 2000a). The archaeological survey confirmed that the APE has experienced severe disturbance and episodes of re-contouring to provide pads for the buildings and structures and concluded that there is a very low potential for any intact undiscovered resources in the APE (ANG, 2000a). Inventory and evaluations of all architectural resources built prior to 1991, conducted in 2000 (ANG, 2000b), 2017 (ANG, 2017), and 2020 (ANG, 2020), identified two buildings determined eligible for listing in the National Register of Historic Places (NRHP), one of which (Building 1905) is in the APE (Attachment 1, Figure 1-1). Building 1905 is an NRHP-eligible maintenance hangar built in 1959, which is proposed for interior modifications under Alternative 2 (see Attachment 2).

NGB conducted a search of the Georgia Historic Preservation Division (HPD) records and found one NRHP-listed or -eligible resource located within 1 mile of the APE (see Attachment 4). Building 1401 (Reserve Force Training Operations), built in 1961, is located approximately 0.3 mile south of the APE and more than 0.5 mile southeast of the nearest proposed construction project.

The proposed undertaking (both Alternatives 1 and 2) would have no adverse effect on archaeological resources. The one construction project with ground disturbance (Alternative 2) is located in an area of the 165 AW APE that has been surveyed and found to not contain archaeological resources and to have been disturbed through prior base development.

Additionally, the proposed undertaking would have no adverse effect to historic buildings or structures. The only building eligible for listing in the NRHP in the APE is Building 1905 (aircraft maintenance hangar), which is proposed for interior modifications only (see Attachment 2). The 165 AW previously consulted with the Georgia HPD regarding proposed modifications to Building 1905, including constructing two stand-alone shops in the southern portion of the hangar, which is now part of this undertaking. HPD concurred that the project would have no adverse effect on Building 1905 (letter dated April 19, 2021; reference HP-

210326-003) (Attachment 5). The proposed replacement of the internal fire suppression and detection systems in Building 1905 would have no adverse effect on the characteristics of the hangar that convey its historic value and qualify it as eligible for the NRHP. The proposed construction of an addition to Building 1930 would occur on its northwest elevation (Attachment 1), out of view of Building 1905, and thus would not affect its visual setting. Operations of the C-130J-30 aircraft would not perceptibly change the noise setting of any NRHP-listed or -eligible property in, or in the vicinity of, the APE. Therefore, the NGB has reached a determination of *no adverse effect* for the proposed undertaking, and we respectfully request your concurrence.

It is not expected that undiscovered cultural resources would be found during implementation of the undertaking; however, in the event of an inadvertent discovery during ground-disturbing operations, the 165 AW will cease work immediately, contact a professional archaeologist, and notify your office.

Also, in accordance with 36 CFR Part 800.2, NGB is consulting with Federally recognized Tribes who have expressed an interest in the area. On October 15, 2021, the NGB invited the following tribes to consult on our undertaking: Alabama-Quassarte Tribal Town, Catawba Indian Nation, Coushatta Tribe of Louisiana, and Muscogee (Creek) Nation.

In accordance with 36 C.F.R. § 800.11(4), we are offering you this opportunity to comment on our proposed undertaking. Please provide any comments to our office within 30 days so that we may adequately address any concerns. Comments can be provided via email Jennifer Harty, NGB/A4VN Cultural Resources Program Manager, at jennifer.harty@us.af.mil. Thank you for your assistance.

Sincerely

JENNIFER L. HARTY, GS-13, DAF
Cultural Resources Program Manager

Attachments:
1 – Project Area Maps
2 – Project Description
3 – Project and Building Photographs
4 – Georgia HPD Record Search Results
5 – Prior Georgia HPD Concurrence for Building 1905 Rehabilitation
6 – Georgia HPD Environmental Review Form

NATIONAL GUARD BUREAU
3501 FETCHET AVENUE
JOINT BASE ANDREWS 20762-5157

15 February 2021

Ms. Jennifer L. Harty
Cultural Resources Program Manager (A4VN)
3501 Fetchet Avenue
Joint Base Andrews MD 20762

Ms. Jennifer Dixon
Environmental Review and Preservation Planning Program Manager
Georgia Department of Community Affairs
60 Executive Park South, NE
Atlanta GA 30329

SUBJECT: HP-210928-007

Dear Ms. Dixon

Thank you for your comments in your letter dated 10 January 2022. The intent of this letter is to provide additional information, as requested, in order for you to complete your review under Section 106 (54 U.S.C. 306108) of the National Historic Preservation Act (NHPA) and its implementing regulations (36 CFR Part 800).

In your previous letter, you requested the following information:

Approximate age of the existing fire suppression system: The Savannah/HH IAP ANGB finished installation of an Aqueous Fire Fighting Foam (AFFF) suppression and detection system was installed in 1998. In January 2017, the base upgraded the existing version of Hangar 1905's fire suppression system from an AFFF system to a High Expansion Foam (HEF) fire suppression and associated detection system. In November 2021, the base received formal policy for all NGB hangars to decommission existing High Expansion Foam (HEF) fire suppression systems leaving only automatic "water-only" Wet-Sprinkler Systems in place.

Detailed scope of work for replacement of these systems: The reconfiguring of the existing HEF fire suppression and detection system with an Automatic Sprinkler System in Building 1905 will consist of retaining an existing wet pipe sprinkler system and decommissioning (and ultimately removing) the HEF system piping and foam generators leaving only a wet pipe automatic "water-only" sprinkler system in operation in perpetuity. The specification for any demolition of existing system or installation of wet sprinkler system piping or equipment will be similar in nature to applicable portions of the specifications used in the renovation of the High Expansion Foam system in 2016-2017. See Attachment #3 for a copy of the specifications.

Photographs, keyed to a plan, of the existing systems and any areas proposed for the replacement system: Please see attachments.

Please review the materials enclosed, and if you have any questions or concerns about the undertaking at this time, please contact me at (240) 612-8541. Please forward additional comments to me directly at jennifer.harty@us.af.mil. Thank you again for your assistance.

Sincerely

JENNIFER L. HARTY, GS-13, DAF
Cultural Resources Program Manager

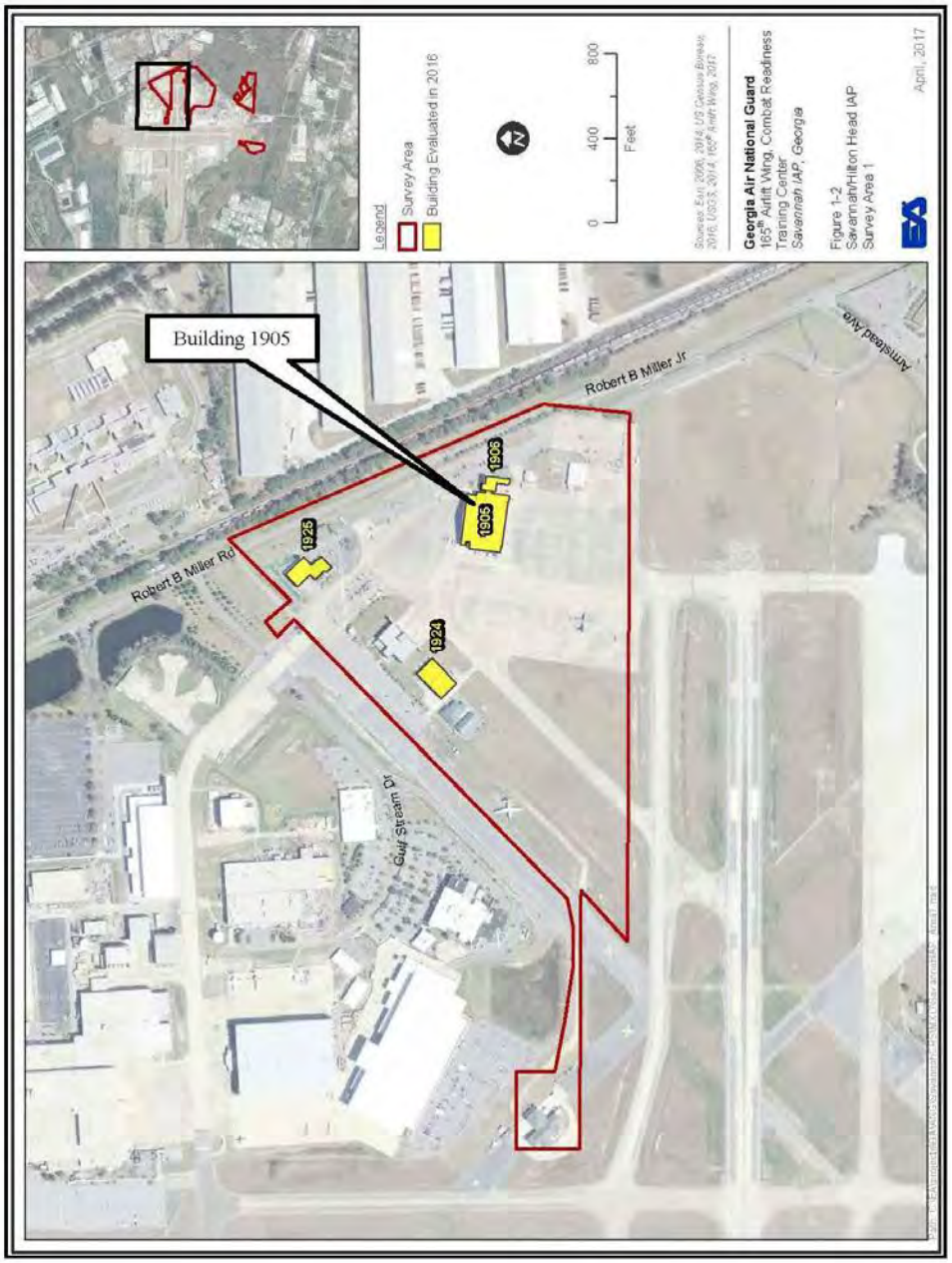
Attachments:
1 – Location of Building 1905 and Photographs
2 – National Guard Bureau Fire Suppression *Sundown Policy for Foam Fire Suppression Systems*
3 – Proposed reconfiguration of HEF System into Water Sprinkler System and Specifications

3

Attachments 1: Location of Buildings 1905 including Photographs

WORLD CLASS AIRLIFT FOR AMERICA

4



WORLD CLASS AIRLIFT FOR AMERICA

5

Photograph 1: Aerial View, Buildings 1905, South elevations, view southeast.

Photograph 2: Building 1905, South elevation, view looking northwest.

6

Photograph 3: Building 1905, view looking northwest (interior) or installed HEF Generators.

7

Attachment 2: National Guard Bureau Fire Suppression "Sundown Policy for Foam Fire Suppression Systems"

8

DEPARTMENT OF THE AIR FORCE
WASHINGTON DC

OFFICE OF THE ASSISTANT SECRETARY

16 November 2021

MEMORANDUM FOR ALMAJCOM/CC
ALFIELDCOM/CC
AFRC/CC
NGB/CC

FROM: SAF/IE
1665 Air Force Pentagon
Washington, DC 20330-1665

SUBJECT: Sundown Policy for Foam Fire Suppression Systems

The Assistant Secretary of the Air Force for Installations, Environment, and Energy led a joint effort across the Departments of the Air Force, Army and Navy along with the Defense Logistics Agency to assess risks with respect to replacing Aqueous Film Forming Foam (AFFF) fire suppression systems (FSS) in DoD facilities. After reviewing 32 years of historical data and 15 years of safety mishap data, the assessment team did not find a single instance where a hangar fuel related fire resulted in the loss of an aircraft or life. The only aircraft fuel related fire in the past 32 years in the DoD was suppressed by a water deluge system.

In contrast, the historical data shows a trend of inadvertent activations of foam systems across the DoD of one in every two months (84 mishaps over past 15 years). The mishap cost associated with these events was in excess of 24.5 million dollars and contact with chemicals in the foam have caused one death, injured 21 people and damaged more than 120 aircraft. Considering the findings of this risk-informed analysis and the high cost of converting, maintaining and clean-up of accidental discharges of foam systems, effective immediately, all DAF hangars and similar facilities equipped with a foam FSS will be categorized as Tier 2 Fire Protection Facilities. Tier 2 facilities will use an automatic water sprinkler system consistent with the attached guidance in lieu of foam FSS.

The use of foam FSS is limited to facilities where the total loss of the facility, or the loss of the aircraft/assets serviced inside, would result in mission failure at the Department of Defense, Department of the Air Force, Combatant Command or Sub-Unified Command level. These facilities, which are of limited exception, will be categorized as Tier 1 Fire Protection Facilities. Categorization as a Tier 1 facility requires justification by MAJCOMs and approval by SAF/IE as outlined below. For approved Tier 1 facilities, bases shall program replacement of existing FSS containing fluorinated AFFF to one of the following specialized systems: Ignitable Liquic Drainage Floor Assembly (ILDFA), Low Expansion Foam System containing an approved Fluorine Free Foam (FFF), or High Expansion Foam System (HEFS). The ILDFA is the primary option for Tier 1 facilities.

MAJCOMs must establish a process to assess applicable facilities and submit exception-to-policy requests for Tier 1 facility designation. Requests must be endorsed by MAJCOM/CDs, delegated no further than MAJCOM/A3s (or equivalent USSP organization), before being submitted to AF/A3 or SF/S3 for endorsement and then to SAF/IE for Tier 1 approval consideration. For the Reserve and Guard Components, Tier 1 requests require endorsement by their respective A3 and approval consideration by SAF/IE. All requests for Tier 1 approval for existing facilities must be received by SAF/IE no later than 90 days after issuance of this policy. For new facilities requiring a tiering determination, the request must be submitted prior to authorization of design funding. Additional details on exception to policy submission are provided in the attachment.

An aggressive schedule is required to meet the congressionally mandated phase out of AFFF by 1 October 2024. If conversion to an approved alternative is not feasible before this deadline, bases must still remove and dispose of AFFF and provide other fire safety measures approved by the installation Commander (delegable to the Base Fire Marshal per AFI 32-2001) until the conversion project can be accomplished. Tier 2 facilities that have an existing HEFS may continue to remain operational and sustained pending conversion to, or installation of, an automatic water sprinkler system in accordance with this policy.

Points of contact for this policy are Mr. Jim Sample (james.sample.6@us.af.mil), Office of the Deputy Assistant Secretary of the Air Force for Environment, Safety, and Infrastructure (SAF/IEE), and Mr. Brent Hyden (brent.hyden@us.af.mil), Air Force Directorate of Civil Engineers (AF/A4C). The implementation guidance attached is the responsibility of AF/A4C. A4C may alter this guidance as it deems necessary to comply with this policy.

Jennifer L Miller

JENNIFER L. MILLER, SES
Acting Assistant Secretary of the Air Force
(Energy, Installations, and Environment)

Attachment:
Implementation Guidance

cc:
AF/A3
SF/S3
AF/A4C

Attachment

Implementation Guidance

1. Purpose. To provide guidance and direction to implement the 2020 NDAA and new facility fire protection strategy as it pertains to foam-based fire suppression systems (FSS). These requirements have been developed based on the acceptable risk pertaining to a fuel spill fire scenario.

