DRAFT

JACKSONVILLE NORTH PULASKI SCHOOL

ENVIRONMENTAL ASSESSMENT

LITTLE ROCK AIR FORCE BASE
LITTLE ROCK, ARKANSAS

AIR MOBILITY COMMAND

August 2016

ACRONYMS AND ABBREVIATIONS

19 AW	19th Airlift Wing
29 WS	29th Weapons Squadron
189 AW	189th Airlift Wing
314 AW	314th Airlift Wing
ACC	Air Combat Command
ACM	Asbestos-Containing Material
ADEQ	Arkansas Department of Environmental Quality
ADT	Average Daily Traffic
AETC	Air Education and Training Command
AFB	Air Force Base
AFI	Air Force Instruction
AGL	Above Ground Level
AHTD	Arkansas State Highway and Transportation Department
AICUZ	Air Installation Compatible Use Zone
AL	A-Weighted Sound Level
AMC	Air Mobility Command
AMCAOS	Air Mobility Command Air Operations Squadron
ANG	Air National Guard
ANHC	Arkansas Natural Heritage Commission
AOC	Area of Concern
APE	Area of Potential Effect
APZ	Accident Potential Zone
AQCR	Air Quality Control Region
AST	Aboveground Storage Tank
AT/FP	Anti-Terrorism/Force Protection
BMP	Best Management Practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CNATT	Center for Naval Aviation Technical Training
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
CWA	Clean Water Act
CZ	Clear Zone
dB	Decibel
dBA	A-weighted Decibel
DNL	Day-Night Average Sound Level
DNWG	Department of Defense Noise Working Group
DoD	Department of Defense
DOPAA	Description of Proposed Action and Alternatives
DPSAFT	Division of Public School Academic Facilities and Transportation
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EO	Executive Order
ERP	Environmental Restoration Program
ESA	Endangered Species Act
FCI	Facility Condition Index
FEMA	Federal Emergency Management Agency
FY	Fiscal Year
GHG	Greenhouse Gas
HAP	Hazardous Air Pollutant
Hz	Hertz
ITE	Institute of Transportation Engineers
LBP	Lead-Based Paint
L_{eq}	Equivalent Sound Level
$L_{eq}8$	8-Hour Equivalent Sound Level
LID	Low Impact Development
L_{max}	Maximum Sound Level
LOS	Level of Service
MSAT	Mobile Source Air Toxic
NA75SEL	Number of Events Above the Sound Exposure Level of 75 dB
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO_2	Nitrogen Dioxide
NO_x	Oxides of Nitrogen
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O_3	Ozone
OEA	Office of Economic Adjustment
OWS	Oil/Water Separator
PA	Proposed Action
Pb	Lead
PCB	Polychlorinated Biphenyl
pCi/L	Picocuries Per Liter
$PM_{2.5}$	Particulate Matter Less Than or Equal to 2.5 Microns in Aerodynamic Diameter
PM_{10}	Particulate Matter Less Than or Equal to 10 Microns in Aerodynamic Diameter
RADD	Remedial Action Decision Document
RCRA	Resource Conservation and Recovery Act
ROI	Region of Influence
SAC	Strategic Air Command
SEL	Sound Exposure Level
SF	Square Foot/Feet
SHPO	State Historic Preservation Officer
SO_2	Sulfur Dioxide
SO_x	Sulfur Oxide
SWPPP	Stormwater Pollution Prevention Plan
tpy	Tons Per Year
TRB	Transportation Research Board
U.S.	United States
UFC	Unified Facilities Criteria
USGCRP	United States Global Change Research Program
USACE	United States Army Corps of Engineers
USAF	United States Air Force
USC	United States Code
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USMC	United States Marine Corps
UST	Underground Storage Tank
VOC	Volatile Organic Compound

PRIVACY ADVISORY

Your comments on this Draft Environmental Assessment (EA) are requested. Letters or other written or oral comments provided to the United States Air Force may be published in the Final EA. As required by law, comments will be addressed in the Final EA and made available to the public. Any personal information provided will be used only to identify your desire to make a comment or to fulfill requests for copies of the Final EA or associated documents. Private addresses will be compiled to develop a mailing list for those requesting copies of the Final EA. However, only the names of the individuals making comments and specific comment will be disclosed. Personal home addresses and phone numbers will not be published in the Final EA.

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DRAFT
FINDING OF NO SIGNIFICANT IMPACT
AND FINDING OF NO PRACTICABLE ALTERNATIVE
FOR
JACKSONVILLE NORTH PULASKI SCHOOL
LITTLE ROCK AIR FORCE BASE, ARKANSAS

Pursuant to provisions of the National Environmental Policy Act (NEPA), Title 42 United States Code (USC) Sections 4321 to 4347, implemented by Council on Environmental Quality (CEQ) Regulations, Title 40, Code of Federal Regulations (CFR) §1500-1508, and 32 CFR §989, Environmental Impact Analysis Process, the United States Air Force (USAF) assessed the potential environmental consequences associated with leasing property to the Jacksonville North Pulaski School District (the District) to construct an educational campus at Little Rock Air Force Base (AFB), Pulaski County, Arkansas.

Little Rock AFB is committed to supporting the children of military members and the surrounding community. The purpose of the Proposed Action (PA) is to lease USAF property on Little Rock AFB to the District to create an educational campus to improve educational facilities for both military dependent and civilian students in the community. The need for the PA is to repair/replace antiquated public elementary school and high school facilities and to provide installation families and the local community quality public educational facilities. The Environmental Assessment (EA), incorporated by reference into this finding, analyzes the potential environmental consequences of activities associated with the leasing of property to the District for an educational campus, and provides environmental protection measures to avoid or reduce potentially adverse environmental impacts.

The EA considers all potential impacts of Alternative #1 (Preferred Alternative), Alternative #2, and the No Action Alternative. The EA also considers cumulative environmental impacts with other projects at Little Rock AFB and within the vicinity.

The USAF distributed the Draft EA on August 8, 2016 and announced its availability for public review in the *Arkansas Democrat-Gazette* newspaper on August 14, 2016. The Draft EA was distributed to agencies and regional libraries on August 8, 2016 for public comment over a 30-day period.

ALTERNATIVE #1 (PREFERRED ALTERNATIVE)

The Preferred Alternative would include the leasing of 23.7-acre property to the District in addition to the construction of an elementary school on this property. The Preferred Alternative would combine the two elementary school facilities, Arnold Drive Elementary School (which is currently on Base), and Tolleson Elementary School (which is currently off Base), into one facility.

ALTERNATIVE #2

Under Alternative #2, an educational campus would be developed that would include elementary and high school facilities. Development would occur in two phases. Phase I would involve the development of the new elementary school as presented in the Preferred Alternative. Phase II would include leasing an additional 79 acres on Little Rock AFB to the District for the construction of a new high school and associated facilities.

NO ACTION ALTERNATIVE

Under the No Action Alternative, the USAF would not lease property to the District and the proposed construction of the new elementary school and new high school would not occur. Under the No Action Alternative, the District would continue to conduct periodic repairs to Arnold Drive Elementary School, Tolleson Elementary School, and Jacksonville High School to correct the most egregious deficiencies. The existing schools would continue to deteriorate, and advantageous use of the Office of Economic Adjustment funding would not occur. Although this alternative does not meet the purpose and need for the action, it is carried forward for analysis in this EA per CEQ regulations, and as a baseline from which to compare the potential impacts of the PA and alternatives.

SUMMARY OF FINDINGS

The USAF has concluded that no significant adverse effects would result to the following resources as a result of the PA: public health and safety, air quality, greenhouse gases, noise, land use, geology and earth resources, water resources, biological resources, transportation and infrastructure, cultural resources, environmental justice, socioeconomics, and hazardous materials and waste. No significant adverse cumulative impacts would result from activities associated with Alternative #1 (Preferred Alternative) (or Alternative #2) when considered with past, present, or reasonably foreseeable future projects at Little Rock AFB and the vicinity.

Earth Resources

Construction under the Preferred Alternative would result in 6.18 net acres of temporary disturbance: 5.34 acres as a result of the construction of the new elementary school and 0.84 acres associated with the demolition of Arnold Drive Elementary School. There would be 5.96 acres of new impervious surfaces constructed and 2.7 acres of pervious surfaces. Any potential impacts resulting from erosion or temporary increases in surface runoff during construction activities would be minimized through the use of standard erosion control measures. Therefore, impacts to earth resources would not be significant.

Water Resources

There are no wetlands located within the elementary school parcel proposed for lease; however, there are floodplains within the parcel. Although the floodplains are not within the area proposed for disturbance, potential impacts could occur as a result of changes to construction-

related overland flow not appropriately mitigated by Best Management Practices and by the close proximity of the floodplains to the proposed construction. Any potential impacts resulting from erosion or temporary increases in surface runoff during construction activities would be minimized through the use of standard erosion control measures. Therefore, impacts to water resources would not be significant.

Biological Resources

Impacts from noise to wildlife and special status species would not be significant. Rattlesnake-master borer moths were observed in the Post Oak Savanna within the footprint of the proposed elementary school. Their primary food plant, rattlesnake-master, was also found in these areas. Little Rock AFB would transplant any rattlesnake-master plants within the footprint of the new elementary school to nearby suitable habitat prior to construction.

FINDING OF NO PRACTICABLE ALTERNATIVE

Per 32 CFR § 989.14(g), the USAF finds that there is no practicable alternative to leasing the parcel of land for the proposed elementary school construction. The facility would be located on Department of Defense property in a location where public access can be provided, and this was the only parcel that met specific selection standards, which are fully discussed in Section 2.2 of the EA. Therefore, there is no practicable alternative to leasing the proposed elementary school parcel.

FINDING OF NO SIGNIFICANT IMPACT

Based on my review of the facts and analyses contained in the attached EA, conducted under the provisions of NEPA, CEQ Regulations, and 32 CFR Part 989, I conclude that the leasing of property to the District for an educational campus would not have a significant environmental impact, either by itself or cumulatively with other projects at Little Rock AFB and the vicinity. Accordingly, an Environmental Impact Statement is not required. The signing of this Finding of No Significant Impact completes the environmental impact analysis process.

_____ Date _____

SIGNATORY NAME, Rank/Title

_____ _____

Signature Authority Date

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TABLE OF CONTENTS

APPENDICES

APPENDIX A INTERAGENCY COORDINATION

APPENDIX B EMISSIONS CALCULATIONS

LIST OF TABLES

LIST OF FIGURES

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1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1. INTRODUCTION

The 19th Airlift Wing (19 AW) proposes to lease property (approximately 103 acres) to the Jacksonville North Pulaski School District (the District) to construct an educational campus to be used by both school age children of military members on or off the installation and the civilian community. This proposal would provide updated educational facilities for students within the District. These facilities would be optimally located so that travel distance for many school age children would be minimized.

Little Rock Air Force Base (AFB) is a 6,929-acre Air Mobility Command (AMC) training installation 15 miles north of the city of Little Rock in central Arkansas (Figure 1-1). Little Rock AFB is located in Pulaski County near the town of Jacksonville, Arkansas. Interstate 67/State Route 167 borders Little Rock AFB on the eastern boundary, and State Route 107 borders Little Rock AFB on the western boundary. Vandenberg Boulevard is the main access route to Little Rock AFB.

Little Rock AFB is the headquarters for the 19 AW and is the only C-130 training base in the Department of Defense (DoD). The 19 AW flies the world's largest fleet of C-130 aircraft and is responsible for providing worldwide deployable C-130 aircraft, aircrews, support personnel, and equipment for AMC and Air Expeditionary Force missions. The mission of the 19 AW is to train C-130 combat airlifters for defense missions worldwide. The 19 AW serves as the host unit at Little Rock AFB, with more than 85 assigned C-130 aircraft at Little Rock AFB. Tenant units located at Little Rock AFB include the 314th Airlift Wing (314 AW) of Air Education and Training Command (AETC), the 29th Weapons Squadron (29 WS) of Air Combat Command (ACC), the 189th Airlift Wing (189 AW) of the Arkansas Air National Guard (ANG), 373d Training Squadron/Detachment 4 of AETC, 913th Airlift Group of Air Force Reserve Command Center for Naval Aviation Technical Training (CNATT) (United States Marine Corps [USMC]), and Det 3 Air Mobility Command Air Operations Squadron (AMCAOS).

In accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] 4321-4347), Council on Environmental Quality (CEQ) *Regulations for Implementing the Procedural Provisions of NEPA* (40 Code of Federal Regulations [CFR] Parts 1500-1508), and Air Force Instruction (AFI) 32-7061 as promulgated at 32 CFR Part 989 *et seq*., *Environmental Impact Analysis Process*, the United States Air Force (USAF) has prepared this Draft Environmental Assessment (EA), which considers the potential consequences to the human and natural environment that may result from development and construction of the District educational campus.

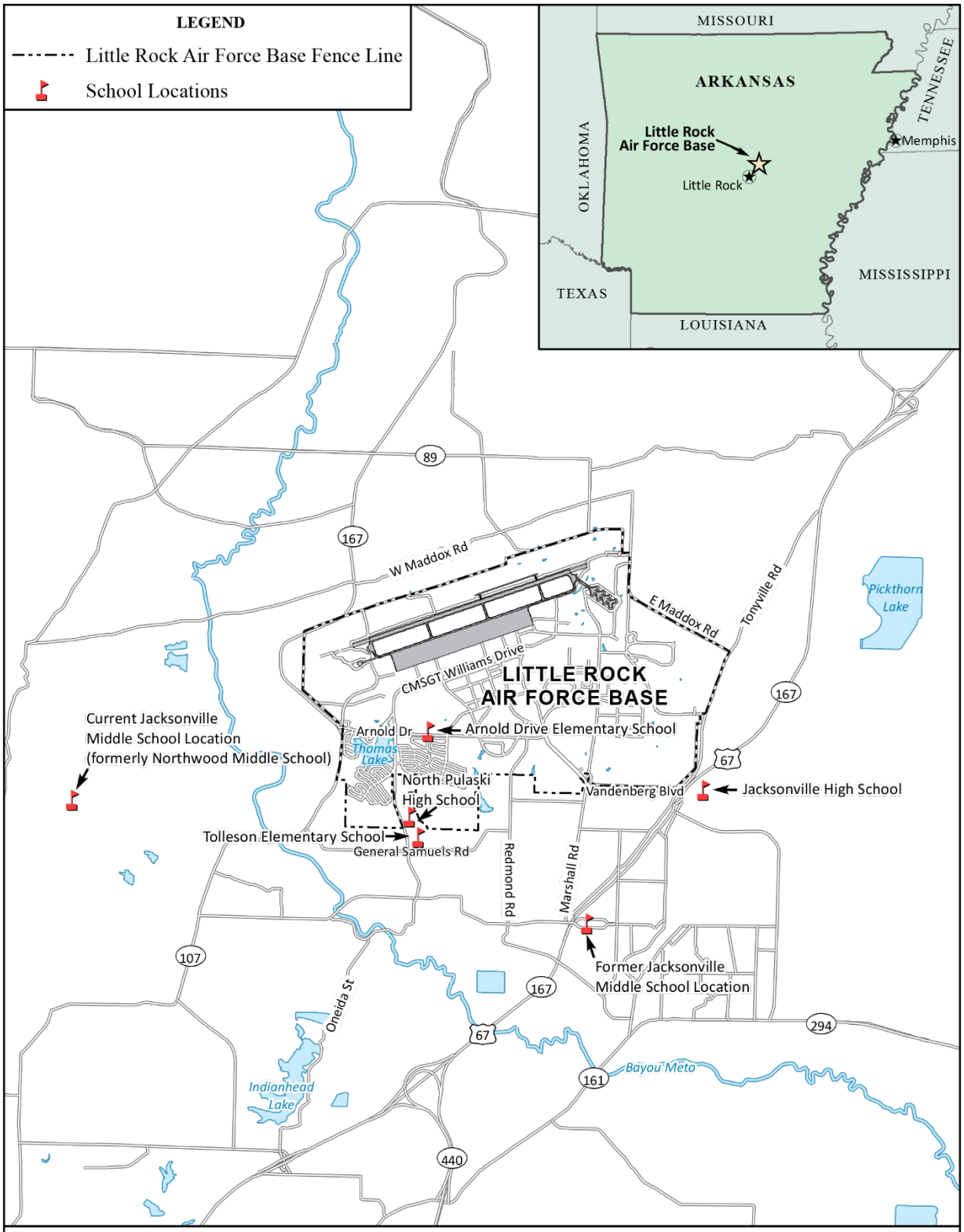

Figure 1-1
Regional Location
Little Rock Air Force Base, Arkansas

1.2. PURPOSE OF THE PROPOSED ACTION

Little Rock AFB is committed to supporting the children of military members and the surrounding community. The purpose is to create an educational campus to improve educational facilities for both military dependent and civilian students in the community. Little Rock AFB intends to analyze potential impacts to the natural and human environment through NEPA under 40 CFR Parts 1500-1508 and the Air Force Environmental Impact Analysis Process (EIAP) 32 CFR 989. The District may elect to construct or not construct the multi-school campus at other varied locations within the community, or may elect to construct an individual school facility (at any level) at varied locations within the community, including the Little Rock AFB property. Therefore, this NEPA process undertaken by Little Rock AFB will only evaluate the potential environmental impacts if the multi-school campus is constructed by the District on USAF leased property.

1.3. NEED FOR ACTION

The need for the Proposed Action (PA) is to repair/replace antiquated public facilities and to provide installation families and the local community quality public educational facilities. Little Rock AFB recognizes the significant challenges that come with growing up in a military family as well as the issues surrounding the public educational institutions serving the installation, and encourage initiatives that give children the tools to meet these challenges. Little Rock AFB supports efforts that improve the public schools, which would help military dependent and local civilian students achieve academic excellence and develop strong interpersonal skills.

1.3.1. BACKGROUND

On November 13, 2014, the Arkansas State Board of Education approved an order creating the District effective as of the 2016/2017 school year and separating it from the Pulaski County Special School District (Pulaski County District). The District will consist of six elementary schools, one middle school, and one high school. The elementary schools include Bayou Meto, Murrell Taylor, Pinewood, Tolleson, Arnold Drive, and Warren Dupree. The middle school is Jacksonville Middle School, and the high school is Jacksonville High School. The School District will include between 4,000 and 5,000 students.

One of the first priorities of the new District was to evaluate the condition of the current facilities and recommend an approach for improving the school facilities. The highest priority schools that were determined to need the most improvements were Arnold Drive Elementary, Tolleson Elementary, Jacksonville High School, and Jacksonville Middle School (see Figure 1-1).

- Arnold Drive Elementary School was built in 1968 and is located on Arnold Drive within the boundaries of Little Rock AFB. Currently, Arnold Drive Elementary has a total of 208 students (200 military and 8 non-military) and approximately 22 teachers.

- Tolleson Elementary School was built in 1957 and is located on Harris Road approximately 0.7 mile south of the Little Rock AFB Harris Road entrance gate. Currently, Tolleson Elementary has a total of 320 students (80 military and 240 non-military) and approximately 23 teachers.

- Jacksonville High School was built in 1968 and is located on Linda Lane approximately 1.4 miles south of the main gate of Little Rock AFB on Vandenberg Boulevard. Currently, Jacksonville High School has a total of 842 students (8 military and 834 non-military) and approximately 61 teachers.

- The former Jacksonville Middle School building was built in 1952 and was located on Sharp Street approximately 2.5 miles south of Little Rock AFB. During the 2012-2013 school year, Jacksonville Middle School had a total of 612 students and approximately 40 teachers. This school has now been vacated and is currently empty.

As of June 15, 2015 the former Jacksonville Middle School building closed and the staff transferred to the campus of the former Northwood Middle School. In addition, the District began renovations to North Pulaski High School (located off Little Rock AFB and completion is expected prior to the 2016/2017 school year. After completion of the renovations, the District will move all middle school students (both on- and off-Little Rock AFB students) to the renovated North Pulaski High School. For this same year, North Pulaski High School students would be combined with the high school students on the existing Jacksonville High School Campus (located on Linda Lane approximately 1.4 miles south of the main gate of Little Rock AFB). The current Middle School (on Bamboo Lane) will then be converted to a Freshman Academy for the Pulaski County District use. Once the high school students move into the new high school, the existing North Pulaski High School would become the new middle school to create the overall campus.

During proposal development, renovation of both Arnold Drive Elementary School and Tolleson Elementary School was considered. However, each facility would require complete upgrades for all mechanical, electrical, and plumbing systems. Challenges with the existing construction would prevent these structures from meeting current energy codes even after renovation is complete. There is no practical renovation scenario that would allow occupancy during construction. Furthermore, there is currently no available district-owned facility within a reasonable distance that has excess capacity to temporarily house the students for the 12 months needed to complete a major renovation project. In the event temporary facilities could be

identified, both tangible and intangible effects from relocating children for an entire school year would negatively impact student learning.

Compounding the issues associated with the renovation scenario, the Arkansas State Department of Education facility standards have changed significantly since the facilities were constructed. As such, any major renovation project would require the specific facility to be updated to the current space standards. Arnold Drive Elementary is currently 32,652 square feet (SF) and could serve 375-400 students. Major renovation or new construction for 375-400 students would require 51,899 SF to address current State Department of Education standards. Even with targeted improvements in size and function, some state standards and proper educational guidelines cannot be satisfied based on limitations of the existing building and site constraints.

In addition, the State of Arkansas conducted a detailed state-wide assessment of all school facilities in 2004. Based on the Arkansas State Department of Education facility standards, each school was given a Facility Condition Index (FCI). A FCI above 65 percent is an indicator that facilities should be replaced rather than renovated. At that time, the FCI for Arnold Drive Elementary was 63.41 percent and the FCI for Tolleson Elementary was 73.87 percent. During the 11 years since the assessment, there has been continued degradation of the facilities in spite of routine maintenance that has been performed. The State's Division of Public School Academic Facilities and Transportation (DPSAFT) conducted a subsequent FCI inspection in January 2016 that computed the current FCI values to be 72.4 percent for Arnold Elementary School and 69.52 percent for Tolleson Elementary, respectively. Accordingly, the DPSAFT has approved replacement of the two schools and indicated that no state funds would be available for major renovations since it would not be a prudent expenditure of state funds to renovate Arnold Drive Elementary School or Tolleson Elementary School.

Funding for the construction of the new elementary school would be provided partially by the Office of Economic Adjustment (OEA) and partially by the District. Since Arnold Drive Elementary School is currently on Little Rock AFB property, the OEA would fund 80 percent of the total cost ($14 million) for the Arnold Drive Elementary School portion of the project (approximately 52,000 SF or $11.2 million). The District would fund the remaining portion of the new elementary school. The new high school construction and the renovations of North Pulaski High for the middle school would be entirely funded by the District.

In addition to the USAF potentially leasing land to the District for the construction of a new high school, the District is also considering two alternative locations for the high school that are located off Little Rock AFB property. The first alternative location for the new high school is the existing Jacksonville High School location located at 2400 Linda Lane. If the District were to choose this location, the existing Jacksonville High School facilities would be demolished and a new high school would be constructed in its place. The second alternative location for the new

high school is located at the former Jacksonville Middle School location at 201 Sharp Street. If the District were to choose this location, the Jacksonville Middle School facilities would be demolished and a new high school would be constructed in its place. These two alternative locations will not be carried forward for detailed analysis in this EA since they would not occur on USAF property, do not require a USAF permit or approval, do not involve a federal program, nor would they involve any federal funding, and are therefore not subject to NEPA. However, the District may decide to choose one of these alternative locations.

Constructing the new elementary school adjacent to the current Tolleson Elementary School was considered. However, this location does not provide a sufficient site layout or total acreage for the necessary additional facilities to be constructed. In addition, the topography at this location is not sufficient to facilitate construction activities; it has an unsuitable gradient and a creek within the potential building footprint that would increase impacts unnecessarily and would cause increased construction costs (see Figure 2-1 for full aerial view of property adjacent to Tolleson Elementary School).

1.4. DECISION TO BE MADE

Based on the analysis in this EA, the USAF will make one of three decisions regarding the PA:

1) Choose the alternative that best meets the purpose and need and sign a Finding of No Significant Impact (FONSI) or FONSI/Finding of No Practicable Alternative (FONPA), allowing implementation of the selected alternative;
2) Initiate preparation of an Environmental Impact Statement if it is determined that significant impacts would occur with implementation of the PA; or
3) Select the No Action Alternative, whereby the PA would not be implemented.

1.5. COOPERATING AGENCY AND INTERGOVERNMENTAL COORDINATION/CONSULTATIONS

Upon request of the Lead Agency (USAF), any other Federal agency that has jurisdiction by law can participate in the environmental impact analysis process as a Cooperating Agency. A Cooperating Agency is one that has special expertise with respect to any particular environmental issue that must be addressed in the document. There are no cooperating agencies associated with this PA.

Per the Intergovernmental Coordination Act of 1968, and Executive Order (EO) 12372, *Intergovernmental Review of Federal Programs*, interagency and intergovernmental coordination was conducted. The USAF sent letters to interested and affected government agencies, government representatives, elected officials, and interested parties potentially affected by the PA on 8 August 2016. Appendix A contains the recipient mailing list and example of the

letters sent to recipients. The USAF distributed the Draft EA on 8 August 2016 and announced its availability for public review in the *Arkansas Democrat Gazette* newspaper on 14 August 2016. The Draft EA was distributed to agencies and regional libraries for public comment over a 30-day period.

Letters were sent on 8 August 2016 to the State Historic Preservation Office (SHPO) and United States Fish and Wildlife Service (USFWS) along with the Draft EA. Any comments from the SHPO or USFWS will be considered in the preparation of the Final EA.

Additionally, as part of the Government-to-Government consultation process (AFI 90-2002, *Air Force Interactions with Federally-Recognized Tribes,* November 19, 2014 and DoD Instruction 4710.02, *Interaction with Federally Recognized Tribes*, September 14, 2006), Little Rock AFB sent letters on November 20, 2015 to four federally-recognized tribes (Quapaw Tribe, Osage Tribe, Caddo Indian Tribe, and Tunica-Biloxi Indians) requesting initiation of consultation (see Appendix A). All tribes were sent copies of the Draft EA for review.

1.6. KEY APPLICABLE LAWS AND ENVIRONMENTAL REGULATIONS

1.6.1. NATIONAL ENVIRONMENTAL POLICY ACT

In accordance with NEPA of 1969 (42 USC 4321-4347), CEQ *Regulations for Implementing the Procedural Provisions of NEPA* (40 CFR Parts 1500-1508), and AFI 32-7061 as promulgated at 32 CFR Part 989 *et seq.*, *Environmental Impact Analysis Process*, the USAF has prepared this EA, which considers the potential consequences to the human and natural environment that may result from implementation of these activities.

NEPA requires federal agencies to take into consideration the potential environmental consequences of proposed actions in their decision-making process. The intent of NEPA is to protect, restore, and enhance the environment through well-informed federal decisions. The CEQ was established under NEPA to implement and oversee federal policy in this process. The CEQ subsequently issued the *Regulations for Implementing the Procedural Provisions of NEPA* (40 CFR Parts 1500-1508) (CEQ 1978).

The activities addressed within this document constitute a major federal action and therefore must be assessed in accordance with NEPA. To comply with NEPA, as well as other pertinent environmental requirements, the decision-making process for the PA includes the development of this EA to address the environmental issues related to the proposed activities.

1.6.2. WATER RESOURCES REGULATORY REQUIREMENTS

The Clean Water Act (CWA) of 1972 (33 USC § 1251 *et seq*.) regulates pollutant discharges that could affect aquatic life forms or human health and safety. Section 404 of the CWA, and EO 11990, *Protection of Wetlands*, regulate development activities in or near streams or wetlands. Section 404 also regulates development in streams and wetlands and requires a permit from the United States Army Corps of Engineers (USACE) for dredging and filling in wetlands.

EO 11988, *Floodplain Management* was issued in 1977 and requires all federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains. To improve the Nation's resilience to current and future flood risk that is anticipated to increase over time due to the effects of climate change and other threats, the President's Climate Action Plan (June 2013) directs federal agencies to take the appropriate actions to reduce risk to federal investments, specifically to update their flood-risk reduction standards. On January 30, 2015, the President signed EO 13690, *establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*, which amended EO 11988, *Floodplain Management*, and established Federal Flood Risk Management Standards (FFRMS). Once implemented by federal agencies, the new FFRMS require all future federal investments in and affecting floodplains to meet the higher level of resilience as established by the Standard.

Stormwater runoff is a leading contributor to water pollution in urban and developing areas in the United States (U.S.). Section 438 of the *Energy Independence and Security Act of 2007* requires agencies to protect water resources by reducing stormwater runoff from any federal development projects. Federal projects with a footprint larger than 5,000 SF must maintain pre-development hydrology and prevent any net increase in stormwater runoff as outlined in Unified Facilities Criteria (UFC) 3-210-10, *Low Impact Development* (as amended, 2015), and consistent with the Environmental Protection Agency's (USEPA) *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act* (December 2009).

1.6.3. CULTURAL RESOURCES REGULATORY REQUIREMENTS

The National Historic Preservation Act (NHPA) of 1966 (16 USC § 470) established the National Register of Historic Places (NRHP) and the Advisory Council on Historic Preservation outlining procedures for the management of cultural resources on federal property. Cultural resources can include archaeological remains, architectural structures, and traditional cultural properties such as ancestral settlements, historic trails, and places where significant historic events occurred. NHPA requires federal agencies to consider potential impacts to cultural resources that are listed, nominated to, or eligible for listing on the NRHP; designated a National

Historic Landmark; or valued by modern Native Americans for maintaining their traditional culture. Section 106 of NHPA requires federal agencies to consult with the SHPO if their undertakings might affect such resources. *Protection of Historic and Cultural Properties* (36 CFR Part 800 [2004]) provided an explicit set of procedures for federal agencies to meet their obligations under the NHPA, which includes inventory of resources and consultation with SHPO.

The American Indian Religious Freedom Act (42 USC § 1996) established federal policy to protect and preserve the rights of Native Americans to believe, express, and exercise their traditional religions, including providing access to sacred sites.

The Native American Graves Protection and Repatriation Act (25 USC §§ 3001-3013) requires consultation with Native American tribes prior to excavation or removal of human remains and certain objects of cultural importance.

The Archaeological Resources Protection Act of 1979 (16 USC §§ 470aa-mm) was created to protect archaeological resources and sites on public and Native American lands in addition to encouraging cooperation and exchange of information between governmental authorities, professionals, and private individuals. The act established civil and criminal penalties for destruction and alteration of cultural resources.

On November 27, 1999, the DoD promulgated its Annotated American Indian and Alaska Native Policy, which emphasizes the importance of respecting and consulting with tribal governments on a government-to-government basis. This Policy requires an assessment, through consultation, of the effect of proposed DoD actions that may have the potential to significantly affect protected tribal resources, tribal rights, and Indian lands before decisions are made by the respective services (DoD American Indian/Alaska Native Policy), as does DoD Instruction 4710.02, *Interaction with Federally Recognized Tribes* (September 14, 2006). In addition, coordination with federally recognized Native American tribes must occur in accordance with EO 13175, *Consultation and Coordination with Indian Tribal Governments*. Section 106 consultation and government-to-government consultation for this project is on-going (see Appendix A).

1.6.4. CLEAN AIR ACT

The Clean Air Act (CAA) (42 USC §§ 7401-7671q, as amended) provided the authority for the USEPA to establish nationwide air quality standards to protect public health and welfare. Federal standards, known as the National Ambient Air Quality Standards (NAAQS), were developed for six criteria pollutants: ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), both coarse and fine inhalable particulate matter (less than or equal to 10 microns in aerodynamic diameter [PM_{10}], and particulate matter less than or equal to 2.5 microns in aerodynamic diameter [$PM_{2.5}$]), and lead (Pb). The Act also requires that each state

prepare a State Implementation Plan (SIP) for maintaining and improving air quality and eliminating violations of the NAAQS. In nonattainment and maintenance areas, the CAA requires federal agencies to determine whether their proposed actions conform with the applicable SIP and demonstrate that their actions will not (1) cause or contribute to a new violation of the NAAQS, (2) increase the frequency or severity of any existing violation, or (3) delay timely attainment of any standard, emission reduction, or milestone contained in the SIP. The EA presents the project conformity applicability analysis and document the conformity-related emission calculation estimates. Conformity with the SIP must be demonstrated prior to implementation of the action.

1.6.5. GREENHOUSE GAS EMISSIONS

Greenhouse gases (GHGs) are gases that trap heat in the atmosphere. These emissions occur from natural processes as well as human activities. The accumulation of GHGs in the atmosphere regulates, in part, the earth's temperature. Scientific evidence suggests a trend of increasing global temperature over the past century potentially due to an increase in GHG emissions from human activities. Potential climate change associated with GHGs may produce negative economic and social consequences across the globe.

On a national scale, federal agencies are addressing emissions of GHGs by reductions mandated in federal laws and EOs. Most recently, EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, and EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, were enacted to address GHG in detail, including GHG emissions inventory, reduction, and reporting. Several states, including Arkansas, have promulgated laws and/or policies as a means to reduce statewide levels of GHG emissions.

1.6.6. ENDANGERED SPECIES ACT

The Endangered Species Act (ESA) of 1973 (16 USC §§ 1531-1544, as amended) established measures for the protection of plant and animal species that are federally listed as threatened and endangered, and for the conservation of habitats that are critical to the continued existence of those species. Federal agencies must evaluate the effects of their proposed actions through a set of defined procedures, which can include the preparation of a Biological Assessment and can require formal consultation with the USFWS under Section 7 of the Act.

1.6.7. OTHER ENVIRONMENTAL REQUIREMENTS

Other environmental requirements that potentially apply to the implementation of this proposal include guidelines promulgated by EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, to ensure that disproportionately high and adverse human health or environmental effects on citizens in these categories are identified and

addressed, as appropriate. Additionally, potential health and safety impacts that could disproportionately affect children are considered under the guidelines established by EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*.

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2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1. PROPOSED ACTION

The PA is to lease property to the District to construct all or a portion of an educational campus to be used by both military dependents and the civilian community.

2.2. SELECTION STANDARDS

Identification and analysis of alternatives is one of the core elements of the environmental impact analysis process under NEPA and the USAF's implementing regulations. The USAF may expressly eliminate alternatives from detailed analysis based on reasonable selection standards (32 CFR 989.8[c]). Consequently, Little Rock AFB systematically evaluated operational requirements and future needs to identify potential alternative locations for the proposed new multi-school campus construction project. A series of design factors were developed to identify a full set of reasonable options. Based on this analysis, siting selection standards were used to identify a full set of reasonable options for the PA. Siting selection standards established for the elementary school and high school are summarized below:

A. Parcels of approximately 25 acres for the proposed elementary school and approximately 80 acres for the proposed high school, in addition to a suitable parcel shape for the necessary configuration of the proposed facilities.
B. Topography that does not require extensive site work (e.g., cut and fill).
C. Parcels in which, after initial analysis, suggest that the PA would not result in extensive impacts to environmental resources including socioeconomic, cultural, and natural resources and any associated historical or items of tribal importance, wetlands, floodplains, and special status species.
D. Ease of traffic flow, access, or amenability to such.
E. Parcels leased to the District must be located on DoD property and be in a location where public access can be provided.
F. Availability of existing utilities or relative ease to achieve necessary utilities and other infrastructure needs (streets, road, or highway access).

In accordance with 32 CFR 989.8(c), designs that failed to meet the selection standards listed above were removed from further consideration.

2.3. SCREENING OF ALTERNATIVES

Based on the selection standards stated in Section 2.2, the USAF and the District decided that two parcels located northeast and west of the existing Tolleson Elementary School are the only viable locations for the USAF to lease property to the District for an education campus. Two sites located in the southwestern portion of the installation near the existing Tolleson Elementary

School were considered in addition to the previously demolished housing area and the existing Arnold Drive Elementary School parcel. Table 2.3-1 summarizes the results of the USAF and District alternatives consideration process.

Table 2.3-1. Comparison of Potential Locations for Leasing USAF Property to the District for an Educational Campus

Alternative	*Selection Standards*					
	A	*B*	*C*	*D*	*E*	*F*
Elementary School Parcel on USAF property west of Tolleson Elementary School (Alternative #1 and Alternative #2)	Yes	Yes	Yes	Yes	Yes	Yes
High School Parcel on USAF property northeast of Tolleson Elementary School (Alternative #2)	Yes	Yes	Yes	Yes	Yes	Yes
Existing Arnold Drive Elementary School Site on Little Rock AFB (Alternative #3)	Yes	Yes	Yes	Yes	No	Yes
Old Housing Area on Little Rock AFB (Alternative #4)	Yes	Yes	Yes	No	No	Yes

Note: USAF = United States Air Force

2.4. DETAILED DESCRIPTION OF ALTERNATIVES

The PA is to lease property to the District to construct all or a portion of an educational campus to be used by both military dependents and the civilian community. The alternatives carried forward include the Preferred Alternative (Alternative #1), one additional action alternative, and the No Action Alternative. Alternative #1 would include the construction of a new elementary school. Alternative #2 would include the construction of a new elementary school in addition to the construction of a new high school. The No Action alternative would result in no school being built on USAF property.

2.4.1. ALTERNATIVE #1 (PREFERRED ALTERNATIVE)

The new elementary school would include classrooms, gymnasium, cafeteria, administrative, athletic, play areas, parking areas, and maintenance activities.

The Preferred Alternative would include the leasing of property to the District in addition to the construction of an elementary school on this property. The Preferred Alternative would combine the two elementary facilities, Arnold Drive Elementary School, on Little Rock AFB, and Tolleson Elementary School, off Little Rock AFB, into one facility on the new 23.7-acre parcel on Little Rock AFB property (Figure 2-1). The proposed new parcel is located on Harris Drive across the street from North Pulaski High School and Tolleson Elementary School. Arnold Drive Elementary School is located on Little Rock AFB 1.2 miles north of the proposed 23.7-acre parcel (Figure 2-2). Tolleson Elementary School is 0.3 mile southeast of the proposed parcel. Currently, the proposed new parcel is located within the Little Rock AFB fence line. However, this fence line would be moved to exclude the new elementary school so students and staff would not need to go through a Little Rock AFB gate in order to access the school's facilities. This Alternative was carried forward for analysis because it meets all of the selection standards outlined in Section 2.2.

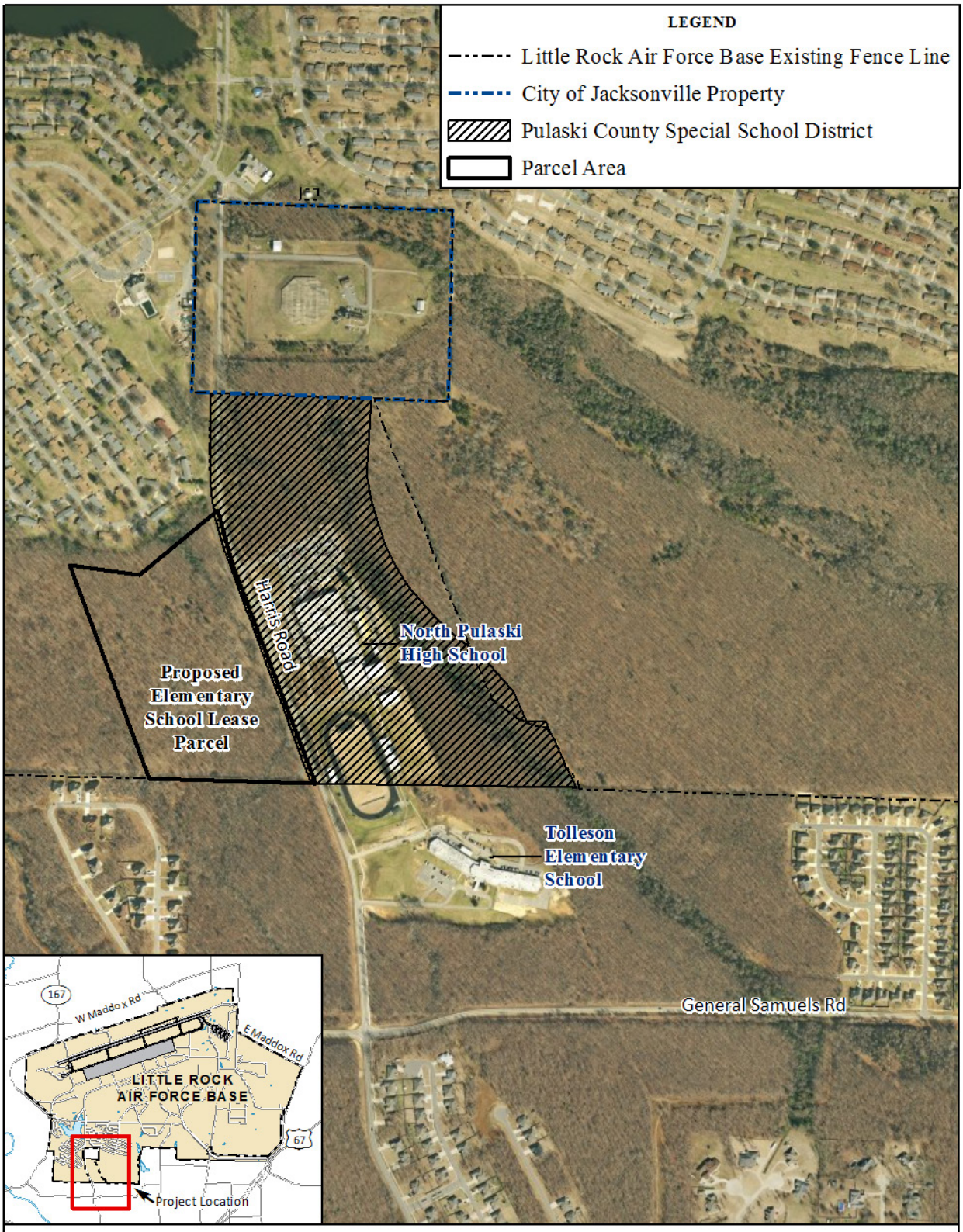

Figure 2-1
Proposed Lease Parcel for the Elementary School under Alternative #1

Figure 2-2
Arnold Drive Elementary School

After the USAF's execution of a lease to the District, the District would construct a new, approximately 91,000 SF elementary school to accommodate the building/structure for classrooms, gymnasium, cafeteria, and administrative facilities (Figure 2-3). This initiative would be executed via a 25-year lease (with option years as authorized by the USAF). The planned project would accommodate approximately 700 elementary students and employ 44 teachers, administration, counselors, and support staff once completed.

Proposed site for new elementary school.

The construction of the new elementary school would result in 5.96 acres of new impervious surfaces constructed to include the proposed building footprint and associated parking areas. In addition, 2.7 acres of new playground areas would be created which would be developed as pervious surfaces. There would be an additional 5.34 acres of temporary disturbance to the existing forested proposed lease area as a result of construction lay down areas, temporary haul roads, temporary construction access and parking areas, and other similar activities associated with construction activities. In addition, within these 5.34 acres, a small amount of trees would be selectively cut in order to create room for the new facilities. Finally, a retaining wall would be developed between the proposed elementary school site and the residential neighborhood on the northern boundary; the existing wooded area between the school and the neighborhood would remain in order to create a sound and visual buffer.

Existing wooded area between neighboring homes and new school would remain.

Currently, there is a USAF lease in place for the existing Arnold Drive Elementary School (located on the installation). The proposed new elementary school to be constructed on a new location on Little Rock AFB would require a new USAF lease with site development terms. The existing Arnold Drive Elementary School would be demolished by the District, generating 0.84 acre of temporary disturbance. Construction of the new elementary school would begin in 2017, dependent on funding availability, and would be completed in time for the 2019/2020 school year.

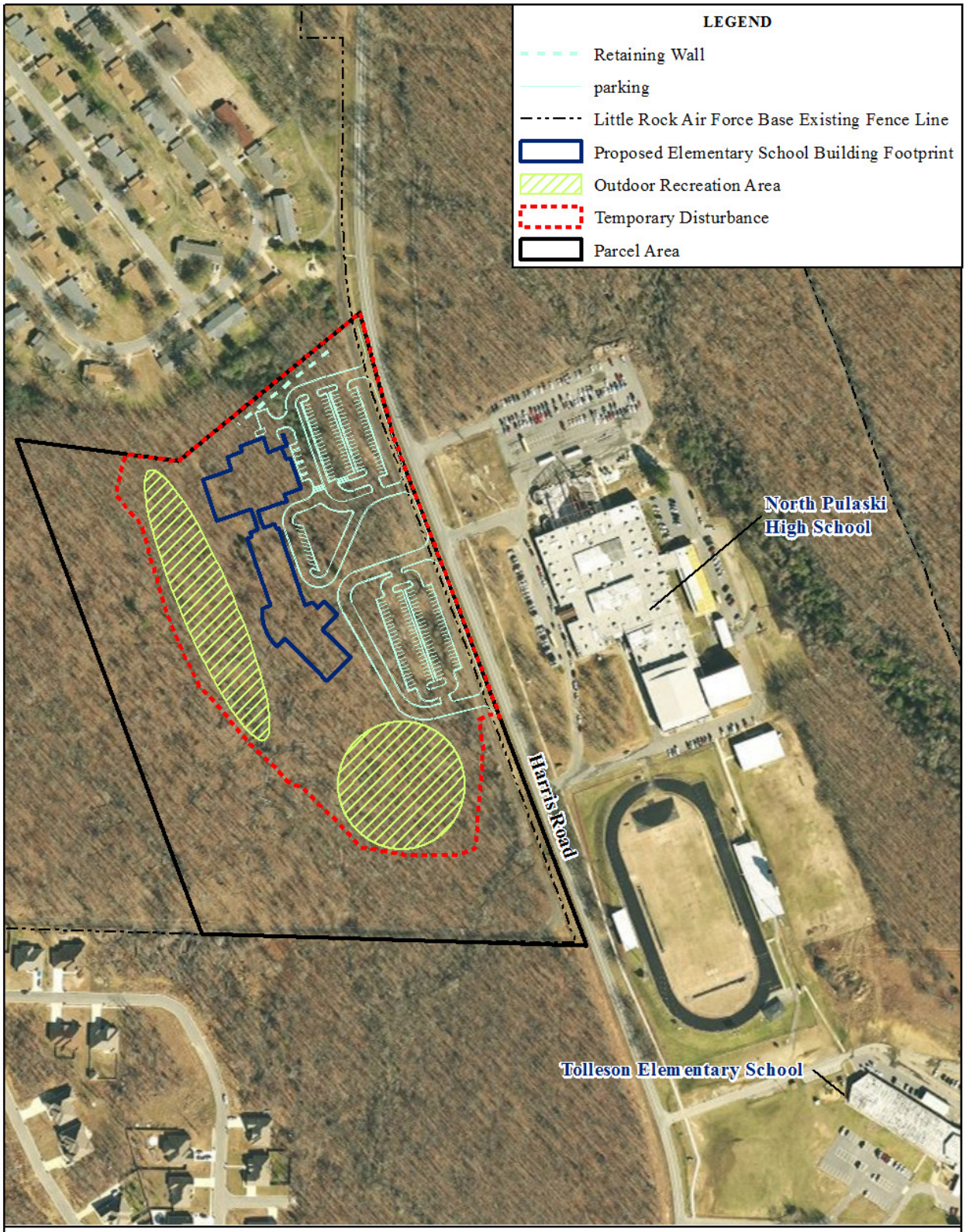

Figure 2-3
Proposed Layout for the Elementary School under Alternative #1

2.4.2. ALTERNATIVE #2

The new elementary and high schools would include classrooms, gymnasium, cafeteria, administrative, athletic, play areas, parking areas, and maintenance activities.

Under Alternative #2, a total of 102.7 acres would be leased to the District to create an educational campus that would encompass elementary and high school facilities. Development would occur in two phases. Phase I would involve the leasing of 23.7 acres and the development of the new elementary school as presented in the Preferred Alternative. Phase II would include leasing an additional 79 acres on Little Rock AFB to the District for the construction of a new high school and associated facilities. This Alternative was carried forward for analysis because it meets all of the selection standards outlined in Section 2.2.

Phase II would include construction of a new two-story 179,300 SF high school to accommodate the building/structure for classrooms, gymnasium, cafeteria, administrative, and maintenance activities (Figures 2-4 and 2-5). In addition, two new access roads would be constructed on the northwest and southeast corners of the parcel. The construction of the high school would result in 21.3 acres of new impervious surfaces (to include the new building footprint, new access roads, and associated parking areas) and 7.8 acres of new athletic and other outdoor facilities would be created which would be developed as pervious surfaces. In addition, there would be 49.9 acres of temporary disturbance to the existing forested proposed lease area as a result of construction lay down areas, temporary haul roads, temporary construction access and parking areas, and other similar activities associated with construction activities. In addition, within these 49.9 acres, a small amount of trees would be selectively cut in order to create room for the new facilities. As a result, there would be a total of 56.08 acres of ground disturbance from construction activities and selective tree cutting (5.34 acres for the new elementary school, 0.84 acre for Arnold Drive Elementary School, and 49.9 acres for the high school), 27.26 acres of new impervious surfaces (5.96 acres for the new elementary school and 21.3 acres for the high school), and 10.5 acres of pervious surfaces (2.7 acres for the new elementary school and 7.8 acres for the new high school) under Alternative #2 as result of the construction of both the elementary school and high school.

Location of proposed new high school

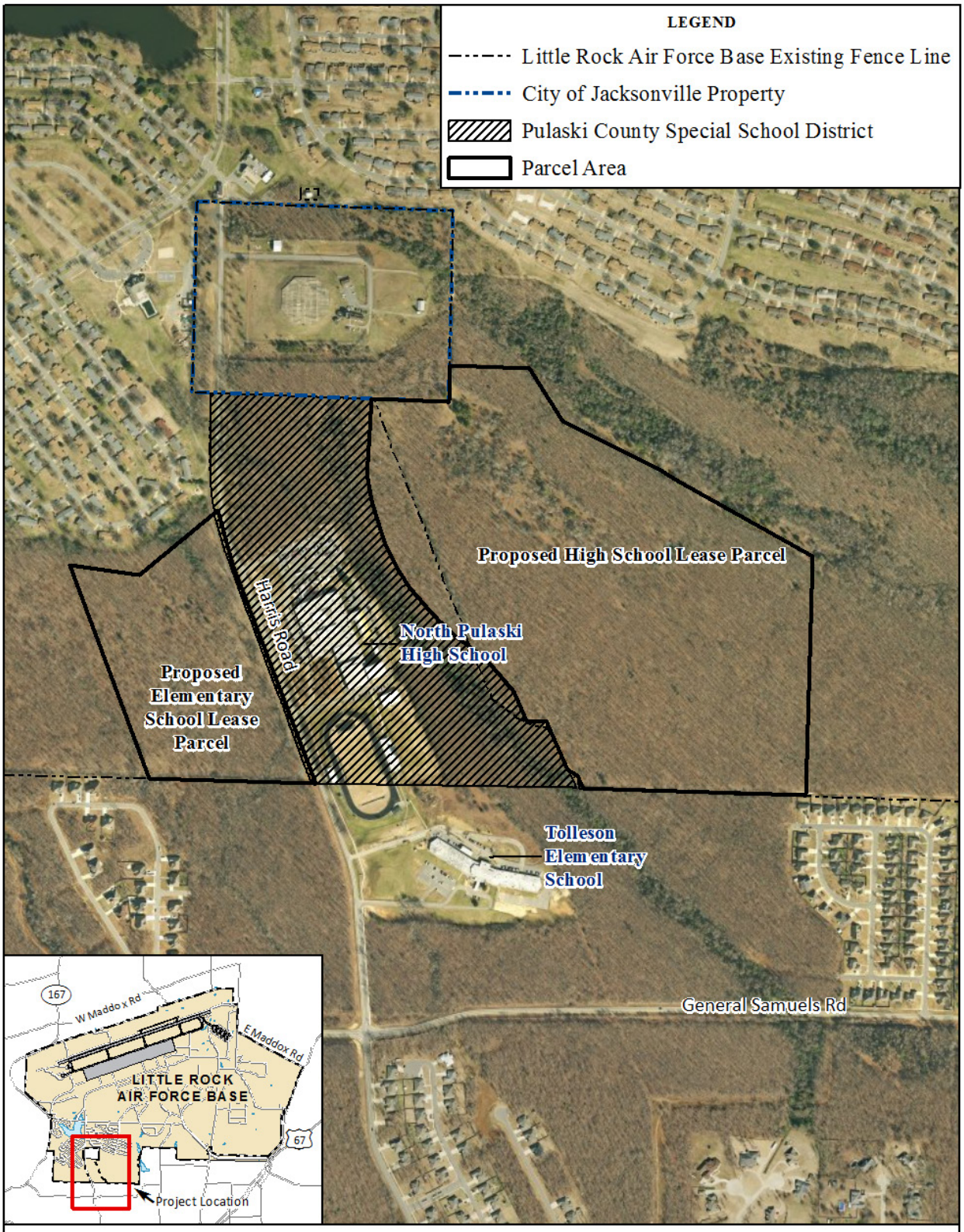

Figure 2-4
Proposed Lease Parcels for the Elementary School and High School under Alternative #2

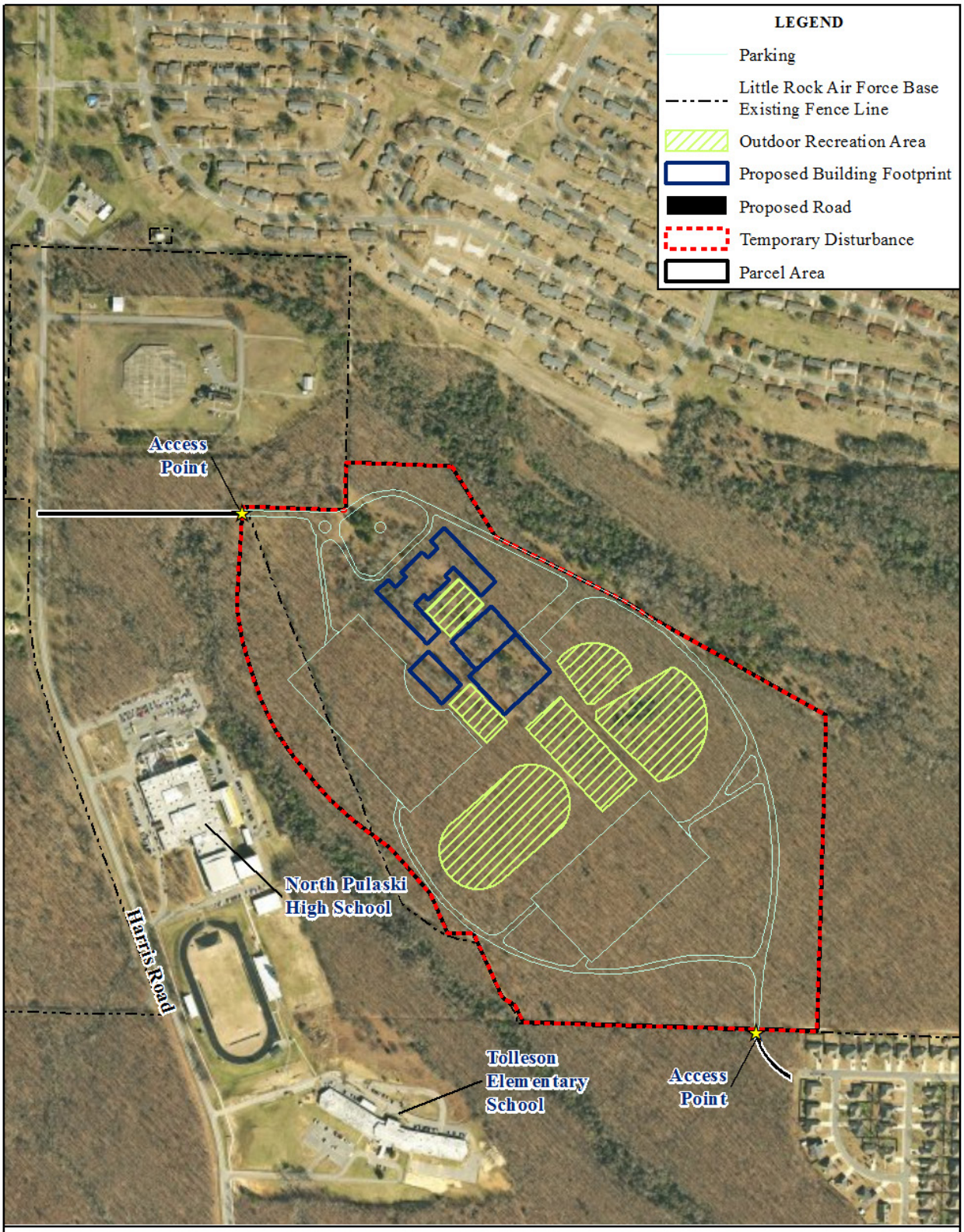

Figure 2-5
Proposed Layout for the High School under Alternative #2

Currently, this parcel is located within the Little Rock AFB fence line. However, this fence line would be moved to exclude the new high school so students and staff would not need to go through a Little Rock AFB gate in order to access the school's facilities.

This initiative would be executed via a 25-year lease (with option years as authorized by the USAF). The planned high school project would accommodate approximately 2,000 high school students and employ approximately 90 teachers, administration, counselors, and support staff once completed. Based on the District's plans, Jacksonville High School and North Pulaski High School would consolidate into the new facility on the new 79-acre lease. Construction for the new high school would begin in 2017, dependent on the District's availability of funds, and would be completed in time for the 2019/2020 school year.

2.4.3. NO ACTION ALTERNATIVE

The CEQ regulation 40 CFR § 1502.14(d) specifically requires analysis of the "No Action" alternative in all NEPA documents. Under the No Action Alternative, the USAF would not lease property to the District and the proposed construction of the new elementary school and new high school would not occur and the 19 AW would not implement the proposed project components described above under the PA. Under the No Action Alternative, the District would continue to conduct periodic repairs to Arnold Drive Elementary School, Tolleson Elementary School, and Jacksonville High School to correct the most egregious deficiencies. However, since Tolleson Elementary School and Jacksonville High School do not occur on USAF property, these actions would not require any USAF permit or approval, would not involve a federal program, nor would they involve any federal funding, and therefore these actions are not analyzed in this EA. Under the No Action Alternative, any decision regarding Tolleson Elementary School and Jacksonville High School would be made by the District. As discussed in Section 1.3.1, renovations would still take place at North Pulaski High School for middle school students. The existing schools would continue to deteriorate, and advantageous use of the OEA funding would not occur. Although this alternative does not meet the purpose and need for the action, it is carried forward for analysis in this EA per CEQ regulations, and as a baseline from which to compare the potential impacts of the PA and alternatives.

2.5. ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

The purpose of the PA is to lease USAF property on Little Rock AFB to the District in order to create an educational campus to improve educational facilities for both military dependent and civilian students in the community. A brief description of each of the alternatives considered and the reasons for dismissal are summarized below.

Alternative sites on Little Rock AFB within the installation fence line were considered for both the new elementary and high schools. Construction of a new elementary school on the existing Arnold Drive Elementary School was considered (Alternative #3). In addition, construction of a new school on the previously demolished housing area, which is located directly north of the Alternative #2 proposed parcel, was also considered (Alternative #4). Both of these locations were dismissed due to not meeting selection standard E. The housing area was dismissed due to not meeting selection standard D (see Section 2.2).

2.6. SUMMARY OF IMPACTS

Table 2.6-1 summarizes the potential disturbance that would result from each of the alternatives.

Table 2.6-1. Summary of Potential Disturbance by Alternative

Disturbance (acreage)	*Alternative #1*	*Alternative #2*	*No Action*
Temporary Disturbance			
Proposed Elementary School	5.34	5.34	0
Proposed High School	0	49.9	0
Demolition of Arnold Drive Elementary School	0.84	0.84	0
Total Temporary Disturbance	**6.18**	**56.08**	**0**
Permanent Disturbance			
Proposed Elementary School New Impervious Surfaces	5.96	5.96	0
Proposed High School New Impervious Surfaces	0	21.3	0
Proposed Elementary School Pervious Surfaces	2.7	2.7	0
Proposed High School Pervious Surfaces	0	7.8	0
Total Permanent Disturbance	**8.66**	**37.76**	**0**
Total Disturbance	**19.5**	**98.5**	**0**

Potential impacts resulting from the action alternatives and No Action Alternative are summarized in Table 2.6-2.

Table 2.6-2. Summary of Impacts

Resource Area	*Preferred Alternative*	*Alternative #2*	*No Action Alternative*
Safety	No significant impacts to safety related to the proposed demolition and construction activities would occur. The proposed new elementary school would be in full compliance with AT/FP requirements and would not be located within CZs or APZs.	Impacts under Alternative #2 would be the same as those described under the Preferred Alternative.	No significant impacts to safety would occur. Under this alternative, there would be no change to baseline safety.
Air Quality	No significant impacts to air quality would occur. Emissions generated by proposed demolition and construction activities would be temporary and short-term; no long-term increases in emissions would occur under the proposal.	No significant impacts to air quality would occur. Air quality impacts under Alternative #2 would be similar to those described for the Preferred Alternative with the exception that emissions associated with construction and operational activities would be higher when	No significant impacts to air quality would occur. Under this alternative, no change in emissions from baseline conditions would occur. There would therefore be no potential for adverse air quality impacts.

Table 2.6-2. Summary of Impacts

Resource Area	*Preferred Alternative*	*Alternative #2*	*No Action Alternative*
		compared to the Preferred Alternative. Emissions generated by proposed demolition and construction activities would be temporary and short-term; no long-term increases in emissions would occur under the proposal.	
Noise	Impacts from noise would not be significant. During construction activity, outdoor noise levels could exceed the maximum sound level of 50-55 dB necessary to achieve 95 percent intelligibility. These levels could intermittently interrupt speech or other activities occurring outside. Indoor noise levels would be between 15 and 25 dB less with windows open and closed, respectively. With respect to aircraft noise, the DNL at the proposed location is 52 dB, well below the DNL of 60 dB recommended by the DNWG as a first indication that aircraft noise might be a problem.	Impacts from noise would not be significant. Noise resulting from construction would be similar to that described under the Preferred Alternative. With respect to aircraft noise, the proposed High School would be located in an area where the DNL is 51.7, well below the 60 dB recommended DNWG trigger for additional analysis. The DNL at the proposed location is 2.4 dB lower than the DNL at Jacksonville High School and 0.5 dB higher than the DNL at North Pulaski High School. Therefore, no change in potential for speech interference would be expected.	Impacts from noise would not be significant. Under this alternative, there would be no change to baseline noise. There would therefore be no potential for adverse noise impacts.
Land Use	Impacts to land use would not be significant. Land uses for the new school would be consistent with current functions on Little Rock AFB and within the vicinity of the project area and would be designed and sited to be compatible with existing land uses, safety guidelines, and AT/FP requirements.	Impacts under Alternative #2 would be the same as those described under the Preferred Alternative.	Impacts to land use would not be significant. Under this alternative, there would be no change to baseline land use.
Earth Resources	Impacts to earth resources would not be significant. Construction under the Preferred Alternative would result in 5.96 acres of new impervious surfaces and 2.7 acres of pervious surfaces. Any potential impacts resulting from erosion or temporary increases in surface runoff during construction activities would be minimized through the use of standard erosion control measures.	Impacts to earth resources would not be significant. Alternative #2 would result in 21.3 acres of additional new impervious surfaces and 7.8 acres of pervious surfaces constructed. The net new impervious surface would be 27.26 acres. The additional land disturbance and impervious surfaces resulting from the implementation of Alternative #2 could result in increases to	Impacts to earth resources would not be significant. Under this alternative, there would be no change to baseline earth resources.

Table 2.6-2. Summary of Impacts

Resource Area	*Preferred Alternative*	*Alternative #2*	*No Action Alternative*
		erosion and temporary localized increases in runoff and total suspended particulate matter to nearby surface waters, when compared to the Preferred Alternative. However, construction would be phased such that the Preferred Alternative would not occur at the same time as Alternative #2, thereby decreasing any potential compounding impacts due to construction occurring simultaneously	
Water Resources	Impacts to water resources would not be significant. Any potential impacts resulting from erosion or temporary increases in surface runoff during construction activities would be minimized through the use of standard erosion control measures. In addition, in accordance with UFC 3-210-10, pre-development site hydrology must be maintained or restored to the maximum extent technically feasible. Three areas of floodplains have been identified within the parcel proposed for lease for the new elementary school facility (outside the proposed construction area) and one floodplain near the proposed demolition of Arnold Drive Elementary School; a FONPA is being prepared upon completion of an appropriate environmental analysis and report. Although the floodplains are not within the area proposed for disturbance, potential minor, indirect, adverse impacts could occur as a result of changes to construction-related overland flow not appropriately mitigated by BMPs and by the close proximity of the floodplains to the proposed construction. Floodplain impacts would be	Impacts to water resources would not be significant. The additional land disturbance and impervious surfaces associated with Alternative #2 could result in increases to erosion and temporary localized increases in runoff and total suspended particulate matter to nearby surface waters, when compared to the Preferred Alternative. However, construction would be phased such that the Preferred Alternative would not occur at the same time as Alternative #2, thereby decreasing any potential compounding impacts due to construction occurring simultaneously. Any potential impacts resulting from erosion or temporary increases in surface runoff during construction activities would be minimized through the use of standard erosion control measures. In addition, in accordance with UFC 3-210-10, pre-development site hydrology must be maintained or restored to the maximum extent technically feasible. Therefore, impacts to water resources would not be significant.	Impacts to water resources would not be significant. Under this alternative, there would be no change to baseline water resources.

Table 2.6-2. Summary of Impacts

Resource Area	*Preferred Alternative*	*Alternative #2*	*No Action Alternative*
	reduced to the maximum extent possible through project design and implementation of environmental protection measures. Additionally, a public notice was published Saturday, May 7, 2016 in the *Arkansas Democrat-Gazette*, state-wide to invite the public to provide any comments on the preliminary evaluation of the USAF land that may be leased for school projects, and on the resources (floodplains) existing on Little Rock AFB.	Two floodplain areas and one wetland have been identified near the parcel proposed for the new high school facility; a FONPA is being prepared upon completion of an appropriate environmental analysis and report. Although the floodplains and wetland are not within the area proposed for disturbance, potential minor, indirect, adverse impacts could occur as a result of changes to construction-related overland flow not appropriately mitigated by BMPs and by the close proximity of the floodplains to the proposed construction. Floodplain and wetland impacts would be reduced to the maximum extent possible through project design and implementation of environmental protection measures. Additionally, a public notice was published Saturday, May 7, 2016 in the *Arkansas Democrat-Gazette*, state-wide to invite the public to provide any comments on the preliminary evaluation of the USAF land that may be leased for school projects, and on the resources (floodplains and wetlands) existing on the Little Rock AFB.	
Biological Resources	Impacts from noise to wildlife and special status species would not be significant. The interior least tern has been known to nest on the rooftops of Buildings 450 and 430, which are located approximately 8,000 to 9,000 feet north of the proposed new elementary school site and 3,800 to 5,000 feet north of Arnold Drive Elementary. The bald eagle, a special status species, has been	Impacts from noise to wildlife and special status species would not be significant. Impacts from Alternative #2 to the rattlesnake-master borer moth, interior least tern, and bald eagle would be the same as described under the Preferred Alternative. No moths or their primary food plant, rattlesnake-master, were found during the 2014 survey within the proposed high	Impacts from noise to wildlife and special status species would not be significant. Under this alternative, there would be no change to baseline biological resources.

Table 2.6-2. Summary of Impacts

Resource Area	*Preferred Alternative*	*Alternative #2*	*No Action Alternative*
	sited occasionally flying over Little Rock AFB, but no nesting or foraging activities on Little Rock AFB have been observed. Noise from construction is not expected to impact this species since they are already adapted to the existing noise from the airfield. Rattlesnake-master borer moths were observed in the Post Oak Savanna within the footprint of the proposed elementary school. Their primary food plant, rattlesnake-master, was also found in these areas. Little Rock AFB would coordinate with the Nature Conservancy prior to construction to transplant any rattlesnake-master plants within the footprint of the new elementary school to nearby suitable habitat.	school construction project area.	
Infrastructure	Impacts to Infrastructure would not be significant. The demand for energy, wastewater generation, solid waste, and potable water use would increase minimally during construction and demolition; however, the energy and water supply at Little Rock AFB is adequate and will not be affected. The proposed construction and demolition activities could temporarily affect the quality of stormwater runoff through potential increases in soil erosion. BMPs would be implemented during construction and demolition to minimize runoff. The educational facilities to be constructed would generate construction and demolition debris requiring landfill disposal. The net construction and demolition debris generated as a result of the Preferred Alternative would be 5,345,036.5 pounds (2,672.9 tons). Establishment of waste reduction and recycling	Impacts to Infrastructure would not be significant. Under Alternative #2, impacts to utilities would primarily be the same as those described under the Preferred Alternative. However, the amount of solid waste, energy, wastewater generation, and potable water use would increase when compared to that of the Preferred Alternative as a result of the additional construction related to the high school. The net construction debris under Alternative #2 (including the new elementary school, demolition of Arnold Drive Elementary School, and the new high school) would be 9,408,939 pounds (4,705 tons). However, construction would be phased such that the Preferred Alternative would not occur at the same time as Phase II, thereby decreasing any potential compounding impacts due to construction	Impacts to Infrastructure would not be significant. Under this alternative, there would be no change to baseline infrastructure. The continued long-term use of Arnold Drive Elementary School would require complete upgrades for all mechanical, electrical, and plumbing systems.

Table 2.6-2. Summary of Impacts

Resource Area	*Preferred Alternative*	*Alternative #2*	*No Action Alternative*
	programs would help to minimize the increase in overall solid waste generation as a result of the Preferred Alternative. The Preferred Alternative would result in an increase of between 88 and 373 trips per day to roads proximate to the proposed school parcel. However, this relatively minor increase would not cause any roadway segment to exceed the minimum performance standard of LOS C, and therefore the impact would be less than significant.	occurring simultaneously. Establishment of waste reduction and recycling programs would help to minimize the increase in overall solid waste generation. Alternative #2 would increase traffic from between 392 and 2,321 trips per day. This moderate increase would not cause any roadway segment to exceed the maximum LOS C capacity. Therefore, Alternative #2's impact to transportation/traffic would be less than significant.	
Cultural Resources	Overall, there would be no adverse effects, and therefore, no significant impacts on cultural resources as a result of the Preferred Alternative. Because no traditional cultural resources have been identified, impacts to this category of cultural resources are considered unlikely.	Overall, there would be no adverse effects, and therefore, no significant impacts on cultural resources as a result of Alternative #2. Four archaeological sites are located within the APE for Alternative #2; however, they are recommended as not eligible for inclusion in the NRHP and therefore not a historic property. No historic properties are located within the APE for Alternative #2. Therefore, construction under Alternative #2 would not result in adverse effects to historic properties.	There would be no adverse effects, and therefore, no significant impacts on cultural resources under the No Action. Under this alternative, there would be no change to baseline cultural resources.
Socioeconomics/ Environmental Justice	Short-term beneficial impacts resulting from construction payrolls and materials purchased would be negligible on a regional scale. Analysis of each resource area has concluded that the overall population within the project ROI, including children, minority populations, and low-income populations outside the boundaries of the installation, would not be significantly impacted by implementation of the Preferred Alternative.	Under Alternative #2, impacts would be the same as those described under the Preferred Alternative.	There would be no significant impacts to socioeconomics and environmental justice under the No Action. Under this alternative, there would be no changes to socioeconomics, baseline children, minority, and low-income populations.
Hazardous Materials and Waste	There would be no significant impacts to hazardous materials and waste. The proposed	There would be no significant impacts to hazardous materials and waste. The	There would be no significant impacts to hazardous materials and

Table 2.6-2. Summary of Impacts

Resource Area	*Preferred Alternative*	*Alternative #2*	*No Action Alternative*
	construction and demolition activities would cause short-term increases in the volume of hazardous and petroleum wastes generated. Former ERP Site AOC-33/AOC-8 associated with the stormwater drainage system is the only ERP site located in the vicinity of the Preferred Alternative but is currently under No Further Action status and is outside the construction footprint. Close coordination between Little Rock AFB staff and contractors would ensure that the proposed construction activities would not interfere with ongoing investigation studies or remediation activities. In addition, Arnold Drive Elementary School (constructed in 1968) would be tested for toxic substances prior to demolition. Any ACM, LBP, or PCBs would be characterized, managed, transported, and disposed of according to applicable state and federal requirements for protecting human health, safety, and the environment.	proposed construction activities associated with the high school would cause additional short-term increases in the volume of hazardous and petroleum wastes generated when compared to that under the Preferred Alternative. Former ERP Site AOC-33/AOC-8 associated with the stormwater drainage system is the only ERP site located in the vicinity of Alternative #2 and is located within the area of temporary ground disturbance for the proposed high school. This site is currently under No Further Action status. Close coordination between Little Rock AFB staff and contractors would ensure that the proposed construction activities would not interfere with ongoing investigation studies or remediation activities.	waste. Due to the age of the existing educational facilities (constructed in 1968), potential for exposure to toxic substances like ACM, LBP, and PCBs would continue to exist in Arnold Elementary Drive School during repair activities.

Notes: ACM = Asbestos-Containing Material; AFB = Air Force Base; AOC = Area of Concern; APE = Area of Potential Effect; APZ = Accident Potential Zone; AT/FP = Anti-Terrorism/Force Protection; BMP = Best Management Practice; CZ = Clear Zone; dB = decibel; DNL = Day-Night Average Sound Level; DNWG = Department of Defense Noise Working Group; ERP = Environmental Restoration Program; FONPA = Finding of No Practicable Alternative; LBP = Lead-Based Paint; LOS = Level of Service; NRHP = National Register of Historic Places; PCB = Polychlorinated Biphenyl; ROI = Region of Influence; UFC = Unified Facilities Criteria; USAF = United States Air Force

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3.0 EXISTING CONDITIONS

3.1. SCOPE OF THE ANALYSIS

This section describes relevant existing environmental conditions for resources potentially affected by the PA, as well as the No Action Alternative, presented in Chapter 2.0. In describing the affected environment, a framework for understanding the potential direct, indirect, and cumulative effects of the PA and alternatives is provided.