2. Scope. This policy provides guidance to DAF fire protection engineering and criteria for hangars and similar facilities with foam fire suppression systems. Temporary facilities, tension fabric structures, leased facilities and other facilities purchased as equipment with 3080 funds are also subject to this policy.

3. Tier 1 Facility.

3.1. Definition. The complete loss of the facility, or the loss of the aircraft/assets serviced inside, would result in mission failure at the DoD, DAF, CCMD or Sub-Unified Command level. Tier 1 facility FSS are designed to provide both life safety protection as well as asset protection in the event of a fuel fire.

3.2. Approved FSS. The following systems are authorized for Tier 1 facilities and shall comply with paragraphs 3.3 (Administration) and 5 (Technical Criteria) below: Ignitable Liquid Drainage Floor Assembly (ILDFA), Low Expansion Foam System (LEFS), and High Expansion Foam System (HEFS).

3.3. Administration. This policy immediately designates all DAF hangars or similar facilities equipped with a foam-based FSS as a Tier 2 facility. The Assistant Secretary of the Air Force for Energy, Installations and Environment (SAF/IE) must approve all exceptions meeting the definition above through the Tier 1 approval process. Tier 1 requests require endorsement at the MAJCOM/CD (delegable to MAJCOM/A3 or USSF-equivalent) and AF/A3 levels before being submitted to SAF/IE for approval consideration. For the Reserve and Guard Components, Tier 1 requests require endorsement by their respective A3 before being submitted to SAF/IE.

3.3.1. Projects including FSS already in the programming and/or design phase must be reviewed for compliance with this policy and if applicable, submitted for Tier 1 approval consideration prior to requesting funds for execution. This applies to all projects regardless of funding source.

3.3.2. Tier 1 approval is required prior to installation of any new ILDFA, LEFS, or HEFS. New Tier 1 facilities shall be constructed with an ILDFA to the maximum extent practical.

3.3.3. Requests for Tier 1 approval can be submitted via electronic staff summary sheet with a memorandum from the MAJCOM to SAF/IE. The request should include the base name, facility number, Real Property Unique Identifier, and thorough justification detailing how the complete loss of the facility, or the loss of the aircraft/assets serviced inside, would result in mission failure at the DoD, DAF, CCMD or Sub-Unified Command level.

3.3.4. The real property-owning MAJCOM is responsible for submitting all Tier 1 FSS requests. Tenant units or rotational forces requiring a Tier 1 FSS must coordinate with the owning MAJCOM to submit a Tier 1 request.

3.3.5. Existing HEFS and LEFS are permitted to be maintained throughout the end of useful life, or until funding is available to install an ILDFA, unless otherwise approved for further use.

3.3.6. ILDFA, LEFS, and HEFS shall meet the technical criteria of paragraph 5.

4. Tier 2 Facility.

4.1. Definition. The complete loss of the facility, or the loss of the aircraft/assets serviced inside, would not result in mission failure at the DoD, DAF, CCMD or Sub-Unified Command level. The end-state Tier 2 facility FSS is an automatic water sprinkler system designed to provide life safety protection for occupants to evacuate the facility in the event of a fire.

4.2. Approved FSS. The following systems are authorized in a Tier 2 facility and shall comply with paragraph 4.3 (Administration) and section 5 (Technical Criteria) below: Automatic Sprinkler System (default), HEFS (transitional), and LEFS (transitional).

4.3. Administration. Tier 2 fire protection facilities are designated by default, until the process in paragraph 3.3 is fully staffed and approved.

4.3.1. New facilities shall not be designed or constructed with ILDFA, HEFS or LEFS; they shall be designed or constructed with automatic sprinkler systems which comply with paragraph 5.4.

4.3.2. Existing HEFS and LEFS are approved until they can be replaced with an approved automatic sprinkler system. Program projects for HEFS and LEFS replacement with an automatic sprinkler system meeting paragraph 5.4 by July 2022.

4.3.3. Current and future facility FSS designs must be modified to meet Tier 2 fire protection standards consistent with this guidance.

4.3.4. Existing HEFS and LEFS compliant with the AF/A4 Aircraft Hangar Fire Suppression System Modernization policy letter, dated 3 June 2019, are permitted to be maintained throughout the end of useful life, or until funding is available to provide an automatic sprinkler system meeting requirements stated in paragraph 5.4. Modernization of legacy Tier 2 systems is not authorized when costs to do so exceed the costs to convert or install a new water sprinkler system. Existing HEFS and LEFS are permitted to remain in manual mode.

4.3.5. HEFS and LEFS shall meet the technical criteria in paragraphs 5.3 and 5.4.

4.3.6. If installation of an approved FSS is not feasible before 1 October 2024, bases must still remove and dispose of AFFF and provide other fire safety measures approved by the installation commander (delegable to the Base Fire Marshal). Bases shall develop fire Risk Mitigation Plans in accordance with AFI 32-2001. The facility shall carry a Fire Safety Deficiency code 1 (FSD-1) until an approved system is installed.

5. Technical Criteria

5.1. Ignitable Liquid Drainage Floor Assembly (ILDFA).

5.1.1. ILDFA shall be FM Approved in accordance with FM Standard 6090, Approval Standard For Ignitable Liquid Drainage Floor Assemblies. Contact AFCEC/COSM for current criteria until the ILDFA is incorporated into Unified Facilities Criteria (UFC).

5.2. High Expansion Foam Systems (HEFS).

5.2.1. New HEFS shall comply with the UFC.

5.3. Low Expansion Foam Systems (LEFS).

5.3.1. New LEFS shall comply with design criteria as directed by AFCEC/COSM.

5.3.2. Existing LEFS shall be drained of AFFF, and AFFF shall be disposed of in accordance with current environmental policy and applicable environmental regulations by 1 October 2024. New and existing LEFS shall use an AFCEC/COSM Approved UL Listed Fluorine Free Foam (FFF) or DoD approved FFF.

5.3.3. LEFS serving bulk fuel storage and hydrant refueling must be taken out of service immediately.

5.3.4. LEFS are permitted to be abandoned in place when taken out of service.

5.4. Automatic Sprinkler Systems.

5.4.1. Sprinkler systems shall be designed in accordance with UFC 3-600-01, *Fire Protection Engineering For Facilities*, and UFC 4-211-01, *Aircraft Maintenance Hangars*. Aircraft hangar bays shall be considered extra hazard occupancies when referring to UFC 3-600-01, Table 9-7.3.4.

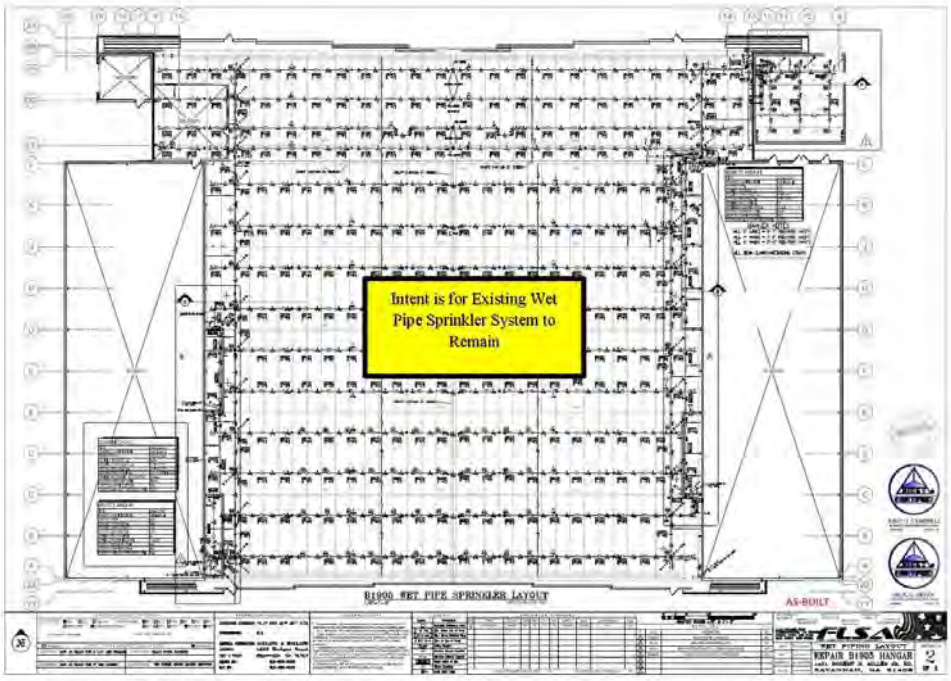
5.4.2. Overhead AFFF systems are permitted to be converted to automatic sprinkler systems.

5.4.3. Facilities for which water is not readily available may require an alternative FSS. An equivalency request must be submitted to and approved by the Fire Protection Engineer, AFCEC/COSM.

13

Attachment 3: Proposed Reconfiguration of HEF System into Wet Sprinkler System

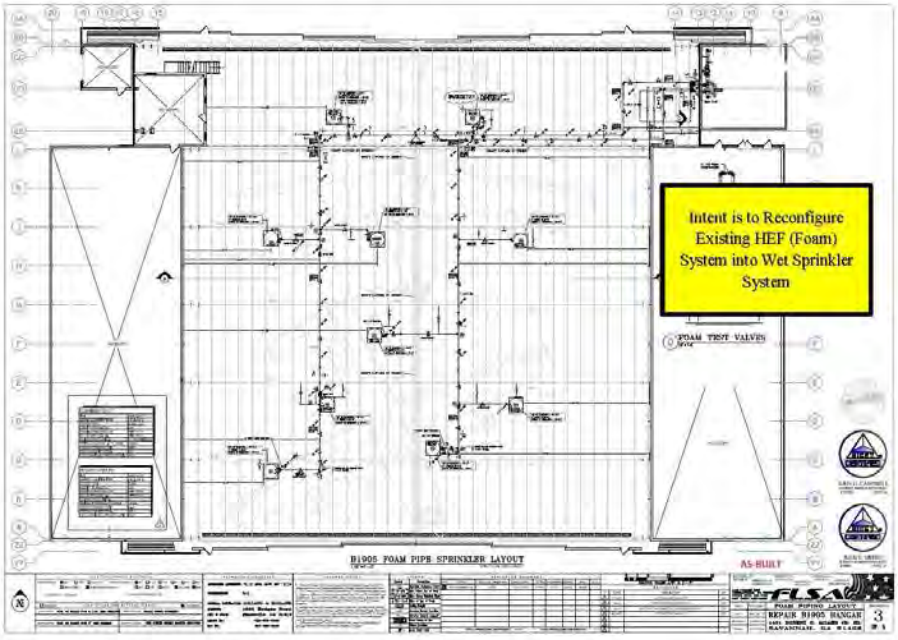
And Specifications



Building 1905 As-Built of Existing Interior Wet Pipe Sprinkler Layout

WORLD CLASS AIRLIFT FOR AMERICA

1



Building 1905 As-Built of Existing Interior Wet Pipe Sprinkler Layout

2

Type B3 Specifications

Repair Fire Suppression, B1905

Georgia ANG - 165th AW/CES, Savannah/Hilton Head IAP

05 SEP 2014

Amendment #1 17 SEP 2014

Project Number: XDQU112284

Revision #1 20 NOV 2014

TETRA TECH Mead & Hunt

Joint Venture

Building 1905 Cover Sheet of Specifications Used for 2016/2017 Installation of Existing System

Repair Fire Suppression, Bl905 Type B-3 Final Revision #1
Georgia ANG - 165th AW/CES, Savannah/Hilton Head IAP

PROJECT TABLE OF CONTENTS (Revised 11/20/14)

DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS

00 22 13.00 20 SUPPLEMENTARY INSTRUCTIONS TO OFFERORS

DIVISION 01 - GENERAL REQUIREMENTS

01 11 00 SUMMARY OF WORK **(Revised 11/20/14)**
01 14 00 WORK RESTRICTIONS
01 30 00 ADMINISTRATIVE REQUIREMENTS
01 32 17.00 20 NETWORK ANALYSIS SCHEDULES (NAS)
01 33 00 SUBMITTAL PROCEDURES
01 35 13 SPECIAL PROJECT PROCEDURES
01 42 00 SOURCES FOR REFERENCE PUBLICATIONS
01 45 00.00 20 QUALITY CONTROL **(Revised 11/20/14)**
01 45 35 SPECIAL INSPECTIONS
01 50 00 TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS **(Revised 11/20/14)**
01 57 19.00 20 TEMPORARY ENVIRONMENTAL CONTROLS
01 78 00 CLOSEOUT SUBMITTALS

DIVISION 02 - EXISTING CONDITIONS

02 41 00 DEMOLITION
02 82 00 REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING MATERIALS (ACM)

DIVISION 03 - CONCRETE

03 30 00 CAST-IN-PLACE CONCRETE

DIVISION 04 - MASONRY

04 20 00 MASONRY

DIVISION 05 - METALS

05 12 00 STRUCTURAL STEEL
05 21 19 OPEN WEB STEEL JOIST FRAMING
05 30 00 STEEL DECKS
05 50 13 MISCELLANEOUS METAL FABRICATIONS

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

07 61 15.00 20 ALUMINUM STANDING SEAM ROOFING
07 84 00 FIRESTOPPING
07 92 00 JOINT SEALANTS

DIVISION 08 - OPENINGS

08 11 13 STEEL DOORS AND FRAMES
08 71 00 DOOR HARDWARE **(Revised 11/20/14)**

DIVISION 09 - FINISHES

09 29 00 GYPSUM BOARD
09 90 00 PAINTS AND COATINGS

PROJECT TABLE OF CONTENTS Page 1

Building 1905 Table of Contents of Specifications Used for 2016/2017 Installation of Existing System

4

Repair Fire Suppression, B1905 Type B-3 Final Revision #1
Georgia ANG - 165th AW/CES, Savannah/Hilton Head IAP

DIVISION 21 - FIRE SUPPRESSION

21 13 00 FIRE SUPPRESSION SPRINKLER SYSTEM **(Revised 11/20/14)**
21 13 40 HEF FOAM FIRE PROTECTION **(Revised 11/20/14)**
21 30 00 FIRE PUMPS

DIVISION 22 - PLUMBING

22 00 00 PLUMBING, GENERAL PURPOSE

DIVISION 23 - HEATING, VENTILATING, AND AIR CONDITIONING

23 03 00.00 20 BASIC MECHANICAL MATERIALS AND METHODS
23 07 00 THERMAL INSULATION FOR MECHANICAL SYSTEMS
23 11 25 FACILITY GAS PIPING
23 82 02.00 10 UNITARY HEATING AND COOLING EQUIPMENT

DIVISION 26 - ELECTRICAL

26 00 00.00 20 BASIC ELECTRICAL MATERIALS AND METHODS
26 08 00 APPARATUS INSPECTION AND TESTING
26 20 00 INTERIOR DISTRIBUTION SYSTEM
26 51 00 INTERIOR LIGHTING

DIVISION 27 - COMMUNICATIONS

27 10 00 BUILDING TELECOMMUNICATIONS CABLING SYSTEM

DIVISION 28 - ELECTRONIC SAFETY AND SECURITY

28 31 00 FIRE ALARM AND MASS NOTIFICATION **(Revised 11/20/14)**

DIVISION 31 - EARTHWORK

31 00 00 EARTHWORK
31 10 00 CLEARING FOR CIVIL WORKS
31 31 16 SOIL TREATMENT FOR SUBTERRANEAN TERMITE CONTROL

DIVISION 32 - EXTERIOR IMPROVEMENTS

32 11 16 BASE COURSE FOR RIGID AND FLEXIBLE PAVING
32 16 13 CONCRETE SIDEWALKS AND EXTERIOR SLABS

DIVISION 33 - UTILITIES

33 11 00 WATER DISTRIBUTION
33 30 00 WASTEWATER COLLECTION SYSTEM

APPENDICES

APPENDIX 1 GEOTECH REPORT
APPENDIX 2 GEOTECH SUPPLEMENT
APPENDIX 3 LEAD BASE PAINT
APPENDIX 4 HYDRANT MAP

-- End of Project Table of Contents -

PROJECT TABLE OF CONTENTS Page 2

Building 1905 Table of Contents of Specifications Used for 2016/2017 Installation of Existing System (Continued Pg. 2 of 3)

5

Repair Fire Suppression, B1905 Type B-3 Final Revision #1
Georgia ANG - 165th AW/CES, Savannah/Hilton Head IAP

SECTION TABLE OF CONTENTS

DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS

DOCUMENT 00 22 13.00 20

SUPPLEMENTARY INSTRUCTIONS TO OFFERORS

02/14

-- End of Section Table of Contents --

Building 1905 Table of Contents of Specifications Used for 2016/2017 Installation of Existing System (C0ntinued Pg. 3 of 3)

Brian P. Kemp
Governor

Georgia® Department of Community Affairs

Christopher Nunn
Commissioner

March 7, 2022

Jennifer L. Harty
Cultural Resources Program Manager
National Guard Bureau
3501 Fetchet Avenue
Joint Base Andrews 20762-5157

RE: 165th AW/ANG: Convert C-130H to C-130J-30, Associated Construction,
Savannah/Hilton Head Airport
Chatham County, Georgia
HP-210928-007

Dear Ms. Harty:

The Historic Preservation Division (HPD) has received the additional information submitted concerning the above referenced project. Our comments are offered to assist the US Department of Defense and the National Guard Bureau in complying with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA).