As directed by guidelines contained in NEPA, CEQ regulations, and 32 CFR Part 989 *et seq.*, *The Environmental Impact Analysis Process*, the description of the affected environment focuses only on those resource areas potentially subject to impacts and is commensurate with the anticipated level of environmental impact.

3.1.1. RESOURCES ANALYZED

Based on the components of the PA and comments resulting from interagency coordination, the USAF identified resources potentially affected by the proposed construction, demolition, and operations. As a result, this EA analyzes potential environmental effects for the following resource areas: safety, air quality, noise, land use, earth resources, water resources, biological resources, infrastructure, cultural resources, socioeconomics and environmental justice, and hazardous materials and waste. The following subsections contain definitions of each resource, describe the region of influence (ROI), and present existing conditions for each resource.

3.1.2. RESOURCES ELIMINATED FROM DETAILED ANALYSIS

Airspace management was not evaluated in this EA because it was determined that implementation of the PA is unlikely to have any impacts to this resource. Under the PA, there would be no changes to airspace management. There would be no changes in the type or number of aircraft flown or the airspace used; therefore, airspace management and use was eliminated from further analysis.

3.2. SAFETY

3.2.1. DEFINITION OF THE RESOURCE

This section addresses ground safety associated with activities conducted by Little Rock AFB and the District. Ground safety considers issues associated with human activities, operations, and maintenance activities that support Little Rock AFB operations. Also considered are the implications of siting, construction, and compatible land use on the safety of persons and property. Construction site safety addresses the use of protective equipment and clothing, exposure limits for workplace stressors, training required for workers, etc. Health and safety of

workers are safeguarded by standards issued by Occupational Safety and Health Administration and USEPA. A specific aspect of ground safety addresses Anti-Terrorism/Force Protection (AT/FP) considerations. There are no changes proposed that could impact flight safety or explosive safety; therefore, they are omitted from further discussion.

The ROI for safety includes the two parcels proposed for the educational facilities in addition to Arnold Drive Elementary School located on Little Rock AFB.

3.2.2. EXISTING CONDITIONS

3.2.2.1. Construction Worker and Personnel Safety

All construction contractors within the ROI are required to conduct activities in a manner that minimizes risk to workers and personnel. All contractors must adhere to industrial hygiene program guidelines that address exposure to hazardous materials, use of personal protective equipment, and availability of Safety Data Sheets.

Mishap prevention program requirements, assignment of responsibilities for program elements, and program management information is established within AFI 91-202, *The U.S. Air Force Mishap Prevention Program*, dated 5 August 2011 and incorporating change 1 on 20 March 2012, and implements Air Force Policy Directive 91-2, *Safety Programs*. All Air Force Occupational Safety and Health 91-series standards are consolidated in AFI 91-203, *Air Force Consolidated Occupational Safety Instruction*, dated 15 June 2012. The Air Force Occupational Safety and Health Program applies to all USAF activities and its purpose is to minimize loss of USAF resources and protect USAF personnel from death, injuries, or illnesses by managing risks.

3.2.2.2. Anti-Terrorism/Force Protection

As a result of terrorist activities, the DoD and the USAF have developed a series of AT/FP guidelines for military installations:

- UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings* (2013a);
- UFC 4-022-01, *Security Engineering: Entry Control Facilities/Access Control Points* (2005)*;*
- AFI 10-245*, Antiterrorism (AT)* (2015);
- DoD Directive 2000.12*, DoD Antiterrorism Program* (2013b);
- DoD Instruction 2000.16*, DoD Antiterrorism Standards* (2006);
- Joint Publication 3-07.2, *Antiterrorism* (2010); and

- USAF Vulnerability Assessment Program: Antiterrorism Vulnerability Assessment Team Guidelines (USAF 2008).

These guidelines address a range of considerations that include access to the installation, access to facilities on the installation, facility siting, exterior design, interior infrastructure design, and landscaping, in addition to addressing those elements directly related to limiting mass casualties and prevention of terrorist acts. The intent of this siting and design guidance is to improve security, minimize fatalities and possibility of mass casualties, protect personnel, and limit damage to facilities in the event of a terrorist attack.

These standards and guidelines have evolved and post-date many of the facilities at many military installations, such as those at Little Rock AFB. Thus, under current conditions, many units do not fully comply with all present AT/FP standards. However, as new construction occurs, AT/FP standards are incorporated to the maximum extent practicable.

3.2.2.3. Clear Zones and Accident Potential Zones

The USAF Air Installation Compatible Use Zone (AICUZ) Program provides compatible use guidelines for land use areas exposed to aircraft noise and accident potential. Land use guidelines include recommendations for Clear Zones (CZs) and Accident Potential Zones (APZs) at an airfield. CZs and APZs are rectangular areas that extend outward from the end of the active runways and delineate those areas recognized as having the greatest risk of aircraft mishaps, most of which occur during take-off or landing. The CZs begin at the end of the runway and extend outward 3,000 feet and have the highest accident potential. APZ I extends out from the CZ an additional 5,000 feet while APZ II extends an additional 7,000 feet beyond that. DoD generally purchases lands or establishes easement to prevent developments with the CZ, and encourages local communities to prevent intensive land use within the APZs (Figure 3.2-1). Little Rock AFB utilizes these land use guidelines for these zones.

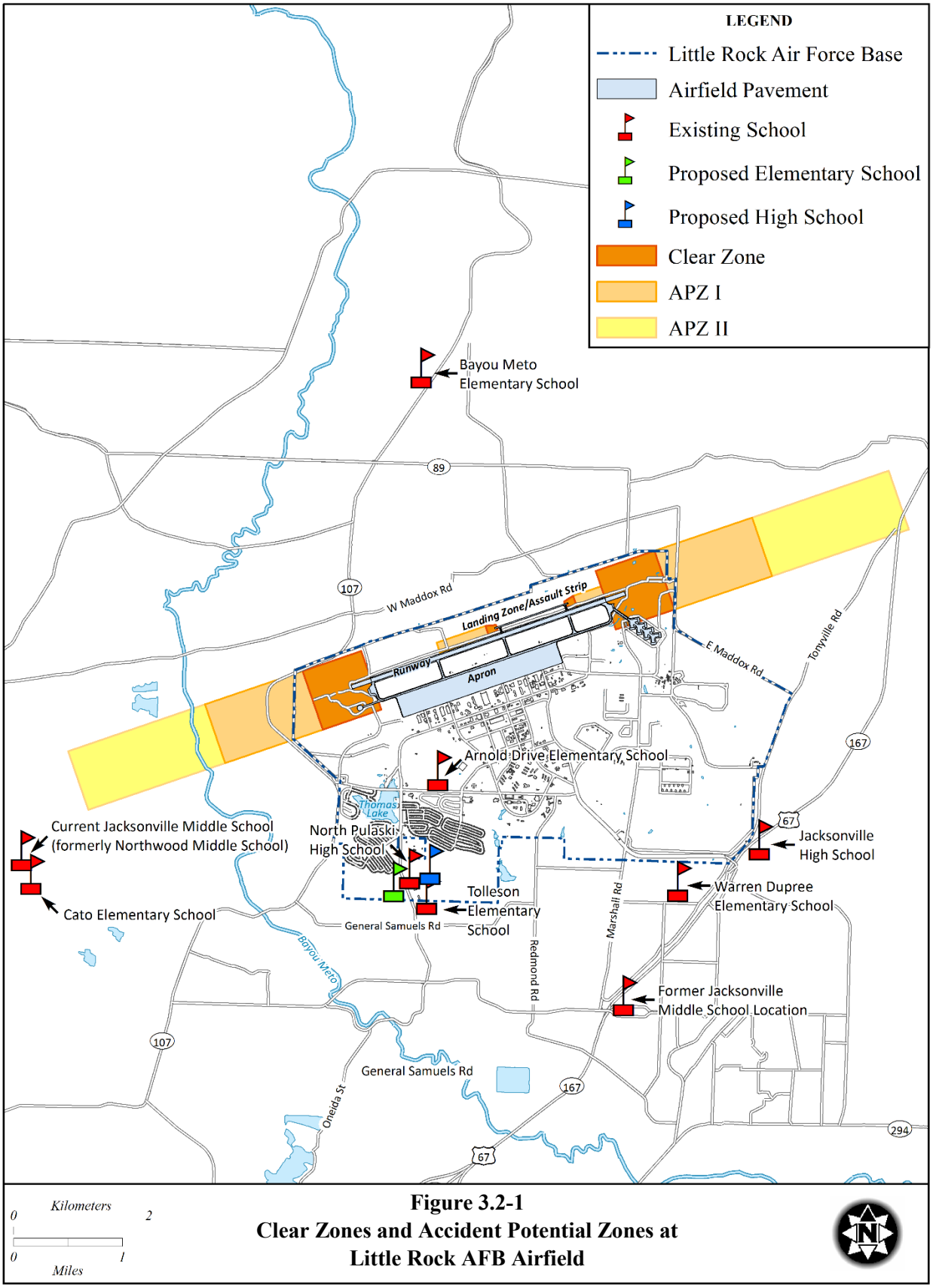


Figure 3.2-1
Clear Zones and Accident Potential Zones at
Little Rock AFB Airfield

3.3. AIR QUALITY AND CLIMATE CHANGE

3.3.1. DEFINITION OF THE RESOURCE

Air quality is defined by ambient air concentrations of specific pollutants determined by the USEPA to be of concern related to the health and welfare of the general public and the environment. Pollutant emissions typically refer to the amount of pollutants or pollutant precursors introduced into the atmosphere by a source or group of sources. Pollutant emissions contribute to the ambient air concentrations of criteria pollutants, either by directly affecting the pollutant concentrations measured in the ambient air or by interacting in the atmosphere to form criteria pollutants. Primary pollutants, such as CO, SO_2, Pb, and some particulates, are emitted directly into the atmosphere from emission sources.

Secondary pollutants, such as O_3, NO_2, and some particulates, are formed through atmospheric chemical reactions that are influenced by meteorology, ultraviolet light, and other atmospheric processes. Suspended PM_{10} and $PM_{2.5}$ are generated as primary pollutants by various mechanical processes (for example, abrasion, erosion, mixing, or atomization) or combustion processes. However, PM_{10} and $PM_{2.5}$ can also be formed as secondary pollutants through chemical reactions or by gaseous pollutants that condense into fine aerosols. In general, emissions that are considered "precursors" to secondary pollutants in the atmosphere (such as volatile organic compounds [VOCs] and oxides of nitrogen [NO_x], which are considered precursors for O_3) are the pollutants for which emissions are evaluated to control the level of O_3 in the ambient air.

Under amendments to the CAA, the USEPA has established NAAQS (40 CFR Part 50) for these pollutants. These standards represent the maximum allowable atmospheric concentrations that may occur while ensuring protection of public health and welfare, with a reasonable margin of safety. Short-term standards (1-, 8-, and 24-hour periods) are established for pollutants contributing to acute health effects, while long-term standards (quarterly and annual averages) are established for pollutants contributing to chronic health effects. The Arkansas Department of Environmental Quality (ADEQ) Air Division has adopted the NAAQS, which are presented in Table 3.3-1.

Table 3.3-1. National Ambient Air Quality Standards

Air Pollutant	*Averaging Time*	NAAQS	
		Primary	*Secondary*
CO	8-hour 1-hour	9 ppm 35 ppm	-- --
Pb	Rolling 3 month average	0.15 µg/m^3	0.15 µg/m^3
NO_2	Annual 1-hour	53 ppb 100 ppb	53 ppb --
SO_2	3-hour 1-hour	-- 75 ppb	0.5 ppm --
PM_{10}	24-hour	150 µg/m^3	150 µg/m^3
$PM_{2.5}$	Annual 24-hour	12 µg/m^3 35 µg/m^3	15 µg/m^3 35 µg/m^3
O_3	8-hour	0.070 ppm	0.070 ppm

Notes: -- = no standard identified, ppm = parts per million, ppb = parts per billion, µg/m^3 = microgram per cubic meter, CO = carbon monoxide, Pb = lead, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM_{10} = particulate matter less than or equal to 10 microns in aerodynamic diameter; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in aerodynamic diameter, O_3 = ozone

Source: USEPA 2016a

The area surrounding Little Rock AFB, including Pulaski County, is in attainment with the NAAQS. Therefore, there are no SIP requirements and the General Conformity Rule does not apply to the PA.

3.3.1.1. Hazardous Air Pollutants

Hazardous air pollutants (HAPs) have the potential to cause serious health impacts and are therefore regulated under Section 112(b) of the 1990 CAA Amendments. While no ambient standards for local concentrations exist, HAPs are controlled by limiting emissions. The *National Emission Standards for Hazardous Air Pollutants* regulate HAP emissions from stationary sources (40 CFR Part 61 and 63). HAPs emitted from mobile sources are called Mobile Source Air Toxics (MSAT); these are compounds emitted from highway vehicles and non-road equipment that are known or suspected to cause serious health and environmental effects. In 2001, USEPA issued its first MSAT Rule, which identified 21 compounds as being HAPs that required regulation. In February 2007, USEPA issued a second MSAT Rule which generally supported the findings in the first rule and provided additional recommendations of compounds having the greatest impact on health. The rule also identified several engine emission certification standards that must be implemented. Unlike the criteria pollutants, there are no NAAQS for HAPs.

The primary control methodologies instituted by federal regulation for MSATs involve technological improvements for reducing their content in fuel and altering engine operating characteristics to reduce the volume of pollutants generated during combustion. MSATs would be the primary HAPs emitted by mobile sources during construction and operations. The equipment used during construction would likely vary in age and have a range of pollution

reduction effectiveness. Construction equipment, however, would be operated intermittently over a large area and would produce low concentrations of ambient HAPs in a localized area. Therefore, MSAT emissions are not considered further in this analysis.

3.3.1.2. Greenhouse Gas Emissions

GHGs are gases that trap heat in the atmosphere. These emissions occur from natural processes as well as human activities. The accumulation of GHGs in the atmosphere regulates the earth's temperature. Science indicates a trend of increasing global temperature over the past century due to an increase in GHG emissions from human activities. The climate change associated with this global warming is producing negative environmental, economic, and social consequences across the globe.

Individual sources of GHG emissions are not large enough to have an appreciable effect on climate change. Therefore, an appreciable impact on global climate change would only occur when proposed GHG emissions combine with other GHG emissions from other man-made activities on a global scale.

The ROI for the air quality analysis includes portions of the Central Arkansas Intrastate Air Quality Control Region (AQCR) (40 CFR 81.138). For this analysis, carbon dioxide (CO_2) emissions from heavy construction equipment are evaluated. The most common GHGs emitted from natural processes and human activities include CO_2, methane, and nitrous oxide. Total GHG emissions from a source are often reported as a CO_2 equivalent (CO_2e). The CO_2e is calculated by multiplying the emission of each GHG by its global warming potential and adding the results together to produce a single, combined emission rate representing all GHGs.

3.3.2. EXISTING CONDITIONS

Little Rock AFB is located in Pulaski County, Arkansas, which is within the Central Arkansas Intrastate AQCR. The Central Arkansas Intrastate AQCR also includes Chicot, Clark, Cleveland, Conway, Dallas, Desha, Drew, Faulkner, Garland, Grant, Hot Spring, Jefferson, Lincoln, Lonoke, Perry, Pope, Saline, and Yell counties, Arkansas (40 CFR 81.138). Pulaski County has been designated by the USEPA as unclassified or in attainment for all criteria pollutants (USEPA 2016a).

Little Rock AFB has an ADEQ Minor Source Air Permit (Permit Number: 0865-AR-08) to operate air emissions sources consisting of boilers, emergency generators, engine test cells, storage tanks, fuel dispensing units, surface coating operations, and solvent degreasing operations. The operating permit reduces the installation's potential emissions of VOCs to below the major source threshold of 100 tons per year (tpy) by imposing operating restrictions (ADEQ 2009). Table 3.3-2 summarizes Little Rock AFB's potential to emit and actual air

emissions. Although CO, Pb, and $PM_{2.5}$ are criteria pollutants, they are not included in the operating permit, and therefore are not included in Table 3.3-2.

Table 3.3-2. Potential and Actual Emissions at Little Rock AFB

	NO_x (tpy)	*VOC (tpy)*	*CO (tpy)*	*SO_x (tpy)*	*PM_{10} (tpy)*
Potential to Emit	51.9	90.0	28.1	2.1	4.7
2011 Actual Emissions	4.46	6.66	1.05	0.24	2.37

Notes: NO_x = oxides of nitrogen, VOC = Volatile Organic Compound, CO = carbon monoxide, SO_x = sulfur oxide, PM_{10} = particulate matter less than or equal to 10 microns in aerodynamic diameter

Source: ADEQ 2009.

3.4. NOISE

Noise analysis is predicated on the aircraft operational data and noise computations associated with the 2011 Little Rock AFB AICUZ. The AICUZ study is hereby incorporated by reference.

3.4.1. DEFINITION OF RESOURCE

Noise is considered to be unwanted sound that interferes with normal activities or otherwise diminishes the quality of the environment. It may be intermittent or continuous, steady or impulsive, stationary or transient. When considering stationary sources, noise is associated with non-moving activity (e.g., construction equipment, or when an aircraft engine is running but the aircraft is not moving, such as during engine maintenance activities). Transient noise sources move through the environment, either along relatively established paths (e.g., highways, railroads, aircraft flight paths), or randomly. There is wide diversity in responses to noise that not only vary according to the type of noise and the characteristics of the sound source, but also according to the sensitivity and expectations of the receptor, the time of day, and the distance between the noise source (e.g., an aircraft) and the receptor (e.g., a person or animal). The duration of a noise event and the number of times noise events occur are important considerations in assessing noise impacts. All of these factors play a role in determining context and the intensity of a human's reaction to noise.

The physical characteristics of noise, or sound, include its intensity, frequency, and duration. Sound is created by acoustic energy, which produces minute pressure waves that travel through a medium, like air, and are sensed by the ear drum. This may be likened to the ripples in water that would be produced when a stone is dropped into it. As the acoustic energy increases, the intensity or amplitude of these pressure waves increase, and the ear senses louder noise.

The unit used to measure the intensity of sound is the decibel (dB). Sound intensity varies widely (from a soft whisper to a jet engine) and is measured on a logarithmic scale to accommodate this wide range. The logarithm and its use are nothing more than a mathematical tool that simplifies dealing with very large and very small numbers. For example, the logarithm

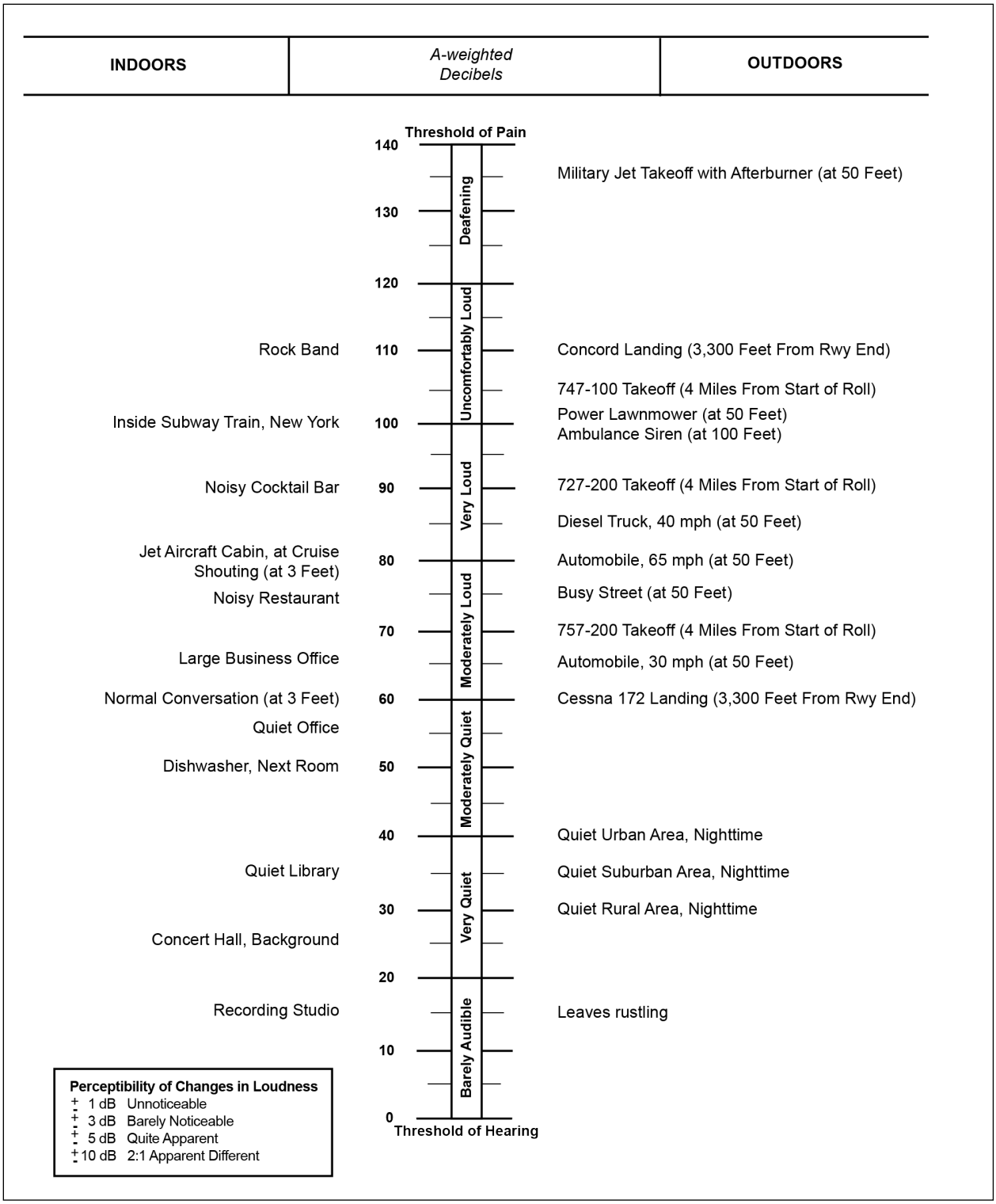
of the number 1,000,000 is 6, and the logarithm of the number 0.000001 is -6 (minus 6). As more zeroes are added before or after the decimal point, converting these numbers to their logarithms greatly simplifies calculations that use these numbers and may make them easier to understand.

The frequency of sound is measured in cycles per second, or hertz (Hz). This measurement reflects the number of times per second the air vibrates from the acoustic energy. Low frequency sounds are heard as rumbles or roars, and high frequency sounds are heard as screeches. Sound measurement is further refined through the use of weighting. The normal human ear can detect sounds that range in frequency from about 20 to 20,000 Hz (Center for Health Promotion and Preventive Medicine 2005). However, all sounds throughout this range are not heard equally well. Therefore, through internal electronic circuitry, some sound meters are calibrated to emphasize frequencies in the 1,000 to 4,000 Hz range. The human ear is most sensitive to frequencies in this range, and sounds measured with these instruments are termed "A-weighted," and are shown in terms of A-weighted decibels (dBA). When the use of A-weighting is understood, the adjective "A-weighted" is often omitted and the measurements are expressed as dB. In this EA, dB units refer to A-weighted sound levels.

Figure 3.4-1 depicts typical A-weighted sound levels for various common sources. As shown in the figure, a normal conversation from about 3 feet would typically be at approximately 60 dB.

3.4.2. NOISE METRICS

A variety of metrics may be used to assess the impacts of noise. Single event metrics are used to assess the potential impacts of noise on structures and animals, and are sometimes used in the assessment of human effects. For this EA, the single event metric, Sound Exposure Level (SEL), is used to characterize noise exposure from individual aircraft flights. This single event metric is used to identify noise exposure levels at each of the schools in the ROI. Time-averaged noise metrics are useful in characterizing the overall noise environment and are primarily used to analyze community (population) exposure to noise and land use compatibility. Time-averaged noise metrics are also used to determine the sound exposure during specific hours. For this EA, time-averaged noise exposure is expressed as both the Day-Night Average Sound Level (DNL) and the 8-hour Equivalent Sound Level ($L_{eq}8$). The USEPA selected DNL as the uniform descriptor of average noise exposure. Subsequently, federal agencies, including the Federal Aviation Administration and DoD, adopted DNL for expressing average sound.



Source: State of California Department of Transportation 2002.

Figure 3.4-1. Typical Decibel Level of Common Sounds

3.4.2.1. A-Weighted Sound Level

The A-Weighted Sound Level (AL) is a single number that represents the sound level of a noise containing a wide range of frequencies in a manner that approximates the response of the human ear. Because humans hear medium frequencies better than very high and very low frequencies, A-weighting de-emphasizes the low and high frequencies. The AL is a quantity, in dB, that is read from a standard sound-level meter with A-weighting circuitry. AL is used for determining the noise level of individual stationary engine runs based on the engine power and the distance and angle between the engine run location and the observer. AL combined with the duration of each engine run is used when generating DNL.

3.4.2.2. Sound Exposure Level

A SEL is an A-weighted measure that accounts for both the loudness and duration of a single noise event compressed into 1 second. The SEL measurement is comprised of: 1) the period of time when the noise source (i.e., aircraft) is approaching a receptor and noise levels are increasing; 2) the instant when the noise source is closest to the receptor and the maximum noise level is experienced; and 3) the period of time when the noise source moves away from the receptor resulting in decreased noise levels. The frequency (or pitch), loudness, and duration of a single noise event varies according to the noise source, engine type, power setting, and speed. For aircraft noise modeling purposes, individual aircraft noise data are collected for various types of aircraft and engines at different power settings at various phases of flight. These values form the basis for the individual-event noise descriptors at any location and are adjusted to the location by applying appropriate corrections for topography, temperature, humidity, altitude, power settings, and airspeed.

3.4.2.3. Maximum Sound Level

The maximum sound level (L_{max}) metric is used to define the highest instantaneous A-weighted sound level that occurs during an aircraft overflight. For an observer, the noise level starts at the ambient noise level, rises up to the maximum level as the aircraft flies closest to the observer, and returns to the ambient level as the aircraft recedes into the distance. L_{max} is important in judging speech intelligibility and interference (Department of Defense Noise Working Group [DNWG] 2013). The L_{max} is generally about 10 dB lower than the SEL because it doesn't account for the entire period of time that the sound is heard, whereas SEL includes the entire energy of a flyover compressed into 1 second.

3.4.2.4. Day-Night Average Sound Level

The DNL is the energy-averaged sound level that is predicted to occur over a 24-hour period, with a 10 dB penalty added to noise events occurring between 10 p.m. and 7 a.m. The penalty is

applied to account for the increased intrusiveness of noise events that occur at night when ambient noise levels are normally lower than during the daytime. DNL is not an actual sound level but is the combination of individual noise events (i.e., SEL and AL) occurring during a 24-hour period averaged together with the time that no noise events are occurring. Noise events include aircraft flight activity and engine ground runs. It is important to note that due to the logarithmic nature of the decibel, individual events cannot simply be added directly. For example, the noise level of two aircraft with a SEL of 100 dB flying together at 1,000 feet above ground level (AGL) would be 103 dB, not 200 dB, and three aircraft flying together would be 104.8 dB, not 300 dB.

Based on numerous sociological surveys and recommendations of federal interagency councils, the most common benchmark referred to in noise analysis is a DNL of 65 dB. This value is used to determine human annoyance and land use compatibility around airports, highways, or other transportation corridors. Public annoyance is the most common consequence associated with human exposure to elevated noise levels. When subjected to DNL of 65 dB, approximately 12 percent of persons exposed will be "highly annoyed" by the noise. At a DNL of 55 dB, the percentage of annoyance is correspondingly lower, at approximately 3 percent. The percentage of people annoyed by noise never drops to zero (some people are always annoyed), but the outdoor DNL of 55 dB is a level identified by the USEPA that protects public health and welfare with an adequate margin of safety (USEPA 1974). Below a DNL of 55 dB, adverse noise effects are usually not expected to occur (Finegold *et al*. 1994).

3.4.2.5. Equivalent Sound Level

The Equivalent Sound Level (L_{eq}) represents the average sound level (on a logarithmic basis) over a specified period of time. It is a useful metric for describing the total aircraft noise exposure over an extended or limited period of time without any penalties applied (i.e., there is no 10 dB penalty applied to flights occurring between 10 p.m. and 7 a.m.). The specified time can be the full 24 hours, or any portion of the 24 hours (i.e., an 8-hour school day), provided the number of operations that would occur during the given timeframe are available. L_{eq} values for a less than 24-hour day can be useful for determining impacts to sensitive locations that are not occupied during a full 24-hour day. For this EA, an $L_{eq}8$ was calculated to represent the time of day that school would be in session. A school located in an area where an outdoor $L_{eq}8$ of 60 dB is predicted would warrant additional analysis to determine the level of impact (DNWG 2013). To calculate the $L_{eq}8$ for this analysis, all nighttime flights (those occurring between the hours of 10 p.m. and 7 a.m.) were removed. Daytime operations were assumed to be equally distributed throughout the 15 hours and adjusted by 53 percent to represent those operations predicted to occur during an 8-hour school day. The resulting $L_{eq}8$ was then used to determine potential impacts to each alternative action.

The ROI for this noise analysis includes Little Rock AFB and the area surrounding the two parcels proposed for the educational facilities.

3.4.3. EXISTING CONDITIONS

3.4.4. AIR INSTALLATION COMPATIBLE USE ZONES

The AICUZ program was established to protect the public health, safety, and welfare, while ensuring sustainability of the USAF's operational capability. An AICUZ study assists local, regional, state, and federal officials by providing compatible land use recommendations for areas exposed to noise resulting from aircraft operational and maintenance activities, and for areas where the risk of an aircraft accident occurring is greatest. Land use comprises the natural conditions and/or human-modified activities occurring at a particular location. Human-modified land use categories generally include residential, commercial, industrial, agricultural, and other public uses. Management plans and zoning regulations determine the type and extent of land use allowable in specific areas and are often intended to protect specially designated or environmentally sensitive areas and sensitive noise receptors. The Federal Interagency Committee on Urban Noise and DoD have guidelines to help assess land use compatibility with aircraft noise exposure. As seen in Figure 3.4-2, *Land Use and Noise Contours*, none of the existing schools lie within the 65 dBA DNL contour identified in Little Rock AFB's 2011 AICUZ study. Therefore, all schools are considered as a compatible use under the AICUZ program guidelines; therefore, no additional analysis was performed.

3.4.5. NOISE SOURCES

The primary source of noise in the area surrounding Little Rock AFB is associated with aircraft flight and maintenance operations. Aircraft stationed at Little Rock AFB include various versions of the USAF's C-130. The C-130H and C-130J all routinely fly within the vicinity of Little Rock AFB. Fighter aircraft and helicopters may occasionally fly in the area, but would not be expected on a daily basis. Aircraft flight operations include departures, arrivals, and the closed patterns used to practice approaches to the Little Rock AFB runway as well as operations associated with the All American and Black Jack Drop Zones. Aircraft maintenance operations are associated with pre-flight and post-flight engine runs and when engines require maintenance. Engine runs required for maintenance and testing occur on the airfield and in engine test cells located throughout Little Rock AFB. For this PA, there would be no changes to the types of aircraft flying, flight patterns (where the aircraft fly), number of flight operations (how often the aircraft fly), or changes in the number of engine runs required for maintenance.

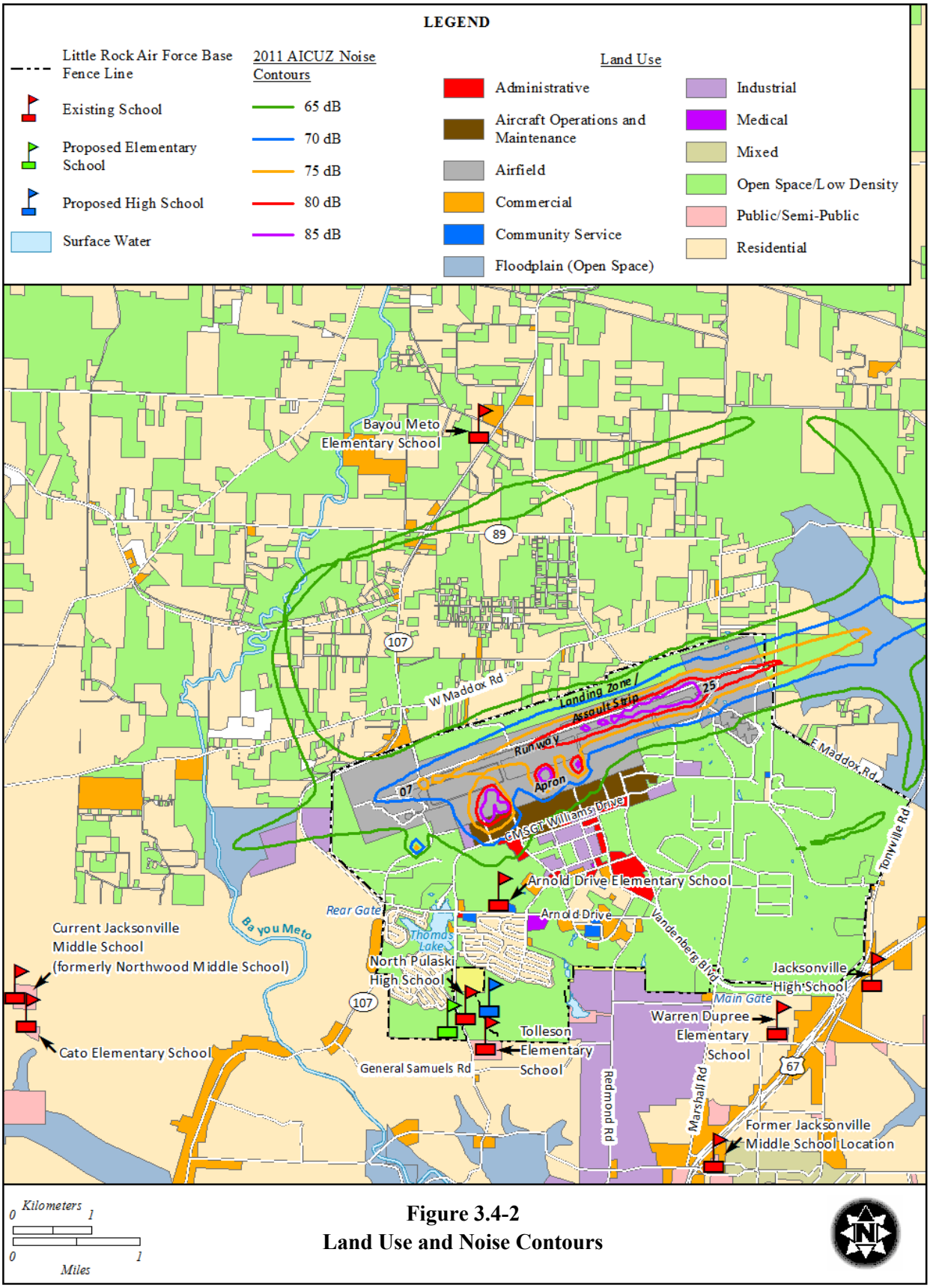


Figure 3.4-2
Land Use and Noise Contours

NOISEMAP is the computer model that provides the standard noise estimation methodology used for military aircraft. It was used to define the noise exposure at the existing schools located in the vicinity of Little Rock AFB. The baseline operational data (Table 3.4-1) and DNL contours for this PA (see Figure 3.4-2) are adopted from the Little Rock AFB 2011 AICUZ Study.

The values presented in Table 3.4-1 reflect the operations that were used to predict the DNL, SEL, and $L_{eq}8$ at each of the existing schools located in the vicinity of Little Rock AFB. It should be noted that operations modeled for the All American and Black Jack Drop Zones were considered as arrivals; therefore, arrivals are greater than departures for the 24-hour operations. A combination of the Drop Zone operations and removal of nighttime operations causes the unequal number of arrivals and departures for the 8-hour day operations.

Table 3.4-1. Average Daily Operations

Aircraft	AVERAGE 24-HOUR OPERATIONS[1]		*Total Average Busy Day (24-hour)*	AVERAGE 8-HOUR OPERATIONS[1,2]		*Total 8-hour day*
	Arrivals Day/Night	*Departures Day/Night*		*Arrivals Day/Night*	*Departures Day/Night*	
C-130	219.7/131.8	245.4/50.8	647.7	116.9/0	128.1/0	245
Other (Transient)	38.8/.1	38.8/.1	77.8	20.6/0	20.6/0	41.2
Total	**258.5/131.9**	**284.2/50.9**	**725.5**	**137.5/0**	**148.7/0**	**286.2**

Notes: 1. Includes closed pattern operations and arrivals to All American and Black Jack Drop Zones. Operations rounded to the nearest 10th.
2. Based on an equal distribution of flights during a 15 hour day (7 a.m. to 10 p.m.), scaled to represent an 8-hour school day

Source: Little Rock AFB 2011a.

Table 3.4-2 presents the highest predicted SEL, the DNL, and the $L_{eq}8$ at each of the schools located in the ROI. The values are the mathematically calculated output of the NOISEMAP model. Any calculated DNL value equal to or less than 45 dB essentially indicates that although aircraft may be seen or briefly heard, there is little or no observable noise contribution to the ambient noise level from aircraft in the region. The $L_{eq}8$ of 60 dB represents the outdoor noise level. When taking into consideration the 15 dB (windows open) to 25 dB (windows closed) outdoor to indoor attenuation provided by the structure, the L_{eq} inside the classroom would be 45 and 35, respectively. As can be seen in the table, none of the schools are located in an area where the $L_{eq}8$ exceeds 60 dB, and, therefore, additional assessment regarding the magnitude of classroom interference is not necessary (DNWG 2013).

The SELs in Table 3.4-2 are provided as an indicator of potential speech interference resulting from individual aircraft overflights. They are based on the C-130 aircraft stationed at Little Rock AFB that fly on an average busy flying day. The SEL of transient aircraft (those aircraft that may occasionally visit Little Rock AFB) could be higher than the C-130 but they would be infrequent visitors and would not present a realistic baseline from which to quantify impacts.

Table 3.4-2. Baseline Predicted Noise Exposure at Existing Schools[1]

Existing Schools	*SEL(dB)[2]*	*DNL(dB)[3]*	*$L_{eq}8$(dB)*	*NA75SEL[4]*
Jacksonville High School	88.5	53.8	48. 7	2.59
North Pulaski High School	82.6	48.8	47.8	2.9
Arnold Drive Elementary School	76.1	51.1	55.8	1.46
Tolleson Elementary School	84.8	50.3	47.3	2.95

Notes: 1. Represents outdoor noise levels for $L_{eq}8$; indoor noise levels would be between 15 and 25 dB less with windows open and closed, respectively (DNWG 2009).
2. Highest SEL level resulting from C-130 aircraft stationed at Little Rock AFB.
3. DNL at the location of the school based on 2011 AICUZ.
4. Represents the number of flights during an 8-hour day predicted to exceed an SEL of 75 dB based on the top 20 contributors to the DNL.

SEL = Sound Exposure Level; DNL = Day-Night Average Sound Level; $L_{eq}8$ = 8-hour equivalent sound level; dB = decibel, NA75SEL = Number of Events Above the Sound Exposure Level of 75 dB.

Sources: Little Rock AFB 2011b, NMPLOT Jan 2016.

Based on the top 20 contributors to the $L_{eq}8$ at each school, the number of individual aircraft overflights that would produce an SEL above 75 dB (Number of Events Above the Sound Exposure Level of 75 dB [NA75SEL]) are also presented. The NA75SEL describes how many individual aircraft operations would be expected to exceed an SEL of 75 dB at each of the locations on the ground during an 8-hour day. The NA75SEL is presented for outside areas. When combined with an average outdoor-to-indoor noise level reduction of 15-25 dB, the resulting indoor level of 60-50 dB is obtained with windows open and windows closed, respectively. An L_{max} of 50 dB is the widely accepted single event criteria threshold level for classroom speech interference (DNWG 2013). Use of the SEL versus L_{max} metric is conservative because L_{max} levels do not account for the entire noise event and are typically 10 dB less than the SEL.

As can be seen in Table 3.4-2, Jacksonville High School, North Pulaski High School, Arnold Drive Elementary School, and Tolleson Elementary School are predicted to have less than three overflights during the school day where the SEL would exceed 75 dB.

3.5. LAND USE

3.5.1. DEFINITION OF THE RESOURCE

Land use comprises the natural conditions and/or human-modified activities occurring at a particular location. Natural conditions comprise those geographic characteristics that have a direct effect on the development potential of the landscape, e.g., rivers, steep slopes, and soil conditions. Human-modified land use categories include residential, commercial, industrial, transportation, communications and utilities, agricultural, institutional, recreational, and other developed use areas. General land use patterns characterize the types of uses within a particular area including agricultural, residential, military, and recreational. Land ownership is a

categorization of land according to type of owner. The major land ownership categories include private, state, and federal. Many urban areas use management plans and zoning regulations to determine the type and extent of land use allowable in specific areas and to protect specially designated or environmentally sensitive areas. Resources used to define land use include all land use plans, policies, and zoning limitations in the study area.

The ROI for land use includes the two parcels proposed for the educational facilities in addition to Arnold Drive Elementary School located on Little Rock AFB.

3.5.2. EXISTING CONDITIONS

The two parcels proposed for the educational facilities are located within the city of Jacksonville in Pulaski County, Arkansas, approximately 15 miles north of the cities of Little Rock and North Little Rock. Little Rock AFB, including Arnold Drive Elementary School, is adjacent to the city of Jacksonville on the southern boundary and the city of Sherwood to the west and southwest. The primary land uses within Pulaski County to the north and east of Little Rock AFB are open space, including agriculture and undeveloped forested areas, and residential. South of Little Rock AFB, land use is primarily low-density residential, industrial, and commercial. The land use adjacent to the western boundary is primarily residential with some industrial, open space, and commercial (Figure 3.5-1) (Little Rock AFB 2013a, USAF 2011a).

Land use within the installation is composed of 2,245 acres of improved grounds (e.g., lawns, buildings, parking lots), 743 acres of semi-improved grounds (e.g., golf course, airfield), and 3,085 acres of unimproved grounds (e.g., ponds and forest). An additional 79.3 acres is leased to the Arkansas ANG. Land uses on Little Rock AFB surrounding Arnold Drive Elementary and the proposed lease parcels are primarily open space and residential. Hunting is allowed on Little Rock AFB within 32 separate hunting areas in over 2,800 acres of forest and grassland areas. The 37-acre lake (Thomas Lake) located in the southwest portion of Little Rock AFB provides the only fishing opportunities. Hunting and fishing on Little Rock AFB requires a special permit in addition to any state licenses and federal stamps required (Little Rock AFB 2013a).

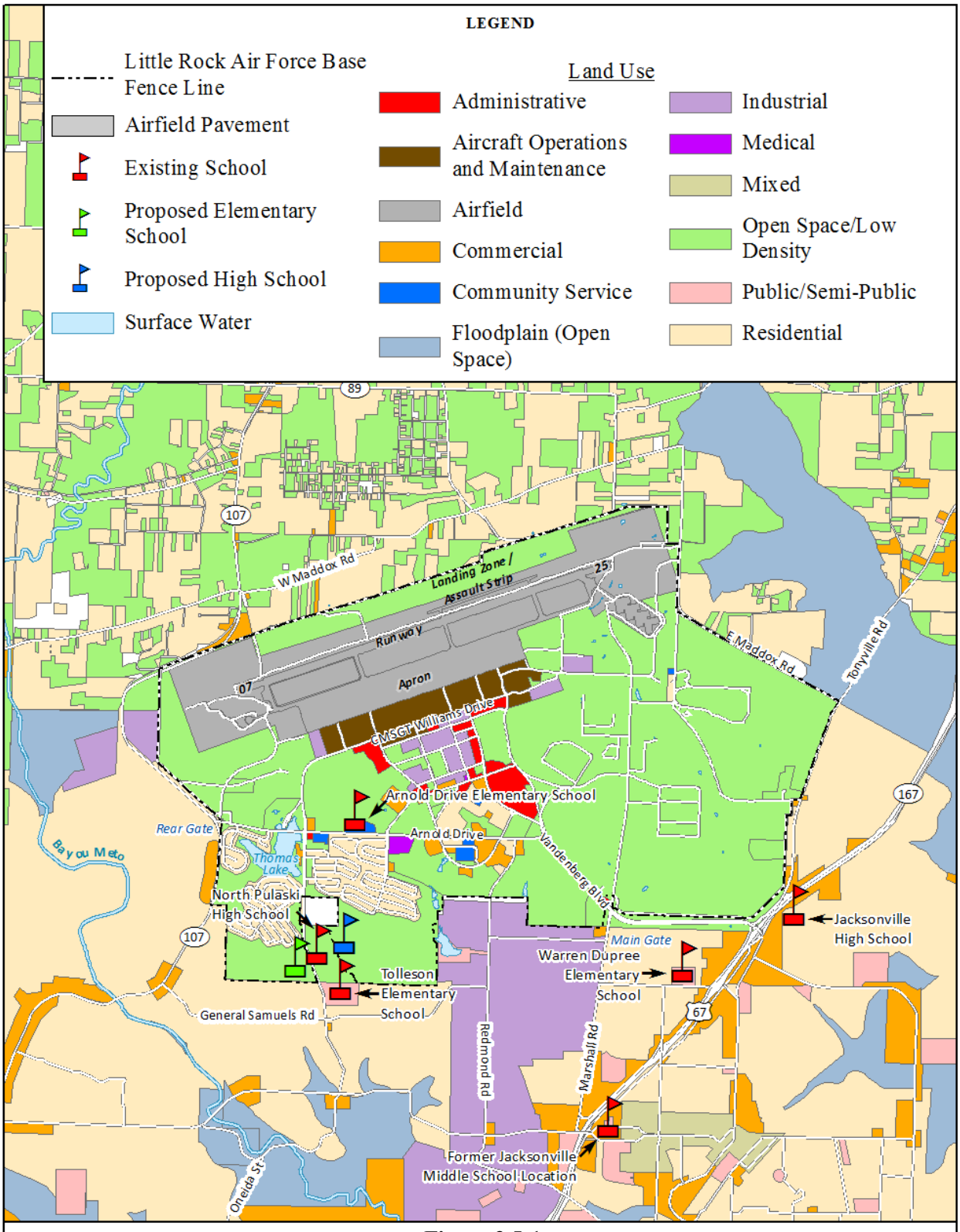


Figure 3.5-1
Land Use
Little Rock AFB

3.6. EARTH RESOURCES

3.6.1. DEFINITION OF THE RESOURCE

Earth resources include the topographic, geologic, and soil conditions within the project area. Topography describes the physical surface characteristics of land such as slope, elevation, and general surface features. Long-term geological, erosional, and depositional processes typically influence topographic relief of an area. The geology of an area includes bedrock materials and mineral deposits. The principal geologic factors influencing the stability of structures are soil stability, bedrock depth, and seismic properties. Soil refers to unconsolidated earthen materials overlying bedrock or other parent material. Soil structure, elasticity, strength, shrink-swell potential, liquefaction potential, and its potential to erode, all determine the ability of the ground to support structures and facilities.

The ROI for earth resources includes the lands surrounding the proposed educational facilities in addition to Arnold Drive Elementary School located on Little Rock AFB.

3.6.2. EXISTING CONDITIONS

3.6.2.1. Topography

The area surrounding the ROI has rolling topography with gentle slopes. Slightly steeper slopes occur in the stream valleys to the northwest and southwest and long, narrow ridges, oriented from east to west, typify the region to the north. The steep-sided ridges that occur north of Little Rock AFB indicate localized faulting and folding which tilted the bedrock. Erosion of the different layers of bedrock formed the narrow ridges typical of the area (Little Rock AFB 2013a, 2013b, 2014a).

3.6.2.2. Geology

The state of Arkansas is divided into several distinct physiographic regions. A southwest to northeast diagonal line divides the state into the Ozark/Ouachita highlands and the Mississippi Alluvial Plain/Gulf Coastal Plain. The highland regions are further divided by the Arkansas River Valley, which follows the flow of the Arkansas River through the highland regions (Little Rock AFB 2013a).

The ROI is located in the foothills of the Ouachita Mountains, near the present day transition to the floodplains of the Arkansas River Valley, the Mississippi Embayment, and tributaries of the Arkansas River. The foothills and valleys are remnants of the mountain range formed by the mountain building process of the late Paleozoic age. During the Carboniferous Period, collisions between the North American and Llanorian plates caused uplifting, forming the ancestral

Ouachita Mountains north and northwest of Little Rock AFB. The Ouachita Mountains are made up of complexly folded and faulted Paleozoic age sedimentary rocks that were originally deposited in mostly deep marine environments. As a result of the late Paleozoic continental collision, the structural fabric trends more or less east-west. However, through geologic time, environmental forces have rapidly eroded the relatively soft sandstone and shale units. Surface exposures of the ridges that remain are predominantly sandstone due to its superior erosional resistance. Over geologic time, the erosion of the uplifted and folded rocks of the Ouachita Mountains has filled the local depressions between the uplifted ridges with various alluvial deposits (AMC 2012, Little Rock AFB 2013a). The bedrock within the vicinity of the ROI consists of sandstones, shales, quartzites, and early Paleozoic Era cherts (Little Rock AFB 2014a).

3.6.2.3. Soils

Soils within the ROI primarily consist of sandstone and shale washed in from local highlands, low in organic matter, with moderate to high levels of acidity (Little Rock AFB 2013b). There are four different soil series that occur within the vicinity of the PA described below (United States Department of Agriculture [USDA] 2016a).

The four soil series within the ROI are further organized into complexes and associations, as shown on Figure 3.6-1. As defined by the Natural Resources Conservation Service (NRCS), a soil series consists of a group of soils developed from similar parent materials under comparable climatic and vegetational conditions. A soil complex consists of areas of two or more soils that are intricately mixed or so small in size that they cannot be shown separately on the soil map. A soil association is made up of adjacent soils geographically associated in a characteristic repeating pattern and defined as a single unit.

The *Leadvale* soil series is comprised of deep to very deep, moderately well drained soils. These soils formed in silty materials in uplands or local silty alluvium from nearby uplands underlain largely by shale and siltstone. Runoff is slow or medium and permeability is slow or moderately slow (USDA 2003a).

The *Linker* soil series consists of moderately deep well drained, moderately permeable soils that formed in loamy residuum weathered from sandstone. These soils are located on broad plateaus, mountains, hilltops, and benches (USDA 2000).

The *Mountainburg* soil series consists of fine sandy loam that is shallow and well drained with moderately rapid permeability. These soils also formed in residuum of sandstone and are located in upland ridgetops, plateaus, and mountainsides (USDA 2003b).

The *Urban land* soil series designates significantly altered soil that no longer retains enough characteristics of the original soil to be classified (USDA 2016b).

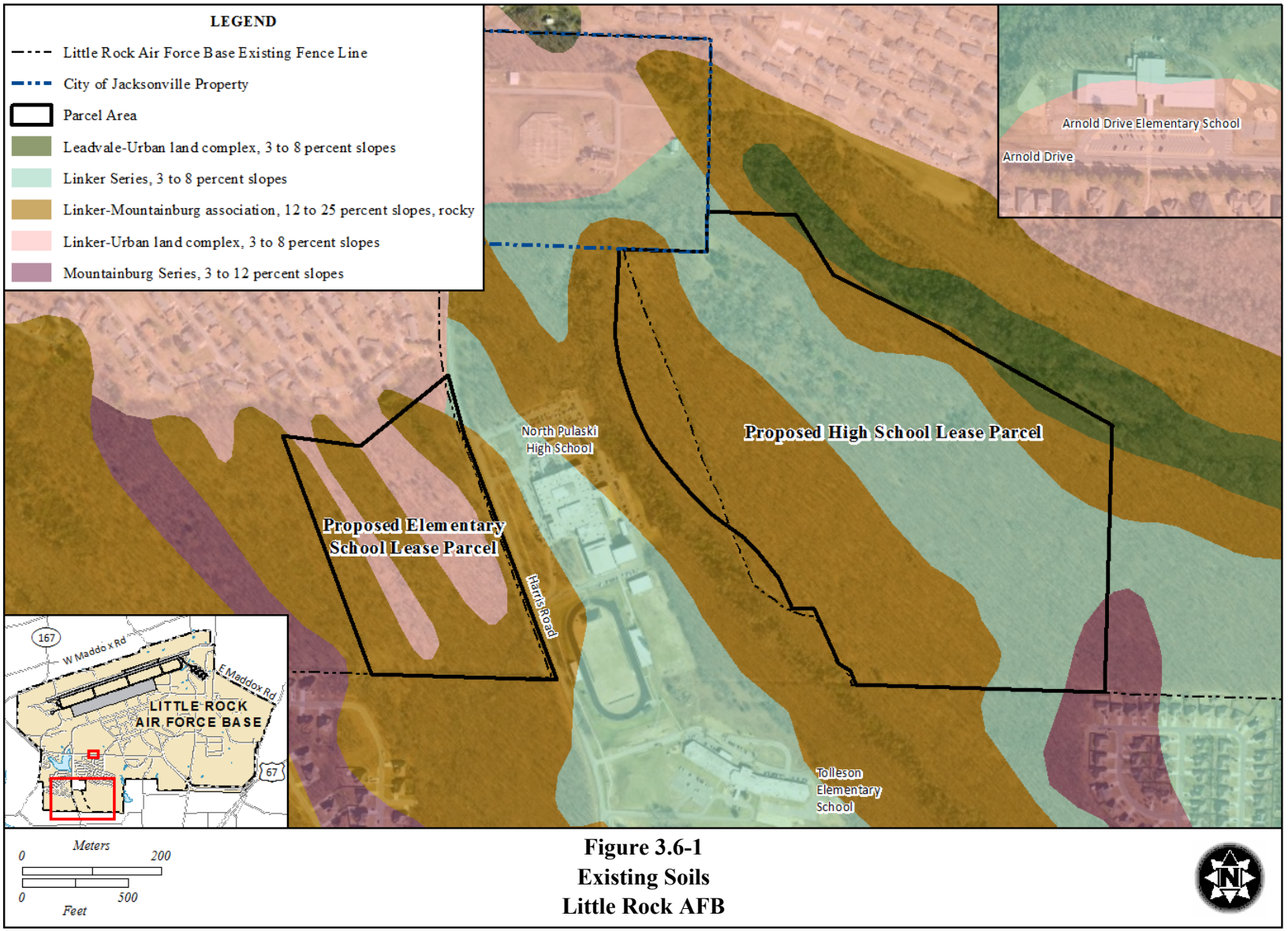


Figure 3.6-1
Existing Soils
Little Rock AFB

*100- year floodplains delineated as part of Little Rock AFB 2011 Survey

3.7. WATER RESOURCES

3.7.1. DEFINITION OF THE RESOURCE

Water resources analyzed in this EA include surface water and groundwater quantity and quality, floodplains, and wetlands. Further, this section provides descriptions of the qualitative and quantitative characteristics of water resources. Drinking water wells, wastewater facilities, and stormwater infrastructure are discussed in Section 3.9, *Infrastructure*.

Surface water includes lakes, rivers, and streams and is important for a variety of reasons including irrigation, power generation, recreation, flood control, and human health. The nation's waters are protected under the statutes of the CWA; the goal of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation's water so that they can support "the protection and propagation of fish, shellfish, wildlife, and recreation in and on the water." Under the CWA Section 402, it is illegal to discharge any point and/or nonpoint pollution sources into any surface water without a National Pollutant Discharge Elimination System (NPDES) permit. The USEPA is charged with administering the NPDES permit program; however, the State of Arkansas has legal authority to implement and enforce the provisions of the CWA, while the USEPA retains oversight responsibilities.

In December 2007, Congress enacted the *Energy Independence and Security Act*; Section 438 of this legislation established into law new stormwater design requirements for all federal projects with a footprint greater than 5,000 SF. This act triggered updates to the DoD issued UFC on *Low Impact Development* (LID) (UFC 3-210-10, as amended 01 June 2015) that established the technical criteria and requirements for applicable DoD projects in order to comply with the stormwater requirements under the *Energy Independence and Security Act* Section 438. As such, the overall design objectives for each applicable DOD project is to maintain predevelopment hydrology and prevent any net increase in stormwater runoff through interception, infiltration, storage, or evapotranspiration processes. Agencies can meet the pre-development hydrology requirements in two ways: 1) managing on-site the total volume of rainfall from the 95th percentile storm, or 2) managing on-site the total volume of rainfall based on a site-specific hydrologic analysis through various engineering techniques. Typical on-site design options include: bio-retention areas, permeable pavements, cisterns/recycling, and green roofs.

Furthermore, the ADEQ Permit ARR15000 requires a goal of at least 80 percent removal of total suspended solids from stormwater discharges that exceed pre-development levels. The ARR15000 is a general permit that authorizes discharge of stormwater associated with a construction activity that disturbs greater than 1 acre of soil.

Groundwater includes the subsurface hydrologic resources of the physical environment. Groundwater plays an important part in the overall hydrologic cycle and its properties are described in terms of depth to aquifer or water table, water quality, and surrounding geologic composition.

Floodplains are defined by EO 11988, *Floodplain Management* (as amended 2015), as *"the lowland and relatively flat areas adjoining inland and coastal waters including flood prone areas of offshore islands."* Floodplains and riparian habitat are biologically unique and highly diverse ecosystems providing a rich diversity of aquatic and terrestrial species, as well as promoting stream bank stability and regulating water temperatures. In addition, losses caused by flooding affect the environment, economic prosperity, and public health and safety, each of which affects national security. To improve the Nation's resilience to current and future flood risk that is anticipated to increase over time due to the effects of climate change and other threats, on January 30, 2015, the President signed EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*, which amended EO 11988, *Floodplain Management* established in 1977. The revised implementing guidelines explain the use of natural systems, ecosystem processes, and nature-based approaches for identifying alternatives, and provide other technical guidance for implementing EO 11988 (*as amended*, 2015).

EO 13690 established new FFRMS, a flexible framework to increase resilience against flooding and help preserve the natural values of floodplains. The guidelines include new floodplain definitions to reflect the updated approaches in the FFRMS. Federal agencies will expand management from the base flood elevation to a higher vertical flood elevation and corresponding horizontal floodplain for federally funded projects to address current and future flood risk and ensure that projects funded with taxpayer dollars last as long as intended. This includes where federal funds are used to build new structures and facilities or to rebuild those that have been damaged. In implementing the Standard, federal agencies will be given the flexibility to select one of three approaches for establishing the flood elevation and hazard area they use in siting, design, and construction:

- *Climate-Informed Science Approach* – The elevation and flood hazard area that result from using a climate-informed science approach that uses the best-available, actionable hydrologic and hydraulic data and methods that integrate current and future changes in flooding based on climate science.

- *Freeboard Value Approach* – The elevation and flood hazard area that result from using the freeboard value, reached by adding an additional 2 feet to the base flood elevation for non-critical actions and from adding an additional 3 feet to the base flood elevation for critical actions.

- *0.2-percent-annual-chance Flood Approach* – The area subject to flooding by the 0.2-percent-annual-chance flood.

Wetlands are considered sensitive habitats and are subject to federal regulatory authority under Section 404 of the CWA and EO 11990, *Protection of Wetlands*. Jurisdictional wetlands are defined by the USACE as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (Environmental Laboratory 1987). Areas meeting the federal wetland definition are under the jurisdiction of the USACE. Wetlands generally include swamps, marshes, bogs, and similar areas. Like vegetation, the affected environment for wetlands includes only those areas potentially subject to ground disturbance. Additionally, EO 11990 extends to non-jurisdictional wetlands. In accordance with EO 11990, construction within wetlands is avoided, where practicable.

Wetland and floodplain impacts would be reduced to the maximum extent practicable through project design and implementation of environmental protection measures. Actions that include construction in a wetland or a floodplain require a FONPA be prepared and approved by Headquarters AMC. All appropriate permits must be obtained from applicable regulatory agencies to address impacts on wetland areas and floodplains and to determine potential mitigation, if required.

The ROI for water resources includes the areas within and immediately surrounding the proposed educational facilities, Arnold Drive Elementary School located on Little Rock AFB, as well as areas downstream of those parcels.

3.7.2. EXISTING CONDITIONS

3.7.2.1. Surface Water

The proposed educational facilities and Arnold Drive Elementary School lie within the Arkansas River Basin of central Arkansas and are located within the Bayou Meto watershed. This watershed is part of the larger Lower Mississippi River Basin that extends from southern Missouri and Kentucky to the Gulf Coast of Louisiana (Little Rock AFB 2013b). As shown on the United States Geological Survey (USGS) topographic map for this area and as shown on Figure 3.7-1, drainage from the two parcels associated with the proposed educational facilities flows southeast into a wooded marsh that ultimately discharges into Bayou Meto (USGS 2016).

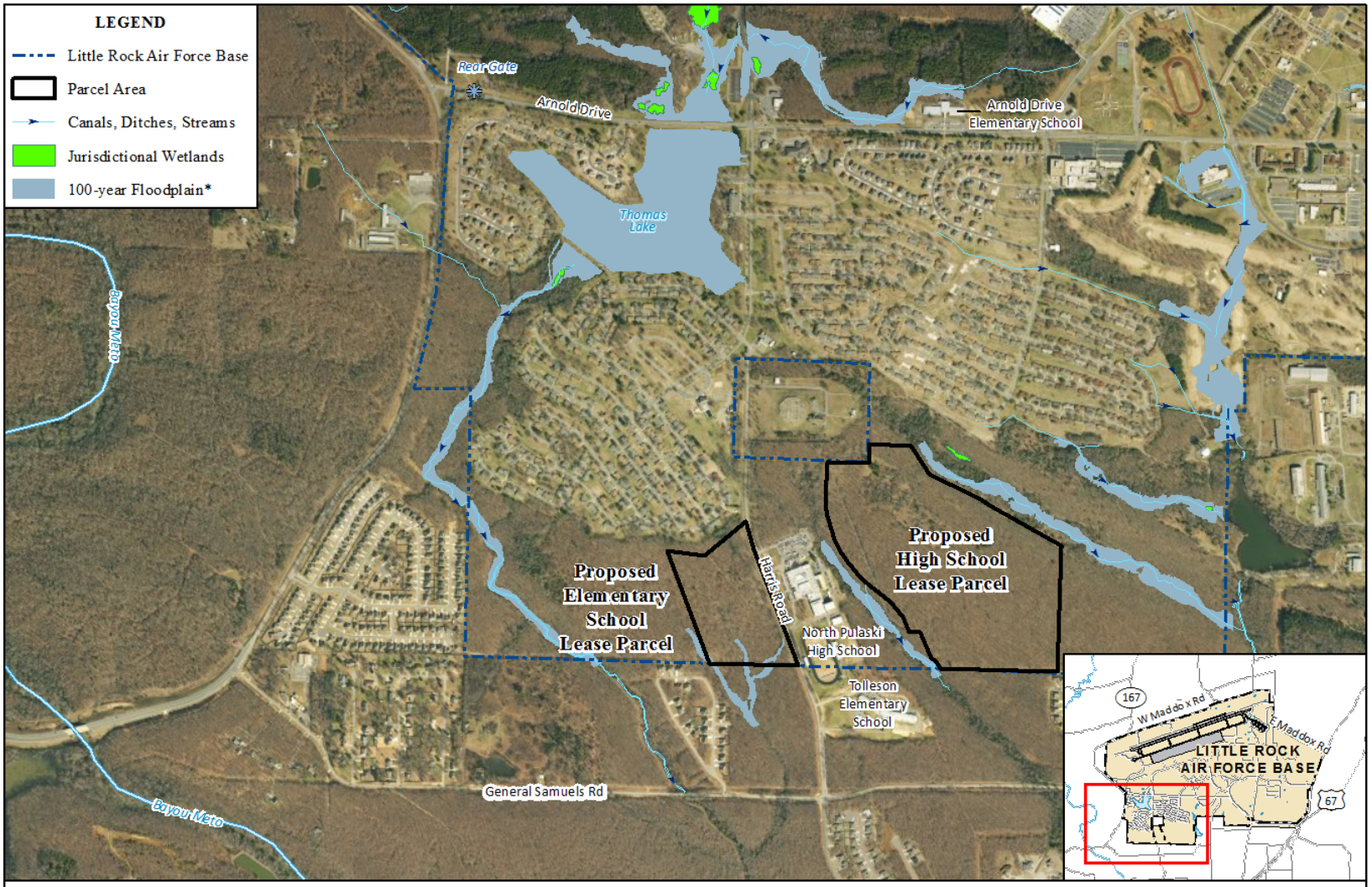


Figure 3.7-1
Water Resources on
Little Rock AFB

*100- year floodplains delineated as part of Little Rock AFB 2011 Survey

Drainage surrounding Arnold Drive Elementary School is predominantly controlled by open drainage courses and underground storm drains. As shown on the USGS topographic map for this area and on Figure 3.7-1, Arnold Drive Elementary School is located between two drainage areas within Little Rock AFB – Thomas Lake located to the west and Paradise Lake located to the southeast (USGS 2016). Thomas Lake and Paradise Lake both eventually drain into Bayou Meto, which flows southeast and joins the Arkansas River approximately 100 miles downstream from Little Rock AFB (Little Rock AFB 2013b, USGS 2016).

This segment of Bayou Meto within Pulaski County is currently on Arkansas's Draft 2016 and 2014 CWA Section 303(d), *Impaired Waters and Total Maximum Daily Loads List*, under Category 5 due to dioxin contamination and low dissolved oxygen concentrations. Category 5 refers to the impaired waterbody where one or more water quality standards are not attained. Under Section 303(d), states are required to evaluate all available water quality-related data and information to develop a list of waters that do not meet established water quality standards (considered impaired) and those that currently meet water quality standards, but may exceed it in the next reporting cycle (considered threatened) (ADEQ 2016).

3.7.2.2. Groundwater

The Atoka aquifer underlies the ROI with a groundwater velocity of 10 feet per year (Little Rock AFB 2014a). Monitoring wells provide the majority of the limited information available about groundwater within the ROI. Generally, these monitoring wells have low yields; depth to bedrock and seasons influence the depth to the groundwater table, which varies across the ROI. In certain areas, bedrock is very shallow and a seasonal perched water table occurs near the surface. At other locations, however, the water table is as much as 30 feet below the surface (Little Rock AFB 2013b).

There are no groundwater wells on Little Rock AFB or the proposed educational parcels; groundwater is not used for drinking, irrigating, or industrial purposes. All potable water supplied to the ROI is through the City of Jacksonville. Water is drawn from Lake Maumelle, treated by Little Rock Municipal Water Works, distributed by the North Little Rock municipal system, and piped to Jacksonville and Little Rock AFB (Little Rock AFB 2013b). The educational parcels are currently undeveloped and do not contain potable water infrastructure.

3.7.2.3. Floodplains

Little Rock AFB conducted a floodplain survey in 2011 (USAF 2011b). There are numerous 100-year floodplains within the ROI, including: three floodplain areas within the parcel proposed for the new elementary school, three near the proposed high school parcel, and one floodplain located to the north of Arnold Drive Elementary School, as shown on Figure 3.7-1.

3.7.2.4. Wetlands

The USACE conducted the most recent inventory of wetlands on Little Rock AFB in 2012. There is one wetland northeast of the proposed High School Parcel, but it is not located within the Parcel boundary (Figure 3.7-1).

3.8. BIOLOGICAL RESOURCES

3.8.1. DEFINITION OF THE RESOURCE

Biological resources include living, native, or naturalized plant and animal species and the habitats within which they occur. Plant associations are generally referred to as *vegetation* and animal species are referred to as *wildlife*. Habitat can be defined as the resources and conditions present in an area that produces occupancy of a plant or animal (Hall *et al.* 1997). Although the existence and preservation of biological resources are intrinsically valuable, these resources also provide aesthetic, recreational, and socioeconomic values to society. This analysis focuses on species or vegetation types that are important to the function of the ecosystem, of special societal importance, or are protected under federal or state law or statute. For purposes of this analysis, these resources are divided into three major categories: vegetation, wildlife, and special status species.

Vegetation types include all existing terrestrial plant communities as well as their individual component species. The affected environment for vegetation includes only those areas potentially subject to ground disturbance.

Wildlife generally includes all fish, amphibian, reptile, bird, and mammal species with the exception of those identified as special status species, which are treated separately.

Special status species are defined as those plant and animal species listed as endangered, threatened, and species proposed for listing by the USFWS under the ESA. The federal ESA protects federally listed endangered and threatened plant and animal species. Federally identified candidate species (species proposed for listing) are not protected under law; however, these species could become federally listed over the near-term, and therefore are considered herein to avoid future conflicts if they were to be listed during the preparation of this EA. Additionally, the Arkansas Natural Heritage Commission (ANHC) oversees the protection and management of state-protected flora and fauna and compiles and maintains the state list of plants and animals designated as rare, endangered, and threatened. Furthermore, the Arkansas Game and Fish Commission maintains a list of animal endangered species in the State of Arkansas.

Special status species also includes those bird species protected under the federal Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Act, and other species-specific conservation

legal authorities. Assessment of a project's effect on migratory birds places an emphasis on "species of concern" as defined by EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*. Additional assessment of potential impacts on migratory birds that are regionally rare occurs under the special status species category.

The ROI for biological resources consists only of lands that could be affected by the PA, primarily the parcels proposed for the educational facilities and Arnold Drive Elementary School located on Little Rock AFB.

3.8.2. EXISTING CONDITIONS

3.8.2.1. Vegetation

Little Rock AFB, including Arnold Drive Elementary School, and the two parcels proposed for the educational facilities lie within the Southeastern Mixed Forest Province, Arkansas Valley Section. Dominant vegetation within this ecoregion includes oak-hickory and loblolly-shortleaf pine forests dominated by white, black, bur, post, and blackjack oaks (*Quercus alba*, *Q. velutina*, *Q. macrocarpa*, *Q. stellata*, and *Q. marilandica*), pignut hickory (*Carya glabra*), mockernut hickory (*C. tomentosa*), loblolly pine (*Pinus taeda*), and shortleaf pine (*P. echinata*) (Little Rock AFB 2013a). The project area is located within a forested area that is characterized as a Post Oak Savanna which is dominated by oak trees (*Quercus* spp.) and has an open canopy allowing the development of a native grass-dominated understory.

3.8.2.2. Wildlife

Little Rock AFB, including Arnold Drive Elementary School, and the two parcels proposed for the educational facilities provides habitat for a variety of wildlife, with the majority of the species occurring within the forested areas. Common mammal species include shrews (*Blarina carolinensis, Cryptotis parva*), mice (*Mus musculus, Ochrotomys nuttalli, Peromyscus gossypinus, Peromyscus leucopus*), squirrels (*Sciurus carolinensis, Sciurus niger*), skunk (*Mephitis mephitis*), opossum (*Didelphis virginiana*), fox (*Urocyon cinereoargenteus, Vulpes vulpes fulva*), deer (*Odocoileus virginianus*), bats (*Eptesicus fuscus, Lasiurus borealis, Myotis sodalist*), rabbits (*Sylvilagus floridanus*), and a limited number of larger carnivores including coyote (*Canis latrans*) and bobcat (*Felis rufus*) (Little Rock AFB 2013a).

A total of 126 bird species have been identified on Little Rock AFB. The most common bird species found on Little Rock AFB include the pine warbler (*Dendroica pinus*), cardinal (*Cardinalis cardinalis*), Carolina wren (*Thryothorus ludovicianus*), blue jay (*Cyanocitta cristata*), hooded warbler (*Wilsonia citrina*), eastern towhee (*Pipilo erythrophthalmus*), and tufted titmouse (*Baeolophus bicolor*). Common reptiles found on Little Rock AFB include racer snakes (*Coluber* spp.), rat snakes (*Elaphe* spp.), king snakes (*Lampropeltis* spp.), copperheads

and cottonmouths (*Agkistrodon* sp.), and the three-toed box turtle (*Terrapene carolina triunguis*). The wetlands on Little Rock AFB provide habitat for water snakes (*Nerodia* spp.), map turtles (*Graptemys geographica*), common musk turtles (*Sternotherus odoratus*), common snapping turtles (*Chelydra serpentine*), red-eared slider turtles (*Trachemys scripta elegans*), and amphibian species such as toads (*Bufo* spp.), frogs (*Hyla* spp., *Pseudacris* spp., *Rana* spp.), and salamanders (*Ambystoma* spp., *Eurycea* spp.) (Little Rock AFB 2013a).

3.8.2.3. Threatened, Endangered, and Other Sensitive Species

There are several federally and state-listed threatened and endangered and rare species that are known to occur on or in the vicinity of Little Rock AFB (Table 3.8-1). No critical habitat is located on Little Rock AFB. One federally listed species, the federally endangered interior least tern (*Sterna antillarum athalassos*), and one candidate species, the rattlesnake-master borer moth (*Papaipema eryngii*), are known to occur on Little Rock AFB. The interior least tern is a migratory bird that arrives at its breeding grounds from mid-May to August and spends 3 to 5 months in its breeding grounds. They have been observed using lakes on Little Rock AFB since 2006. In June 2007 they were found nesting on the gravel rooftop of Building 450. In 2008 and 2009 they were found nesting on the gravel rooftops of Buildings 430 and 450. In 2012 they nested on the rooftop of Building 450. The installation has developed an awareness program and has implemented roof access protocol approved by the USFWS to protect these birds. The rattlesnake-master borer moth was observed during a 1998 survey in mesic prairie habitat on the northwest corner of the airfield and during a 2014 survey in the north airfield area hunting land west of the airfield. In addition, rattlesnake-master borer moths were observed in the Post Oak Savanna within the footprint of the proposed elementary school. Their primary food plant, rattlesnake-master (*Eryngium yuccifolium*), was also found in these areas (Nature Conservancy 2014). An additional three federally listed species occur within the vicinity of Little Rock AFB, but have not been observed on Little Rock AFB and are not likely to occur due to lack of habitat (Table 3.8-1) (Little Rock AFB 2013a).