The subject project consists of replacing Air National Guard (ANG) C-130H model aircraft with C-130J-30 model aircraft at the 165th Airlift Wing (AW) located within the Savannah/Hilton Head International Airport in Savannah, including constructing interior free-standing shops within the circa 1959 Building 1905 (previously reviewed under HP-210326-003), replacing the fire suppression and detection systems within Building 1905 and the circa 1984 Building 1923, constructing an addition on the circa 2001 Building 1930, and restriping and install moorings on the parking apron. Previously, HPD requested additional information regarding the replacement of the fire suppression and detection systems in the National Register of Historic Places (NRHP)-eligible Building 1905.

Current submitted information includes additional details regarding the existing fire suppression and detection system, replacement scope, and photographic documentation. Based on the additional information provided, it is HPD's understanding that the existing system was installed in 1998 and converted in 2017. Additionally, it is HPD's understanding that the existing wet pipe sprinkler system will be retained and reused with the new system. Therefore, HPD concurs that the subject project, as proposed, will have **no adverse effect** to historic properties within its area of potential effect (APE), as defined in 36 CFR Part 800.5(d)(1), due to the scope of work.

This letter evidences consultation with our office for compliance with Section 106 of the NHPA. It is important to remember that any changes to this project as it is currently proposed will require additional consultation. HPD encourages federal agencies to discuss such changes with our office to ensure that potential effects to historic properties are adequately considered in project planning.

Please refer to project number **HP-210928-007** in any further correspondence regarding this project. If we may be of further assistance, please do not hesitate to contact me, at Jennifer.dixon@dca.ga.gov or (404) 486-6376.

Sincerely,

Jennifer Dixon, MHP, LEED Green Associate
Program Manager
Environmental Review & Preservation Planning

60 Executive Park South, NE | Atlanta, GA 30329-2231 | 404-679-4940
www.dca.ga.gov | An Equal Opportunity Employer

A.1.3 Example Tribal Scoping Letter

DEPARTMENT OF THE AIR FORCE
165TH AIRLIFT WING (AMC)
1401 ROBERT B. MILLER JR. DRIVE
GARDEN CITY, GA 31408-9001

14 October 2021

Colonel Christopher M. Dunlap
Commander, 165th Airlift Wing
1401 Robert B. Miller Jr. Dr.
Savannah GA 31408-9001

Alabama-Quassarte Tribal Town
Honorable Wilson Yargee
Town King
PO Box 187
Wetumka OK 74883

SUBJECT: National Guard Bureau 165 AW Conversion of C-130H Aircraft to C-130J-30 Aircraft Environmental Assessment

Dear Mr. Yargee

The National Guard Bureau (NGB) proposes to replace eight Air National Guard C-130H model aircraft with new C-130J-30 model aircraft at the 165th Airlift Wing (165 AW) located at the Savannah/Hilton Head International Airport, Savannah, Georgia (Attachment 1). The purpose of the aircraft conversion is to improve mission readiness, enhance long-term viability of the enterprise, and reduce stress on maintainers and facilities. The action is needed to continue airlift support and natural disaster relief missions to meet state and national objectives using modern aircraft with advanced technology.

The regulations implementing Section 106 of the National Historic Preservation Act require federal agencies to consult with any federally recognized Indian tribe that might attach religious or cultural significance to properties that may be affected by an undertaking. The NGB is writing to invite you to consult on a proposed undertaking. We respectfully request any comments you can provide on behalf of your Tribe regarding properties that may be of religious or cultural significance within, or in the vicinity of, the proposed location that may be affected by this undertaking.

The Proposed Action would include the construction and renovation of select facilities and adjustment of personnel to support the beddown; none of these projects would be dependent on the number of C-130J-30 aircraft. The 165 AW would restripe the parking apron to allow for parking of the longer aircraft and construct and/or renovate select buildings, as summarized in the 165 AW Project List (Table 1) and shown in Attachment 2. None of these projects would result in additional ground disturbance, except for the 865 sq. ft. addition to Building 1930. Overall, total personnel would decrease by four or seven, depending on the need for aircraft composite specialists. The number of aircraft operations and locations of training facilities would remain consistent with current conditions.

Table 1. Proposed 165 AW Project List

Project	Description
Parking Apron	Conduct restriping and install moorings on the 165 AW parking apron (aircraft tie-downs).
Buildings 1905 and 1923	Install new fire suppression and detection systems and items necessary to meet fire codes/National Fire Protection Association 101. No hangar door or exterior work would be included.
Building 1905	Construct freestanding interior shop spaces located on the existing southeast and southwest corners of the existing interior hangar bay floor.
Building 1930	Expand the Nondestructive Inspection (NDI) shop (865 square feet) to the northwest side.

In compliance with the National Historic Preservation Act (54 USC 300101), specifically Section 106 (54 U.S.C. 306108) and the implementing regulations (36 CFR Part 800), which encourages the consideration of alternatives and early notice and involvement, the NGB is also providing this information to the State Historic Preservation Officer.

The NGB and 165 AW are looking forward to continuing consultation if you determine that the proposed undertaking may affect areas of concern to your Tribe. Please respond within 30 days of receipt of this letter to Jennifer Harty, Cultural Resources Program Manager (A4), ATTN: 165 AW C-130J Conversion EA, 3501 Fetchet Avenue, Joint Base Andrews MD 20762-5157 or by email at NGB.A4.A4A.NEPA.COMMENTS.Org@us.af.mil with the subject titled as ATTN: 165 AW C-130J Conversion EA. Thank you for your assistance.

Sincerely

DUNLAP.CHRISTOPHER.M.1082205850

Digitally signed by DUNLAP.CHRISTOPHER.M.1082205850
Date: 2021.10.12 17:39:27 -04'00'

Christopher M. Dunlap, Colonel, USAF
Commander, 165th Airlift Wing

Attachments:
1 – 165 AW Location Map
2 – 165 AW/Savannah/Hilton Head International Airport Proposed Construction/Renovation Project Location Map

A-1

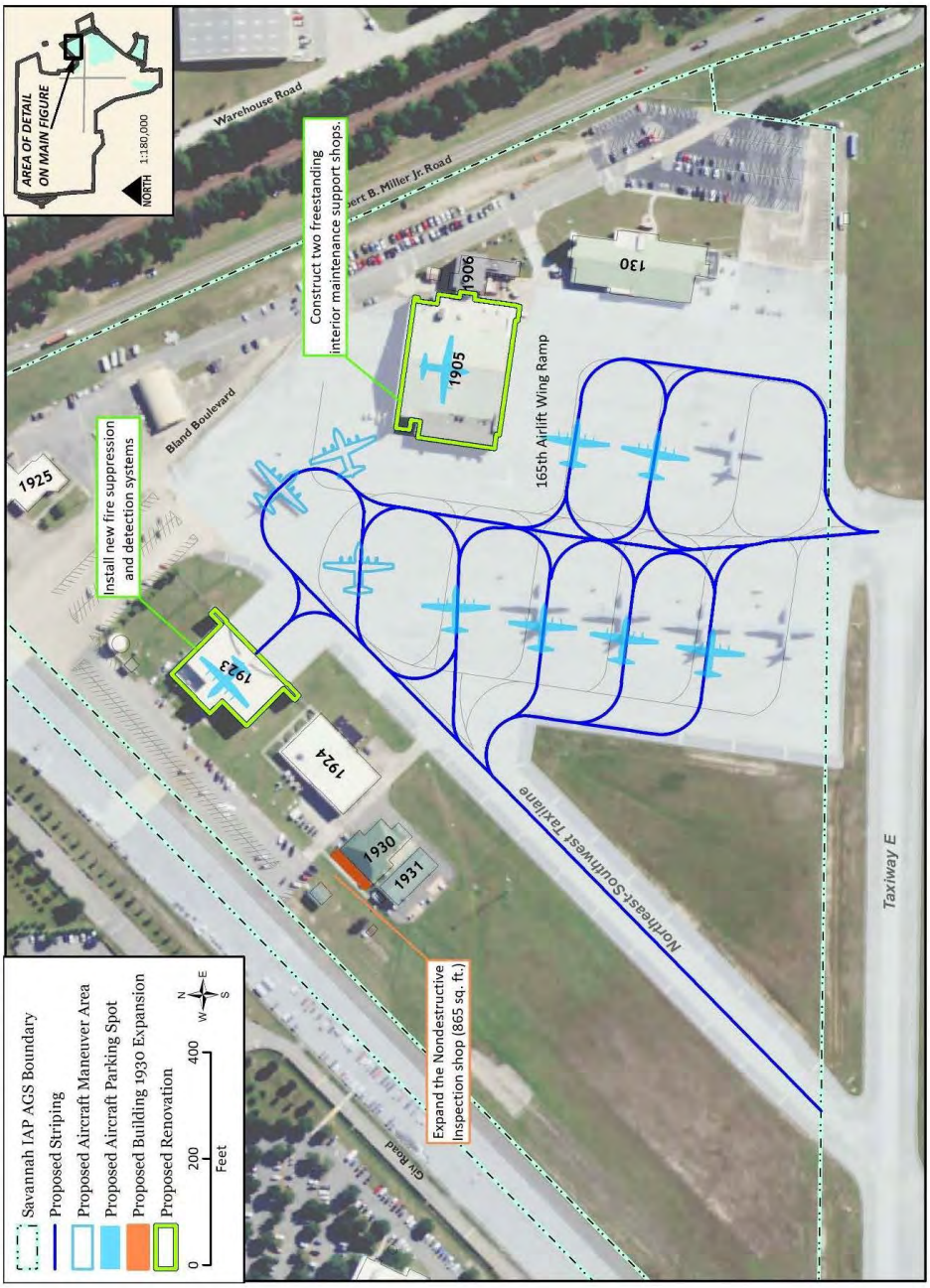
ATTACHMENT 1

Figure 1 – 165 AW Location Map

A-2

ATTACHMENT 2

Figure 2 – 165 AW/Savannah/Hilton Head International Airport Proposed Construction/Renovation Projects Location Map



A.1.4 Scoping Responses

From: Olivia Arfuso
To: NGB A4/A4A NEPA COMMENTS Om
Cc: Leah Michalak; Marcus Lotson; sadler@myhsf.org; jennifer.dixon@dnr.ga.gov
Subject: [Non-DoD Source] ATTN: 165 AW C-130J Conversion EA
Date: Wednesday, September 29, 2021 10:26:00 AM

Good morning,

Thank you for consulting the *Chatham County – Savannah Metropolitan Planning Commission's Historic Preservation Department*. Staff will not be providing any comment at this time, regarding the National Guard Bureau 165 AW Conversion of C-130H Aircraft to C-130J-30 Aircraft Environmental Assessment that was received on **September 13, 2021.**

Best,
Olivia Arfuso
Assistant Planner – Historic Preservation
P: 912.651.1449 | E: arfusoo@thempc.org

Chatham County – Savannah
Metropolitan Planning Commission
110 East State Street
Savannah, GA 31401
www.thempc.org

Please consider the environment before printing this email.

From: Kyker, Lee (FAA)
To: NGB A4/A4A NEPA COMMENTS Org
Cc: Evains, Jasmine (FAA); Sweatt-Essick, Jackie (FAA); Day, Calvin A (FAA); Adams, Jennifer P (FAA)
Subject: [Non-DoD Source] ATTN: 165 AW C-130J Conversion EA
Date: Wednesday, September 15, 2021 7:53:33 AM
Attachments: image002.png

Dear Ms. Yott,

Thank you for the advance notice and opportunity to provide early comment on the preparation of the National Guard Bureau 165 AW Conversion of C-130H Aircraft to C-130J-30 Aircraft Environmental Assessment located at the Savannah/Hilton Head International Airport, Savannah Georgia.

Our only comment at this time is to ensure the environmental assessment is prepared in accordance with Order 1050.1F, Environmental Impacts: Policies and Procedure. Detailed guidance on evaluating the environmental impact categories is located in the 1050.1F Desk Reference. We encourage you to coordinate with our office, FAA Airports Division, during the development of the noise analysis. In particular, we are interested in discussing what information will be presented in the noise analysis before its development and in reviewing the noise analysis input variables. For further coordination, I can be reached via my email address at lee.kyker@faa.gov.

Thank you again,
Lee Kyker

Lee Kyker
Environmental Specialist
Atlanta Airports District Office
(404) 305-6708

From: Davis, Lawton
To: NGB A4/A4A NEPA COMMENTS Org
Cc: leesmith@chathamcounty.org; Rustin, Chris
Subject: [Non-DoD Source] ATTN: 165 AW C-130J Conversion EA
Date: Friday, October 1, 2021 10:32:34 AM

I am writing in response to an inquiry written 09.09.2021 requesting information or comments from our Agency regarding Environmental Assessment concerns possibly related to the proposed Conversion Project at the Savannah / Hilton Head International Airport, Savannah.

Neither the Georgia Department of Public Health nor the Chatham County Board of Health has any concerns about this project having negative environmental impacts in the areas included in or surrounding the proposed project.

Thanks for the opportunity to respond. Please do not hesitate to contact me should you have additional questions or concerns.

Lawton C. Davis, MD
District Health Director
Coastal Health District, 9.1
400 Mall Blvd. Suite G
Savannah, GA 31406
Phone: 912-644-5205
Cell: 912-602-0110
Fax: 912-349-5691
lawton.davis@dph.ga.gov

Chatham Emergency Management Agency
124 Bull Street, Room 140
Savannah, Georgia 31401
Office: 912-201-4500

October 4, 2021

Christine Yott, NEPA Program Manager
Air National Guard Readiness Center, NGB/A4AM
165 AW C-130J Conversion EA
3501 Fetchet Avenue
Joint Base Andrews MD 20762-5157

In response to your letter dated 9 September 2021, the Chatham Emergency Management Agency has no record of past or current activities which would have a negative impact or influence to the referenced resource areas at the proposed location. Additionally, we are unaware of any planned or ongoing action at or in close proximity to the site which would influence the proposed action.

Sincerely,

Dennis Jones, CEM, GA-PEM
Chatham Emergency Management Agency, Director

ChathamEmergency.org • Facebook: ChathamEMA • Twitter: @ChathamEMA

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
COASTAL RESOURCES DIVISION
ONE CONSERVATION WAY • BRUNSWICK, GA 31520 • 912.264.7218
COASTALGADNR.ORG

MARK WILLIAMS
COMMISSIONER

DOUG HAYMANS
DIRECTOR

September 20, 2021

Ms. Christine Yott
NEPA Program Manager
National Guard Bureau
NGB.A4.A4A.NEA.Comments.Org@us.af.mil

RE: CZM Consistency Determination Concurrence for 165 AW C-130-J Conversion EA, Savannah-Hilton Head International Airport, City of Savannah, Chatham County, Georgia

Dear Ms. Yott:

Staff of the Georgia Coastal Management Program has reviewed the above referenced September 9, 2021 letter and project description proposing to replace eight Air National Guard C-130H model aircraft with new C-130J-30 model aircraft at the 165th Airlift Wing (165 AW) located at the Savannah/Hilton Head International Airport in the City of Savannah in Chatham County.

The proposed action is consistent with the applicable enforceable policies of the Georgia Coastal Management Program and the Program has no objection to the proposed activity. Please feel free to contact Kelie Moore or me if we can be of further assistance in this matter.

Sincerely,

Doug Haymans
Director

DH/km

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
WILDLIFE RESOURCES DIVISION

MARK WILLIAMS
COMMISSIONER

TED WILL
DIRECTOR

October 07, 2021

Christine Yott
NEPA Program Manager
Air National Guard Readiness Center, NGB/A4AM
3501 Fetchet Ave.
Joint Base Andrews , MD 20762

Subject: Known occurrences of natural communities, plants and animals of highest priority conservation status on or near National Guard Bureau 165 AW Conversion of C-130H Aicraftto-130J-30 Aircraft, Chatham County, Georgia

Dear Ms. Yott:

This is in response to your request of September 9, 2021. The following Georgia natural heritage database element occurrences (EOs) were selected for the current site using the local HUC10 watershed for elements whose range distribution is limited by aquatic systems (AQ) and within 3 miles for all other EOs (TR).

(-81.197141, 32.125600, WGS84)

US *Acipenser brevirostrum* (Shortnose Sturgeon) in Savannah River, Lower and Middle (AQ), approx. 14.9 mi E of site
US *Acipenser brevirostrum* (Shortnose Sturgeon) in Savannah River, Lower and Middle (AQ), approx. 2.8 mi NE of site
US *Acipenser oxyrinchus oxyrinchus* (Atlantic Sturgeon) in Savannah River, Lower and Middle (AQ), approx. 3.8 mi E of site
US *Acipenser oxyrinchus oxyrinchus* (Atlantic Sturgeon) in Savannah River, Lower and Middle (AQ), approx. 5.0 mi NE of site
GA *Alasmidonta arcula* (Altamaha Arcmussel) in Huc 10 - 0306010906 (Savannah River Lower 1) (AQ), approx. 16.4 mi N of site
Chologaster cornuta (Swampfish) in Black Creek Huc 10 - 0306010906 (AQ), approx. 3.9 mi N of site
GA *Elassoma okatie* (Bluebarred Pygmy Sunfish) in Pipe Makers Creek (AQ), on or immediate vicinity of site
Elliptio congaraea (Carolina Slabshell) in Savannah River Huc 10 - 0306010906 Savannah River Lower 1 (AQ), approx. 16.4 mi N of site
Elliptio roanokensis (Roanoke Slabshell) in Savannah River East of Clyo, Ga (AQ), approx. 6.8 mi N of site
Farancia erytrogramma erytrogramma (Common Rainbow Snake) [Historic] (TR), approx. 2.5 mi NE of site
GA *Haliaeetus leucocephalus* (Bald Eagle) (TR), on or immediate vicinity of site

WILDLIFE CONSERVATION SECTION
2065 U.S. HIGHWAY 278 S.E. | SOCIAL CIRCLE, GEORGIA 30025-4743
770.918.6411 | FAX 706.557.3033 | WWW.GEORGIAWILDLIFE.COM

Himantopus mexicanus (Black-necked Stilt) (TR), approx. 2.6 mi NE of site
Hypericum erythreae (Georgia St. Johnswort) [Historic] (TR), approx. 0.9 mi N of site
Lampsilis cariosa (Yellow Lampmussel) in Savannah River Huc 10 - 0306010906 Savannah River Lower 1 (AQ), approx. 14.4 mi N of site
Lithobates virgatipes (Carpenter Frog) [Historic] (TR), approx. 2.3 mi S of site
Lithobates virgatipes (Carpenter Frog) [Historic] (TR), approx. 2.9 mi SW of site
Lucania parva (Rainwater Killifish) in Savannah River Estuary (AQ), approx. 6.1 mi E of site
GA *Moxostoma robustum* (Robust Redhorse) in Savannah River Lower, Huc 10 - 0306010906 (AQ), approx. 13.0 mi N of site
US *Mycteria americana* (Wood Stork) (TR), on or immediate vicinity of site
Persicaria arifolia (Halberd-leaf Tear-thumb) [Historic] (TR), approx. 2.8 mi NE of site
Physostegia leptophylla (Narrowleaf Obedient Plant) (TR), approx. 1.6 mi NE of site
Pseudacris brimleyi (Brimley's Chorus Frog) [Historic] (TR), approx. 2.6 mi SE of site
Ptilimnium ahlesii (Coastal Bishopweed) in Argyle Island/Savannah River NWR (AQ), approx. 4.7 mi NE of site
GA *Sarracenia minor var. minor* (Hooded Pitcherplant) (TR), approx. 1.6 mi SW of site
GA *Sarracenia minor var. minor* (Hooded Pitcherplant) (TR), approx. 1.6 mi S of site
Spiranthes eatonii (Eaton's Ladies-tresses) [Historic] (TR), approx. 1.7 mi N of site
Sporobolus pinetorum (Pineland Dropseed) [Historic] (TR), approx. 1.6 mi SW of site
Stereochilus marginatus (Many-lined Salamander) [Historic] in Pineora Rd. (AQ), approx. 8.0 mi NW of site
GA *Sternula antillarum* (Least Tern) (TR), on or immediate vicinity of site
GA *Sternula antillarum* (Least Tern) (TR), approx. 1.9 mi SE of site
US *Trichechus manatus* (West Indian Manatee) in Coastal Georgia (AQ), approx. 16.4 mi E of site
US *Trichechus manatus* (West Indian Manatee) in Coastal Georgia (AQ), approx. 3.0 mi NE of site
Utterbackiana couperiana (Barrel Floater) in Savannah River Huc 10 - 0306010906 Savannah River Lower 1 (AQ), approx. 16.4 mi N of site
Wading Bird Colony (Wading Bird Colony) (TR), on or immediate vicinity of site
GALT easement [Georgia-Alabama Land Trust] (TR), approx. 2.4 mi SW of site
Gordonia lasianthus - Magnolia virginiana - Persea palustris / Sphagnum spp. Swamp Forest (Loblolly-bay Forest) (TR), approx. 1.7 mi SW of site
Nyssa biflora - (Taxodium distichum, Nyssa aquatica) / Morella cerifera - Rosa palustris Tidal Forest (Tidal Hardwood Swamp Forest) (TR), approx. 1.8 mi N of site
Nyssa biflora - Acer rubrum var. rubrum / Lyonia lucida Floodplain Forest (Sandhills Swamp Blackgum Floodplain Forest) (TR), approx. 1.4 mi E of site
Nyssa biflora - Acer rubrum var. rubrum / Lyonia lucida Floodplain Forest (Sandhills Swamp Blackgum Floodplain Forest) (TR), approx. 2.7 mi W of site
Nyssa biflora - Quercus nigra - Quercus laurifolia - Pinus taeda / Carpinus caroliniana Riparian Forest (Swamp Blackgum - Mixed Hardwood Small Stream Forest) (TR), approx. 0.9 mi E of site
Nyssa biflora - Quercus nigra - Quercus laurifolia - Pinus taeda / Carpinus caroliniana Riparian Forest (Swamp Blackgum - Mixed Hardwood Small Stream Forest) (TR), approx. 0.9 mi N of site

IR 21299-asy-2021-10-07-15-36-13

Pinus elliottii var. elliottii / Serenoa repens - Ilex glabra Woodland (Slash Pine Flatwoods) (TR), approx. 1.6 mi N of site
Pipe Makers [U.S. Army Corps of Engineers] (TR), on or immediate vicinity of site
Quercus laurifolia / Carpinus caroliniana / Justicia ovata Riparian Forest (Diamondleaf Oak Bottomland Forest) (TR), approx. 0.2 mi S of site
Quercus laurifolia / Carpinus caroliniana / Justicia ovata Riparian Forest (Diamondleaf Oak Bottomland Forest) (TR), on or immediate vicinity of site
Quercus phellos - Quercus (pagoda, similis) - Pinus taeda / Chasmanthium laxum Wet Forest (South Atlantic Willow Oak Flatwoods Forest) (TR), approx. 1.7 mi E of site
Quercus phellos - Quercus (pagoda, similis) - Pinus taeda / Chasmanthium laxum Wet Forest (South Atlantic Willow Oak Flatwoods Forest) (TR), approx. 1.4 mi NE of site
Quercus phellos - Quercus (pagoda, similis) - Pinus taeda / Chasmanthium laxum Wet Forest (South Atlantic Willow Oak Flatwoods Forest) (TR), approx. 1.3 mi S of site
Quercus phellos - Quercus (pagoda, similis) - Pinus taeda / Chasmanthium laxum Wet Forest (South Atlantic Willow Oak Flatwoods Forest) (TR), approx. 1.5 mi SE of site
Savannah NWR [U.S. Fish and Wildlife Service] (TR), approx. 2.5 mi NE of site
Taxodium distichum - Nyssa aquatica - Nyssa biflora / Fraxinus caroliniana / Itea virginica Floodplain Forest (Atlantic Coastal Plain Bald-cypress - Water Tupelo Blackwater Small Stream Swamp Forest) (TR), approx. 1.0 mi N of site
Tom Triplett Comm Park [Chatham County] (TR), approx. 1.1 mi S of site
Restrictive covenant [U.S. Army Corps of Engineers] (TR), approx. 1.2 mi E of site
Restrictive covenant [U.S. Army Corps of Engineers] (TR), approx. 2.0 mi N of site
Restrictive covenant [U.S. Army Corps of Engineers] (TR), approx. 2.4 mi NE of site
Restrictive covenant [U.S. Army Corps of Engineers] (TR), approx. 2.1 mi S of site
Restrictive covenant [U.S. Army Corps of Engineers] (TR), approx. 2.5 mi SW of site
Bridge/Culvert Inspection (32.0902, -81.1539), Bats Present: No, Species: N/A (TR), approx. 2.3 mi SE of site
Bridge/Culvert Inspection (32.1653, -81.1558), Bats Present: No, Species: N/A (TR), approx. 2.6 mi NE of site
Savannah River Lower 1 (0306010906) [SWAP High Priority Watershed] (TR), on or immediate vicinity of site
Little Ogeechee River (0306020401) [SWAP High Priority Watershed] (TR), approx. 0.8 mi S of site

Recommendations:

Federally listed species have been documented within three miles of the proposed project. To minimize potential impacts to federally listed species, we recommend consultation with the United States Fish and Wildlife Service. Please contact the following: GAES_Assistance@fws.gov.

Please be aware that state protected species have been documented within three miles of the proposed project. For information about these species, including survey recommendations, please visit our webpage at http://georgiawildlife.com/conservation/species-of-concern#rare-locations. Surveys for species of conservation concern should be conducted prior to commencement of construction.

IR 21299-asy-2021-10-07-15-36-13

Disclaimer:

Please keep in mind the limitations of our database. The data collected by the Wildlife Conservation Section comes from a variety of sources, including museum and herbarium records, literature, and reports from individuals and organizations, as well as field surveys by our staff biologists. In most cases the information is not the result of a recent on-site survey by our staff. Many areas of Georgia have never been surveyed thoroughly. Therefore, the Wildlife Conservation Section can only occasionally provide definitive information on the presence or absence of rare species on a given site. Our files are updated constantly as new information is received. **Thus, information provided by our program represents the existing data in our files at the time of the request and should not be considered a final statement on the species or area under consideration.**

If you know of populations of highest priority species that are not in our database, please fill out the appropriate data collection form and send it to our office. Forms can be obtained through our web site https://georgiawildlife.com/conservation/species-of-concern#providing or by contacting our office.

If I can be of further assistance, please let me know.

Sincerely,

Anna Yellin
Wildlife Biologist II

Data Available on the Wildlife Conservation Section Website

- Georgia protected plant and animal profiles are available on our website. These accounts cover basics like descriptions and life history, as well as threats, management recommendations and conservation status. Visit http://georgiabiodiversity.org/natels/general-info.html.

- Rare species and natural community information can be viewed by Quarter Quad, County and HUC8 Watershed. To access this information, please visit our GA Rare Species and Natural Community Data Portal at: http://georgiabiodiversity.org/

- Downloadable files of rare species and natural community data by Quarter Quad and County are also available. Please visit: http://georgiabiodiversity.org/natels/natural-element-locations.html

IR 21299-asy-2021-10-07-15-36-13

From: YOTT, CHRISTINE J GS-13 USAF ANG ANGRC/A4
To: Kyker, Lee (FAA)
Cc: OSTER, GWEN E CTR USAF ANG NGB/A4; Austin, Jay K. [US-US]; Farrell, Peggy [US-US]; Evains, Jasmine (FAA); Sweatt-Essick, Jackie (FAA); Day, Calvin A (FAA); Adams, Jennifer P (FAA); Robinson, Joseph D (FAA)
Subject: EXTERNAL: RE: ATTN: 165 AW C-130J Conversion EA
Date: Thursday, October 14, 2021 2:12:19 PM
Attachments: image001.png

Good Afternoon Mr. Kyker,

I am glad the information we provided was sufficient for your analysis. We appreciate your time in this review. Feel free to reach out if any other questions/concerns arise.