The Post Oak Savanna within the proposed project area has the potential to provide habitat for migratory birds such as the ruby-crowned kinglet (*Regulus calendula*), blue-gray gnatcatcher (*Polioptila caerulea*), summer tanager (*Piranga rubra*), white-throated sparrow (*Zonotrichia albicollis*), and dark-eyed junco (*Junco hyemalis*). In addition, the bald eagle has been sited occasionally flying over Little Rock AFB, but no nesting or foraging activities on Little Rock AFB have been observed (Little Rock AFB 2013a).

Table 3.8-1. Special Status Species Observed on or Within the Vicinity of Little Rock AFB

Common Name	*Scientific Name*	*Federal Status*	*State Status*	*Occurrence on* Little Rock AFB
Birds				
Interior least tern	*Sterna antillarum athalassos*	E	SE	O
Piping plover	*Charadrius melodus*	T	-	N
Red-cockaded woodpecker	*Picoides borealis*	E	SE	N
Bald eagle	*Haliaeetus leucocephalus*	Delisted	INV, BGEPA	O
Insects				
Rattlesnake-master borer moth	*Papaipema eryngii*	C	-	O
Diana fritillary butterfly	*Speyeria diana*	-	INV	N
Plants				
Running buffalo clover	*Trifolium stoloniferum*	E	-	N

Notes: E = Federally Endangered; C = Candidate; T= Federally Threatened; O = Observed; N = Not observed on Little Rock AFB; SE = State Endangered; BGEPA = protected under the Bald and Golden Eagle Protection Act; INV = Inventory Element
The ANHC is currently conducting active inventory work on these elements. Available data suggest these elements are of conservation concern. These elements include outstanding examples of Natural Communities; colonial bird nesting sites; outstanding scenic and geologic features; and plants and animals, which, according to current information, might be rare, peripheral, or of an undetermined status in the state. The ANHC is gathering detailed location information on these elements.
Sources: USFWS 2013, 2016; Little Rock AFB 2013a.

3.9. INFRASTRUCTURE

3.9.1. DEFINITION OF THE RESOURCE

Infrastructure refers to the system of public works, such as utilities and transportation, which provide the underlying framework for a community. The infrastructure elements at Little Rock AFB include both transportation and utility systems. Transportation refers to the movement of people, goods, and/or equipment on a surface transportation network. A surface transportation network may include many different types of facilities that serve a variety of transportation modes, such as vehicular traffic, public transit, and non-motorized travel (e.g., pedestrians and bicycles). The ROI for transportation consists of the existing roadways that would provide local access for passenger vehicles to the proposed educational facilities, and include the following roadway segments that have the potential to be affected by the PA:

- General Samuels Road, from Arkansas Highway 107 to Harris Road
- General Samuels Road, from Harris Road to Redmond Road
- Harris Road, from Illinois Drive to General Samuels Road
- Harris Road from General Samuels Road to Jacksonville Cutoff Road
- Sheridan Drive, from Harris Road to Longstreet Street
- Longstreet Street, to the west of Sheridan Road

Utilities include such amenities as water, power supply, and waste management. The components to be discussed in this section include wastewater, stormwater drainage, natural gas, electricity, solid waste, and potable water. The ROI for utilities includes the two parcels proposed for the educational facilities and Arnold Elementary School, with additional information presented for the surrounding area where relevant.

3.9.2. EXISTING CONDITIONS

3.9.2.1. Transportation

Existing Roadway Network. Streets in the ROI are classified by the City of Jacksonville based on the intended function of the roadway, in terms of travel speed, trip distance, and access to and from adjacent land uses. Arterial roadways are intended to accommodate traffic moving at a relatively high speed over a long distance. Access to arterial roadways (e.g., via driveways, on-street parking, etc.) is usually limited. Collector roadways accommodate traffic moving over shorter distances and at lower speeds than arterials. The intended function of a collector is to provide a linkage between local roadways and arterials. Local roadways provide access to land uses and do not accommodate a substantial amount of through traffic. Speed and trip distance on local roadways is lower than for arterials and collectors. The City of Jacksonville has established the following classifications for roadways in the ROI (City of Jacksonville 2012):

Harris Road at Tolleson Elementary School – Northbound

General Samuels Road at Sheridan Drive – Westbound

- General Samuels Road, from Arkansas Highway 107 to Harris Road: Minor Arterial
- General Samuels Road, from Harris Road to Redmond Road: Minor Arterial
- Harris Road, from Illinois Drive to General Samuels Road: Collector
- Harris Road from General Samuels Road to Jacksonville Cutoff Road: Collector
- Sheridan Drive, from Harris Road to Longstreet Street: Local
- Longstreet Street, to the west of Sheridan Road: Local

Within the ROI, each of the above-described roadways are two-lane paved facilities. General Samuels Road runs along an east/west alignment and intersects Harris Road and Sheridan Drive.

At the General Samuels Road/Harris Road intersection, there is stop sign control for eastbound and westbound traffic only; northbound and southbound vehicles can proceed through the intersection without stopping. The General Samuels Road/Sheridan Drive intersection is a three-legged (or "T") intersection, and there is a stop sign for southbound traffic only on Sheridan Drive. Curb, gutter, and sidewalk are provided along the eastern side of portions of Harris Road within the ROI. No paved roadway shoulders are provided. Neither Sheridan Drive nor Longstreet Street provides centerline striping, curb, gutter, or roadway shoulders. However, segments of both roadways include sidewalks.

Existing Roadway Level of Service. Roadway and intersection operating conditions, and the adequacy of existing roadway systems to accommodate projected future traffic, are commonly described in terms of Level of Service (LOS) ratings. LOS is a method used to rate the performance of streets, intersections, and other transportation facilities. Developed by the Transportation Research Board (TRB), and documented in various editions of the Highway Capacity Manual since 1965, LOS rates performance on a scale of A to F, with LOS A reflecting free flowing conditions and LOS F representing heavily congested conditions (Table 3.9-1) (TRB 2010). Travel patterns may vary by time of day and day of week. Peak travel demand often coincides with morning and afternoon weekday commuting periods (e.g., from 7 to 9 a.m. and from 4 to 6 p.m.). Transportation studies generally analyze traffic conditions and impacts based on daily and/or peak hour traffic volumes. The minimum LOS for more suburban locations, such as the areas surrounding the PA, is typically LOS C.

Table 3.9-1. Level of Service Ratings

LOS Rating	*Description of Traffic Conditions*
A	Traffic flows freely, with little or no restrictions to vehicle maneuvers within the traffic stream.
B	Reasonably free-flowing conditions, with slight restrictions to vehicle maneuvers within the traffic stream.
C	Traffic speed approaches free-flowing conditions, but freedom to maneuver within the traffic stream noticeably restricted.
D	Traffic speed begins to be reduced, and freedom to maneuver is seriously limited due to a high concentration of traffic.
E	Unpredictable traffic flow, with virtually no usable gaps in the traffic stream to accommodate vehicle maneuvers.
F	Unstable flow resulting in delays and the formation of queues in locations where traffic demand exceeds roadway capacity.

Note: LOS = Level of Service
Source: TRB 2010.

For the purpose of this EA, LOS is determined based on the traffic volume on a given roadway segment, which is the total number of vehicles passing a given point during a specific time interval. Traffic volumes are typically described in terms of the number of vehicles moving over the midpoint of the segment (i.e., between intersections) in both directions of travel over the

course of a weekday. Twenty-four hour traffic volumes are commonly referred to as Average Daily Traffic (ADT) volumes.

Roadway segment LOS thresholds are derived from the *City of Fayetteville, Arkansas Traffic and Transportation Study*, which defines the maximum LOS C threshold for a two-lane roadway to be an ADT volume of 10,000 (City of Fayetteville 2003). Existing ADT volumes on General Samuels Road are 4,200 to the west of Harris Road, and 2,900 to the east of Harris Road (Arkansas State Highway and Transportation Department [AHTD] 2014). Although no 24-hour count data is available on Harris Road, the ADT volume north of General Samuels Road was estimated to be 4,500 based on existing intersection counts[1] of the Arkansas Boulevard/Arnold Drive/CM SGT Williams Drive intersection, located to the north (Little Rock AFB 2015). The ADT on Harris Road to the south of General Samuels Road was estimated to be 4,000, based on the average of the other three legs of the General Samuels Road/Harris Road intersection. Although no counts were located for Sheridan Drive or Longstreet Street, existing ADT volumes were estimated[2] to be approximately 90 on Longstreet Street and approximately 650 on Sheridan Drive. Given that existing volumes on all ROI roadway segments are below 10,000 ADT, all segments are currently below the minimum performance standard of LOS C.

3.9.2.2. Utilities

Wastewater System. Wastewater associated with Arnold Drive Elementary School is collected in the sanitary sewer system on Little Rock AFB and discharged to the Johnson Regional Treatment Facility (Little Rock AFB 2013b). The parcels for the educational facilities are undeveloped and do not contain any wastewater infrastructure.

Stormwater Drainage System. Arnold Drive Elementary School is located within 1 of 14 sub-basins located on Little Rock AFB established by topography, surface water features, and the stormwater collection system (Little Rock AFB 2013a). Runoff generated in these basins is channeled through a network of underground storm drains and open swales into three major discharge streams. All streams within the ROI eventually flow into the Bayou Meto watershed, which flows southeast and joins the Arkansas River approximately 100 miles downstream from Little Rock AFB (Little Rock AFB 2013a, 2013b).

Little Rock AFB, including Arnold Drive Elementary School, is regulated under two NPDES permits, an Industrial Storm Water General Permit for stormwater discharge associated with

[1] This is based on the assumption that the existing afternoon peak hour volume south of this intersection represents 10 percent of the ADT volume on this segment.
[2] Because there is no through traffic on these roads, the ADT volumes were estimated based on the number of existing residences that would add traffic onto these roadways and the daily traffic generation rate for single-family residences published by the Institute of Transportation Engineers (2012).

industrial activity (Permit #ARR000001) and a Municipal Separate Storm Sewer System General Permit (Permit #ARR040034) (Little Rock AFB 2013b). The two parcels proposed for the educational facilities are undeveloped and do not contain any stormwater infrastructure.

Energy. Energy in the form of natural gas and electricity are provided to Little Rock AFB, including Arnold Drive Elementary School, by a local energy provider, Entergy Corporation (Little Rock AFB 2013b). The two parcels proposed for the educational facilities are undeveloped and do not contain any natural gas or electrical infrastructure.

Solid Waste Management. Municipal solid waste at Little Rock AFB, including Arnold Drive Elementary School, is managed in accordance with the guidelines specified in AFI 32-7042, *Waste Management.* This AFI incorporates, by reference, the federal standard for solid waste regulations contained within 40 CFR, Subtitle D, *Non-hazardous Waste,* and other applicable federal regulations, AFIs, and DoD Directives. In general, AFI 32-7042 establishes the requirement for installations to have a solid waste management program that incorporates the following: a solid waste management plan; procedures for handling, storage, collection, and disposal of solid waste; goals for recycling and solid waste and construction and demolition debris diversion; recordkeeping and reporting; and pollution prevention.

Potable Water System. The City of Jacksonville supplies potable water to Little Rock AFB, including Arnold Drive Elementary School, through a connection to the city's 5-million-gallon storage tank (Little Rock AFB 2013b). The two parcels proposed for the educational facilities are undeveloped and do not contain any potable water infrastructure.

3.10. CULTURAL RESOURCES

3.10.1. DEFINITION OF THE RESOURCE

Cultural resources consist of prehistoric and historic districts, sites, structures, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. Cultural resources can be divided into three major categories: archaeological resources (prehistoric and historic), architectural resources, and traditional cultural resources.

Archaeological resources are sites where human activity measurably altered the earth or left deposits of physical remains (e.g., tools, arrowheads, or bottles). "Prehistoric" refers to resources that predate the advent of written records in a region. These resources can range from a scatter composed of a few artifacts to village sites and rock art. "Historic" refers to resources that postdate the advent of written records in a region. Archaeological resources can include campsites, roads, fences, trails, dumps, battlegrounds, mines, and a variety of other features.

Architectural resources include standing buildings, dams, canals, bridges, and other structures of historic or aesthetic significance. Architectural resources generally must be more than 50 years old to be considered for protection under existing cultural resource laws. However, more recent structures, such as Cold War era military buildings, may warrant protection if they have the potential to be historically significant structures. Architectural resources must also possess integrity (i.e., the important historic features must be present and recognizable) to be considered significant.

Traditional cultural resources can include archaeological resources, buildings, neighborhoods, prominent topographic features, habitats, plants, animals, and minerals that Native Americans or other groups consider essential for the continuance of traditional cultures.

Only significant cultural resources, known or unknown, warrant consideration with regard to adverse impacts resulting from a proposed action. To be considered significant, archaeological or architectural resources must meet one or more criteria as defined in 36 CFR 60.4 for inclusion in the NRHP.

Several federal laws and regulations have been established to manage cultural resources, including the NHPA (1966), American Indian Religious Freedom Act (1978), Archaeological Resources Protection Act (1979), and Native American Graves Protection and Repatriation Act (1990). In addition, consultation with Federally-Recognized Native American tribes must occur in accordance with EO 13175, *Consultation and Coordination with Indian Tribal Governments*.

On November 27, 1999, the DoD promulgated its Annotated American Indian and Alaska Native Policy, which emphasizes the importance of respecting and consulting with tribal governments on a government-to-government basis. This policy requires an assessment, through consultation, of proposed DoD actions that may have the potential to significantly affect protected tribal resources, tribal rights, and Indian lands before decisions are made by the respective services.

As the PA includes only construction, the ROI for cultural resources includes only those locations on Little Rock AFB and the two parcels proposed for the educational facilities where facility renovation or construction and its staging would occur and potential ground disturbance would result.

3.10.2. EXISTING CONDITIONS

3.10.2.1. Prehistoric and Historic Context

Prehistoric Periods

The prehistory of Central Arkansas can be divided into five broad temporal periods: the Paleoindian, Dalton, Archaic, Woodland, and Mississippi. A brief overview of the cultural history of the area is presented below.

Paleoindians that organized into small, extended family groups were present in central Arkansas by approximately 11,500 years ago (known as Early Occupation Period). These sites are typically associated with large, fluted projectile points in this region.

The Dalton Period dates to approximately 10,500 to 9,500 years ago and is characterized by a distinct dart point referred to as the Dalton Point. People occupied seasonal base camps as well as special hunting stations, food collecting, or processing stations, and lithic quarries, all for shorter durations during this period.

The Archaic Period is the interval of time between the end of the recognizable Dalton culture (ca. 9,500 years ago) and the regular use of fired ceramic vessels (ca. 2,600 years ago). Throughout the Archaic Period, the hunting and gathering adaptation of the preceding periods continued, but a more sedentary lifestyle evolved over time. Regional trade appears to have increased in frequency during this period, which helped foster social relationships and changed loose bands into segmented tribal organizations.

The Woodland Period dates from approximately 2,600 to 800 years ago and is characterized by the general manufacture and widespread use of ceramic containers. Horticulture overtook hunting and gathering as the dominant subsistence practice during this period, which in turn changed social organization and settlement patterns. Increased sedentism allowed for the construction of monumental earthen structures, as well as the manufacture of pottery (both endeavors that take time).

The Mississippi Period begins roughly at 1,200 to 1,000 years ago and ends about 300 years ago. The Mississippi Period is one of the most well-known of prehistory in this region; populations were large and condensed which resulted in greater visibility in the archaeological record. During the Mississippi Period, temper in ceramics was replaced by shell (formerly mineral), new species of domesticated plants were introduced (maize, importantly), and social complexity continued to increase. Populations were organized into chiefdoms where symbols of wealth and status (reflected in exotic artifacts) were controlled by an elite group.

The Protohistoric Period refers to the century-and-a-half between the flourishing and the collapse of Mississippian cultures and the recorded contact with Native American cultures on a continuous basis that inaugurates the Historic Period. Throughout this time, Native American populations in Arkansas decreased and eventually the last remaining Native American group, the Quapaw, were given a territory in Oklahoma (AETC 2005).

Historic Period

The European domination of what would be Arkansas was established by the French, with the founding of Arkansas Post in 1686 at the mouth of the Arkansas River. Active settlement did not begin in the Pulaski County area until after the Louisiana Purchase in 1803. The population of the county grew slowly, but consistently over many decades.

The capture of Little Rock was the only incident that brought the fighting close to northeast Pulaski County during the United States Civil War. The cessation of hostilities in 1865 did not end the political divisions that prompted the war in the first place. The period of Reconstruction that lasted in Arkansas until 1874 continued the conflict using political means and sometimes armed hostilities. The results of the Civil War and Reconstruction determined the political, social, and economic future of Arkansas until World War II began in 1941. The start of World War II brought industry to Pulaski County with the development of the Arkansas Ordnance Plant. Subsequent to the initiation of the Korean conflict in 1950, the Arkansas Congressional Delegation made public their interest in establishing a USAF base in central Arkansas on the land formerly occupied by the Arkansas Ordnance Plant. The USAF gave its final approval for the Jacksonville site the following December and initial construction began in November 1953.

Military History

Little Rock AFB was assigned to the Strategic Air Command (SAC) and was designed as a model SAC installation to accommodate two medium bombardment wings on February 1, 1955. The mission of the wing was changed in 1961 from that of reconnaissance to bombardment, and the wing was converted from the RB-47 to the B-47 aircraft. Little Rock AFB's nuclear deterrent capabilities were increased on January 1, 1964, when the Titan II Intercontinental Ballistic Missile became operational at 18 sites surrounding Little Rock AFB (AETC 2005).

Jurisdiction of Little Rock AFB was officially transferred from SAC to Tactical Air Command on April 1, 1970. Little Rock AFB continued a dual role of airlift center and mission control center until August 1985, when the Titan II missile sites were inactivated and all launch facilities were destroyed (AETC 2005).

In 1991, the 314th Tactical Airlift Wing was redesignated the 314 AW. In June 1992, the 314 AW and Little Rock AFB were aligned under the newly formed AMC, the successor to Military

Airlift Command. In October 1993, the Wing and Little Rock AFB were once again realigned, this time to ACC. Then in 1997, the facility was assigned to the AETC (AETC 2005).

3.10.2.2. Identified Cultural Resources

Archaeological Resources

Thirty-eight archaeological sites have been documented at Little Rock AFB. Four of these sites are prehistoric, while the remaining 34 are historic sites. Of these sites, only one has been recommended eligible for listing on the NRHP. Currently, there are no known NRHP-listed archaeological sites at Little Rock AFB.

Four archaeological sites are located within the Area of Potential Effect (APE) for Alternative #2: 3PU417, 3PU418, 3PU419, and 3PU294.

3PU417 is a scatter of historic refuse that may have once been part of a homestead. The site is located in the footprint of the new high school.

3PU418 is a scatter of historic refuse. The site is located in the footprint of the new high school.

3PU419 is a scatter of historic refuse that may have once been part of a homestead. The site is located northwest of the footprint of the new high school and within the area of temporary ground disturbance.

3PU294 is a prehistoric bifacially flaked projectile point made of novaculite. It is located west of the footprint of the new high school and within the area of temporary ground disturbance.

Architectural Resources

No NRHP-listed buildings are located at Little Rock AFB. Building 258 has been recommended eligible for listing in the NRHP. However, this building is not within the ROI of the PA and should be unaffected. Buildings at Little Rock AFB have been evaluated as Cold War-era resources under Criteria Consideration G and none have been found to be eligible for listing in the NRHP as Cold War assets (AETC 2005).

Traditional Cultural Resources

There are no American Indian reservations within the ROI. However, Little Rock AFB has initiated outreach efforts to inform the tribes of the PA and will continue to communicate with the tribes after issuance of the Draft EA and seek their interests or concerns in resources of cultural or religious significance to the tribes and seek to achieve mutual resolutions as necessary. Letters were sent to the following Federally-recognized American Indian Tribes with

ties to Little Rock AFB: The Quapaw Tribe, Osage Tribe, Caddo Indian Tribe, and Tunica-Biloxi Indians (see Appendix A). Little Rock AFB has established a working relationship with their Tribal Historic Preservation Officers and will continue to relate cultural resource issues unless the Tribe designates a different point of contact. Also, Little Rock AFB will mail copies of the Draft EA to the Tribes as requested and provide electronic copies for their participation, and solicit comments concerning the proposal for any potential environmental consequences of this action. All consultation between Little Rock AFB and the Tribes will be placed in Appendix A.

3.11. SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

3.11.1. DEFINITION OF THE RESOURCE

Socioeconomics comprises the basic attributes and resources associated with the human environment, particularly population and economic activity. Economic activity typically encompasses employment, personal income, and economic growth. Impacts on these fundamental socioeconomic components also influence other issues such as housing availability and the provision of public services. To illustrate local baseline conditions, socioeconomic data is provided for Pulaski County and the cities of Little Rock and Jacksonville.

In 1994, EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations* (Environmental Justice), was issued to focus the attention of federal agencies on human health and environmental conditions in minority and low-income communities. EO 12898 aims to ensure that disproportionately high and adverse human health or environmental effects on these communities are identified and addressed. This environmental justice analysis focuses on the distribution of race and poverty status in areas potentially affected by implementation of the PA.

For the purpose of this analysis, minority populations and low-income populations are defined as:

- *Minority Populations:* All categories of non-white population groups as defined in the U.S. Census, including African American, Hispanic, American Indian and Alaska Native, Asian or Pacific Islander, and other groups.
- *Low-Income Populations:* Persons living below the poverty level, as defined by the 2014 Census.

Because children may suffer disproportionately from environmental health risks and safety risks, EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, was introduced in 1997 to prioritize the identification and assessment of environmental health and safety risks that may affect children, and to 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 where the number of children in the affected area may be disproportionately high (e.g., schools, childcare centers, etc.).

The ROI for socioeconomics includes Little Rock AFB, as well as Pulaski County, in which the PA is located.

3.11.2. EXISTING CONDITIONS

3.11.2.1. Population and Demographics

Table 3.11-1 shows population in Pulaski County and the cities of Little Rock and Jacksonville in 2000, 2010, and 2014, and the percentage change in population from 2000 to 2014. As of 2014, Pulaski County had a population of 388,752, making it the largest county in Arkansas. More than half of Pulaski County's population resided in Little Rock, which, in 2014, had a total population of 196,188. About 7.6 percent of Pulaski County population resided in Jacksonville in 2014, which had a population of 28,278. From 2000 to 2014, Pulaski County population grew 7.5 percent, which was a faster rate of growth than either Little Rock (7.1 percent growth) or Jacksonville (4 percent decline in population).

Table 3.11-1. Population 2000-2014 and Population Growth

	2000	*2010*	*2014*	*% Change 2000-2014*
Pulaski County	361,474	382,748	388,752	7.5%
Little Rock	183,133	193,524	196,188	7.1%
Jacksonville	29,916	28,364	28,728	-4.0%

Sources: U.S. Census Bureau 2000, 2010a, 2014.

Table 3.11-2 demonstrates the percentage of minority students for the 2013-2014 school year for Arnold Drive Elementary School, Tolleson Elementary School, North Pulaski High School, and Jacksonville High School.

Table 3.11-2. Percentage of Minority Students for the 2013-2014 School Year

School	*# of Minority Students*	*Total # of Students*	*% Minority Student*
Arnold Drive Elementary	155	298	52
Tolleson Elementary	205	398	51.5
North Pulaski High School	356	736	48.4
Jacksonville High School	594	830	71.6

Source: National Center for Education Statistics 2014.

3.11.2.2. Employment and Earnings

Little Rock AFB has 9,819 total personnel with a total annual payroll of $420.4 million in Fiscal Year (FY) 2014 (Little Rock AFB 2014b). The total Little Rock AFB expenditures in FY 2014 were $312.5 million for military construction projects; services and contracts; and materials, equipment, and supplies procurement. The AFB personnel and expenditure spending resulted in

approximately 3,479 indirect jobs created in the area and a total economic impact of $813.6 million to the region (Little Rock AFB 2014b).

In June 2012 there were an estimated 181,585 persons employed and 13,176 persons unemployed within Pulaski County, resulting in an unemployment rate of 6.8 percent (U.S. Bureau of Labor Statistics 2012). The cities of Little Rock and Jacksonville had 7 percent and 8 percent unemployment rates, respectively, for the same time period (U.S. Bureau of Labor Statistics 2012). Between 2005 and 2010, the sectors providing the most jobs were education and health care services; retail trade; professional, scientific, and management services; and arts, entertainment, recreation, and food services (U.S. Census Bureau 2010b). The top five employers in Pulaski County (in descending order) are Little Rock AFB, University of Arkansas for Medical Sciences, Baptist Health, Little Rock School District, and Arkansas Children's Hospital (Arkansas Economic Development Commission 2012).

According to income data from the U.S. Census, median household income for Pulaski County was $46,410 in 2014 (U.S. Census Bureau 2014). For the same time period, the median household income in the city of Little Rock was $46,409 and in the city of Jacksonville was $40,720. Median family income for 2014 was higher for all three areas: approximately $59,878 for Pulaski County; $61,597 for Little Rock; and $46,731 for Jacksonville (U.S. Census Bureau 2014).

3.11.2.3. Housing

Little Rock Family Housing is located on Little Rock AFB and provides 991 housing units for families within the Little Rock Family Housing complex (USAF 2014b). The complex is at the southwestern portion of Little Rock AFB, surrounding Thomas Lake.

As shown in Table 3.11-3, the total number of housing units in Pulaski County in 2014 was 178,659, with a homeowner vacancy rate of 4.1 percent and a rental vacancy rate of 15.3 percent. In comparison, in 2014 the city of Little Rock had a total of 93,360 housing units with a homeowner vacancy rate of 5.3 percent and a rental vacancy rate of 15.3 percent, and the city of Jacksonville had 12,346 total housing units with a homeowner vacancy rate of 3.7 percent and a rental vacancy rate of 15.8 percent. The median value of owner occupied housing units in Little Rock was $151,600, greater than the overall county ($141,600) and Jacksonville ($112,800) (U.S. Census Bureau 2014).

Table 3.11-3. Housing Characteristics, 2014

	Pulaski County	*Little Rock*	*Jacksonville*
Housing Units	178,659	93,360	12,346
Occupied Housing Units	153,323	78,658	10,532
Homeowner Vacancy Rate	4.1%	5.3%	3.7%
Rental Vacancy Rate	15.3%	17.3%	15.8%
Median Value of Owner Occupied Housing	$141,600	$151,600	$112,800

Source: U.S. Census Bureau 2014.

3.11.2.4. Environmental Justice

The ROI for environmental justice includes Little Rock AFB and the city of Jacksonville, which is in the closest proximity to the AFB. Some additional information on Pulaski County and the city of Little Rock is provided for context. Pulaski County overall is considered the community of comparison – census block groups in the ROI that have higher proportions of minority or low-income residents than are present in Pulaski County overall are considered environmental justice population areas.

Minority Populations

Table 3.11-4 shows the racial composition of Pulaski County, Little Rock, and Jacksonville as of 2014; the populations of each of the three areas were primarily White and Black or African American. Of the three areas, Little Rock had the highest proportion of Black or African American residents (42.2 percent) and the lowest proportion of White residents (51.9 percent). Of the three areas, Jacksonville had the highest proportion of White residents (59.8 percent) and the lowest proportion of African American residents (33.6 percent). In total, minorities made up approximately 40.2 percent of the population.

Table 3.11-4. Race and Ethnicity, 2014

	Pulaski County	*Little Rock*	*Jacksonville*
White alone	59.3%	51.9%	59.8%
Black or African American alone	35.5%	42.2%	33.6%
American Indian and Alaska Native alone	0.3%	0.3%	0.7%
Asian alone	2.1%	3.1%	2.2%
Native Hawaiian and Pacific Islander alone	0.0%	0.1%	0.0%
Some other race alone	0.9%	0.8%	0.9%
Two or more races	1.9%	1.6%	2.8%

Source: U.S. Census Bureau 2014.

Table 3.11-5 shows all census block groups in the ROI and includes data on total population, minority population, and minority population as a percentage of total population. Each census block group in the ROI is compared to a community of comparison (Pulaski County overall) to determine if it is considered an environmental justice minority area (block groups are considered as such when the minority percentage in the block group is higher than the county overall). Eleven of the 22 census block groups in the ROI are considered environmental justice minority areas.

Table 3.11-5. Environmental Justice Minority Population Areas in the ROI

Census Block Group	*Total Population*	*Minority Population*	*Minority Percentage*	*Considered an Environmental Justice Minority Area*
Pulaski County Overall	**388,752**	**158,382**	**41%**	**Community of Comparison**
Little Rock AFB				
Block Group 1, Census Tract 35	868	341	39%	No
Block Group 2, Census Tract 35	1,156	245	21%	No
Block Group 3, Census Tract 35	921	138	15%	No
City of Jacksonville				
Block Group 1, Census Tract 36.04	2,442	531	22%	No
Block Group 2, Census Tract 36.04	2,023	342	17%	No
Block Group 3, Census Tract 36.04	1,940	858	44%	Yes
Block Group 1, Census Tract 36.05	1,719	961	56%	Yes
Block Group 2, Census Tract 36.05	2,410	1,009	42%	Yes
Block Group 3, Census Tract 36.05	363	204	56%	Yes
Block Group 4, Census Tract 36.05	1,385	602	43%	Yes
Block Group 1, Census Tract 36.06	1,134	399	35%	No
Block Group 2, Census Tract 36.06	1,038	646	62%	Yes
Block Group 3, Census Tract 36.06	828	563	68%	Yes
Block Group 1, Census Tract 36.07	892	471	53%	Yes
Block Group 2, Census Tract 36.07	1,953	1,241	64%	Yes
Block Group 3, Census Tract 36.07	2,248	1,187	53%	Yes
Block Group 1, Census Tract 36.08	1,779	827	46%	Yes
Block Group 2, Census Tract 36.08	2,225	735	33%	No
Block Group 3, Census Tract 36.08	903	329	36%	No
Block Group 1, Census Tract 36.09	1,461	478	33%	No
Block Group 2, Census Tract 36.09	1,410	296	21%	No
Block Group 3, Census Tract 36.09	1,234	310	25%	No

Figure 3.11-1 identifies environmental justice minority population areas near Little Rock AFB Installation. Environmental justice minority population areas are census block groups where the percentage of the population that is minority exceeds the county average. As shown in Figure 3.11-1, the majority of the area to the south of Little Rock AFB is considered a minority population area.

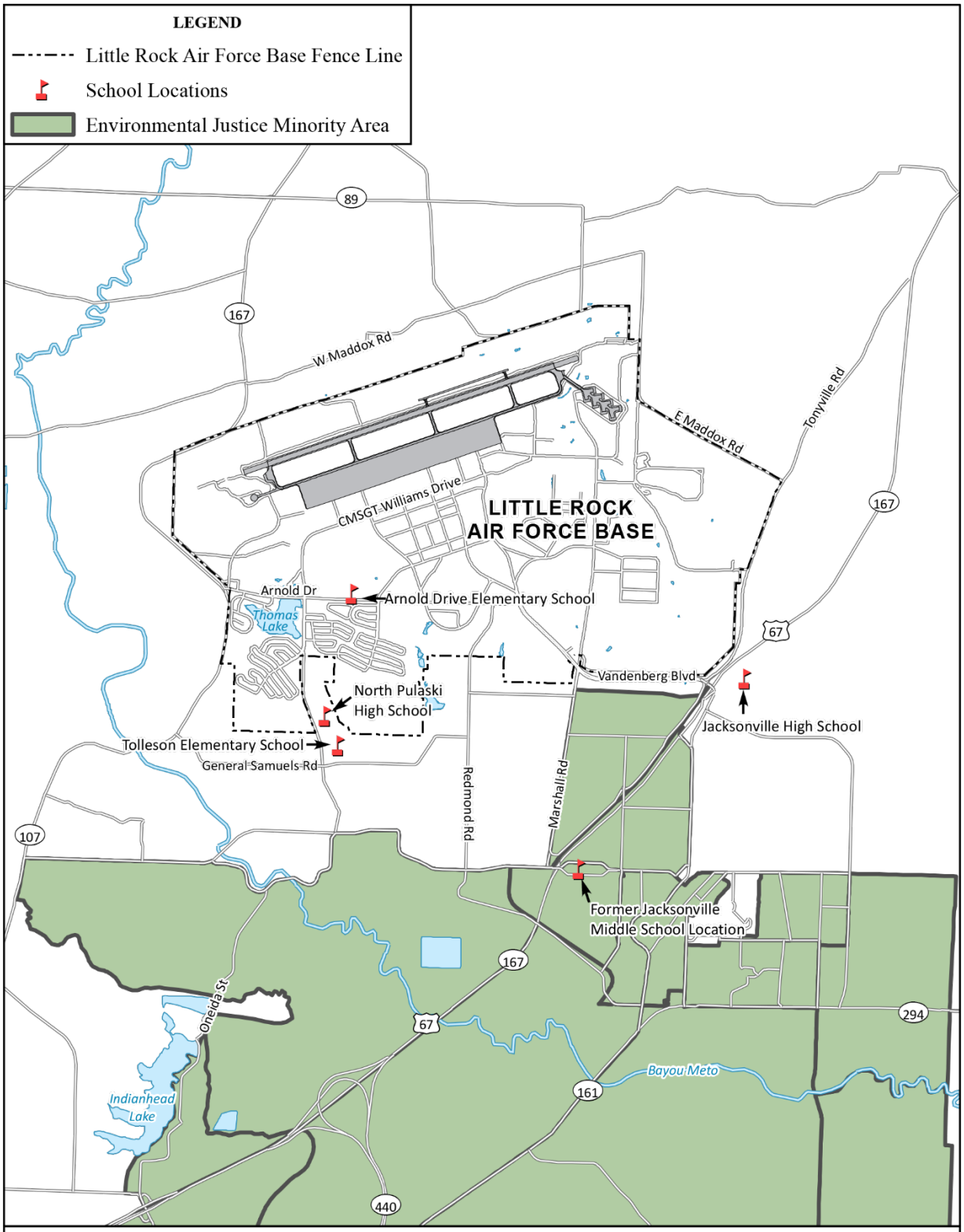


Figure 3.11-1
Environmental Justice Minority Population Areas
near Little Rock AFB

Low-income Populations

As of 2014, 16.9 percent of the population of Pulaski County lived in households with income below the poverty line, a rate lower than that of Jacksonville (18.3%) and Little Rock (18.0%). In 2010, Little Rock AFB had no families living under the poverty line that were residing on Little Rock AFB (U.S. Census Bureau 2014).

Table 3.11-6 shows all census block groups in the ROI and includes data on the total number of households, households with incomes below the poverty line, and households with incomes below the poverty line as a percentage of total household. Each census block group in the ROI is compared to a community of comparison (Pulaski County overall) to determine if it is considered an environmental justice low-income area (block groups are considered as such when the low-income percentage in the block group is higher than the county overall). Ten of the 22 census block groups in the ROI are considered environmental justice low-income areas.

Table 3.11-6. Environmental Justice Low-Income Population Areas in the ROI

Census Block Group	*Total Households*	*Low-income Households*	*Low-income Percentage*	*Considered an Environmental Justice Low-income Area*
Pulaski County Overall	**153,323**	**23,472**	**15.3%**	**Community of Comparison**
Little Rock AFB				
Block Group 1, Census Tract 35	279	7	2.5%	No
Block Group 2, Census Tract 35	334	20	6.0%	No
Block Group 3, Census Tract 35	93	0	0.0%	No
City of Jacksonville				
Block Group 1, Census Tract 36.04	923	153	16.6%	Yes
Block Group 2, Census Tract 36.04	774	37	4.8%	No
Block Group 3, Census Tract 36.04	813	100	12.3%	No
Block Group 1, Census Tract 36.05	591	36	6.1%	No
Block Group 2, Census Tract 36.05	827	128	15.5%	Yes
Block Group 3, Census Tract 36.05	208	61	29.3%	Yes
Block Group 4, Census Tract 36.05	570	121	21.2%	Yes
Block Group 1, Census Tract 36.06	438	198	45.2%	Yes
Block Group 2, Census Tract 36.06	388	48	12.4%	No
Block Group 3, Census Tract 36.06	319	95	29.8%	Yes
Block Group 1, Census Tract 36.07	334	70	21.0%	Yes
Block Group 2, Census Tract 36.07	729	144	19.8%	Yes
Block Group 3, Census Tract 36.07	748	114	15.2%	No
Block Group 1, Census Tract 36.08	740	153	20.7%	Yes
Block Group 2, Census Tract 36.08	875	105	12.0%	No
Block Group 3, Census Tract 36.08	266	39	14.7%	No
Block Group 1, Census Tract 36.09	584	155	26.5%	Yes
Block Group 2, Census Tract 36.09	515	31	6.0%	No
Block Group 3, Census Tract 36.09	585	69	11.8%	No

Figure 3.11-2 identifies environmental justice low-income population areas near Little Rock AFB Installation. Environmental justice low-income population areas are census block groups where the percentage of the population that lives in households with income below the poverty line exceeds the county average. As shown in Figure 3.11-2, numerous areas to the north and south of the AFB are considered low-income population areas.

Children

In 2014, 16.9 percent of the population of Pulaski County was under the age of 18. This rate was equal to Little Rock (16.9 percent) and lower than Jacksonville (19.1 percent) (U.S. Census Bureau 2014). The Pulaski County District encompasses the city of Jacksonville and area surrounding Little Rock AFB. Approximately 17,750 students were enrolled within the Pulaski County District for the 2013-2014 School Year. The District had 24 elementary schools, 6 middle schools, and 6 high schools during the 2013-2014 school year (National Center for Education Statistics 2014). There are also child care programs through the Child Development Center on Little Rock AFB for infants, toddlers, preschoolers, and after-school care.

Elderly

In 2014, 12.7 percent of the population of Pulaski County was 65 years of age or older. This rate was similar to Little Rock (12.2 percent) and higher than Jacksonville (11.3 percent) (U.S. Census Bureau 2014). The Jacksonville Senior Center is located near Galloway Park, in the southeast portion of Jacksonville, and other elder care facilities (Elmcroft of Sherwood, Christian Companion Senior Care, and Sherwood Senior Citizens Center) are located to the southwest of Jacksonville.

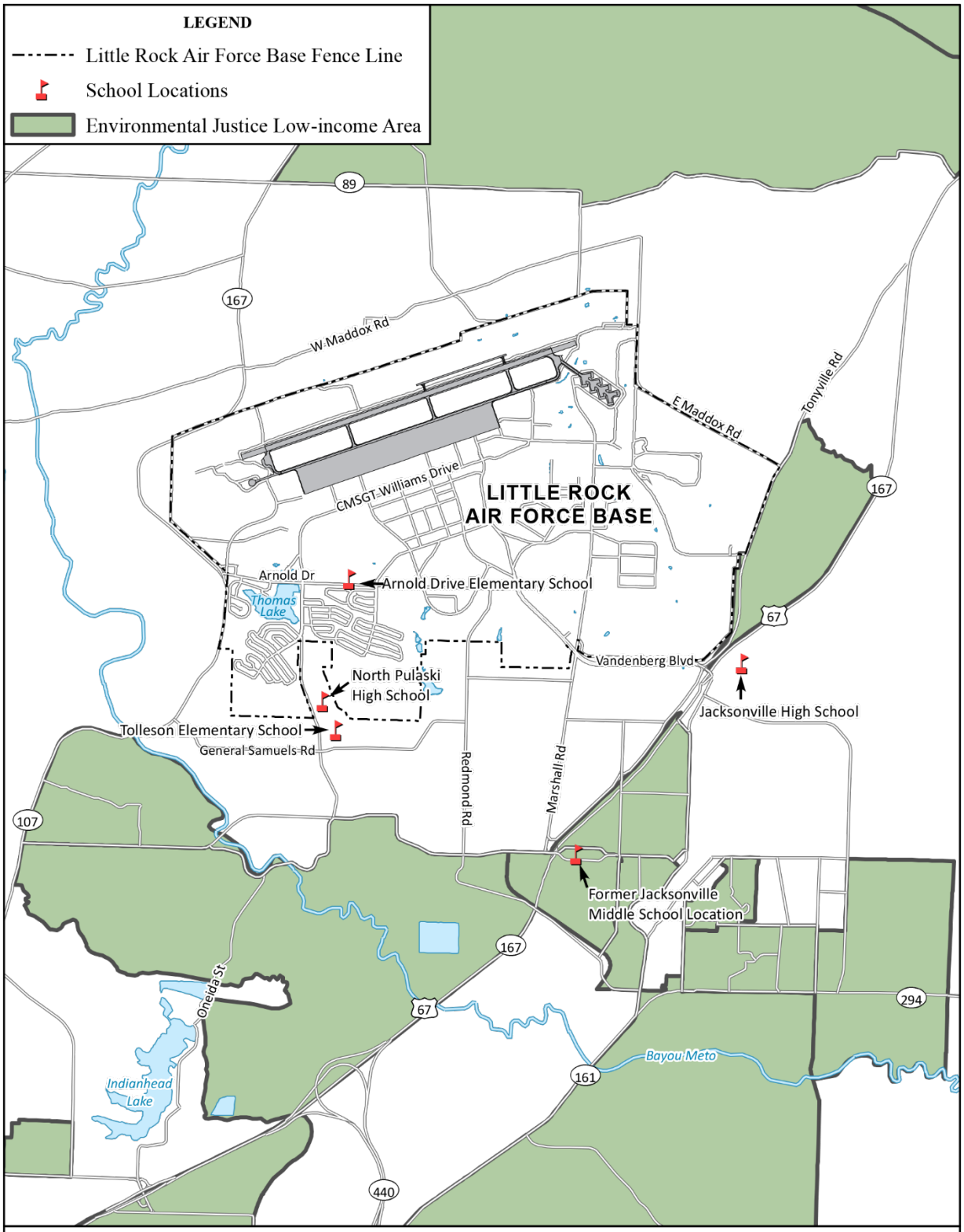


Figure 3.11-2
Environmental Justice Low-Income Population Areas near Little Rock AFB

3.12. HAZARDOUS MATERIALS AND WASTE

3.12.1. DEFINITION OF THE RESOURCE

This section describes the affected environment associated with hazardous materials and petroleum products, hazardous and petroleum wastes, Environmental Restoration Program (ERP) sites, solid waste, and toxic substances.

The terms "hazardous materials" and "hazardous waste" refer to substances defined as hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA). In general, hazardous materials include substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present substantial danger to public health or the environment when released into the environment. Hazardous wastes that are regulated under RCRA are defined as any solid, liquid, contained gaseous, or semisolid waste, or any combination of wastes that either exhibit one or more of the hazardous characteristics of ignitability, corrosivity, toxicity, or reactivity, or are listed as a hazardous waste under 40 CFR Part 261, *Identification and Listing of Hazardous Waste*. The ERP is a USAF program designed to identify, characterize, and remediate environmental contamination from past activities at USAF installations.

Issues associated with hazardous material and waste typically center around waste streams, underground storage tanks (UST), aboveground storage tanks (AST), and the storage, transport, use, and disposal of fuels, lubricants, and other industrial substances. When such materials are improperly used in any way, they can threaten the health and well-being of wildlife species, habitats, and soil and water systems, as well as humans.

The management of hazardous materials and hazardous waste is governed by specific environmental statutes. The key statutes include:

CERCLA of 1980 (42 USC 9601–9675) as amended by the Superfund Amendments and Reauthorization Act of 1986. CERCLA/Superfund Amendments and Reauthorization Act regulates the prevention, control, and compensation of environmental pollution.

Community Environmental Response Facilitation Act (42 USC 9620). This act amended CERCLA to require that, prior to termination of federal activities on any real property owned by the federal government, agencies must identify real property where hazardous substances were stored, released, or disposed of.

Emergency Planning and Community Right-to-Know Act of 1986 (42 USC 11001–11050). Emergency Planning and Community Right-to-Know Act requires emergency planning for areas

where hazardous materials are manufactured, handled, or stored and provides citizens and local governments with information regarding potential hazards to their community.

Resource Conservation and Recovery Act (42 USC 6901–6992). RCRA established standards and procedures for handling, storage, treatment, and disposal of hazardous waste.

Federal Facility Compliance Act of 1992 (Public Law 102-426). This act provides for a waiver of sovereign immunity on the part of federal agencies with respect to federal, state, and local requirements relating to RCRA solid and hazardous waste laws and regulations.

Pollution Prevention Act of 1990 (42 USC 13101–13109). This act encourages minimization of pollutants and waste through changes in production processes.

USEPA Regulation on Identification and Listing of Hazardous Waste (40 CFR Part 261). This regulation identifies solid wastes subject to regulation as hazardous and to notification requirements under RCRA.

USEPA Regulation on Standards for the Management of Used Oil (40 CFR Part 279). This regulation delineates requirements for storage, processing, transport, and disposal of oil that has been contaminated by physical or chemical impurities during use.

USEPA Regulation on Designation, Reportable Quantities, and Notification (40 CFR Part 302). This regulation identifies reportable quantities of substances listed in CERCLA and sets forth notification requirements for releases of those substances. It also identifies reportable quantities for hazardous substances designated in the CWA.

The ROI for solid and hazardous materials and wastes includes areas that could be exposed to an accidental release of a hazardous substance from construction, renovation, or demolition activities; other specific areas affected by past and current hazardous waste operations; and areas where hazardous materials would be utilized or stored. Therefore, the ROI for this action is defined as the two parcels proposed for educational facilities in addition to Arnold Drive Elementary School located on Little Rock AFB.

3.12.2. EXISTING CONDITIONS

A Phase I Environmental Baseline Survey (EBS) was prepared in June 2014 as part of due diligence to document the environmental conditions for the transfer of the educational parcels (Little Rock AFB 2014a). The EBS was used in the analysis of this EA to assist in assessing historical activities at the subject property, as well as current environmental conditions at the subject property and surrounding areas.

3.12.2.1. Hazardous Materials and Petroleum Products

Hazardous materials and petroleum products are used at Arnold Drive Elementary School to support art, science, health/medical, and office/maintenance/cleaning activities. Materials typically used at schools include oxidizers (bleach) and other cleaning materials, pesticides, petroleum-based inks, degreasing solvents, glues, adhesives, and oil-based paints. The two parcels proposed for the educational facilities are undeveloped and therefore hazardous materials and/or petroleum products are not currently used within these parcels.

Storage Tanks

Little Rock AFB, has 7 USTs and 14 ASTs that are regulated under 40 CFR 280, *Technical Standards for Owners and Operators of Underground Storage Tanks*. Other storage tanks are omitted from regulation under exclusions in RCRA Section 9001(1). Previous remedial actions include 13 UST removals and 4 UST investigations completed in 2005; all storage tanks are currently in compliance (Little Rock AFB 2013a). There are no known storage tanks underneath or adjacent to Arnold Drive Elementary School. In addition, as analyzed under the 2014 EBS, there are no known storage tanks underneath or adjacent to the parcels proposed for the educational facilities.

3.12.2.2. Hazardous and Petroleum Wastes

Hazardous and petroleum wastes generated at Arnold Drive Elementary School are typical of a grade-school setting and contain chemical waste associated with art and science activities, medical-related waste, and office/maintenance/cleaning activities. Wastes typically generated at schools include oxidizers (bleach), petroleum-based inks, degreasing solvents, glues, adhesives, oil-based paints, cleaning supplies, and pesticides. The two parcels proposed for the educational facilities are undeveloped and therefore hazardous materials or petroleum wastes are not generated within these parcels.

Environmental Restoration Program Sites

The DoD ERP (formerly known as Installation Restoration Program) was established as part of the Superfund Amendments and Reauthorization Act of 1986 to facilitate cleanup of DoD sites. ERP sites are designated for the cleanup of hazardous substances, DoD-unique substances, and petroleum, oil, and lubricant contamination. The mission of the ERP is to identify and clean up contamination resulting from past DoD use and disposal practices for the protection of human health and the environment.

Little Rock AFB is under a Consent Administrative Order with the ADEQ to investigate, control, prevent, and remediate past and present hazardous substance releases at Little Rock AFB.

Requirements of the Consent Administrative Order are being fulfilled under the USAF ERP and RCRA. The ADEQ prepared a Remedial Action Decision Document (RADD) in 2007, which provided to the public a comprehensive summary of the remedies considered in the Little Rock AFB RCRA Facility Investigation, Risk Assessment, and Corrective Measures Study reports. The ADEQ and USEPA Region 6 are actively involved in the ongoing environmental investigation and cleanup efforts on identified sites at Little Rock AFB where past activities affected or potentially affected groundwater, surface water, soil and/or air quality (ADEQ 2007). On November 6, 2014, the ADEQ approved an Amended RADD for Little Rock AFB based upon completion of remedial actions for specific sites (ADEQ 2014).

The RADD documents all RCRA Facility Investigations that have been completed at Little Rock AFB and include recommended actions for each site, a listing of sites that require no further action, and a list of sites that require Corrective Actions or Interim Measures. A former ERP site (Area of Concern [AOC]-33/AOC-8) associated with the stormwater drainage system is located within the elementary school parcel along the western portion. This site is also located along the northern perimeter of Arnold Drive Elementary School.

A RCRA Facility Investigation of the former ERP site included surface water and sediment sampling from the storm drainage system and three outfall locations. The conclusions of the report recommended a Human Health and Ecological Risk Assessment be conducted. The ecological screening found the following constituents of potential concern: pesticides, VOCs, semi-volatile organic compounds, polycyclic aromatic hydrocarbons, and metals (including arsenic, lead, and barium) above applicable human health risk-based screening levels in surface water and sediment. Specifically associated with the Western Open Drainage system (the system most closely associated with the new educational parcels), the report found the benthic invertebrate community could be at risk from exposures to metals, polycyclic aromatic hydrocarbons, and chlordane in sediments at the Western Open Drainage System. The fish and aquatic invertebrate communities of the Western Open Drainage System could be at risk from exposures to barium and pesticides (ADEQ 2014).

As outlined in the 2014 RADD (ADEQ 2014), although this site was determined to have no unacceptable risk in the Remedial Action document, the USAF chose to conduct additional removal activities to support future construction projects at this site. The additional corrective actions included flushing the storm drainage system to address VOCs, semi-volatile organic compounds, and metals associated with the Eastern Closed and Open Drainage Systems. The Western Open Drainage System found elevated levels of trichloroethylene, a degreaser for metal parts, and conducted additional samples. The entire site received No Further Action Status April 9, 2008 (ADEQ 2014).

Oil/Water Separators

The RADD documents all RCRA Facility Investigations including oil/water separators (OWSs), used to separate oils, fuels, sand, and grease from wastewater to prevent contaminants from entering drainage systems. As reported in the 2014 EBS, there are no OWSs within the two parcels proposed for the educational facilities or near Arnold Drive Elementary School.

3.12.2.3. Toxic Substances

Regulated toxic substances typically associated with buildings and facilities include Asbestos-Containing Material (ACM), Lead-Based Paint (LBP), Polychlorinated Biphenyls (PCBs), and Radon. The two parcels associated with the proposed educational facilities are undeveloped and therefore do not contain known toxic substances. Arnold Drive Elementary School was constructed in 1968; any building on Little Rock AFB constructed prior to 1980 is assumed to contain toxic substances, as described below.

Asbestos-Containing Material

ACM is classified as a HAP by the USEPA in accordance with Section 112 of the CAA, Toxic Substances Control Act, and CERCLA. AFI 32-1052, *Facilities Asbestos Management*, requires USAF installations to develop asbestos management plans for the purpose of maintaining a permanent record of ACM and to document asbestos management efforts (Little Rock AFB 2013b).

Buildings constructed prior to 1980 are assumed to contain ACM that can be found in a variety of forms including: floor tiles, floor tile mastic, roofing materials, joint compound, wallboard, thermal system insulation, and boiler gaskets. If asbestos is disturbed, fibers can become airborne and hazardous (Little Rock AFB 2013b). Arnold Drive Elementary School was constructed in 1968 and therefore could contain ACM.

Lead-Based Paint

Lead is a heavy metal previously used in household paint. The federal government banned the use of LBP in 1978; therefore, buildings constructed prior to 1978 are assumed to contain LBP. Federal agencies are required to comply with applicable federal, state, and local laws related to LBP activities and hazards (Little Rock AFB 2013b). Arnold Drive Elementary School was constructed in 1968 and therefore could contain LBP.

Polychlorinated Biphenyls

PCBs are a group of chemical mixtures used as insulators in electrical equipment. Chemicals classified as PCBs were widely manufactured and used in the U.S. throughout the 1950s and

1960s. The federal government banned the use of PCBs in 1979; therefore, electrical equipment made prior to 1979 are assumed to contain PCBs. Common products that might contain PCBs include electrical equipment (e.g., transformers and capacitors), hydraulic systems, and fluorescent light ballasts (Little Rock AFB 2013b).

In 1989, Little Rock AFB conducted a comprehensive survey of electrical transformers to identify and replace transformers containing PCBs. Replacement and disposal of PCB-containing transformers was completed in 1993 (Little Rock AFB 2013a). The Little Rock AFB electrical system, including Arnold Drive Elementary School, is considered PCB-free; however, as Arnold Drive Elementary School was constructed in 1968, some of the school's light fixtures or surge protectors could contain low concentrations of PCBs (Little Rock AFB 2013b).

Radon

Radon is a naturally occurring radioactive gas found in soils and rocks resulting from the natural breakdown or decay of uranium. Radon accumulates in poorly ventilated, enclosed spaces typically below ground (e.g., basements). Radon is an odorless, colorless gas determined to increase the risk of developing lung cancer; risk increases as the level of radon and length of exposure increase.

The USEPA has established a guidance radon level of 4 picocuries per liter (pCi/L) in indoor air for residences; however, there have been no standards established for other structures. Radon gas accumulation greater than 4 pCi/L is considered to represent a health risk to occupants. Pulaski County has been designated a Zone 3 radon area, which means that the predicted average indoor radon screening level is less than 2 pCi/L and that there is low potential for elevated indoor radon levels (USEPA 2016b).

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4.0 ENVIRONMENTAL CONSEQUENCES

4.1. INTRODUCTION

This section of the EA assesses potential environmental consequences associated with the two action alternatives and the No Action Alternative. Potential impacts are addressed in the context of the scope of the PA and the alternatives as described in Chapter 2.0 and in consideration of the potentially affected environment as characterized in Chapter 3.0.

4.2. SAFETY

4.2.1. METHODOLOGY

For the PA, the elements of the proposal that have a potential to affect safety are evaluated relative to the degree to which the action increases or decreases safety risks to students, military personnel, the public, and property. Ground safety is assessed for the potential to increase risk, and the capability to manage that risk by responding to emergencies and suppressing fire. When new or altered risks arising from the proposals are considered individually and collectively, assessments can be made about the adequacy of disaster response planning, and any additional or modified requirements that may be necessary as a result of the action. There are no changes proposed that could impact flight safety or explosive safety; therefore, they are omitted from further analysis.

4.2.2. IMPACTS

4.2.2.1. Alternative #1 (Preferred Alternative)

Construction Worker and Personnel Safety

The short-term risk for contractors from demolition and construction would slightly increase within the ROI during the normal workday. No construction activities would involve any unusual or extraordinary techniques. During construction and modifications, best management practices (BMPs) would be employed, and strict adherence to all applicable standard industrial safety requirements and Occupational Safety and Health Administration standards and procedures would further minimize the relatively low risk associated with these construction activities. Therefore, no significant safety impacts related to proposed demolition and construction activities would occur.

Anti-Terrorism/Force Protection

The proposed new elementary school would be in full compliance with AT/FP requirements. Therefore, no significant safety impacts related to AT/FP would occur.

Clear Zones and Accident Potential Zones

The proposed elementary school and the demolition of Arnold Drive Elementary School would not be located within the CZs or APZs. Construction and demolition activities would not result in any increased safety risk. Therefore, no significant safety impacts related to CZs and APZs would occur.

4.2.2.2. Alternative #2

Impacts under Alternative #2 would be the same as those described under the Preferred Alternative. The proposed new high school would not be located within the CZs or APZs and would be in full compliance with AT/FP requirements. Therefore, no significant safety impacts would occur.

4.2.2.3. No Action Alternative

Under the No Action Alternative, the proposed construction of the elementary school and high school would not occur, and the students would continue to attend their respective schools. The District would continue to conduct periodic repairs to Arnold Drive Elementary School. However, conditions at this school would continue to deteriorate over time, potentially creating unsafe environments for the students and staff.

4.3. AIR QUALITY AND CLIMATE CHANGE

4.3.1. METHODOLOGY

Localized construction emissions are the primary air quality issue associated with the PA. All of the construction that would occur under the PA would involve construction and other heavy equipment operating within or near Little Rock AFB.

Total emissions resulting from project activities have been estimated using data presented in Chapter 2, general air quality assumptions, and standard emission factors derived from the NONROAD model (USEPA 2008). The USEPA's NONROAD model is used to estimate air emissions (e.g., tons of pollutant) for many types of nonroad equipment categories. The equipment categories in the model include construction, mining, industrial, agricultural, and commercial equipment. The equipment in the model can use gasoline, diesel, compressed natural gas, or liquefied petroleum gas. The model user may select a specific geographic area (i.e., national, state, or county) and time period (i.e., annual, monthly, seasonal, or daily) for analysis.

Since Little Rock AFB and the area surrounding Little Rock AFB, including Pulaski County, are in attainment with the NAAQS, there are no SIP requirements and the General Conformity Rule

does not apply to the PA. However, for the purposes of this air quality analysis, emissions from the PA were estimated and compared with the *de minimis* thresholds of a basic nonattainment area (i.e., 100 tpy of sulfur oxide [SO_x], $PM_{2.5}$, PM_{10}, VOC, NO_x, or CO).

4.3.2. IMPACTS

4.3.2.1. Alternative #1 (Preferred Alternative)

Air quality impacts would occur from the use of heavy equipment during construction activities, other project-related vehicles, and debris truck trips. Emissions calculations and assumptions are presented in Appendix B.

Implementation of the Preferred Alternative would result in temporary increases in criteria pollutant emissions associated with construction activities. Emissions resulting from proposed activities have been conservatively estimated for a 1-year period and compared with annual *de minimis* thresholds of a basic nonattainment area, even though the ROI is in attainment of the NAAQS and the General Conformity Rule applicability does not apply (Table 4.3-1).

Table 4.3-1. Estimated Emissions Resulting from Implementation of the Preferred Alternative

Project Emissions Annual Tons Total	POLLUTANT					
	VOCs	*NO_x*	*CO*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
2018 Construction Emissions	0.50	7.10	2.22	0.11	19.29	2.27
de minimis threshold[1]	100	100	100	100	100	100
Exceeds *de minimis* threshold?	No	No	No	No	No	No

Note: 1. The ROI is in attainment of the NAAQS for all criteria pollutants and no *de minimis* thresholds apply; however, emission estimates have been provided and are compared with the *de minimis* thresholds of a basic nonattainment area, for planning purposes only.

VOC = Volatile Organic Compound, NO_x = nitrogen dioxide, CO = carbon monoxide, SO_x = sulfur dioxide, PM_{10} = particulate matter less than or equal to 10 microns in aerodynamic diameter, $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in aerodynamic diameter

Vehicle emissions generated by proposed construction activities would be temporary and short-term; no long-term increases in vehicle emissions would occur under the proposal. Emissions associated with construction-related vehicles and equipment would be minor, as most vehicles would be driven to and kept at the relevant site until project activities are complete. There would be no long-term increase in mobile or stationary source emissions in the region as a result of implementation of the Preferred Alternative.

In addition, the proposed construction activities would comply with CAA Section 112g provisions for controlling the release of HAPs through the use of Best Available Control Technologies during construction activities. Resulting criteria pollutant emissions would be expected to be below *de minimis* levels for conformity, even if the ROI was considered a basic nonattainment area. Therefore, no significant impacts to air quality would occur with implementation of the Preferred Alternative.

Fugitive dust (i.e., PM_{10} and $PM_{2.5}$) would increase (as a result of surface disturbances associated with construction activities) and would temporarily impact local air quality. Potentially sensitive receptors for fugitive dust include North Pulaski High School, Tolleson Elementary School, and residences (primarily off Little Rock AFB) in close proximity to the proposed site. However, fugitive dust generated by proposed construction activities would be temporary and short-term; no long-term increases in fugitive dust would occur. Additionally, increases in PM_{10} and $PM_{2.5}$ would be moderated through BMPs (i.e., watering exposed soils, soil stockpiling, and soil stabilization), thereby limiting the total quantity of fugitive dust emitted during project implementation. Therefore, no significant impacts to air quality would occur as a result of increases in PM_{10} and $PM_{2.5}$ associated with the Preferred Alternative.

4.3.2.2. Alternative #2

Air quality impacts under Alternative #2 would be similar to those described for the Preferred Alternative with the exception that emissions associated with construction and operational activities would be higher when compared to the Preferred Alternative. Emissions resulting from proposed activities have been conservatively estimated for a 1-year period and compared with annual *de minimis* thresholds of a basic nonattainment area, even though the ROI is in attainment of the NAAQS and General Conformity Rule applicability does not apply. Table 4.3-2 presents a summary of the annual emissions associated with construction activities under Alternative #2.

Table 4.3-2. Estimated Emissions Resulting from Implementation of Alternative #2

Project Emissions Annual Tons Total	POLLUTANT					
	VOCs[1]	*NO_x*[1]	*CO*[2]	*SO_x*[3]	*PM_{10}*[3]	*$PM_{2.5}$*[3]
2018 Construction Emissions	1.95	28.23	9.24	0.41	190.59	20.44
de minimis threshold	100	100	100	100	100	100
Exceeds *de minimis* threshold?	No	No	No	No	Yes	No

Notes: 1. The ROI is in attainment of the NAAQS for all criteria pollutants and no *de minimis* thresholds apply; however, emission estimates have been provided and are compared with the *de minimis* thresholds of a basic nonattainment area, for planning purposes only.

VOC = Volatile Organic Compound, NO_x = nitrogen dioxide, CO = carbon monoxide, SO_x = sulfur dioxide, PM_{10} = particulate matter less than or equal to 10 microns in aerodynamic diameter, $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in aerodynamic diameter

The fugitive dust emissions for Alternative #2 are greater than the Preferred Alternative due to the larger area of earth being disturbed. Potentially sensitive receptors for fugitive dust include North Pulaski High School, Tolleson Elementary School, and residences (on and off Little Rock AFB) in close proximity to the proposed sites. However, similar to the Preferred Alternative, the emissions predicted in Table 4.2-2 would be temporary, and BMPs would be implemented to reduce the amount of fugitive dust generated and carried off site. Additionally, Alternative #2 was very conservatively modeled as if all construction activities would occur within 1 year, similar to Alternative #1. If the actual construction timeframe was longer, the potential fugitive dust emissions would be reduced annually.

The potential emissions are minor for all other criteria pollutants. Therefore, implementation of Alternative #2 would not result in significant impacts to air quality.

4.3.2.3. No Action Alternative

Under the No Action Alternative, the proposed construction activities would not occur. Existing air quality conditions (as described in Section 3.3.2) would remain unchanged; therefore, no impacts to air quality would occur.

4.4. NOISE

4.4.1. METHODOLOGY

Aircraft Noise

Although no changes in aircraft operations are proposed under this action, NOISEMAP was used to calculate the DNL, $L_{eq}8$, and SEL for aircraft operations at specific locations at Little Rock AFB (i.e., at the proposed school locations). NOISEMAP takes into account when, where, and how aircraft fly, and when, where, and how aircraft maintenance runs are performed. DNL is calculated using a standard noise library and information that includes the total number of noise events and the time of day that each individual event occurs (Day [7 a.m. to 10 p.m.] and Night [10 p.m. to 7 a.m.]). For aircraft flights, the configuration of the aircraft (power setting and airspeed) and altitude profile of each event are taken into consideration. When engines are run for maintenance or for engine testing, the location of the run, engine power setting, time of day that each individual event occurs (Day [7 a.m. to 10 p.m.] and Night [10 p.m. to 7 a.m.]) and duration of each event are included.

To analyze the potential effects of the PA, the locations for the proposed new high school and proposed new elementary school were added to the NOISEMAP program to determine the noise exposure at each location. The potential effects are based on whether new land uses are appropriate within the existing noise environment. The existing environment is based on the DNL, $L_{eq}8$, and number events above an SEL of 75 dB (NA75SEL).

In general, noise impacts would be significant if the action resulted in the placement of a school in an area that would expose students to noise levels that would impede the learning process. The DNWG recommends using 60 L_{eq} as the threshold for determining if noise might be a problem for schools (DNWG 2013).

Construction Noise

Construction noise is generated by the use of heavy equipment on job sites and is short-term in duration (i.e., the duration of the construction period). Commonly, use of heavy equipment

occurs sporadically throughout daytime hours. Table 4.4-1 provides a list of representative construction equipment and associated noise levels, adjusted for the percentage of time equipment would typically be operated at full power at a construction site. Construction noise varies greatly depending on the construction process, type and condition of equipment used, and layout of the construction site. Overall, construction noise levels are governed primarily by the noisiest pieces of equipment and impact devices (i.e., jackhammers, pile drivers).

Table 4.4-1. Typical Construction Equipment Sound Levels

Equipment	SOUND LEVEL (L_{max} in dB) AT INDICATED DISTANCE FROM EQUIPMENT	
	100 feet	*500 feet*
Excavator	74.7	60.7
Jackhammer	82.9	68.9
Clam Shovel (Dropping)	81.2	67.3
Dozer	75.6	61.7
Pneumatic Tools	79.2	65.2
Concrete Saw	83.6	69.6
Grader	79.0	65.0
Front End Loader	73.1	59.1
Dump Truck	70.4	56.5
Concrete Mixer Truck	72.8	58.8
Crane	74.5	60.6
Generator	74.6	60.6
Pickup Truck	69.0	55.0

Notes: dB = decibel; L_{max} = Maximum Sound Level
Source: Federal Highway Administration 2006.

4.4.2. IMPACTS

4.4.2.1. Alternative #1 (Preferred Alternative)

Aircraft Noise

Table 4.4-2 includes noise data for the proposed school locations. The data is used for each alternative and is presented here to minimize repetition of data.

Table 4.4-2. Predicted Aircraft Noise Exposure at Existing and Proposed Schools[1]

Existing Schools	*SEL(dB)[2]*	*DNL(dB)[3]*	*$L_{eq}8$(dB)*	*NA75SEL[4]*
Jacksonville High School	88.5	54.1	48. 7	2.59
North Pulaski High School	82.6	51.5	47.8	2.9
Arnold Drive Elementary School	76.1	59	55.8	1.46
Tolleson Elementary School	84.8	51.8	47.3	2.95
Proposed Schools				
Proposed Elementary School	83.9	52	48.1	2.7
Proposed High School	79.3	51.7	48.4	2.6

Notes: 1. Represents outdoor noise levels for $L_{eq}8$; indoor noise levels would be between 15 and 25 dB less indoors with windows open and closed, respectively (DNWG 2009).
2. Highest SEL level resulting from C-130 aircraft stationed at Little Rock AFB.
3. DNL at the location of the school based on 2011 AICUZ.
4. Represents the number of flights during an 8-hour day predicted to exceed an SEL of 75 dB based on the top 20 contributors to the DNL.
SEL = Sound Exposure Level; DNL = Day-Night Average Sound Level; $L_{eq}8$ = 8 hour equivalent sound level; dB = decibel, NA75SEL = Number of Events Above the Sound Exposure Level of 75 dB.
Sources: Little Rock AFB 2011b, NMPLOT Jan 2016.

Under the Preferred Alternative, an elementary school would be constructed in the vicinity of the current North Pulaski High School and Tolleson Elementary School. Approximately 700 students and 44 teachers would transfer from Arnold Drive Elementary School and Tolleson Elementary School to the new location. As shown in Table 4.4-2, NOISEMAP calculated the $L_{eq}8$ at the proposed locations as 52 dB, well below the DNL of 60 dB recommended by the DNWG as a first indication that aircraft noise might be a problem (DNWG 2013). Although the $L_{eq}8$ at the proposed school does not meet DNWG criterion requiring additional analysis, because the PA involves construction of a school, additional analysis was performed to determine the magnitude of speech interference. This was accomplished by evaluating the number of individual flights that would exceed an SEL of 75 dB (NA75SEL). The use of an SEL of 75 dB is conservative because it represents outdoor sound exposure, an indoor SEL of 60 dB with windows open, and an indoor SEL of 50 dB with windows closed. When indoor individual noise events do not exceed an SEL of 60 dB, 95 percent of all speech would be intelligible. As shown in Table 4.4-2, the proposed elementary school would experience approximately 2.7 noise events daily where the SEL would exceed 75 dB. This results in a minor increase (1.34/day) for the students relocating from Arnold Drive Elementary School and a minor decrease (0.25/day) for those students relocating from Tolleson Elementary School. These flights could interrupt class discussions or lead to difficulty hearing normal conversations for brief periods; however, due to the low number of events, this would not be expected to have a significant impact on children's learning ability.

Construction Noise

The Preferred Alternative includes the construction of a new elementary school. Construction noise levels are dependent on the construction phase and the distance from the construction site. Noise levels experienced during outside construction would be greater than those experienced

during inside construction activities. Construction activities would be expected to occur Monday through Friday and between the hours of 7 a.m. and 5 p.m.

The North Pulaski High School and residential areas on Little Rock AFB lie within 500 feet of the proposed elementary school. Based on general rules for determining noise, doubling of the distance from a noise source would reduce noise levels by approximately 6 dB. As shown in Table 4.4-1, during construction activity, outdoor noise levels could exceed 69 dB in the Little Rock AFB housing area and at the North Pulaski Elementary School's playground. This would exceed the maximum sound level of 50-55 dB necessary to achieve 95 percent intelligibility (DNWG 2013). These levels could intermittently interrupt speech or other activities occurring outside. Indoor noise levels would be between 15 and 25 dB less with windows open and closed, respectively. Inside homes and classrooms, with windows closed, this level would be expected to be reduced by 25 dB and at 500 feet from the construction site, equipment maximum sound levels would be between 30 and 44.6 dB, and speech interference or classroom disruption would not be expected.

In addition to noise from construction, there would be additional traffic on roads leading to the construction sites. This type of noise would be consistent with vehicle traffic noise generated in these areas on a daily basis. Impacts from an increase in vehicle traffic would not be significant since they would be temporary, only occurring during the construction period, and would only occur during the day between 7 a.m. and 5 p.m., Monday through Friday.

The long-term noise environment at Little Rock AFB would not be influenced by the short-term construction activities, and would continue to be dominated by aviation activities. Therefore, there would be no significant impacts from noise under the Preferred Alternative.

4.4.2.2. Alternative #2

Alternative #2 includes the construction of the elementary school identified in the Preferred Alternative and a high school.

Aircraft Noise

The elementary school would be as described for the Preferred Alternative and the environmental effects would be identical.

The proposed High School would be located in an area where the $L_{eq}8$ is 48.4. The proposed high school would accommodate 2,000 students and 90 teachers and other support staff. As shown in Table 4.4-2, the $L_{eq}8$ at the proposed location is 0.3 dB lower than the $L_{eq}8$ at Jacksonville High School and 0.6 dB higher than the $L_{eq}8$ at North Pulaski High School. The number of overflights expected to exceed a SEL of 75 dB would be approximately the same as

existing conditions. Therefore, no change in potential for speech interference would be expected.

Construction Noise

Under Alternative #2, construction noise would occur for a longer duration with different areas affected depending on the construction phase. Under Phase I, the elementary school would be constructed and the noise effects would be identical to those described for the Preferred Alternative. Noise associated with construction activities could result in interference with speech and other outside activities at North Pulaski High School and in residential areas on Little Rock AFB. With windows closed, interruption of indoor activities would be minimized.

Under Phase II, the proposed construction of a new high school would be expected to occur after construction of the new elementary school is complete. As identified in the Preferred Alternative, construction noise levels are dependent on the construction phase and the distance from the construction site. The North Pulaski High School and residential areas on Little Rock AFB lie approximately 1,000 feet from the proposed high school. Based on the noise levels presented in Table 4.4-1 and general rules of thumb (i.e., doubling or halving of distance changes noise by +/- 6 dB, respectively), the concrete saw would produce the highest noise level at approximately 63.6 dB at the closest receptors. Therefore, during construction activity, outdoor noise levels could exceed the maximum sound level of 50-55 dB necessary to achieve 95 percent intelligibility (DNWG 2013). Speech interference and interference with other activities occurring outside could be expected. Indoor noise levels would be between 15 and 25 dB less with windows open and closed, respectively. Inside of the homes or classrooms, with windows closed, this level would be expected to be reduced by 25 dB, minimizing potential activity interference or classroom disruption. Because construction-related noise is intermittent and transitory, ceasing at the completion of construction, impacts would not be expected to be significant.

In addition to noise from construction, there would be additional traffic on roads leading to the construction sites. This type of noise would be consistent with vehicle traffic noise generated in these areas on a daily basis. Impacts from an increase in vehicle traffic would not be significant since they would be temporary, only occurring during the construction period, and would only occur during the day between 7 a.m. and 5 p.m., Monday through Friday.

The long-term noise environment at Little Rock AFB would not be influenced by the short-term construction activities, and would continue to be dominated by aviation activities. Therefore, there would be no significant impacts from noise under Alternative #2.

4.4.2.3. No Action Alternative

Under the No Action Alternative, the proposed construction of the elementary school and high school would not occur, and the students would continue to attend their respective schools. The current schools would continue to be located in areas where the DNL is between 48.8 and 53.8 dB. Arnold Drive Elementary School would continue to experience between one and three overflights per day where the SEL is 75 dB or greater and the potential for speech interference exists.