Thanks,

Christine

Christine Yott
NGB/A4AM NEPA Program Manager
Comm: 240-612-8422 DSN: 612-8422
christine.yott.1@us.af.mil

From: Kyker, Lee (FAA) <Lee.Kyker@faa.gov>
Sent: Wednesday, October 13, 2021 3:37 PM
To: YOTT, CHRISTINE J GS-13 USAF ANG ANGRC/A4 <christine.yott.1@us.af.mil>
Cc: OSTER, GWEN E CTR USAF ANG NGB/A4 <gwen.oster.ctr@us.af.mil>; Austin, Jay (JOHN.K.AUSTIN@leidos.com) <JOHN.K.AUSTIN@leidos.com>; Farrell, Peggy (Margaret.J.Farrell@leidos.com) <Margaret.J.Farrell@leidos.com>; Evains, Jasmine (FAA) <Jasmine.Evains@faa.gov>; Sweatt-Essick, Jackie (FAA) <Jackie.Sweatt-Essick@faa.gov>; Day, Calvin A (FAA) <calvin.a.day@faa.gov>; Adams, Jennifer P (FAA) <jennifer.p.adams@faa.gov>; Robinson, Joseph D (FAA) <Joseph.D.Robinson@faa.gov>
Subject: [Non-DoD Source] RE: ATTN: 165 AW C-130J Conversion EA

Good Afternoon,

Thank you for providing the additional information relative to the 15 AW C-130 J Conversion EA. The Airports Division of FAA is satisfied as it relates to the noise analysis conducted for the EA and no additional information is requested.

The project elements as described in your September 9th, 2021 letter would not alter the ALP, with possible exception to the small expansion of Building 1930. If the project moves forward, the Air National Guard should be aware of requirements under FAR Part 77 for filing notice of proposed construction under FAA Form 7460-1. I have cc'd the FAA's Atlanta Airports District Office planner, Joseph D Robinson, for coordination of any potential pen & ink change needed to the ALP pending environmental finding.

Sincerely,
Lee Kyker

Lee Kyker
Environmental Specialist
Atlanta Airports District Office
(404) 305-6708

From: YOTT, CHRISTINE J GS-13 USAF ANG ANGRC/A4 <christine.yott.1@us.af.mil>
Sent: Thursday, September 30, 2021 3:51 PM
To: Kyker, Lee (FAA) <Lee.Kyker@faa.gov>
Cc: OSTER, GWEN E CTR USAF ANG NGB/A4 <gwen.oster.ctr@us.af.mil>; Austin, Jay (JOHN.K.AUSTIN@leidos.com) <JOHN.K.AUSTIN@leidos.com>; Farrell, Peggy (Margaret.J.Farrell@leidos.com) <Margaret.J.Farrell@leidos.com>; Evains, Jasmine (FAA) <Jasmine.Evains@faa.gov>; Sweatt-Essick, Jackie (FAA) <Jackie.Sweatt-Essick@faa.gov>; Day, Calvin A (FAA) <calvin.a.day@faa.gov>; Adams, Jennifer P (FAA) <jennifer.p.adams@faa.gov>
Subject: Re: ATTN: 165 AW C-130J Conversion EA

Good Afternoon Mr. Kyker,

Thank you for your time in reviewing our ANG proposed action to convert from C-130H to C-130J at the 165 AW in Savannah, GA. I want to make sure that we meet your needs since this base is located on a commercial airport. I assume there are likely two main items to discuss – 1) if any projects will alter the ALP (my limited understanding suggests they will not, though I am not an expert) and 2) the noise analysis.

For the first item, please let me know if our letter provided enough information to determine if there would be an ALP change. We can send more information if needed.

For the second item, our contractors (Jay Austin and Peggy Farrell with Leidos, cc'ed here) have been in touch with Mark Denmark at the airport about the noise analysis. Recently, they sent him the data validation package. I will send these to you via DOD SAFE since I think one of the files is too large to pass through our email system as an attachment. I would also like to pass along the following concerning the noise analysis.

1. The AEDT files used in the recent Short Term Development EA were also used in the C-130J conversion Noise Study (as described in 'Mr Denmark– SAV ops other than 165 AW.pdf').
2. 165 AW ops were modeled using the current version of Noisemap, which is approved for modeling of DoD ops in the FAA Order 1050.1F Desk Reference
3. Noise impacts of C-130J-30 conversion are extremely minor (increase by <=0.1 dB DNL at representative sensitive locations) and far below FAA impact thresholds). This is because J

model noise levels are very similar to H model, mission parameters and procedures would not change with conversion, and 165 AW is a relatively minor contributor to overall DNL at SAV.

Please let me know if you need any further information.

v/r,

Christine

CHRISTINE J YOTT, M.S., GS-13
NGB/A4AM Plans and Requirements
NEPA Program Manager
Air National Guard Readiness Center
3501 Fetchet Ave, Joint Base Andrews, MD 20762
Comm: 240-612-8422 DSN: 612-8422
christine.yott.1@us.af.mil

SAVANNAH HILTON HEAD INTERNATIONAL

400 AIRWAYS AVENUE
SAVANNAH, GA 31408
912.964.0514

October 7th, 2021 VIA EMAIL

Ms. Christine Yott
NEPA Program Manager
Air National Guard Readiness Center, NGB/A4AM
3501 Fetchet Ave.
Joint Base Andrews MD 20762-5157

Re: 2021-0032: GA ANG 165th AW C-130J Conversion Environmental Assessment

Dear Ms Yott:

Your request to review the modifications associated with the GA ANG 165th AW Conversion of C-130H Aircraft to C-130J-30 has been reviewed with the following comments:

1. Buildings 1905 and 1923 are calling for new fire suppression. What type of fire suppression will be used? What is your plan to contain it within your area?

This review of the modifications is without recourse or the assumption of liability on the part of the Savannah Airport Commission or the reviewing engineer.

Sincerely,

Mark Denmark
Acting Director of Engineering

CM
CC: Engineering Files
2021-0032

flySAV.com

From: OSTER, GWEN E CTR USAF ANG NGB/A4
To: Farrell, Peggy [US-US]
Subject: EXTERNAL: FW: 165th AW/ANG: Convert C-130H to C-130J-30, Associated Construction, Savannah/Hilton Head Airport, Chatham Co, HP 210928-007
Date: Monday, October 25, 2021 8:30:52 AM

Good Morning Peggy,

We received the below response from the Georgia Historic Preservation District. Would you be able to get back with Ms. Dixon in regards to the requested information?

Thank you,
Gwen

From: Jennifer Dixon <Jennifer.Dixon@dca.ga.gov>
Sent: Friday, October 22, 2021 10:18 AM
To: NGB A4/A4A NEPA COMMENTS Org <NGB.A4.A4A.NEPA.COMMENTS.Org@us.af.mil>
Subject: [Non-DoD Source] 165th AW/ANG: Convert C-130H to C-130J-30, Associated Construction, Savannah/Hilton Head Airport, Chatham Co, HP 210928-007

Ms. Harty,

In order to complete our review of the subject project under Section 106 of the NHPA, HPD is in need of additional information. In particular, eligibility assessment(s), and if previously conducted, SHPO concurrence, for all buildings/components within the proposed project's area of potential effect (APE), both direct and indirect. Additionally, please provide detailed scope of work descriptions for components (fire system upgrades, moorings, shop expansion, etc.), excluding interior shop spaces for Bldg 1905 (previously reviewed under HP 210326-003), unless the latter scope of work has changed since our previous review.

Thank you and we look forward to receiving the requested information, once available.

Learn more about our commitment to fair housing

Jennifer Dixon
Environmental Review and Preservation Planning Program Manager
Georgia Department of Community Affairs
60 Executive Park South, NE
Atlanta, Georgia 30329

Direct 4044866376
Jennifer.Dixon@dca.ga.gov

APPENDIX B
AIR QUALITY

DRAFT Environmental Assessment for
ANG C-130H to C-130J-30 Aircraft Conversion

ALTERNATIVE 1
DETAILED AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: SAVANNAH/HILTON HEAD INTERNATIONAL AIRPORT
State: Georgia
County(s): Chatham
Regulatory Area(s): NOT IN A REGULATORY AREA

- Action Title: ANG C-130-30 Conversion EA

- Project Number/s (if applicable):

- Projected Action Start Date: 1 / 2022

- Action Purpose and Need:

The National Guard Bureau (NGB) proposes to convert eight Air National Guard (ANG) C-130H aircraft to new C-130J-30 "Super Hercules" aircraft with improved performance and enterprise safety at the 165th Airlift Wing (165 AW) located at Savannah/Hilton Head International Airport (SAV), Savannah, Georgia. The Proposed Action would modify facilities, replace aging aircraft, reduce manpower requirements, lower operating costs, and provide life cycle cost savings.

Implementing the basing action was approved by the Secretary of the Air Force in November 2019. The purpose of the conversion is to improve mission readiness, enhance long-term viability of the enterprise, and reduce stress on maintainers and facilities. The action is needed to continue airlift support and natural disaster relief missions to meet state and national objectives using modern aircraft with advanced technology.

- Action Description:

The Proposed Action is to replace C-130H aircraft to C-130J-30 "Super Hercules" aircraft. The C-130J-30 reduces manpower requirements, lowers operating and support costs, and provides life cycle cost savings over the C-130H models (DAF, 2020). Compared to older C-130 aircraft, the "J" model climbs faster and higher, flies farther at a higher cruise speed, and takes off and lands in a shorter distance (DAF, 2020).

The Proposed Action would include the construction and renovation of select facilities and adjustment of personnel to support the beddown of up to eight C-130J-30 aircraft; none of these projects would be dependent on the number of these aircraft. The number of aircrew would be reduced from six to four per aircraft, while the maintenance crew would change by plus three to six, depending on the need for aircraft composite specialists.

- Point of Contact

Name: Brad Boykin
Title: CTR
Organization: Leidos
Email: boykinb@leidos.com
Phone Number: 737-717-7080

- Activity List:

Activity Type		Activity Title
2.	Aircraft	C-130H
3.	Personnel	Personnel
4.	Aircraft	C-130J-30
5.	Construction / Demolition	Apron Restriping

Emission factors and air emission estimating methods are from the Department of the 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. Aircraft

2.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

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

- Activity Title: C-130H

- Activity Description:
540 LTOs and 96 closed patterns.

- Activity Start Date
Start Month: 1
Start Year: 2022

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-12.246968
SO_x	-1.490764
NO_x	-28.565959
CO	-20.849719
PM 10	-1.104759

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.998914
Pb	0.000000
NH_3	0.000000
CO_2e	-3756.0

- Activity Emissions [Flight Operations (includes Trim Test & APU) part]:

Pollutant	Emissions Per Year (TONs)
VOC	-10.897119
SO_x	-0.985362
NO_x	-5.487932
CO	-16.448638
PM 10	-0.660575

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.572798
Pb	0.000000
NH_3	0.000000
CO_2e	-2988.3

- Activity Emissions [Test Cell part]:

Pollutant	Emissions Per Year (TONs)
VOC	-0.165317
SO_x	-0.021364
NO_x	-0.136722
CO	-0.259610
PM 10	-0.014264

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.012838
Pb	0.000000
NH_3	0.000000
CO_2e	-64.6

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	-1.184532
SO_x	-0.484038
NO_x	-22.941305
CO	-4.141471
PM 10	-0.429919

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.413278
Pb	0.000000
NH_3	0.000000
CO_2e	-703.1

2.2 Aircraft & Engines

2.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: WC-130H
Engine Model: T56-A-15
Primary Function: Transport - Bomber
Aircraft has After Burn: No
Number of Engines: 4

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

2.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1,000 lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	794.00	24.15	1.07	3.90	32.00	0.83	0.75	3234
Approach	1185.00	14.26	1.07	4.40	22.20	0.97	0.87	3234
Intermediate	1825.00	0.58	1.07	9.20	2.40	0.51	0.46	3234
Military	2302.00	0.46	1.07	9.30	2.10	0.50	0.45	3234
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234

2.3 Flight Operations

2.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 7
Number of Annual LTOs (Landing and Take-off) cycles for all Aircraft: 540
Number of Annual TGOs (Touch-and-Go) cycles for all Aircraft: 96
Number of Annual Trim Test(s) per Aircraft: 12

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)
Taxi/Idle Out [Idle] (mins): 9.2
Takeoff [Military] (mins): 0.4
Takeoff [After Burn] (mins): 0
Climb Out [Intermediate] (mins): 2.6
Approach [Approach] (mins): 4.4
Taxi/Idle In [Idle] (mins): 6.7

Per the Air Emissions Guide for Air Force Mobile Sources, the default values for military aircraft equipped with after burner for takeoff is 50% military power and 50% after burner. (Exception made for F-35 where KARNES 3.2 flight profile was used.)

- Trim Test

Idle (mins):	42
Approach (mins):	27
Intermediate (mins):	9
Military (mins):	25
After Burn (mins):	0

2.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for LTOs per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * LTO / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1,000 pounds
EF: Emission Factor (lb/1,000 lb fuel)
NE: Number of Engines
LTO: Number of Landing and Take-off Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for LTOs per Year

$AE_{LTO} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{LTO}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for TGOs per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * TGO / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1,000 pounds
EF: Emission Factor (lb/1,000 lb fuel)
NE: Number of Engines
TGO: Number of Touch-and-Go Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for TGOs per Year

$AE_{TGO} = AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{TGO}: Aircraft Emissions (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL}$ = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1,000 pounds
EF: Emission Factor (lb/1,000 lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

2.4 Auxiliary Power Unit (APU)

2.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer
1	1	No	GTCP 85-180L	

2.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
GTCP 85-180L	272.6	0.493	0.289	1.216	3.759	0.131	0.037	910.8

2.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year
$APU_{POL} = APU * OH * LTO * EF_{POL} / 2000$

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)
APU: Number of Auxiliary Power Units
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

2.5 Aircraft Engine Test Cell

2.5.1 Aircraft Engine Test Cell Assumptions

- Engine Test Cell
Total Number of Aircraft Engines Tested Annually: 28

- Default Settings Used: No

- Annual Run-ups / Test Durations

Annual Run-ups (Per Aircraft Engine):	1
Idle Duration (mins):	12
Approach Duration (mins):	27
Intermediate Duration (mins):	9
Military Duration (mins):	12
After Burner Duration (mins):	0

2.5.2 Aircraft Engine Test Cell Emission Factor(s)

- See Aircraft & Engines Emission Factor(s)

2.5.3 Aircraft Engine Test Cell Formula(s)

- Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
$TestCellPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * ARU / 2000$

$TestCellPS_{POL}$: Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1,000 pounds
EF: Emission Factor (lb/1,000 lb fuel)
NE: Total Number of Engines (For All Aircraft)
ARU: Annual Run-ups (Per Aircraft Engine)
2000: Conversion Factor pounds to TONs

- Aircraft Engine Test Cell Emissions per Year
$TestCell = TestCellPS_{IDLE} + TestCellPS_{APPROACH} + TestCellPS_{INTERMEDIATE} + TestCellPS_{MILITARY} + TestCellPS_{AFTERBURN}$