4.5. LAND USE

4.5.1. METHODOLOGY

The methodology to assess impacts on individual land uses requires identifying those uses and determining the degree to which they would be changed by the implementation of the PA. Significance of potential land use impacts is based on the level of land use sensitivity in areas affected by a proposed action. In general, land use impacts would be significant if they would:

1) be inconsistent or in non-compliance with applicable land use plans or policies;
2) preclude the viability of existing land use;
3) preclude continued use or occupation of an area; or
4) be incompatible with adjacent or land uses in the vicinity to the extent that public health or safety is threatened.

4.5.2. IMPACTS

4.5.2.1. Alternative #1 (Preferred Alternative)

Land use on and off Little Rock AFB surrounding the installation is shown in Figure 3.5-1. All of the construction activities would occur on Little Rock AFB property inside the current installation fencing. Following construction, the fencing would be moved to exclude the new school from being inside the installation fence line so that school attendees do not need to enter through the Little Rock AFB gate to get to the school. Land use on and off Little Rock AFB surrounding the proposed construction areas are primarily residential. The proposed construction area is compatible with land use recommendations included in the Little Rock AFB AICUZ study.

Proposed construction and demolition activities would be short-term but may cause minor traffic and/or noise disruptions to local businesses and residential areas near the proposed construction areas, as well as employees at Little Rock AFB. However, these disruptions would not be significant.

Land use on the proposed parcel for lease would change from being vacant open space to public/semi-public. Land uses for the new school would be consistent with current functions on Little Rock AFB and within the vicinity of the project area and would be designed and sited to be compatible with existing land uses, safety guidelines, and AT/FP requirements. Therefore, land use impacts would not be significant.

4.5.2.2. Alternative #2

Impacts under Alternative #2 would be the same as those described under the Preferred Alternative. Therefore, land use impacts would not be significant.

4.5.2.3. No Action Alternative

Under the No Action Alternative, the proposed construction of the elementary school and high school would not occur, and the students would continue to attend their respective schools. Therefore, no impacts to land use would occur as a result of implementation of the No Action Alternative.

4.6. EARTH RESOURCES

4.6.1. METHODOLOGY

In evaluating impacts to earth resources, protection of unique geologic features, minimization of soil erosion, and the siting of facilities in relation to potential geologic hazards and soil limitations are considered. If a proposed action were to substantially affect or be substantially affected by any of these features, impacts may be considered significant. Generally, impacts associated with earth resources can be avoided or minimized to a level of insignificance if proper construction techniques, erosion control measures, geotechnical analysis, and structural engineering designs are incorporated into project development.

Analysis of potential impacts to geologic resources typically includes identification and description of resources that could potentially be affected, examination of the potential effects that an action may have on the resources, assessment of the significance of potential impacts, and provision of management measures in the event that potentially significant impacts are identified. Analysis of impacts to soil resources resulting from proposed activities examines the suitability of locations for proposed operations and activities. Impacts to soil resources can result from earth disturbance that would expose soil to wind or water erosion, or otherwise damage soil productivity (e.g., through compaction).

Adverse impacts to soils and the associated potential indirect impacts to water resources can be minimized through the implementation of BMPs such as those typically required to be in

compliance with the CWA. The NPDES program, administered by ADEQ under the USEPA's supervision, requires a Construction General Permit for surface disturbance of 1 acre or more. Compliance with this permit involves development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) and an erosion and sediment control plan that includes site-specific management measures.

4.6.2. IMPACTS

4.6.2.1. Alternative #1 (Preferred Alternative)

Topography

The parcel proposed for the new elementary school is undeveloped land composed of densely forested old Post Oak Savanna. The parcel generally slopes to the southeast (Little Rock AFB 2014a). While proposed construction would require some minor modification of terrain by cut and fill techniques and other minor grading, no significant topographic features would be affected as a result of implementation of these activities. The topography surrounding Arnold Drive Elementary School has been previously modified and developed. No impacts to topography would occur as a result of operations and maintenance of the new elementary school. Therefore, no significant impacts to topography would occur as a result of implementation of the Preferred Alternative.

Geology

Implementation of the proposed construction under the Preferred Alternative would not substantially affect the geologic units underlying Arnold Drive Elementary School or the parcel proposed for the new elementary school as no unique geologic features are present. No impacts to geology would occur as a result of operations and maintenance of the new elementary school. Therefore, no impacts to geology from the implementation of the Preferred Alternative would occur.

Soils

As shown in Figure 3.6-1, proposed construction of the new elementary school under the Preferred Alternative would occur primarily on Linker-Urban land complex (47 percent), Linker-Mountainburg association (52 percent), and Linker Series (1 percent). The demolition of Arnold Drive Elementary would occur on Linker-Urban land complex (65 percent) and Linker Series (35 percent). According to the NRCS Web Soil Survey (2016), in regard to building site development, the risk of corrosion to concrete is moderate, and the risk of corrosion to steel ranges from low to high. In regard to the construction of buildings on these soils types and the construction of recreation areas (playgrounds), there are limitations associated with the Linker-

Mountainburg association as a result of the close depth to hard bedrock, gravel content, slow water movement, and large stones in some areas (NRCS 2016). The remaining soil types are considered somewhat limited for the same reasons. These types of limitations can often be overcome or minimized by special planning, design, or installation (NRCS 2016).

Under the Preferred Alternative, the construction of the proposed new elementary school would result in 5.34 acres of temporary disturbance to the existing forested area from construction equipment. Existing trees on the parcel would be selectively cut in order to create room for the new facilities. There would be 5.96 acres of new impervious surfaces constructed and the remaining area would be permeable. In addition, there would be 0.84 acre of temporary disturbance associated with the proposed demolition of Arnold Drive Elementary School. Consequently, there would be 6.18 net acres of temporary disturbance to soils within the proposed project area. After demolition, Arnold Drive Elementary School land would either be returned to pervious surfaces (open space) or a new facility would be constructed in its place under separate NEPA documentation.

Prior to any construction activities, the installation would prepare a demolition-specific SWPPP, in accordance with the ADEQ Construction Stormwater General Permit No. ARR 150000 for the area surrounding Arnold Drive Elementary School. The District would be responsible for creating a construction-specific SWPPP for the construction associated with the new elementary school. These plans would include BMPs and monitoring requirements to minimize erosion and sedimentation. The design of the erosion, sediment, and pollution control consists of three stages: the initial phase, intermediate phase, and the final phase. The initial phase could consist of installing construction entrances, silt fence for outer perimeter control, sediment basins, diversion ditches, stone check dams, temporary stream crossings, temporary seeding, mulch, and dust control, as needed for construction. Temporary stream crossings could use corrugated metal pipe along with energy dissipating rip rap. The intermediate phase of the erosion and sediment control plans could consist of adding filter rings and culvert outlet energy dissipaters at proposed culvert locations to reduce sediment entering the culvert and to reduce water velocities on exit. The final phase could include installation of permanent seeding and removal of intermediate erosion controls. The permanent seeding would be maintained until final stabilization is achieved. Any potential impacts resulting from erosion or temporary increases in surface runoff during construction activities would be minimized through the use of these standard erosion control measures. No impacts to soils would occur as a result of operations and maintenance of the new elementary school. Consequently, impacts on soils would not be significant.

4.6.2.2. Alternative #2

Many of the components described under the Preferred Alternative are similar or identical to Alternative #2 in regard to earth resources as both parcels have similar topography, geology, and

soils. However, under Alternative #2 an additional 49.9 acres of temporary disturbance from construction equipment and 21.3 acres of additional new impervious surfaces would be constructed as part of the new high school. Therefore, the net temporary disturbance, including the new elementary and high school and demolition of Arnold Drive Elementary, would be 56.08 acres. The net new impervious surface would be 27.26 acres.

As shown in Figure 3.6-1, proposed construction under Alternative #2 could occur primarily on Leadvale-Urban land complex (11 percent), Linker-Mountainburg association (49 percent), Mountainburg Series (1 percent), and Linker Series (39 percent). The associated limitations to construction on these soils are similar to that under the Preferred Alternative.

The larger area of temporary disturbance and larger impervious surface area has the potential to result in increases to erosion and temporary increases in surface runoff during the construction phase, when compared to the Preferred Alternative. Although there is increased potential for impacts to soil from the implementation of Alternative #2, with appropriate BMPs impacts should be minimal. Similarly to the Preferred Alternative, Alternative #2 would have no significant impacts to geology or topography.

4.6.2.3. No Action Alternative

Under the No Action Alternative, the proposed construction of the new elementary school and new high school would not occur. However, the District would continue to conduct periodic repairs to Arnold Drive Elementary School. Therefore, no significant impacts to earth resources would occur as a result of implementation of the No Action Alternative.

4.7. WATER RESOURCES

4.7.1. METHODOLOGY

When land is developed, the hydrology, or natural cycle of water, can be altered. Impacts on hydrology can result from land clearing activities, disruption of the soil profile, loss of vegetation, introduction of pollutants, new impervious surface, and an increased rate or volume of runoff. Without proper management controls, these actions can adversely impact the quality and/or quantity of water resources.

Criteria for evaluating impacts related to water resources associated with the PA are water availability, water quality, groundwater recharge, and adherence to applicable regulations. Impacts are measured by the potential to reduce water availability to existing users, endanger public health or safety by creating or worsening health hazards or safety conditions, or violate laws or regulations adopted to protect or manage water resources. An impact to water resources would be significant if it would: 1) adversely affect water quality or endanger public health by

creating or worsening adverse health hazard conditions; 2) threaten or damage unique hydrologic characteristics; or 3) violate established laws or regulations that have been adopted to protect or manage water resources of an area.

The NPDES Branch of the Water Division of ADEQ and the USACE are the regulatory agencies that govern water resources in the state of Arkansas and at Little Rock AFB. These agencies have adopted the USEPA's applicable environmental rules and regulations. The CWA of 1972 regulates pollutant discharges and development activities that could affect aquatic life forms or human health and safety. EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*, issued January 30, 2015, amended EO 11988, *Floodplain Management* of 1977, established FFRMS to improve the Nation's resilience to current and future flood risks, which are anticipated to increase over time due to the effects of climate change and other threats. EO 13690 and the FFRMS call for agencies to use a higher vertical flood elevation and corresponding horizontal floodplain than the base flood for federally funded projects to address current and future flood risk and ensure that projects last as long as intended.

In addition, once implemented by federal agencies, EO 13690 requires all future federal investments in and affecting floodplains to meet the level of resilience as established by the Standard. This includes where federal funds are used to build new structures and facilities or to rebuild those that have been damaged. The analysis for this EA implements the new flood risk standard by using the *Freeboard Value Approach*. This approach includes the elevation and flood hazard area that results from using the freeboard value, reached by adding an additional 2 feet to the base flood elevation for non-critical actions and by adding an additional 3 feet to the base flood elevation for critical actions.

4.7.2. IMPACTS

4.7.2.1. Alternative #1 (Preferred Alternative)

Surface Water

Construction under the Preferred Alternative would result in 6.18 net acres of temporary disturbance: 5.34 acres as a result of the construction of the new elementary school and 0.84 acre associated with the demolition of Arnold Drive Elementary School. Within the proposed temporary disturbance area associated with the new elementary school, not all of the trees would be removed, but instead would be selectively cut in order to create room for the new facilities. There would be 5.96 acres of new impervious surfaces constructed and the remaining area would be permeable. There would be 2.7 acres of new playground areas created which would be developed as pervious surfaces. After demolition, Arnold Drive Elementary School land would

either be returned to pervious surfaces (open space) or a new facility would be constructed in its place under separate NEPA documentation.

The temporary disturbance and the increase in impervious surfaces as a result of construction and demolition could result in temporary localized increases in runoff and total suspended particulate matter to nearby surface waters. During construction, under the direction of the District, the parcel associated with the new elementary school would be graded such that runoff would be directed off of Little Rock AFB and connect with the City of Jacksonville's stormwater system, similar to the nearby North Pulaski High School and Tolleson Elementary School. In accordance with UFC 3-210-10 (*as amended* 2015) and Section 438 of the *Energy Independence and Security Act of 2007*, facilities having a footprint that exceeds 5,000 SF (0.1 acre) must maintain or restore the pre-development site hydrology to the maximum extent technically feasible. Agencies can meet the pre-development hydrology requirements in two ways: 1) managing on site the total volume of rainfall from the 95th percentile storm, or 2) managing on site the total volume of rainfall based on a site-specific hydrologic analysis through various engineering techniques.

The District would be responsible for creating a construction-specific SWPPP in accordance with the ADEQ Construction General Permit to manage construction related runoff. Prior to the demolition of Arnold Drive Elementary School, the demolition contractor would prepare a demolition-specific SWPPP in accordance with the Little Rock AFB ADEQ Construction Stormwater General Permit No. ARR 150000, and Little Rock AFB would review and approve this document. These plans would include BMPs and monitoring requirements to minimize erosion and sedimentation. The design of the erosion, sediment, and pollution control consists of three stages: the initial phase, intermediate phase, and the final phase. The initial phase could consist of typical BMPs, such as installing construction entrances, silt fence for outer perimeter control, sediment basins, diversion ditches, stone check dams, temporary stream crossings, temporary seeding, mulch, and dust control, as needed for the demolition and construction. Typical BMPs often associated with the intermediate phase of the erosion and sediment control plans could consist of adding filter rings and culvert outlet energy dissipaters at proposed culvert locations to reduce sediment entering the culvert and to reduce water velocities on exit. The final phase could include installation of permanent seeding and removal of intermediate erosion controls. Ultimately, site-specific BMPs would be chosen by the contractor to comply with the permit requirements at their discretion, as they are the responsible party. Any potential impacts resulting from erosion or temporary increases in surface runoff during construction activities would be temporary and minimized through the use of these erosion control measures. No impacts to surface water would occur as a result of operations and maintenance of the new elementary school.

Groundwater

Under the Preferred Alternative, the increase in the amount of impervious surface (5.96 acres) could also result in a decrease in groundwater recharge. The groundwater located within the ROI is located within perched aquifers with unknown recharge areas and the decrease in potential infiltration quantities would not have a significant impact. The integration of water harvesting and natural open space into project design would further minimize potential adverse impacts due to impervious surface. The use of these features would also increase groundwater recharge through direct percolation offsetting the loss of pervious surface due to future construction. No impacts to groundwater would occur as a result of operations and maintenance of the new elementary school.

Floodplains

In accordance with EO 13690 (October 8, 2015), the floodplain delineation for this EA was established by using the *Freeboard Value Approach* to calculate an expanded elevation and flood hazard area. This value is reached by adding an additional 2 feet to the base flood elevation delineated as part of the Little Rock AFB 2011 study (USAF 2011b), as shown on Figure 4.7-1. This expansion from the base flood elevation to a higher vertical flood elevation and corresponding horizontal floodplain is part of the higher resiliency standards for structures to adapt to, withstand, and rapidly recover from a flood event as outlined in EO 13690. As shown in Figure 4.7-1, there are three 100-year floodplains areas located in the southern portion of the proposed elementary school parcel; however, they are located outside the area proposed for temporary disturbance. In addition, there is a 100-year floodplain along the northern perimeter of Arnold Drive Elementary School.

In accordance with EO 11988, *Floodplain Management* and supplemental EO 13690, and AFI 32-7064, *Integrated Natural Resources Management*, undertaking or providing assistance for new construction within floodplains shall be avoided, unless there is no practicable alternative to such construction and all practicable measures to minimize harm to floodplains from such activities have been considered through project design and implementation of environmental mitigation measures to include BMPs. If there are no practicable alternatives, then the USAF authority (Headquarters AMC) shall approve a FONPA as required by EO 11988.

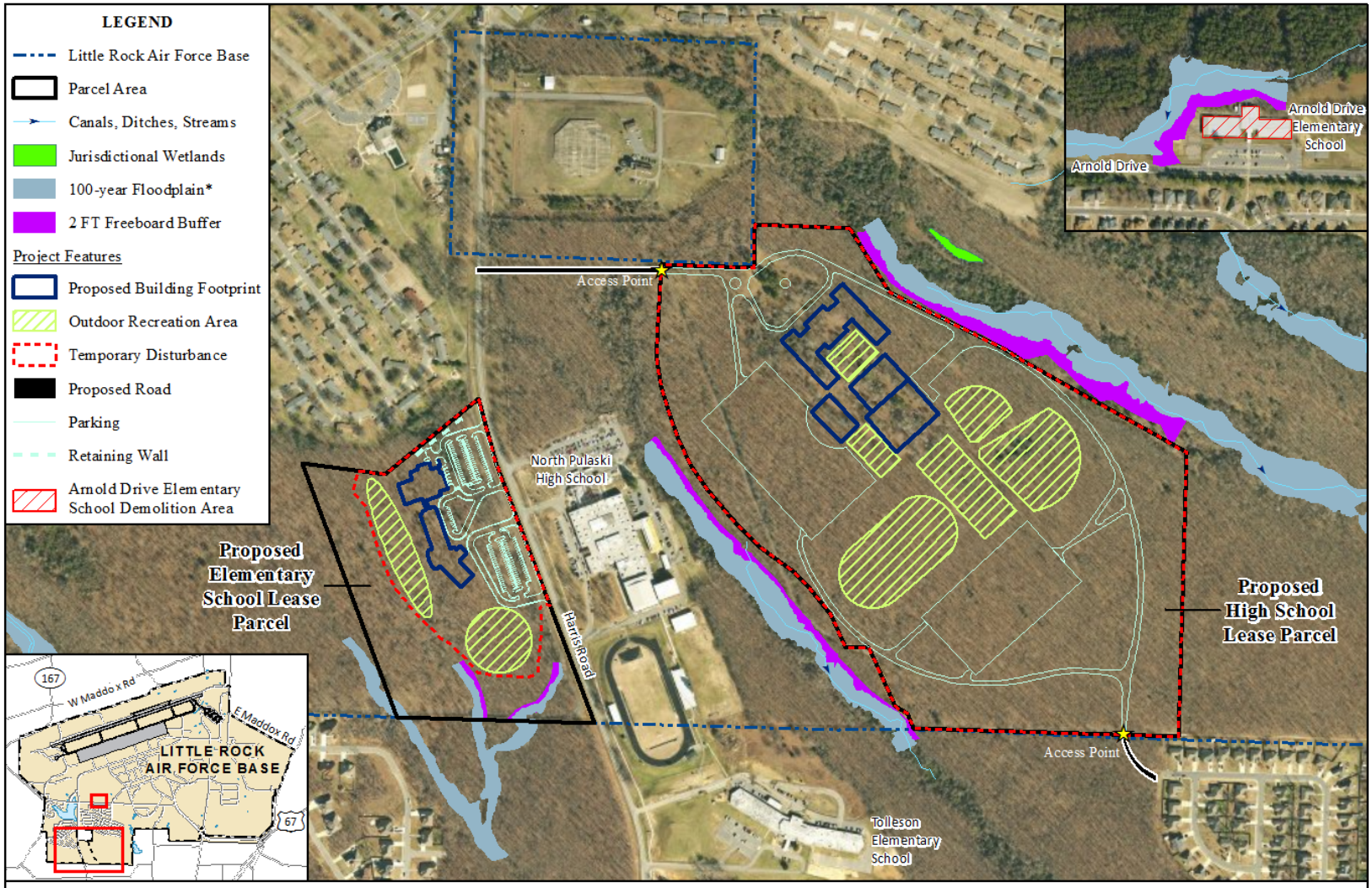

Figure 4.7-1
Water Resources Located within the Proposed Project Areas

*100- year floodplains delineated as part of Little Rock AFB 2011 Survey

As floodplains have been identified within the tract of land considered to be leased to the District for the new elementary school facility, and no practicable alternative exists, a FONPA is being prepared upon completion of an appropriate environmental analysis and report. Identification and analysis of alternatives is one of the core elements of the environmental impact analysis process under NEPA and the USAF's implementing regulations. The USAF may expressly eliminate alternatives from detailed analysis based on reasonable selection standards (32 CFR 989.8[c]). Consequently, Little Rock AFB systematically evaluated operational requirements and future needs to identify potential alternative locations for the proposed new multi-school campus construction project. A series of design factors were developed to identify a full set of reasonable options as described in detail in Section 2.2. Based on this analysis, siting selection standards were used to identify a full set of reasonable options for the PA. Based on the selection standards stated in Section 2.2, the USAF and the District decided that the parcel located west of the existing Tolleson Elementary School is the only viable locations for the USAF to lease property to the District for an elementary school.

Although the floodplains are not within the area proposed for disturbance, potential minor, indirect, adverse impacts could occur as a result of changes to construction-related overland flow not appropriately mitigated by BMPs and by the close proximity of the floodplains to the proposed construction. Floodplain impacts would be reduced to the maximum extent practicable through project design and implementation of environmental protection measures, to potentially include flagging the floodplain boundary, installing silt fencing, establishing a floodplain buffer, and following policies and procedures as detailed in erosion and sediment control plans; SWPPPs; and Spill Prevention, Control, and Countermeasures Plans. As no physical structures are proposed for construction within the floodplain, long-term adverse effects on floodplains are anticipated to be negligible to minor. Additionally, a public notice was published Saturday, May 7, 2016 in the *Arkansas Democrat-Gazette*, state-wide to invite the public to provide any comments on the preliminary evaluation of the USAF land that may be leased for school projects, and on the resources (floodplains) existing on the Little Rock AFB properties proposed to be leased in accordance with EO 13690 (see Appendix A).

The ADEQ Stormwater Permit requires construction projects where clearing and grading activities occur to provide a 25-foot natural buffer zone for any stream, creek, river, lake, or other water body. As disturbance to any floodplain would be avoided in accordance with state and federal floodplain regulations including EO 11988, *Floodplain Management*, as amended by EO 13690; USACE; and ADEQ NPDES Permits, no significant impacts to floodplains as a result of the implementation of the Preferred Alternative would occur.

No impacts to floodplains would occur as a result of construction or operations and maintenance of the new elementary school.

Wetlands

As shown on Figure 4.7-1, there are no jurisdictional wetlands located within the parcel for the new elementary school or near Arnold Drive Elementary School. No impacts to wetlands would occur as a result of construction or operations and maintenance of the new elementary school. As such, there would be no impacts to wetlands under this alternative.

4.7.2.2. Alternative #2

Surface Water

The construction of the new high school would result in an additional 49.9 acres of temporary disturbance and 21.3 acres of additional new impervious surfaces constructed. Similar to the Preferred Alternative, trees would be selectively cut within the proposed lease area in order to create room for the new facilities. Therefore, the net temporary disturbance, including construction of the new elementary and high schools and demolition of Arnold Drive Elementary, would be 56.08 acres. The net new impervious surface would be 27.3 acres.

The additional land disturbance and impervious surfaces resulting from the implementation of Alternative #2 could result in increases to erosion and temporary localized increases in runoff and total suspended particulate matter to nearby surface waters, when compared to the Preferred Alternative. However, construction would be phased such that Phase I, the elementary school construction, would not occur at the same time as Phase II, thereby decreasing any potential compounding impacts due to construction occurring simultaneously. Although there is increased potential for impacts to surface water quality from the implementation of Alternative #2, with appropriate BMPs, LID design concepts, and compliance with the *Energy Independence and Security Act of 2007*, impacts would not be significant. No impacts to surface water would occur as a result of operations and maintenance of the new elementary school and high school.

Groundwater

Under Alternative #2, there would be an additional increase in the amount of impervious surface (21.3 acres) when compared with the Preferred Alternative. However, as noted above, any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of permit-related temporary and/or permanent drainage management features such as LID design concepts, detention/retention basins, and other BMPs. No impacts to groundwater would occur as a result of operations and maintenance of the new elementary school and high school. Therefore, there would be no significant impacts to groundwater.

Floodplains

As shown in Figure 4.7-1, there are no floodplains located within the area proposed for the new high school. However, there are two floodplains located near the high school parcel. As floodplains have been identified adjacent to the tract of land considered to be leased to the District for the new high school facility, and no practicable alternative exists, a FONPA is being prepared. The FONPA includes activities for both Phase I and Phase II of the PA; a detailed description of the FONPA can be found under Phase I, the elementary school construction Alternative #1, floodplain section above.

Although the floodplains are not directly within the area proposed for disturbance or lease parcel, potential impacts could occur as a result of changes to construction-related overland flow not appropriately mitigated by BMPs and by the close proximity of the floodplains to the proposed construction. Floodplain impacts would be reduced to the maximum extent possible through project design and implementation of environmental protection measures, to potentially include flagging the floodplain boundary, installing silt fencing, establishing a wetland buffer, and following policies and procedures as detailed in erosion and sediment control plans; SWPPPs; and Spill Prevention, Control, and Countermeasures Plans. As no physical structures are proposed for construction within the floodplain, long-term adverse effects on floodplains are anticipated to be negligible to minor.

The ADEQ Stormwater Permit requires construction projects where clearing and grading activities occur to provide a 25-foot natural buffer zone for any stream, creek, river, lake, or other water body. As disturbance to any floodplain would be avoided in accordance with state and federal floodplain regulations including EO 11988, *Floodplain Management* and supplemental EO 13690*,* USACE, and ADEQ NPDES Permits, no significant impacts to floodplains as a result of the implementation of Alternative #2 would occur.

Wetlands

As shown on Figure 4.7-1, there are no jurisdictional wetlands located within the parcel for the new high school. However, there is one wetland located near the proposed parcel to the northeast. In accordance with EO 11990, undertaking or providing assistance for new construction within wetlands shall be avoided, unless there is no practicable alternative to such construction and all practicable measures to minimize harm to wetlands have been from such activities have been considered through project design and implementation of environmental mitigation measures to include BMPs. If there are no practicable alternatives, then the authorized USAF authority (Headquarters AMC) shall approve a FONPA as required by EO 11990.

However, as wetlands have been identified near the tract of land considered to be leased to the District for the new high school facility, and no practicable alternative exists, a FONPA is being prepared. The FONPA includes activities for both Phase I and Phase II of the PA; a detailed description of the FONPA can be found under Phase I, the elementary school construction Alternative #1, floodplain section above. Although the wetland is not within the area proposed for disturbance or lease parcel, potential impacts could occur as a result of changes to construction-related overland flow not appropriately mitigated by BMPs and by the close proximity of the wetland to the proposed construction. Wetland impacts would be reduced to the maximum extent possible through project design and implementation of environmental protection measures, to potentially include flagging the wetland boundary, installing silt fencing, establishing a wetland buffer, and following policies and procedures as detailed in erosion and sediment control plans; SWPPPs; and Spill Prevention, Control, and Countermeasures Plans. As no physical structures are proposed for construction within the wetland and the wetland is located largely upstream from the proposed construction and on the eastern side across from the floodplain, long-term adverse effects to wetlands are anticipated to be negligible to minor.

In addition, according to AFI 32-7064, *Integrated Natural Resources Management*, 18 November 2014, the USAF is required to disclose the location of known wetlands, and any land-use restrictions imposed by regulatory authority on lands that are leased, transferred, or sold to non-federal entities, and has done so with the District.

No impacts to wetlands would occur as a result of construction or operations and maintenance of the new elementary school and high school.

4.7.2.3. No Action Alternative

Under the No Action Alternative, the proposed construction of the new elementary school and new high school would not occur. However, the District would continue to conduct periodic repairs to Arnold Drive Elementary School. Therefore, no impacts to water resources would occur as a result of implementation of the No Action Alternative.

4.8. BIOLOGICAL RESOURCES

4.8.1. METHODOLOGY

This section analyzes the potential for impacts to biological resources at Little Rock AFB as a result of implementation of the PA or No Action Alternatives. Analysis of impacts focuses on whether and how ground-disturbing activities could affect biological resources.

Determination of the significance of potential impacts to biological resources is based on: 1) the importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource; 2) the

proportion of the resource that would be affected relative to its occurrence in the region; 3) the sensitivity of the resource to proposed activities; and (4) the duration of ecological ramifications. Impacts to biological resources would be considered significant if species or habitats of concern were significantly affected over relatively large areas or disturbances resulted in reductions in the population size or distribution of a special status species, or if laws, codes, or ordinances protecting special status species were violated.

4.8.2. IMPACTS

4.8.2.1. Alternative #1 (Preferred Alternative)

Vegetation

The construction of the new elementary school would result in 5.34 acres of temporary ground disturbance from construction equipment to the existing forested parcel. In addition, there would be 8.66 acres of Post Oak Savanna forest that would be removed within the footprint of the new elementary school. Trees would also be selectively cut in areas immediately surrounding this footprint of the new elementary school in order to create room for construction of the new facilities. This 8.66 acres represents 0.5 percent of the Post Oak Savanna forest within the installation, identified as unique habitat for the state. Where feasible, patches of Post Oak Savanna would be retained and facilities would be constructed to avoid stands of trees. Therefore, there would be no significant impacts to vegetation under the Preferred Alternative.

Wildlife

Construction activities associated with the Preferred Alternative would occur within Post Oak Savanna forest and would result in a loss of 8.66 acres of habitat as well as temporary increases in noise associated with construction equipment. In addition, construction-related noise may displace wildlife from suitable habitat in the immediate vicinity of the project area. However, this habitat is primarily surrounded by an urban environment with residential areas to the north and south, as well as the nearby Tolleson Elementary School and North Pulaski High School. Therefore, wildlife species found at the site are already adapted to an urban noise environment. Impacts to wildlife from operations and maintenance of the new elementary school would be minor, as they would be similar to existing operations and maintenance activities for Tolleson Elementary School that is across the road. As a result, there would be no significant impacts to wildlife as a result of implementation of the construction and operational activities associated with the Preferred Alternative.

Threatened and Endangered and Special Status Species

No impacts to federally listed species would be expected from the proposed construction of the new elementary school or demolition of Arnold Drive Elementary School. The interior least tern

has been known to nest on the rooftops of Buildings 450 and 430, which are located approximately 8,000 to 9,000 feet north of the proposed new elementary school site and 3,800 to 5,000 feet north of Arnold Drive Elementary. Impacts to special status species, including migratory birds and the bald eagle, that could potentially occur within the project area would be similar to that described under wildlife.

There are confirmed observations of the rattlesnake-master borer moths, a candidate species, within the project area in the Post Oak Savanna. Their primary food plant, rattlesnake-master, was also found in these areas (Nature Conservancy 2014). Little Rock AFB would coordinate with the Nature Conservancy, as an informational source only, prior to construction to transplant any rattlesnake-master plants within the footprint of the new elementary school to a nearby suitable habitat. Since the rattlesnake-master is a candidate species, no formal consultation with the USFWS is required. However, a letter and a copy of the Draft EA has been sent to the USFWS on 8 August 2016. As a result, impacts from the Preferred Alternative on threatened and endangered and special status species would not be significant.

4.8.2.2. Alternative #2

Under Alternative #2, the construction of the new high school would result in an additional 49.9 acres of temporary ground disturbance from construction equipment to the existing forested parcel. In addition, there would be 29.1 acres of Post Oak Savanna forest that would be removed within the footprint of the new high school. Trees would be selectively cut immediately surrounding the construction footprint in order to create room for the new facilities. This 29.1 acres in addition to the 8.66 acres that would be removed for the new elementary school (total of 37.76 acres) represents a small percentage (2.2 percent) of the Post Oak Savanna forest within the installation. Where feasible, patches of Post Oak Savanna would be retained and facilities would be constructed to avoid stands of trees. Therefore, there would be no significant impacts to vegetation under Alternative #2.

Construction-related noise under Alternative #2 would be similar to that described under the Preferred Alternative. However, wildlife species at Little Rock AFB are adapted to the existing urban environment and suitable habitat is located adjacent to the project area. Impacts to wildlife from operations and maintenance of the new High School would be minor, as they would be similar to existing operations and maintenance activities for the current North Pulaski High School that would be adjacent to the new high school. As a result, long-term impacts to wildlife populations would not be significant and there would be no substantial impacts to wildlife as a result of implementation of the construction and operational activities associated with Alternative #2.

Impacts from Alternative #2 to federally listed and special status species would be the same as described under the Preferred Alternative. Impacts to the rattlesnake-master borer moth would

be the same as described under the Preferred Alternative. No additional impacts to the rattlesnake-master borer moth are anticipated under Alternative #2 as no moths or their primary food plant, rattlesnake-master, were found during the 2014 survey within the proposed high school construction project area.

4.8.2.3. No Action Alternative

Under the No Action Alternative, the proposed construction of the elementary school and high school would not occur, and the students would continue to attend their respective schools. Therefore, no impacts to biological resources would occur as a result of implementation of the No Action Alternative.

4.9. INFRASTRUCTURE

4.9.1. METHODOLOGY

Potential impacts to infrastructure elements at Little Rock AFB are assessed in terms of effects of the proposed projects on existing service levels, described in Section 3.9. Impacts to transportation and utilities are assessed with respect to the potential for disruption or improvement of current circulation patterns and utility systems, deterioration or improvement of existing LOS, and changes in existing levels of transportation and utility safety. Impacts may arise from physical changes to circulation or utility corridors, construction activity, and introduction of construction-related traffic and utility use. Adverse impacts on roadway capacities would be significant if roads with no history of capacity exceedance had to operate at or above their full design capacity as a result of an action. Transportation effects may arise from changes in traffic circulation, delays due to construction activity, or changes in traffic volumes. Utility system effects may include disruption, degradation, or improvement of existing LOS or potential change in demand for energy or water resources.

For this analysis, potential infrastructure impacts associated with implementation of the PA were evaluated. Potential infrastructure impacts would be related to construction activity and facility operations after completion.

4.9.2. IMPACTS

4.9.2.1. Alternative #1 (Preferred Alternative)

Transportation

The Preferred Alternative would involve construction and operation of new educational facilities and the relocation of educational facilities, including the students, teachers, and staff associated with the affected facilities. While the PA would involve the intensification of existing land uses,

it would not introduce any new land uses or activities that are not currently present within the District. Therefore, the PAs transportation/traffic impacts would arise from the increases in traffic from intensification of uses, and redistribution of existing traffic due to the relocation of students, teachers, and staff. Although the roadways near the PA would be affected by both new and redistributed trips, redistributed trips will have no impact when considering the overall roadway network.

The volume of traffic associated with the PA was estimated using traffic generation rates published by the Institute of Transportation Engineers (ITE) (2012). The traffic generation rates used (i.e., ITE land use code 520, Elementary School and land use code 530, High School) are based on the number of students at each school. However, these rates encompass all types of vehicular trips associated with each type of school, including commuting trips by teachers and staff, deliveries, drop off and pick up of students (by car and by bus), etc. Table 4.9-1 presents the new trips associated with the proposed intensification. As shown in this table, the Preferred Alternative would result in the addition of 222 new trips per day.

Because the PA would shift existing schools to the proposed new locations, existing traffic would divert from existing routes to roads leading to the proposed school parcels. This shift of existing traffic is also called traffic redistribution. Redistributed trips were assigned to the roadway network based on likely routes to the new school(s). Because the proposed new schools would be located near the existing Tolleson Elementary School and North Pulaski High School, traffic redistribution for these schools would occur at site access driveways only.

Impacts on roadway segments were assessed based on the daily traffic volume increases caused by both new and redistributed trips. A significant impact would occur if the addition of traffic from the PA would cause a roadway segment to exceed the minimum performance standard of LOS C. The maximum LOS C traffic volume for two-lane roads is 10,000 ADT.

Table 4.9-1. New Traffic, Preferred Alternative

Proposed Activity	*Land Use*	*Amount*	*Trip Rate[(a)]*	*Daily Trips*
Construct	New Elementary School	700 students	1.29/student	903
Relocate	Existing Arnold Drive Elementary School	208 students	1.29/student	268
Relocate	Existing Tolleson Elementary School	320 students	1.29/student	413
Incremental Additional Trips[(b)] (New Traffic)				**222**

Notes: [(a)] Trip rates include all related traffic generation, including trips by students, teachers, staff and student drop-off trips (by bus, car, etc.).
[(b)] Trips from the new elementary school minus trips from the existing elementary schools.
Source: ITE 2012.

Table 4.9-2 summarizes the projected future traffic volumes and LOS under this alternative. As shown, the Preferred Alternative results in an increase of between 44 and 335 trips per day to roads proximate to the proposed school parcel. However, this relatively minor increase would

not cause any roadway segment to exceed the minimum performance standard of LOS C, and therefore the impact would be less than significant. Because the PA would involve changes in traffic patterns and site access, to avoid possible impacts relative to local traffic circulation (such as queues, delays, and/or conflicts between different modes of travel at project access driveways), it is recommended that as part of the design of the PA an analysis of local traffic circulation should be performed. The analysis should consider all applicable modes of travel (i.e., passenger vehicles, school buses, pedestrians, bicyclists, etc.) and recommend appropriate signage, pavement markings, and other traffic control measures to accommodate safe and efficient access to and from the proposed educational facilities and nearby land uses.

Table 4.9-2. Preferred Alternative Traffic Impacts

Roadway	*Segment*	*Existing ADT*	*Traffic Increase[(a)]*	*Existing + PA ADT*	*Maximum ADT at LOS C*
General Samuels Road	Arkansas Highway 107 to Harris Road	4,200	56	4,256	10,000
	Harris Road to Redmond Road	2,900	44	2,944	10,000
Harris Road	Illinois Drive to General Samuels Road	4,500	335	4,835	10,000
	General Samuels Road to Jacksonville Cutoff Road	4,000	56	4,056	10,000
Sheridan Drive	from Harris Road to Longstreet Street	650	0	650	10,000
Longstreet Street	West of Sheridan Drive	90	0	650	10,000

Notes: [(a)] Traffic increase includes both new and redistributed existing trips.
ADT = Average Daily Traffic, PA = Proposed Action, LOS = Level of Service
Source: AHTD 2014.