TestCell: Aircraft Engine Test Cell Emissions (TONs)
$TestCellPS_{IDLE}$: Aircraft Engine Test Cell Emissions for Idle Power Setting (TONs)
$TestCellPS_{APPROACH}$: Aircraft Engine Test Cell Emissions for Approach Power Setting (TONs)
$TestCellPS_{INTERMEDIATE}$: Aircraft Engine Test Cell Emissions for Intermediate Power Setting (TONs)
$TestCellPS_{MILITARY}$: Aircraft Engine Test Cell Emissions for Military Power Setting (TONs)
$TestCellPS_{AFTERBURN}$: Aircraft Engine Test Cell Emissions for After Burner Power Setting (TONs)

2.6 Aerospace Ground Equipment (AGE)

2.6.1 Aerospace Ground Equipment (AGE) Assumptions

- Default Settings Used: Yes

- AGE Usage
Number of Annual LTO (Landing and Take-off) cycles for AGE: 540

- Aerospace Ground Equipment (AGE) (default)

Total Number of AGE	Operation Hours for Each LTO	Exempt Source?	AGE Type	Designation
1	1	No	Air Compressor	MC-1A - 18.4hp
1	1	No	Air Conditioner	MA-3D - 120hp
1	11	No	Generator Set	A/M32A-86D
1	1	No	Heater	H1
1	3	No	Hydraulic Test Stand	MJ-2A
1	10	No	Light Cart	NF-2
1	0.25	No	Start Cart	A/M32A-60A

2.6.2 Aerospace Ground Equipment (AGE) Emission Factor(s)

- Aerospace Ground Equipment (AGE) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
MC-1A - 18.4hp	1.1	0.267	0.008	0.419	0.267	0.071	0.068	24.8
MA-3D - 120hp	7.1	0.053	0.050	4.167	0.317	0.109	0.105	161.7
A/M32A-86D	6.5	0.294	0.046	6.102	0.457	0.091	0.089	147.0
H1	0.4	0.100	0.011	0.160	0.180	0.006	0.006	8.9
MJ-2A	0.0	0.190	0.238	3.850	2.460	0.083	0.076	172.0
NF-2	0.0	0.010	0.043	0.110	0.080	0.010	0.010	22.1
A/M32A-60A	0.0	0.270	0.306	1.820	5.480	0.211	0.205	221.1

2.6.3 Aerospace Ground Equipment (AGE) Formula(s)

- Aerospace Ground Equipment (AGE) Emissions per Year

$AGE_{POL} = AGE * OH * LTO * EF_{POL} / 2000$

AGE_{POL}: Aerospace Ground Equipment (AGE) Emissions per Pollutant (TONs)
AGE: Total Number of Aerospace Ground Equipment
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

3. Personnel

3.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

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

- Activity Title: Personnel

- Activity Description:
The number of aircrew would be reduced from six to four per aircraft, while maintenance personnel would change slightly depending on the need for specialists to maintain the aircraft composite.

- Activity Start Date
Start Month: 1
Start Year: 2022

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.008262
SO_x	-0.000060
NO_x	-0.007178
CO	-0.094629
PM 10	-0.000197

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.000173
Pb	0.000000
NH_3	-0.000554
CO_2e	-8.7

3.2 Personnel Assumptions

- Number of Personnel
Active Duty Personnel: 4
Civilian Personnel: 0
Support Contractor Personnel: 0
Air National Guard (ANG) Personnel: 0
Reserve Personnel: 0

- Default Settings Used: Yes

- Average Personnel Round Trip Commute (mile): 20 (default)

- Personnel Work Schedule
Active Duty Personnel: 5 Days Per Week (default)
Civilian Personnel: 5 Days Per Week (default)
Support Contractor Personnel: 5 Days Per Week (default)
Air National Guard (ANG) Personnel: 4 Days Per Week (default)
Reserve Personnel: 4 Days Per Month (default)

3.3 Personnel On Road Vehicle Mixture

- On Road Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	37.55	60.32	0	0.03	0.2	0	1.9
GOVs	54.49	37.73	4.67	0	0	3.11	0

3.4 Personnel Emission Factor(s)

- On Road Vehicle Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.273	000.002	000.207	003.148	000.007	000.006		000.023	00320.956
LDGT	000.345	000.003	000.366	004.453	000.009	000.008		000.024	00414.257
HDGV	000.716	000.005	000.988	014.742	000.020	000.017		000.044	00766.469
LDDV	000.103	000.003	000.133	002.604	000.004	000.004		000.008	00312.295
LDDT	000.240	000.004	000.378	004.437	000.007	000.006		000.008	00443.620
HDDV	000.494	000.013	004.839	001.748	000.167	000.153		000.028	01500.756
MC	002.588	000.003	000.723	013.090	000.027	000.024		000.054	00395.915

3.5 Personnel Formula(s)

- Personnel Vehicle Miles Travel for Work Days per Year
$VMT_P = NP * WD * AC$

VMT_P: Personnel Vehicle Miles Travel (miles/year)
NP: Number of Personnel
WD: Work Days per Year
AC: Average Commute (miles)

- Total Vehicle Miles Travel per Year
$VMT_{Total} = VMT_{AD} + VMT_C + VMT_{SC} + VMT_{ANG} + VMT_{AFRC}$

VMT_{Total}: Total Vehicle Miles Travel (miles)
VMT_{AD}: Active Duty Personnel Vehicle Miles Travel (miles)
VMT_C: Civilian Personnel Vehicle Miles Travel (miles)
VMT_{SC}: Support Contractor Personnel Vehicle Miles Travel (miles)
VMT_{ANG}: Air National Guard Personnel Vehicle Miles Travel (miles)
VMT_{AFRC}: Reserve Personnel Vehicle Miles Travel (miles)

- Vehicle Emissions per Year
$V_{POL} = (VMT_{Total} * 0.002205 * EF_{POL} * VM) / 2000$

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

4. Aircraft

4.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: C-130J-30

- Activity Description:
540 LTOs and 96 closed patterns.

- Activity Start Date
Start Month: 1
Start Year: 2022

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	1.222813
SO_x	1.345137
NO_x	30.259978
CO	7.036713
PM 10	2.592712

Pollutant	Emissions Per Year (TONs)
PM 2.5	1.472818
Pb	0.000000
NH_3	0.000000
CO_2e	3305.7

- Activity Emissions [Flight Operations (includes Trim Test & APU) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.037562
SO_x	0.839623
NO_x	7.124906
CO	2.834116
PM 10	2.115071

Pollutant	Emissions Per Year (TONs)
PM 2.5	1.036663
Pb	0.000000
NH_3	0.000000
CO_2e	2537.7

- Activity Emissions [Test Cell part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000718
SO_x	0.021476
NO_x	0.193767
CO	0.061126
PM 10	0.047721

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.022877
Pb	0.000000
NH_3	0.000000
CO_2e	64.9

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	1.184532
SO_x	0.484038
NO_x	22.941305
CO	4.141471
PM 10	0.429919

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.413278
Pb	0.000000
NH_3	0.000000
CO_2e	703.1

4.2 Aircraft & Engines

4.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: WC-130J-30
Engine Model: AE2100D3
Primary Function: Transport - Bomber
Aircraft has After Burn: No
Number of Engines: 4

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

4.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1,000 lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	723.60	0.08	1.07	7.58	5.06	3.64	1.88	3234
Approach	880.20	0.06	1.07	7.54	3.89	3.85	2.18	3234
Intermediate	1741.90	0.02	1.07	9.15	1.94	1.46	0.56	3234
Military	2261.70	0.01	1.07	12.46	2.30	1.22	0.33	3234
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234

4.3 Flight Operations

4.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:	8
Number of Annual LTOs (Landing and Take-off) cycles for all Aircraft:	540
Number of Annual TGOs (Touch-and-Go) cycles for all Aircraft:	96
Number of Annual Trim Test(s) per Aircraft:	12

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi/Idle Out [Idle] (mins):	9.2
Takeoff [Military] (mins):	0.4
Takeoff [After Burn] (mins):	0
Climb Out [Intermediate] (mins):	2.2
Approach [Approach] (mins):	3.9
Taxi/Idle In [Idle] (mins):	6.7

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% after burner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	42
Approach (mins):	27
Intermediate (mins):	9
Military (mins):	25
After Burn (mins):	0

4.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for LTOs per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * LTO / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1,000 pounds
EF: Emission Factor (lb/1,000 lb fuel)
NE: Number of Engines
LTO: Number of Landing and Take-off Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for LTOs per Year

$AE_{LTO} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{LTO}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for TGOs per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * TGO / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1,000 pounds
EF: Emission Factor (lb/1,000 lb fuel)
NE: Number of Engines
TGO: Number of Touch-and-Go Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for TGOs per Year

$AE_{TGO} = AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{TGO}: Aircraft Emissions (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1,000 pounds
EF: Emission Factor (lb/1,000 lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

4.4 Auxiliary Power Unit (APU)

4.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer

4.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e

4.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year
$APU_{POL} = APU * OH * LTO * EF_{POL} / 2000$

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)
APU: Number of Auxiliary Power Units
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

4.5 Aircraft Engine Test Cell

4.5.1 Aircraft Engine Test Cell Assumptions

- Engine Test Cell
Total Number of Aircraft Engines Tested Annually: 32

- Default Settings Used: No

- Annual Run-ups / Test Durations
Annual Run-ups (Per Aircraft Engine): 1
Idle Duration (mins): 12
Approach Duration (mins): 27
Intermediate Duration (mins): 9
Military Duration (mins): 12
After Burner Duration (mins): 0

4.5.2 Aircraft Engine Test Cell Emission Factor(s)

- See Aircraft & Engines Emission Factor(s)

4.5.3 Aircraft Engine Test Cell Formula(s)

- Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
$TestCellPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * ARU / 2000$

$TestCellPS_{POL}$: Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1,000 pounds
EF: Emission Factor (lb/1,000 lb fuel)
NE: Total Number of Engines (For All Aircraft)
ARU: Annual Run-ups (Per Aircraft Engine)
2000: Conversion Factor pounds to TONs

- Aircraft Engine Test Cell Emissions per Year

$TestCell = TestCellPS_{IDLE} + TestCellPS_{APPROACH} + TestCellPS_{INTERMEDIATE} + TestCellPS_{MILITARY} + TestCellPS_{AFTERBURN}$

TestCell: Aircraft Engine Test Cell Emissions (TONs)
$TestCellPS_{IDLE}$: Aircraft Engine Test Cell Emissions for Idle Power Setting (TONs)
$TestCellPS_{APPROACH}$: Aircraft Engine Test Cell Emissions for Approach Power Setting (TONs)
$TestCellPS_{INTERMEDIATE}$: Aircraft Engine Test Cell Emissions for Intermediate Power Setting (TONs)
$TestCellPS_{MILITARY}$: Aircraft Engine Test Cell Emissions for Military Power Setting (TONs)
$TestCellPS_{AFTERBURN}$: Aircraft Engine Test Cell Emissions for After Burner Power Setting (TONs)

4.6 Aerospace Ground Equipment (AGE)

4.6.1 Aerospace Ground Equipment (AGE) Assumptions

- Default Settings Used: Yes

- AGE Usage

Number of Annual LTO (Landing and Take-off) cycles for AGE: 540

- Aerospace Ground Equipment (AGE) (default)

Total Number of AGE	Operation Hours for Each LTO	Exempt Source?	AGE Type	Designation
1	1	No	Air Compressor	MC-1A - 18.4hp
1	1	No	Air Conditioner	MA-3D - 120hp
1	11	No	Generator Set	A/M32A-86D
1	1	No	Heater	H1
1	3	No	Hydraulic Test Stand	MJ-2A
1	10	No	Light Cart	NF-2
1	0.25	No	Start Cart	A/M32A-60A

4.6.2 Aerospace Ground Equipment (AGE) Emission Factor(s)

- Aerospace Ground Equipment (AGE) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
MC-1A - 18.4hp	1.1	0.267	0.008	0.419	0.267	0.071	0.068	24.8
MA-3D - 120hp	7.1	0.053	0.050	4.167	0.317	0.109	0.105	161.7
A/M32A-86D	6.5	0.294	0.046	6.102	0.457	0.091	0.089	147.0
H1	0.4	0.100	0.011	0.160	0.180	0.006	0.006	8.9
MJ-2A	0.0	0.190	0.238	3.850	2.460	0.083	0.076	172.0
NF-2	0.0	0.010	0.043	0.110	0.080	0.010	0.010	22.1
A/M32A-60A	0.0	0.270	0.306	1.820	5.480	0.211	0.205	221.1

4.6.3 Aerospace Ground Equipment (AGE) Formula(s)

- Aerospace Ground Equipment (AGE) Emissions per Year
AGE_{POL} = AGE * OH * LTO * EF_{POL} / 2000

AGE_{POL}: Aerospace Ground Equipment (AGE) Emissions per Pollutant (TONs)
AGE: Total Number of Aerospace Ground Equipment
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

5. Construction / Demolition

5.1 General Information & Timeline Assumptions

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

- Activity Title: Apron Restriping

- Activity Description:
The area of the apron to be restriped is approximately 880,000 square feet. It is conservatively estimated that 10 percent of that area would actually require paint application.

- Activity Start Date
Start Month: 1
Start Month: 2022

- Activity End Date
Indefinite: False
End Month: 3
End Month: 2022

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	1.020800
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Total Emissions (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

5.1 Architectural Coatings Phase

5.1.1 Architectural Coatings Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 3
Number of Days: 0

5.1.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 88000
Number of Units: N/A

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

- 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

5.1.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.551	000.007	000.598	004.770	000.011	000.010		000.034	00367.669
LDGT	000.745	000.010	001.037	007.835	000.013	000.011		000.034	00491.872
HDGV	001.369	000.015	002.869	024.858	000.031	000.027		000.045	00767.677
LDDV	000.235	000.003	000.315	003.662	000.007	000.006		000.008	00375.935
LDDT	000.540	000.005	000.843	007.445	000.008	000.008		000.008	00586.287
HDDV	000.832	000.014	008.507	002.815	000.369	000.339		000.029	01578.178
MC	002.711	000.008	000.750	014.906	000.029	000.025		000.051	00395.124

5.1.4 Architectural Coatings Phase Formula(s)

- Worker Trips Emissions per Phase
$VMT_{WT} = (1 * WT * PA) / 800$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
1: Conversion Factor man days to trips (1 trip / 1 man * day)
WT: Average Worker Round Trip Commute (mile)
PA: Paint Area (ft^2)
800: Conversion Factor square feet to man days (1 ft^2 / 1 man * day)

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

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

- Off-Gassing Emissions per Phase

VOC_{AC} = (AB * 2.0 * 0.0116) / 2000.0

VOC_{AC}: Architectural Coating VOC Emissions (TONs)
BA: Area of Building (ft^2)
2.0: Conversion Factor total area to coated area (2.0 ft^2 coated area / total area)
0.0116: Emission Factor (lb/ft^2)
2000: Conversion Factor pounds to tons

ALTERNATIVE 1 AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

1. General Information: The Department of the Air Force's (DAF's) Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality 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: SAVANNAH/ HILTON HEAD INTERNATIONAL AIRPORT
State: Georgia
County(s): Chatham
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: ANG C-130 Conversion EA

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2022

e. Action Description:

The Proposed Action is to replace C-130H aircraft with C-130J-30 "Super Hercules" aircraft. The C-130J-30 reduces manpower requirements, lowers operating and support costs, and provides life cycle cost savings over the C-130H models (DAF, 2020). Compared to older C-130 aircraft, the "J" model climbs faster and higher, flies farther at a higher cruise speed, and takes off and lands in a shorter distance (DAF, 2020).

The Proposed Action would include the construction and renovation of select facilities and adjustment of personnel to support the beddown of up to eight C-130J-30 aircraft; none of these projects would be dependent on the number of these aircraft. The number of aircrew would be reduced from six to four per aircraft, while the maintenance crew would change by plus three to six, depending on the need for aircraft composite specialists.

f. Point of Contact:

Name: Brad Boykin
Title: CTR
Organization: Leidos
Email: boykinb@leidos.com
Phone Number: 737-717-7080

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

_____ applicable
__X__ not applicable

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

Air Force Stationary Sources, the DAF Air Emissions Guide for Air Force Mobile Sources, and the DAF Air Emissions Guide for Air Force Transitory Sources.

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

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

Analysis Summary:

2022

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	-10.012	250	No
NOx	1.687	250	No
CO	-13.908	250	No
SOx	-0.146	250	No
PM 10	1.488	250	No
PM 2.5	0.474	250	No
Pb	0.000	25	No
NH3	-0.001	250	No
CO2e	-458.9		

2023 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	-11.032	250	No
NOx	1.687	250	No
CO	-13.908	250	No
SOx	-0.146	250	No
PM 10	1.488	250	No
PM 2.5	0.474	250	No
Pb	0.000	25	No
NH3	-0.001	250	No
CO2e	-458.9		

None of estimated annual net emissions associated with this action are above the insignificance indicators, indicating no significant impact to air quality. Therefore, the action will not cause or contribute to an exceedance on one or more NAAQSs. No further air assessment is needed.

15 SEP 2021

Brad Boykin, CTR DATE

Reference:

DAF. (2020). *Air Force Selects next C-130J Locations*. Retrieved December 3, 2020, from U.S. Air Force: https://www.af.mil/News/Article-Display/Article/2427896/air-force-selects-next-c-130j-lo/. Secretary of the Air Force Public Affairs. November 25.

ALTERNATIVE 2 (PREFERRED ALTERNATIVE) DETAILED AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: SAVANNAH/ HILTON HEAD INTERNATIONAL AIRPORT
State: Georgia
County(s): Chatham
Regulatory Area(s): NOT IN A REGULATORY AREA

- Action Title: ANG C-130 Conversion EA

- Project Number/s (if applicable):

- Projected Action Start Date: 1 / 2022

- Action Purpose and Need:

The NGB proposes to convert eight ANG C-130H to new C-130J-30 "Super Hercules" aircraft with improved performance and enterprise safety at the 165 AW located at SAV, Savannah, Georgia. The Proposed Action would modify facilities, replace aging aircraft, reduce manpower requirements, lower operating costs, and provide life cycle cost savings.

Implementing the basing action was approved by the Secretary of the Air Force in November 2019. The purpose of the conversion is to improve mission readiness, enhance long-term viability of the enterprise, and reduce stress on maintainers and facilities. The action is needed to continue airlift support and natural disaster relief missions to meet state and national objectives using modern aircraft with advanced technology.

- Action Description:

The Proposed Action is to replace C-130H aircraft to C-130J-30 "Super Hercules" aircraft. The C-130J-30 reduces manpower requirements, lowers operating and support costs, and provides life cycle cost savings over the C-130H models (DAF, 2020). Compared to older C-130 aircraft, the "J" model climbs faster and higher, flies farther at a higher cruise speed, and takes off and lands in a shorter distance (DAF, 2020).

The Proposed Action would include the construction and renovation of select facilities and adjustment of personnel to support the beddown of up to eight C-130J-30 aircraft; none of these projects would be dependent on the number of these aircraft. The number of aircrew would be reduced from six to four per aircraft, while the maintenance crew would change by plus three to six, depending on the need for aircraft composite specialists.

- Point of Contact

Name: Brad Boykin
Title: CTR
Organization: Leidos
Email: boykinb@leidos.com
Phone Number: 737-717-7080

- Activity List:

Activity Type		Activity Title
2.	Aircraft	C-130H
3.	Personnel	Personnel
4.	Aircraft	C-130J-30
5.	Construction / Demolition	Apron Restriping
6.	Construction / Demolition	Building 1930 Expansion

Emission factors and air emission estimating methods come from the Department of the 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. Aircraft

2.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

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

- Activity Title: C-130H

- Activity Description:
540 LTOs and 96 closed patterns.

- Activity Start Date
Start Month: 1
Start Year: 2022

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-12.246968
SO_x	-1.490764
NO_x	-28.565959
CO	-20.849719
PM 10	-1.104759

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.998914
Pb	0.000000
NH_3	0.000000
CO_2e	-3756.0

- Activity Emissions [Flight Operations (includes Trim Test & APU) part]:

Pollutant	Emissions Per Year (TONs)
VOC	-10.897119
SO_x	-0.985362
NO_x	-5.487932
CO	-16.448638
PM 10	-0.660575

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.572798
Pb	0.000000
NH_3	0.000000
CO_2e	-2988.3

- Activity Emissions [Test Cell part]:

Pollutant	Emissions Per Year (TONs)
VOC	-0.165317
SO_x	-0.021364
NO_x	-0.136722
CO	-0.259610
PM 10	-0.014264

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.012838
Pb	0.000000
NH_3	0.000000
CO_2e	-64.6

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	-1.184532
SO_x	-0.484038
NO_x	-22.941305
CO	-4.141471
PM 10	-0.429919

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.413278
Pb	0.000000
NH_3	0.000000
CO_2e	-703.1

2.2 Aircraft & Engines

2.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: WC-130H
Engine Model: T56-A-15
Primary Function: Transport - Bomber
Aircraft has After Burn: No
Number of Engines: 4

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

2.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1,000 lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	794.00	24.15	1.07	3.90	32.00	0.83	0.75	3234
Approach	1185.00	14.26	1.07	4.40	22.20	0.97	0.87	3234
Intermediate	1825.00	0.58	1.07	9.20	2.40	0.51	0.46	3234
Military	2302.00	0.46	1.07	9.30	2.10	0.50	0.45	3234
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234

2.3 Flight Operations

2.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 7
Number of Annual LTOs (Landing and Take-off) cycles for all Aircraft: 540
Number of Annual TGOs (Touch-and-Go) cycles for all Aircraft: 96
Number of Annual Trim Test(s) per Aircraft: 12

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi/Idle Out [Idle] (mins):	9.2
Takeoff [Military] (mins):	0.4
Takeoff [After Burn] (mins):	0
Climb Out [Intermediate] (mins):	2.6
Approach [Approach] (mins):	4.4
Taxi/Idle In [Idle] (mins):	6.7

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% after burner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	42
Approach (mins):	27
Intermediate (mins):	9
Military (mins):	25
After Burn (mins):	0

2.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for LTOs per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * LTO / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1,000 pounds
EF: Emission Factor (lb/1,000 lb fuel)
NE: Number of Engines
LTO: Number of Landing and Take-off Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for LTOs per Year

$AE_{LTO} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{LTO}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for TGOs per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * TGO / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1,000 pounds
EF: Emission Factor (lb/1,000 lb fuel)
NE: Number of Engines
TGO: Number of Touch-and-Go Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for TGOs per Year
$AE_{TGO} = AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{TGO}: Aircraft Emissions (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1,000 pounds
EF: Emission Factor (lb/1,000 lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

2.4 Auxiliary Power Unit (APU)

2.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer
1	1	No	GTCP 85-180L	

2.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
GTCP 85-180L	272.6	0.493	0.289	1.216	3.759	0.131	0.037	910.8

2.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year
$APU_{POL} = APU * OH * LTO * EF_{POL} / 2000$

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)
APU: Number of Auxiliary Power Units
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

2.5 Aircraft Engine Test Cell

2.5.1 Aircraft Engine Test Cell Assumptions

- Engine Test Cell
Total Number of Aircraft Engines Tested Annually: 28

- Default Settings Used: No

- Annual Run-ups / Test Durations

Annual Run-ups (Per Aircraft Engine):	1
Idle Duration (mins):	12
Approach Duration (mins):	27
Intermediate Duration (mins):	9
Military Duration (mins):	12
After Burner Duration (mins):	0

2.5.2 Aircraft Engine Test Cell Emission Factor(s)

- See Aircraft & Engines Emission Factor(s)

2.5.3 Aircraft Engine Test Cell Formula(s)

- Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
$TestCellPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * ARU / 2000$

$TestCellPS_{POL}$: Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1,000 pounds
EF: Emission Factor (lb/1,000 lb fuel)
NE: Total Number of Engines (For All Aircraft)
ARU: Annual Run-ups (Per Aircraft Engine)
2000: Conversion Factor pounds to TONs

- Aircraft Engine Test Cell Emissions per Year
$TestCell = TestCellPS_{IDLE} + TestCellPS_{APPROACH} + TestCellPS_{INTERMEDIATE} + TestCellPS_{MILITARY} + TestCellPS_{AFTERBURN}$

TestCell: Aircraft Engine Test Cell Emissions (TONs)
$TestCellPS_{IDLE}$: Aircraft Engine Test Cell Emissions for Idle Power Setting (TONs)
$TestCellPS_{APPROACH}$: Aircraft Engine Test Cell Emissions for Approach Power Setting (TONs)
$TestCellPS_{INTERMEDIATE}$: Aircraft Engine Test Cell Emissions for Intermediate Power Setting (TONs)
$TestCellPS_{MILITARY}$: Aircraft Engine Test Cell Emissions for Military Power Setting (TONs)
$TestCellPS_{AFTERBURN}$: Aircraft Engine Test Cell Emissions for After Burner Power Setting (TONs)

2.6 Aerospace Ground Equipment (AGE)

2.6.1 Aerospace Ground Equipment (AGE) Assumptions

- Default Settings Used: Yes

- AGE Usage

Number of Annual LTO (Landing and Take-off) cycles for AGE: 540

- Aerospace Ground Equipment (AGE) (default)

Total Number of AGE	Operation Hours for Each LTO	Exempt Source?	AGE Type	Designation
1	1	No	Air Compressor	MC-1A - 18.4hp
1	1	No	Air Conditioner	MA-3D - 120hp
1	11	No	Generator Set	A/M32A-86D
1	1	No	Heater	H1
1	3	No	Hydraulic Test Stand	MJ-2A
1	10	No	Light Cart	NF-2
1	0.25	No	Start Cart	A/M32A-60A

2.6.2 Aerospace Ground Equipment (AGE) Emission Factor(s)

- Aerospace Ground Equipment (AGE) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
MC-1A - 18.4hp	1.1	0.267	0.008	0.419	0.267	0.071	0.068	24.8
MA-3D - 120hp	7.1	0.053	0.050	4.167	0.317	0.109	0.105	161.7
A/M32A-86D	6.5	0.294	0.046	6.102	0.457	0.091	0.089	147.0
H1	0.4	0.100	0.011	0.160	0.180	0.006	0.006	8.9
MJ-2A	0.0	0.190	0.238	3.850	2.460	0.083	0.076	172.0
NF-2	0.0	0.010	0.043	0.110	0.080	0.010	0.010	22.1
A/M32A-60A	0.0	0.270	0.306	1.820	5.480	0.211	0.205	221.1

2.6.3 Aerospace Ground Equipment (AGE) Formula(s)

- Aerospace Ground Equipment (AGE) Emissions per Year

$AGE_{POL} = AGE * OH * LTO * EF_{POL} / 2000$

AGE_{POL}: Aerospace Ground Equipment (AGE) Emissions per Pollutant (TONs)
AGE: Total Number of Aerospace Ground Equipment
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

3. Personnel

3.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Remove

- Activity Location

County: Chatham
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Personnel

- Activity Description:
The number of aircrew would be reduced from six to four per aircraft, while maintenance personnel would change slightly depending on the need for specialists to maintain the aircraft composite.

- Activity Start Date
Start Month: 1
Start Year: 2022

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	-0.008262
SO_x	-0.000060
NO_x	-0.007178
CO	-0.094629
PM 10	-0.000197

Pollutant	Emissions Per Year (TONs)
PM 2.5	-0.000173
Pb	0.000000
NH_3	-0.000554
CO_2e	-8.7

3.2 Personnel Assumptions

- Number of Personnel
Active Duty Personnel: 4
Civilian Personnel: 0
Support Contractor Personnel: 0
Air National Guard (ANG) Personnel: 0
Reserve Personnel: 0

- Default Settings Used: Yes

- Average Personnel Round Trip Commute (mile): 20 (default)

- Personnel Work Schedule
Active Duty Personnel: 5 Days Per Week (default)
Civilian Personnel: 5 Days Per Week (default)
Support Contractor Personnel: 5 Days Per Week (default)
Air National Guard (ANG) Personnel: 4 Days Per Week (default)
Reserve Personnel: 4 Days Per Month (default)

3.3 Personnel On Road Vehicle Mixture

- On Road Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	37.55	60.32	0	0.03	0.2	0	1.9
GOVs	54.49	37.73	4.67	0	0	3.11	0

3.4 Personnel Emission Factor(s)

- On Road Vehicle Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.273	000.002	000.207	003.148	000.007	000.006		000.023	00320.956
LDGT	000.345	000.003	000.366	004.453	000.009	000.008		000.024	00414.257
HDGV	000.716	000.005	000.988	014.742	000.020	000.017		000.044	00766.469
LDDV	000.103	000.003	000.133	002.604	000.004	000.004		000.008	00312.295
LDDT	000.240	000.004	000.378	004.437	000.007	000.006		000.008	00443.620
HDDV	000.494	000.013	004.839	001.748	000.167	000.153		000.028	01500.756
MC	002.588	000.003	000.723	013.090	000.027	000.024		000.054	00395.915

3.5 Personnel Formula(s)

- Personnel Vehicle Miles Travel for Work Days per Year
$VMT_P = NP * WD * AC$

VMT_P: Personnel Vehicle Miles Travel (miles/year)
NP: Number of Personnel
WD: Work Days per Year
AC: Average Commute (miles)

- Total Vehicle Miles Travel per Year
$VMT_{Total} = VMT_{AD} + VMT_C + VMT_{SC} + VMT_{ANG} + VMT_{AFRC}$

VMT_{Total}: Total Vehicle Miles Travel (miles)
VMT_{AD}: Active Duty Personnel Vehicle Miles Travel (miles)
VMT_C: Civilian Personnel Vehicle Miles Travel (miles)
VMT_{SC}: Support Contractor Personnel Vehicle Miles Travel (miles)
VMT_{ANG}: Air National Guard Personnel Vehicle Miles Travel (miles)
VMT_{AFRC}: Reserve Personnel Vehicle Miles Travel (miles)

- Vehicle Emissions per Year
$V_{POL} = (VMT_{Total} * 0.002205 * EF_{POL} * VM) / 2000$

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

4. Aircraft

4.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: C-130J-30

- Activity Description:
540 LTOs and 96 closed patterns.

- Activity Start Date
Start Month: 1
Start Year: 2022

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	1.222813
SO_x	1.345137
NO_x	30.259978
CO	7.036713
PM 10	2.592712

Pollutant	Emissions Per Year (TONs)
PM 2.5	1.472818
Pb	0.000000
NH_3	0.000000
CO_2e	3305.7

- Activity Emissions [Flight Operations (includes Trim Test & APU) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.037562
SO_x	0.839623
NO_x	7.124906
CO	2.834116
PM 10	2.115071

Pollutant	Emissions Per Year (TONs)
PM 2.5	1.036663
Pb	0.000000
NH_3	0.000000
CO_2e	2537.7

- Activity Emissions [Test Cell part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000718
SO_x	0.021476
NO_x	0.193767
CO	0.061126
PM 10	0.047721

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.022877
Pb	0.000000
NH_3	0.000000
CO_2e	64.9

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	1.184532
SO_x	0.484038
NO_x	22.941305
CO	4.141471
PM 10	0.429919

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.413278
Pb	0.000000
NH_3	0.000000
CO_2e	703.1

4.2 Aircraft & Engines

4.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: WC-130J-30
Engine Model: AE2100D3
Primary Function: Transport - Bomber
Aircraft has After Burn: No
Number of Engines: 4

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

4.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1,000 lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	723.60	0.08	1.07	7.58	5.06	3.64	1.88	3234
Approach	880.20	0.06	1.07	7.54	3.89	3.85	2.18	3234
Intermediate	1741.90	0.02	1.07	9.15	1.94	1.46	0.56	3234
Military	2261.70	0.01	1.07	12.46	2.30	1.22	0.33	3234
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234

4.3 Flight Operations

4.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 8
Number of Annual LTOs (Landing and Take-off) cycles for all Aircraft: 540
Number of Annual TGOs (Touch-and-Go) cycles for all Aircraft: 96
Number of Annual Trim Test(s) per Aircraft: 12

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)
Taxi/Idle Out [Idle] (mins): 9.2
Takeoff [Military] (mins): 0.4
Takeoff [After Burn] (mins): 0
Climb Out [Intermediate] (mins): 2.2
Approach [Approach] (mins): 3.9
Taxi/Idle In [Idle] (mins): 6.7

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% after burner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test
Idle (mins): 42
Approach (mins): 27
Intermediate (mins): 9
Military (mins): 25
After Burn (mins): 0

4.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for LTOs per Year
$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * LTO / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1,000 pounds
EF: Emission Factor (lb/1,000 lb fuel)
NE: Number of Engines
LTO: Number of Landing and Take-off Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for LTOs per Year

$AE_{LTO} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{LTO}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for TGOs per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * TGO / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1,000 pounds
EF: Emission Factor (lb/1,000 lb fuel)
NE: Number of Engines
TGO: Number of Touch-and-Go Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for TGOs per Year

$AE_{TGO} = AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{TGO}: Aircraft Emissions (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1,000 pounds
EF: Emission Factor (lb/1,000 lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)

$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

4.4 Auxiliary Power Unit (APU)

4.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer

4.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e

4.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year
$APU_{POL} = APU * OH * LTO * EF_{POL} / 2000$

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)
APU: Number of Auxiliary Power Units
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

4.5 Aircraft Engine Test Cell

4.5.1 Aircraft Engine Test Cell Assumptions

- Engine Test Cell
Total Number of Aircraft Engines Tested Annually: 32

- Default Settings Used: No

- Annual Run-ups / Test Durations
Annual Run-ups (Per Aircraft Engine): 1
Idle Duration (mins): 12
Approach Duration (mins): 27
Intermediate Duration (mins): 9
Military Duration (mins): 12
After Burner Duration (mins): 0

4.5.2 Aircraft Engine Test Cell Emission Factor(s)

- See Aircraft & Engines Emission Factor(s)

4.5.3 Aircraft Engine Test Cell Formula(s)

- Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
$TestCellPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * ARU / 2000$

$TestCellPS_{POL}$: Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1,000 pounds
EF: Emission Factor (lb/1,000 lb fuel)
NE: Total Number of Engines (For All Aircraft)
ARU: Annual Run-ups (Per Aircraft Engine)
2000: Conversion Factor pounds to TONs

- Aircraft Engine Test Cell Emissions per Year
$TestCell = TestCellPS_{IDLE} + TestCellPS_{APPROACH} + TestCellPS_{INTERMEDIATE} + TestCellPS_{MILITARY} + TestCellPS_{AFTERBURN}$

TestCell: Aircraft Engine Test Cell Emissions (TONs)
$TestCellPS_{IDLE}$: Aircraft Engine Test Cell Emissions for Idle Power Setting (TONs)
$TestCellPS_{APPROACH}$: Aircraft Engine Test Cell Emissions for Approach Power Setting (TONs)
$TestCellPS_{INTERMEDIATE}$: Aircraft Engine Test Cell Emissions for Intermediate Power Setting (TONs)
$TestCellPS_{MILITARY}$: Aircraft Engine Test Cell Emissions for Military Power Setting (TONs)
$TestCellPS_{AFTERBURN}$: Aircraft Engine Test Cell Emissions for After Burner Power Setting (TONs)

4.6 Aerospace Ground Equipment (AGE)

4.6.1 Aerospace Ground Equipment (AGE) Assumptions

- Default Settings Used: Yes

- AGE Usage
Number of Annual LTO (Landing and Take-off) cycles for AGE: 540

- Aerospace Ground Equipment (AGE) (default)

Total Number of AGE	Operation Hours for Each LTO	Exempt Source?	AGE Type	Designation
1	1	No	Air Compressor	MC-1A - 18.4hp
1	1	No	Air Conditioner	MA-3D - 120hp
1	11	No	Generator Set	A/M32A-86D
1	1	No	Heater	H1
1	3	No	Hydraulic Test Stand	MJ-2A
1	10	No	Light Cart	NF-2
1	0.25	No	Start Cart	A/M32A-60A

4.6.2 Aerospace Ground Equipment (AGE) Emission Factor(s)

- Aerospace Ground Equipment (AGE) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
MC-1A - 18.4hp	1.1	0.267	0.008	0.419	0.267	0.071	0.068	24.8
MA-3D - 120hp	7.1	0.053	0.050	4.167	0.317	0.109	0.105	161.7
A/M32A-86D	6.5	0.294	0.046	6.102	0.457	0.091	0.089	147.0
H1	0.4	0.100	0.011	0.160	0.180	0.006	0.006	8.9
MJ-2A	0.0	0.190	0.238	3.850	2.460	0.083	0.076	172.0
NF-2	0.0	0.010	0.043	0.110	0.080	0.010	0.010	22.1
A/M32A-60A	0.0	0.270	0.306	1.820	5.480	0.211	0.205	221.1

4.6.3 Aerospace Ground Equipment (AGE) Formula(s)

- Aerospace Ground Equipment (AGE) Emissions per Year

$AGE_{POL} = AGE * OH * LTO * EF_{POL} / 2000$

AGE_{POL}: Aerospace Ground Equipment (AGE) Emissions per Pollutant (TONs)
AGE: Total Number of Aerospace Ground Equipment
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

5. Construction / Demolition

5.1 General Information & Timeline Assumptions

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

- Activity Title: Apron Restriping

- Activity Description:
The area of the apron to be restriped is approximately 880,000 square feet. It is conservatively estimated that 10 percent of that area would actually require paint application.

- Activity Start Date
Start Month: 1
Start Month: 2022

- Activity End Date
Indefinite: False
End Month: 3
End Month: 2022

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	1.020800
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Total Emissions (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

5.1 Architectural Coatings Phase

5.1.1 Architectural Coatings Phase Timeline Assumptions

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

- Phase Duration
Number of Month: 3
Number of Days: 0

5.1.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 88000
Number of Units: N/A

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

- 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

5.1.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.551	000.007	000.598	004.770	000.011	000.010		000.034	00367.669
LDGT	000.745	000.010	001.037	007.835	000.013	000.011		000.034	00491.872
HDGV	001.369	000.015	002.869	024.858	000.031	000.027		000.045	00767.677
LDDV	000.235	000.003	000.315	003.662	000.007	000.006		000.008	00375.935
LDDT	000.540	000.005	000.843	007.445	000.008	000.008		000.008	00586.287
HDDV	000.832	000.014	008.507	002.815	000.369	000.339		000.029	01578.178
MC	002.711	000.008	000.750	014.906	000.029	000.025		000.051	00395.124

5.1.4 Architectural Coatings Phase Formula(s)

- Worker Trips Emissions per Phase
$VMT_{WT} = (1 * WT * PA) / 800$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
1: Conversion Factor man days to trips (1 trip / 1 man * day)
WT: Average Worker Round Trip Commute (mile)
PA: Paint Area (ft^2)
800: Conversion Factor square feet to man days (1 ft^2 / 1 man * day)

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

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

- Off-Gassing Emissions per Phase
$VOC_{AC} = (AB * 2.0 * 0.0116) / 2000.0$

VOC_{AC}: Architectural Coating VOC Emissions (TONs)
BA: Area of Building (ft^2)
2.0: Conversion Factor total area to coated area (2.0 ft^2 coated area / total area)
0.0116: Emission Factor (lb/ft^2)
2000: Conversion Factor pounds to tons

6. Construction / Demolition

6.1 General Information & Timeline Assumptions

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

- Activity Title: Building 1930 Expansion

- Activity Description:
Building 1930 would be expanded by approximately 865 square feet.

- Activity Start Date
Start Month: 1
Start Month: 2022

- Activity End Date
Indefinite: False
End Month: 6
End Month: 2022

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.076832
SO_x	0.001212
NO_x	0.367562
CO	0.511062
PM 10	0.013755

Pollutant	Total Emissions (TONs)
PM 2.5	0.013735
Pb	0.000000
NH_3	0.000360
CO_2e	116.8

6.1 Building Construction Phase

6.1.1 Building Construction Phase Timeline Assumptions

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

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

6.1.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 865
Height of Building (ft): 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	4
Forklifts Composite	2	6
Tractors/Loaders/Backhoes 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

6.1.3 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
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

- 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	000.273	000.002	000.207	003.148	000.007	000.006		000.023	00320.956
LDGT	000.345	000.003	000.366	004.453	000.009	000.008		000.024	00414.257
HDGV	000.716	000.005	000.988	014.742	000.020	000.017		000.044	00766.469
LDDV	000.103	000.003	000.133	002.604	000.004	000.004		000.008	00312.295
LDDT	000.240	000.004	000.378	004.437	000.007	000.006		000.008	00443.620
HDDV	000.494	000.013	004.839	001.748	000.167	000.153		000.028	01500.756
MC	002.588	000.003	000.723	013.090	000.027	000.024		000.054	00395.915

6.1.4 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 / 1,000): Conversion Factor ft^3 to trips (0.42 trip / 1,000 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
$VMT_{VT} = BA * BH * (0.38 / 1,000) * HT$

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 / 1,000 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

6.2 Architectural Coatings Phase

6.2.1 Architectural Coatings Phase Timeline Assumptions

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

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

6.2.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 865
Number of Units: N/A

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

- 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

6.2.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.273	000.002	000.207	003.148	000.007	000.006		000.023	00320.956
LDGT	000.345	000.003	000.366	004.453	000.009	000.008		000.024	00414.257
HDGV	000.716	000.005	000.988	014.742	000.020	000.017		000.044	00766.469
LDDV	000.103	000.003	000.133	002.604	000.004	000.004		000.008	00312.295
LDDT	000.240	000.004	000.378	004.437	000.007	000.006		000.008	00443.620
HDDV	000.494	000.013	004.839	001.748	000.167	000.153		000.028	01500.756
MC	002.588	000.003	000.723	013.090	000.027	000.024		000.054	00395.915

6.2.4 Architectural Coatings Phase Formula(s)

- Worker Trips Emissions per Phase

$VMT_{WT} = (1 * WT * PA) / 800$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
1: Conversion Factor man days to trips (1 trip / 1 man * day)
WT: Average Worker Round Trip Commute (mile)
PA: Paint Area (ft^2)
800: Conversion Factor square feet to man days (1 ft^2 / 1 man * day)

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

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

- Off-Gassing Emissions per Phase

$VOC_{AC} = (AB * 2.0 * 0.0116) / 2000.0$

VOC_{AC}: Architectural Coating VOC Emissions (TONs)
BA: Area of Building (ft^2)
2.0: Conversion Factor total area to coated area (2.0 ft^2 coated area / total area)
0.0116: Emission Factor (lb/ft^2)
2000: Conversion Factor pounds to tons

ALTERNATIVE 2 (PREFERRED ALTERNATIVE) AIR CONFORMITY APPLICABILITY MODEL REPORT RECORD OF AIR ANALYSIS (ROAA)

1. General Information: The Department of the Air Force's (DAF's) Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality impacts associated with the 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: SAVANNAH/HILTON HEAD INTERNATIONAL AIRPORT
State: Georgia
County(s): Chatham
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: ANG C-130 Conversion EA

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2022

e. Action Description:

The Proposed Action is to replace C-130H aircraft to C-130J-30 "Super Hercules" aircraft. The C-130J-30 reduces manpower requirements, lowers operating and support costs, and provides life cycle cost savings over the C-130H models (DAF, 2020). Compared to older C-130 aircraft, the "J" model climbs faster and higher, flies farther at a higher cruise speed, and takes off and lands in a shorter distance (DAF, 2020).

The Proposed Action would include the construction and renovation of select facilities and adjustment of personnel to support the beddown of up to eight C-130J-30 aircraft; none of these projects would be dependent on the number of these aircraft. The number of aircrew would be reduced from six to four per aircraft, while the maintenance crew would change by plus three to six, depending on the need for aircraft composite specialists.

f. Point of Contact:

Name: Brad Boykin
Title: CTR
Organization: Leidos
Email: boykinb@leidos.com
Phone Number: 737-717-7080

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

_____ applicable
__X__ not applicable

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

Air Force Stationary Sources, the DAF Air Emissions Guide for Air Force Mobile Sources, and the DAF Air Emissions Guide for Air Force Transitory Sources.

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

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

Analysis Summary:

2022

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	-9.935	250	No
NOx	2.054	250	No
CO	-13.397	250	No
SOx	-0.144	250	No
PM 10	1.502	250	No
PM 2.5	0.487	250	No
Pb	0.000	25	No
NH3	0.000	250	No
CO2e	-342.2		

2023 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	-11.032	250	No
NOx	1.687	250	No
CO	-13.908	250	No
SOx	-0.146	250	No
PM 10	1.488	250	No
PM 2.5	0.474	250	No
Pb	0.000	25	No
NH3	-0.001	250	No
CO2e	-458.9		

None of estimated annual net emissions associated with this action are above the insignificance indicators, indicating no significant impact to air quality. Therefore, the action will not cause or contribute to an exceedance on one or more NAAQSs. No further air assessment is needed.

Brad Boykin, CTR — 15 SEP 2021 (DATE)

Reference:

DAF. (2020). *Air Force Selects next C-130J Locations*. Retrieved December 3, 2020, from U.S. Air Force: https://www.af.mil/News/Article-Display/Article/2427896/air-force-selects-next-c-130j-