Utilities

Wastewater System. Runoff entering the wastewater system generated on the parcel proposed for the new elementary school would be directed off of Little Rock AFB and into the existing City of Jacksonville stormwater system. Runoff entering the wastewater system generated as a result of the demolition of Arnold Drive Elementary School would discharge into Little Rock AFB's sanitary sewer system under their Wastewater Discharge Permit (Permit #87-08-12).

The wastewater generated as a result of the new elementary school facility would not constitute a large increase from existing conditions as a majority of the students, teachers, and other school personnel would be transferring from other schools that would no longer be utilized. Thus, no impact is anticipated to the wastewater system for the City of Jacksonville.

There is no existing wastewater infrastructure currently in place within the parcel proposed for the new elementary school. This infrastructure would be constructed under the direction of the District and would connect with the City of Jacksonville's wastewater system, similar to the nearby North Pulaski High School and Tolleson Elementary School. Therefore, there would be no significant impacts to the wastewater system under the Preferred Alternative.

Stormwater Drainage System. The proposed construction activities associated with the new elementary school could temporarily affect the quantity and quality of stormwater runoff through potential increases in soil erosion and flow. Construction activities can expose soils and during storm events, stormwater can pick up soil particles, thereby increasing sediment loading of the stormwater runoff. Runoff generated as a result of construction for dust control during the construction and demolition activities of the PA would increase minimally. During construction, under the direction of the District, the parcel associated with the new elementary school would be graded such that runoff would be directed off of Little Rock AFB and connect with the City of Jacksonville's stormwater system, similar to the nearby North Pulaski High School and Tolleson Elementary School. The District would be responsible for creating a construction-specific SWPPP in accordance with the ADEQ Construction General Permit to minimize erosion, sedimentation, and flow.

As Arnold Drive Elementary is located on the Little Rock AFB installation, prior to any demolition activities, the installation would prepare a demolition-specific SWPPP in accordance with the Little Rock AFB ADEQ Construction Stormwater General Permit No. ARR 150000. Therefore, there would be no significant impacts to the stormwater drainage system under the Preferred Alternative.

Energy. The demand for energy (primarily electricity, gasoline, and diesel) could increase during the demolition and construction phases of the PA. The energy supply in the region is adequate and would not be affected by this temporary increase in demand.

Energy consumption as a result of the new elementary school facility would not constitute a large increase from existing conditions as a majority of the students, teachers, and other school personnel would be transferring from other schools that would no longer be utilized. In addition, the construction of the new elementary school would be implemented with more energy efficient design standards and utility systems than are currently in place. Therefore, average energy consumption would be expected to remain consistent or decrease compared to energy consumption associated with existing facilities.

There is no existing natural gas or electricity infrastructure currently in place within the parcel proposed for the new elementary school. This infrastructure would be constructed under the direction of the District and would connect to the City of Jacksonville grid for both natural gas

and electricity, similar to the nearby North Pulaski High School and Tolleson Elementary School. Therefore, there would be no significant impacts to energy infrastructure under the Preferred Alternative.

Solid Waste Management. The educational facilities to be constructed would generate construction and demolition debris requiring landfill disposal. Construction activities would occur starting in FY 2017 and would take approximately 2 years to complete. The construction of the new elementary school facility would include 5.96 acres (259,618.6 SF) to include the proposed building footprint and associated parking areas and 2.7 acres created for two new playground areas. The playground areas were not considered in the debris calculation as it is assumed the new playground equipment would come primarily pre-assembled and would be placed in the appropriate areas within the parcel, with no residual construction debris. The estimated pounds of waste generated each year from new, non-residential construction as described in the *Characterization of Building-Related Construction and Demolition Debris in the United States* (USEPA 1998) is:

(Total square footage of new construction per year) x (4.38 pounds/SF)[3] = X pounds of debris.

Therefore, as a result of the Preferred Alternative, the new construction (259,618.6 SF) would generate 1,137,129 pounds (569 tons) of construction debris requiring landfill disposal. In addition, the USEPA has a higher debris generation rate associated with demolition of 115 pounds/SF. Therefore, the demolition of 0.84 acre (36,590.5 SF) associated with the Arnold Drive Elementary School building footprint would generate 4,207,907.5 pounds (2,103.9 tons) of demolition debris requiring landfill disposal. Consequently, the net construction and demolition debris generated as a result of the Preferred Alternative would be 5,345,036.5 pounds (2,672.9 tons).

Establishment of waste reduction and recycling programs would help to minimize the increase in overall solid waste generation as a result of the Preferred Alternative. Solid waste would be delivered to the Two Pines Landfill, located in the city of Jacksonville. Construction and demolition waste (including concrete, wood, glass, and metals) would be recycled to the maximum extent possible to reduce disposal costs and impacts to the environment. Where recycling is not an option, solid waste would be disposed of in a landfill, including the safe disposal of any hazardous or toxic materials. In 2008, a second landfill area was designated to double the capacity of Two Pines Landfill and hold the region's trash for the next 40 years (Waste Management 2008). In addition, per the State of Arkansas *2014 Statewide Solid Waste*

[3] 4.38 pounds per SF is an estimate of debris generated during new construction based on sampling studies documented in *Characterization of Building-Related Construction and Demolition Debris in the United States* (USEPA 1998).

Management Plan, if a district has a landfill facility with less than 7 years' capacity, it could partner with an adjoining district or neighboring state to increase disposal capacity. Therefore, Two Pines Landfill would have capacity to accept the non-recyclable solid waste as a result of implementation of the Preferred Alternative. Construction activities would occur under the direction of the District and contractors off Little Rock AFB completing construction and demolition projects would be responsible for disposing of waste generated from these activities. Contractors would be required to comply with federal, state, and local regulations for the collection and disposal of municipal solid waste.

Solid waste generation as a result of the new elementary school facility would not constitute a large increase from existing conditions as a majority of the students, teachers, and other school personnel would be transferring from other schools that would no longer be utilized. Solid waste would be managed and disposed of by Pulaski County. Therefore, there would be no significant impacts to solid waste infrastructure under the Preferred Alternative.

Potable Water. The demand for potable water for dust control during the construction and demolition activities of the PA would increase minimally. The City of Jacksonville's potable water supply is adequate and would not be affected by this minor, temporary increase in demand.

Potable water consumption as a result of the new elementary school facility would not constitute a large increase from existing conditions as a majority of the students, teachers, and other school personnel would be transferring from other schools that would no longer be utilized.

There is no existing potable water infrastructure currently in place within the parcel proposed for the new elementary school. This infrastructure would be constructed under the direction of the District and would connect to the City of Jacksonville potable water system, similar to the nearby North Pulaski High School and Tolleson Elementary School. Therefore, there would be no significant impacts to potable water infrastructure under the Preferred Alternative.

4.9.2.2. Alternative #2

Transportation

As shown in this Table 4.9-3, Alternative #2 would result in the addition of 1,564 new trips per day.

Table 4.9-3. New Traffic, Alternative #2

Proposed Activity	*Land Use*	*Amount*	*Trip Rate[a]*	*Daily Trips*
Construct	New Elementary School	700 students	1.29/student	903
Relocate	Existing Arnold Drive Elementary School	208 students	1.29/student	268
Relocate	Existing Tolleson Elementary School	320 students	1.29/student	413
Construct	New High School	2,000 students	1.71/student	3,420
Relocate	Existing North Pulaski High School	373 students	1.71/student	638
Relocate	Existing Jacksonville High School	842 students	1.71/student	1,440
			Incremental Additional Trips[b] (New Traffic)	**1,564**

Notes: [a] Trip rates include all related traffic generation, including trips by students, teachers, staff and student drop-off trips (by bus, car, etc.).
[b] Trips from the new elementary school and new high school minus trips from the existing elementary schools and the existing high schools.
Source: ITE 2012.

Table 4.9-4 presents the traffic-related impacts of Alternative #2. As shown in this table, Alternative #2 would increase traffic from between 297 and 1,909 trips per day. This moderate increase would not cause any roadway segment to exceed the maximum LOS C capacity. Therefore, Alternative #2's impact to transportation/traffic would be less than significant. Alternative #2 would involve changes in traffic patterns and the construction of two new access driveways. Alternative #2 would also involve changes in traffic patterns and site access. To avoid possible impacts relative to local traffic circulation (such as queues, delays, and/or conflicts between different modes of travel at project access driveways), it is recommended that as part of the design of the PA an analysis of local traffic circulation should be performed. The analysis should consider all applicable modes of travel (i.e., passenger vehicles, school buses, pedestrians, bicyclists) and recommend appropriate signage, pavement markings, and other traffic control measures to accommodate safe and efficient access to and from the proposed educational facilities and nearby land uses.

Table 4.9-4. Alternative #2 Traffic Impacts

Roadway	*Segment*	*Existing ADT*	*Traffic Increase[(a)]*	*Existing + PA ADT*	*Maximum ADT at LOS C*
General Samuels Road	Arkansas Highway 107 to Harris Road	4,200	391	4,591	10,000
	Harris Road to Redmond Road	2,900	736	3,6,36	10,000
Harris Road	Illinois Drive to General Samuels Road	4,500	1,909	6,409	10,000
	General Samuels Road to Jacksonville Cutoff Road	4,000	1,111	5,111	10,000
Sheridan Drive	from Harris Road to Longstreet Street	650	297	947	10,000
Longstreet Street	West of Sheridan Drive	90	297	387	10,000

Notes: [(a)] Traffic increase includes both new and redistributed existing trips.
ADT = Average Daily Traffic, PA = Proposed Action, LOS = Level of Service
Source: AHTD 2014.

Although the amount of traffic on Sheridan Drive and Longstreet Street is relatively low compared to total traffic under Alternative #2, the increase would likely be noticeable to residents given the relatively light existing volumes on these streets. Also, Alternative #2 would introduce through traffic on roadways that currently serve the existing residential development only. To avoid impacts on these roadways, it is recommended that as part of the design of Alternative #2, a detailed study should be performed to identify appropriate measures to manage additional through traffic on Sheridan Drive and Longstreet Street. Measures may include signage, pavement markings, and/or traffic calming improvements.

Utilities

Under Alternative #2, impacts to utilities would primarily be the same as those described under the Preferred Alternative. There would be a slight increase in the amount of energy used during construction and potable water used and wastewater generated for dust control, when compared to the Preferred Alternative. However, the construction of the new high school would be implemented with more energy efficient design standards and utility systems than are currently in place. Therefore, average energy consumption would be expected to remain consistent or decrease compared to energy consumption associated with existing facilities. Although there is increased potential for impacts to stormwater from the implementation of Alternative #2, with appropriate BMPs, impacts should be minimal.

Solid Waste Management.

The construction of the new high school facility would include an addition of 21.3 acres (927,831.7 SF) of new building footprint and associated parking areas. Using the 1998 USEPA multiplier of 4.38 pounds/SF for new construction described under the Preferred Alternative, the additional high school construction would generate 4,063,902.8 pounds (2,032 tons) of construction debris requiring landfill disposal. Consequently, the net construction debris under Alternative #2 (including the elementary school, Arnold Drive Elementary, and the high school) would be 9,408,939 pounds (4,705 tons). However, construction would be phased such that the Preferred Alternative would not occur at the same time as Phase II, thereby decreasing any potential compounding impacts due to construction occurring simultaneously.

Establishment of waste reduction and recycling programs would help to minimize the increase in overall solid waste generation as a result of Alternative #2. Contractors are required to comply with federal, state, and local regulations for the collection and disposal of municipal solid waste. Much of this material can be recycled or reused, or otherwise diverted from landfills.

4.9.2.3. No Action Alternative

Transportation

The No Action Alternative would not involve any new or redistributed trips, and the traffic conditions would be the same as described above for existing conditions. No impacts to transportation/traffic would occur.

Utilities

Under the No Action Alternative, the proposed construction of the new elementary school and new high school would not occur. However, the District would continue to conduct periodic repairs to Arnold Drive Elementary School and the existing schools would continue to deteriorate. The continued long-term use of Arnold Drive Elementary School would require complete upgrades for all mechanical, electrical, and plumbing systems. Challenges with the existing construction would prevent these structures from meeting current energy codes even after repairs are complete.

4.10. CULTURAL RESOURCES

4.10.1. METHODOLOGY

Under Section 106 of the NHPA, federal agencies are required to consider the effects of their undertakings on cultural resources listed in or eligible for listing in the NRHP (known as "historic properties") and afford the Advisory Council on Historic Preservation the opportunity

to comment on the undertaking. Additionally, the agency must also consult with the SHPO to determine the effect of the action on eligible properties. If there would be an adverse effect, the agency must consult to consider methods to mitigate the impact.

In accordance with 36 CFR Part 800.5a (2), there may be adverse effects upon a historic property when there is:

1. Destruction or alteration of all or part of a property;
2. Isolation from or alteration of the property's surrounding environment;
3. Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting;
4. Neglect of a property resulting in its deterioration or destruction; or
5. Transfer or sale of a property without adequate conditions or restrictions regarding preservation, maintenance, or use.

Adverse effects, as defined by the Section 106 process, are considered to be significant impacts under NEPA. Direct impacts under NEPA may also include damage or destruction to unevaluated sites.

The information used to assess direct and indirect impacts at Little Rock AFB is largely derived from the Integrated Cultural Resources Management Plan (2005).

4.10.2. IMPACTS

4.10.2.1. Alternative #1 (Preferred Alternative)

Construction

Construction under the Preferred Alternative would consist of building a new elementary school and the demolition of Arnold Drive Elementary School. No historic properties are located within the APE for the Preferred Alternative. Arnold Drive Elementary School was built in 1968 and will be demolished before it turns 50 years of age. Since it is less than 50 years old, the school is therefore not considered a historic property. The SHPO has concurred that no known historic properties would be affected by this undertaking (see Appendix A). In addition, no archaeological sites are located within the APE for the Preferred Alternative. Should any inadvertent discoveries be made during construction activities, construction would halt and the Little Rock AFB Cultural Resources Manager would be notified.

Operation

Under the Preferred Alternative, post-construction site operations would include upkeep and maintenance of the facilities. As there are no historic properties in the APE, operation activities would result in no adverse effects to historic properties.

4.10.2.2. Alternative #2

Construction

Alternative #2 would include those activities and impacts described under the Preferred Alternative in addition to the construction of a high school on 79 acres of Little Rock AFB property. This would include the temporary disturbance of 49.9 acres from construction equipment. Grading and removal of vegetation would occur to 29.1 acres (for new impervious and pervious surfaces). Two new access roads would be built on the northwest and southeast corners of the parcel and the current fence line would be moved to exclude the new high school from Little Rock AFB boundaries.

Four archaeological sites are located within the APE for Alternative #2: 3PU417, 3PU418, 3PU419, and 3PU294. Sites 3PU417 and 3PU418 are located within the footprint of the proposed new high school and 3PU419 and 3PU294 are located within the area of temporary disturbance. None of these sites are NRHP eligible, and barring SHPO concurrence, are therefore not a historic property.

No historic properties are located within the APE for Alternative #2. Therefore, construction under Alternative #2 would not result in adverse effects to historic properties. Should any inadvertent discoveries be made during construction activities, construction would halt and the Little Rock AFB Cultural Resources Manager would be notified.

Operation

Under Alternative #2, post-construction site operations would include upkeep and maintenance of the facilities. As none of the archaeological sites are historic properties in the APE, operation activities would result in no adverse effects to historic properties.

4.10.2.3. No Action Alternative

Under the No Action Alternative, the proposed construction of the new elementary school and new high school would not occur and the 19 AW and the District would not implement the proposed project components described under the PA. The District would continue to conduct periodic repairs to Arnold Drive Elementary School. No significant direct or indirect impacts to cultural resources would occur with implementation of the No Action Alternative.

4.11. SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

4.11.1. METHODOLOGY

Socioeconomic impacts are assessed in terms of direct effects on the local economy and population, and related indirect effects on other socioeconomic resources within the ROI. Socioeconomic impacts would be considered significant if the PA resulted in a substantial shift in population trends or notably affected regional employment, earnings, or community resources such as schools.

Environmental justice impacts are assessed in terms of direct effects on overburdened populations (i.e., minorities, Indian Tribes, low-income residents, elderly, and children) within the project ROI. Environmental justice impacts would be considered significant if the PA resulted in a disproportionate impact to these identified populations in comparison to the remainder of the population within the project ROI.

4.11.2. IMPACTS

4.11.2.1. Alternative #1 (Preferred Alternative)

Economic activity associated with proposed construction activities at Little Rock AFB, such as employment and materials purchasing, would provide short-term economic benefits to the local economy. These beneficial impacts resulting from construction payrolls and materials purchased would be less than significant on a regional scale. As the Preferred Alternative would not result in a change in personnel levels at Little Rock AFB or in other local industries when the proposed project is completed, no long-term economic or demographic changes would occur upon implementation of the Preferred Alternative. Therefore, the Preferred Alternative would result in less than significant impacts to regional or local socioeconomic characteristics.

Under the Preferred Alternative, construction activities would be contained entirely within the Little Rock AFB boundaries; however, they will be located outside the fence line once the construction is complete. Analysis of each resource has concluded that populations within and outside the boundaries of the installation would not be significantly impacted by implementation of the Preferred Alternative. In particular, there would be no significant air quality, noise, traffic, or health and safety impacts to residents living within and near the installation boundaries. As a result, there would be no impacts to the elderly. Some populations may need to travel further in order to attend the new schools, which may increase the cost of school attendance for some low-income populations; it is anticipated that the School District would continue to provide transportation services to students within the District, so any impact would be less than significant.

With regard to environmental health and safety risks to children, proposed construction under the Preferred Alternative would not pose a risk to children living on Little Rock AFB or currently attending nearby schools. Children residing or attending school at Tolleson Elementary School and North Pulaski High School across the street from the proposed elementary school site would be exposed to some potential air quality, noise, and traffic impacts during the times of day and days of the week that the construction is taking place. However, analysis of these resources and analysis of potential health and safety impacts found no significant impacts from the proposed construction. Therefore, implementation of the Preferred Alternative would not disproportionately impact minority, low-income, or children residents.

4.11.2.2. Alternative #2

Economic activity associated with proposed construction activities at Little Rock AFB, such as employment and materials purchasing, would provide short-term economic benefits to the local economy. These beneficial impacts resulting from construction payrolls and materials purchased would be less than significant on a regional scale. As Alternative #2 would not result in a change in personnel levels at Little Rock AFB or in other local industries when the proposed project is completed, no long-term economic or demographic changes would occur upon implementation of Alternative #2. Therefore, Alternative #2 would result in less than significant impacts to regional or local socioeconomic characteristics.

Under Alternative #2, construction activities would be contained entirely within the Little Rock AFB boundaries; however, they will be located outside the fence line once the construction is complete. Analysis of each resource has concluded that populations within and outside the boundaries of the installation would not be significantly impacted by implementation of Alternative #2. In particular, there would be no significant air quality, noise, traffic, or health and safety impacts to residents living within and near the installation boundaries. As a result, there would be no impacts to the elderly. Some populations may need to travel further in order to attend the new schools, which may increase the cost of school attendance for some low-income populations; it is anticipated that the School District would continue to provide transportation services to students within the District, so any impact would be less than significant.

With regard to environmental health and safety risks to children, proposed construction under Alternative #2 would not pose a risk to children living on Little Rock AFB or currently attending nearby schools. Children residing near or attending school at Tolleson Elementary School and North Pulaski High School, which is across the street from the proposed elementary school site, would be exposed to some potential air quality, noise, and traffic impacts during the times of day and days of the week that the construction is taking place. However, analysis of these resources and analysis of potential health and safety impacts found no significant impacts from the

proposed construction. Therefore, implementation of Alternative #2 would not disproportionately impact minority, low-income, or children residents.

4.11.2.3. No Action Alternative

Under the No Action Alternative, the proposed construction of the elementary school and high school would not occur, and the students would continue to attend their respective schools. Therefore, no impacts to regional or local socioeconomic characteristics, minority populations, low-income populations, elderly, or children would occur.

4.12. HAZARDOUS MATERIALS AND WASTE

4.12.1. METHODOLOGY

This section addresses the potential impacts caused by hazardous materials and waste management practices and the impacts of existing contaminated sites on reuse options. Hazardous materials and petroleum products, hazardous and petroleum wastes, ERP sites, solid wastes, and toxic substances are discussed in this section.

The qualitative and quantitative assessment of impacts from hazardous materials and solid waste management focuses on how and to what degree the alternatives affect hazardous materials usage and management, hazardous waste generation and management, and waste disposal. A substantial increase in the quantity or toxicity of hazardous substances used or generated would be considered potentially significant. Significant impacts could result if a substantial increase in human health risk or environmental exposure was generated at a level that cannot be mitigated to acceptable standards.

Regulatory standards and guidelines have been applied in evaluating the potential impacts that may be caused by hazardous materials and wastes. The following criteria were used to identify potential impacts:

- Generation of 1,000 kilograms (or more) of hazardous waste in a calendar month, resulting in increased regulatory requirements.
- A spill or release of a reportable quantity of a hazardous substance as defined by the USEPA in 40 CFR Part 302.
- Manufacturing, use, or storage of a compound that requires notifying the pertinent regulatory agency according to the Emergency Planning and Community Right-to-Know Act of 1986.
- Exposure of the environment or public to any toxic substances, hazardous material, and/or waste through release or disposal practices.

Impacts to solid waste are evaluated in terms of decrease in capacity or life span at receiving landfills.

A Phase I EBS was prepared in June 2014 as part of due diligence to document the environmental conditions for the transfer of the educational parcels (Little Rock AFB 2014a). The EBS was used in the analysis of this EA to assist in assessing historical activities at the subject property, as well as current environmental conditions at the subject property and surrounding areas.

4.12.2. IMPACTS

4.12.2.1. Alternative #1 (Preferred Alternative)

The Preferred Alternative includes the proposed construction of a new elementary school and the demolition of Arnold Drive Elementary School under the direction of the District. There would be no significant impacts to hazardous materials and wastes under the Preferred Alternative.

Hazardous Materials and Petroleum Products

The 2014 EBS for the educational parcels found no historical or current evidence of use or storage of hazardous substances or petroleum products within the area proposed for the new elementary school (Little Rock AFB 2014a).

Hazardous materials and petroleum products would be used and stored at the new elementary school to support art, science, health/medical, and office/maintenance/cleaning activities. Materials typically used at schools include oxidizers (bleach) and other cleaning materials, pesticides, petroleum-based inks, degreasing solvents, glues, adhesives, and oil-based paints. The storage and generation of these products would not increase substantially when compared to existing conditions as students and personnel would be transferred from previously existing schools.

Construction of the proposed new elementary school and demolition of the existing Arnold Drive Elementary School would cause short-term increases in the use and storage of hazardous materials (e.g., paint) and petroleum products (e.g., vehicle fuel). Construction and demolition would occur under the direction of the District. The contractor hired by the District would be responsible for managing these materials in accordance with federal, state, and local regulations to protect their employees from occupational exposure to hazardous materials and to protect the public health of the surrounding community. The operating location would be responsible for the safe storage and handling of hazardous materials used in conjunction with all construction and demolition activities. These materials would be delivered to the installation in compliance with the Hazardous Materials Transportation Act under 49 CFR.

Hazardous and Petroleum Wastes

There are no permitted hazardous waste streams located within the parcel proposed for the new elementary school or the area surrounding the proposed demolition of Arnold Drive Elementary School (Little Rock AFB 2014a). The proposed construction and demolition activities would cause short-term increases in the volume of hazardous and petroleum wastes generated. Wastes generated by the construction and demolition contractors are managed and removed offsite by these contractors under the direction of the District. Hazardous waste associated with the demolition of Arnold Drive Elementary School would be removed under the Little Rock AFB USEPA ID AR6571824808 and an authorized representative of Little Rock AFB would sign all manifests to ensure they are correct. The contractor would manage waste on-site in accordance with the installation *Hazardous Waste Instruction*.

Environmental Restoration Program Sites

The 2014 EBS for the educational parcels found no active ERP sites located within the area proposed for the new elementary school (Little Rock AFB 2014a). However, a former ERP site (AOC-33/AOC-8, Storm Drainage System) associated with the entire stormwater drainage system is located within the elementary school parcel along the western portion of the parcel outside the proposed construction footprint. This site is also located along the northern perimeter of Arnold Drive Elementary School. However, as discussed in detail in Section 3.12, the entire site received No Further Action Status April 9, 2008. The Human Health Risk Assessment concluded that cancer risk and non-cancer hazard estimates do not exceed risk/hazard criteria. Overall, ecological risk and toxicity at AOC-33/AOC-8 is expected to be minimal, and the weight-of-evidence indicates that ecological risk is negligible (ADEQ 2014).

Close coordination between Little Rock AFB staff, the District, and contractors would ensure that the proposed construction activities would not interfere with ongoing investigation studies or remediation activities. If any contaminated media (e.g., soil, groundwater) were encountered during the course of site preparation (e.g., clearing, grading), site development (e.g., excavation), or demolition under the Preferred Alternative, samples would be collected to determine whether the media are contaminated, and contaminated media would be segregated for off-site disposal or for on-site reuse as appropriate. The District and its contractor shall be responsible to undertake appropriate measures pursuant to federal, state and local laws to ensure its contractors and the proposed student population are not exposed to unacceptable levels of contaminated soils, groundwater, and any toxic and/or hazardous materials or wastes. Also, the District and its contractor shall establish an appropriate course of action to promptly notify the Little Rock AFB Civil Engineer's Office Project Manager, once identified, of any suspected conditions of contamination and further ensure that other required notifications to appropriate federal or state regulators are taken.

Storage Tanks and OWSs

There is no historical or current evidence of USTs or ASTs identified within the area proposed for the new elementary school or the demolition of the existing Arnold Drive Elementary School. The closest AST is approximately 1,000 feet north at the clinic located at Arnold Drive and Texas Boulevard. The closest UST is greater than 3,000 feet northwest of the proposed parcels (Little Rock AFB 2014a). Additionally, no OWSs are associated with the subject property (Little Rock AFB 2014a). Therefore, the Preferred Alternative would not result in disturbance to existing or former UST, AST, or OWS locations.

Toxic Substances

There are no known sources of ACM, LBP, or PCBs within the parcel for the proposed new elementary school (Little Rock AFB 2014a). Arnold Drive Elementary School, constructed in 1968, is the only proposed demolition associated with the PA that occurs on the installation. Any buildings on the installation constructed prior to 1980 are assumed to contain ACM, LBP, and PCBs; therefore, Arnold Drive Elementary School would be tested for these toxic substances prior to demolition. Any located ACM, LBP, or PCBs would be characterized, managed, transported, and disposed of according to applicable state and federal requirements for protecting human health, safety, and the environment. Materials, especially discarded oil products, would be screened for PCB contamination prior to disposal.

No underground structures are present within the parcel for the proposed new elementary school, and no known radon testing has been conducted to determine the presence of radon gas (Little Rock 2014a).

4.12.2.2. Alternative #2

Alternative #2 would include the construction of a new high school on Little Rock AFB property, in addition to the new elementary school under the Preferred Alternative. In addition, two new access roads would be constructed on the northwest and southeast corners of the parcel.

Hazardous Materials and Petroleum Products

There is no historical or current evidence of use or storage of hazardous substances or petroleum products within the parcel proposed for the new high school (Little Rock AFB 2014a). The existing quantities of hazardous materials and petroleum substances used throughout Little Rock AFB would not be affected by Alternative #2.

Construction of the proposed new high school and two new access roads would cause additional short-term increases in the quantities of hazardous materials (e.g., paint) and petroleum products

(e.g., vehicle fuel) used and stored on Little Rock AFB, when compared to the Preferred Alternative.

Hazardous materials and petroleum products would be used and stored at the new elementary school and high school to support art, science, health/medical, and office/maintenance/cleaning activities. Materials typically used at schools include oxidizers (bleach) and other cleaning materials, pesticides, petroleum-based inks, degreasing solvents, glues, adhesives, and oil-based paints. The storage and generation of these products would not increase substantially when compared to existing conditions as students and personnel would be transferred from previously existing schools.

Hazardous and Petroleum Wastes

There are no permitted hazardous waste streams located within the parcel proposed for the new high school (Little Rock AFB 2014a). The proposed construction of a new high school and two new access roads would cause additional short-term increases in the volume of hazardous and petroleum wastes generated, when compared to the Preferred Alternative.

Environmental Restoration Program Sites

No current ERP sites are located within the area proposed for the new high school (Little Rock AFB 2014a). However, a former ERP site (AOC-33/AOC-8) associated with the entire stormwater drainage system is located within the high school parcel along the eastern perimeter within the area of temporary disturbance. In addition, this same site is located along the western perimeter but outside of the construction footprint. As described under the Preferred Alternative, close coordination between Little Rock AFB staff, the District, and contractors would ensure that the proposed construction activities would not interfere with ongoing investigation studies or remediation activities.

Storage Tanks and Oil/Water Separators

There is no historical or current evidence of USTs or ASTs identified within the area proposed for the new high school (Little Rock AFB 2014a). Additionally, no OWSs are associated with the subject property (Little Rock AFB 2014a). Therefore, Alternative #2 would not result in disturbance to existing or former UST, AST, or OWS locations.

Toxic Substances

There are no known sources of ACM, LBP, or PCBs within the parcel for the proposed new high school (Little Rock AFB 2014a). No underground structures are present within the parcel for the

proposed new high school, and no known radon testing has been conducted to determine the presence of radon gas (Little Rock AFB 2014a).

4.12.2.3. No Action Alternative

Under the No Action Alternative, the proposed construction of the new elementary school and new high school would not occur. However, the District would continue to conduct periodic repairs to Arnold Drive Elementary School and the existing schools would continue to deteriorate. Due to the age of the existing educational facilities (constructed in 1968), potential for exposure to toxic substances like ACM, LBP, and PCBs would continue to exist in Arnold Drive Elementary School during repair activities.

4.13. OTHER NATIONAL ENVIRONMENTAL POLICY ACT CONSIDERATIONS

4.13.1. UNAVOIDABLE ADVERSE EFFECTS

Implementation of the PA/Preferred Alternative would not result in the unavoidable adverse loss of any resources.

4.13.2. RELATIONSHIP OF SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

NEPA requires analysis of the relationship between a project's short-term impacts on the environment and the effects those impacts may have on the maintenance and enhancement of the long-term productivity of the affected environment. Impacts that narrow the range of beneficial uses of the environment are of particular concern. This means that choosing one option may reduce future flexibility in pursuing other options, or that committing a resource to a certain use may eliminate the possibility for other uses of that resource.

Implementation of the PA/Preferred Alternative would not result in impacts that would reduce environmental productivity, permanently narrow the range of beneficial uses of the environment, or pose long-term risks to health, safety, or the general welfare of the public.

4.13.3. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

NEPA CEQ regulations require environmental analyses to identify any irreversible and irretrievable commitments of resources that would be involved in the PA should it be implemented (40 CFR Section 1502.16). Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects the uses of these resources have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. Building construction material such as gravel and gasoline usage for construction equipment would constitute the consumption of non-renewable resources.

The PA would not have irreversible impacts because future options for using these project locations would remain possible. The sites could be used for alternative uses in the future, ranging from natural open space to urban development. No loss of future options would occur as a result of the PA.

The primary irretrievable impacts of the PA would involve the use of energy, labor, and materials and funds. Irretrievable impacts would occur as a result of construction, facility operation, and maintenance activities. Direct losses of biological productivity and the use of natural resources from these impacts would be inconsequential.

4.14. 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.

The 19 AW, Little Rock AFB, is an active, dynamic base where operational changes and facility upgrades occur on a frequent basis. Projects that have been identified in the ROI that have the potential to act in a cumulative manner with the PA are discussed in this section. The ROI for cumulative impacts is generally limited to Little Rock AFB, and the immediately adjacent property because physical impacts related to the proposal are largely confined to these properties. Planning efforts in the ROI include the actions described within this EA, as well as those other projects that are ongoing, or planned over the short term. Additional projects within the ROI are discussed below.

4.14.1. CURRENT AND REASONABLY FORESEEABLE ACTIONS IN THE ROI

Currently on-going and other proposed activities identified within the vicinity of the PA are identified in Table 4.14-1. No other activities were identified within the ROI.

As Little Rock AFB undergoes changes in mission and training requirements in response to defense policies, current threats, and tactical and technological advances, and as such, require new construction, facility improvements, infrastructure upgrades, and ongoing maintenance and repairs on a continual basis. Although some of these known projects are a part of the analysis contained in this section, some future requirements cannot be predicted. As those requirements are identified, future NEPA analysis would be conducted, as necessary.

Table 4.14-1. Current and Reasonably Foreseeable Actions at Little Rock AFB and within the Vicinity of the Proposed Action

Project Name	*Description*
Widening of Highway 67	Approximately 2.5 miles of Highway 67 from Cabot to Vandenberg Boulevard in Jacksonville, Arkansas will be widened to six lanes. The project construction is scheduled to begin in 2019.
Roundabout	A roundabout is going to be installed at Harris Road and General Samuels.
Renovation of North Pulaski High School	Renovations of North Pulaski High School have begun and will be completed prior to the 2016/2017 school year when the District will move all of their middle school students to the current North Pulaski High School. For this same year, North Pulaski High School students will be combined with the middle school students on the existing Jacksonville High School Campus. The current Middle School (on Bamboo Lane) will then be converted to a Freshman Academy for the Pulaski County District use. Once the high school students move into the new high school, the existing North Pulaski High School will become the new middle school.
Demolition of Jacksonville Middle School	Once the middles school students transfer to the existing Jacksonville High School Campus, Jacksonville Middle School building (located on Sharp Street) would likely be demolished by the District.
Demolition of Buildings 224, 229, 667, 668, 710, 711,830, 868, 960, and 976	As part of the Installation Development Plan, these buildings were demolished due to being substandard or underutilized.
Construction of Refueling Vehicle Repair Shop	Construct refueling repair shop with necessary support facilities, shop equipment, and parking and pavements.
Construction of Airman Dormitory	Construct a 144-person multi-story dormitory with a 100-space parking lot.
Construction of C-130J Fuel Systems Maintenance Hangar	Construct a two-bay fuels maintenance hangar with pavements for parking and equipment storage, site utilities, and site improvements. Includes provision of temporary facility until hangar is completed, and movement of a pavilion and a de-icer storage facility.
Construction of Enlisted Professional Military Education Facility	Construct one-story masonry Professional Military Education facility. Includes provision of a temporary facility to house the functions during construction.
Construct C-130J Flight Simulator Addition	Construct a high-bay addition to the existing flight simulator facility (Building 1231).

4.14.1.1. Safety

Risk of a catastrophic event occurring during construction and demolition activities described under the PA or those activities described in Section 4.14.1 is considered to be low, and strict adherence to all applicable occupational safety requirements would further minimize the relatively low risk associated with described construction activities. Cumulative impacts to safety as a result of these actions would not be significant.

4.14.1.2. Air Quality

In general, combustive and fugitive dust emissions from construction activities associated with the PA, and those additional actions described in Section 4.14.1, would contribute localized, short-term, elevated air pollutant concentrations, but would not result in any long-term impacts

to the air quality of the Central Arkansas Intrastate AQCR (40 CFR 81.138). It is expected that emission increases from all projected activities would not be significant.

Greenhouse Gases

The potential effects of proposed GHG emissions are by nature global and cumulative impacts, as individual sources of GHG emissions are not large enough to have an appreciable effect on climate change. Therefore, an appreciable impact on global climate change would only occur when proposed GHG emissions combine with GHG emissions from other man-made activities on a global scale.

The *Draft Guidance on the Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in NEPA Reviews* issued by the CEQ on December 18, 2014 recommends incorporating impacts associated with climate change as part of the standard cumulative impact analysis of all NEPA documents (CEQ 2014). The draft guidance encourages agencies to determine which climate change impacts warrant consideration in their analyses based on both the PA's potential impact to climate changes and the potential impact a changing climate may have on implementation of the PA. In addition, EO 13653, *Preparing the United States for the Impacts of Climate Change*, directs federal agencies to continue to develop, implement, and update comprehensive plans that integrate consideration of climate change into agency operations and overall mission objectives.

The USEPA developed a "State of Knowledge" website following the 2007 Intergovernmental Panel on Climate Change report. The USEPA affirms that while the contribution is uncertain, human activities are substantially increasing GHG emissions, which, in turn, are contributing to a global warming trend (USEPA 2016c). The U.S. Global Change Research Program (USGCRP) is a working group coordinating the efforts of 13 different federal agencies, including the U.S. Department of Agriculture, the Department of the Interior, the DoD, and the Department of Energy. The USGCRP releases regular reports presenting the most current scientific consensus of predicted changes associated with global climate change. The 2014 National Climate Assessment report is the most recent complete report (USGCRP 2014). This report summarizes the science of climate change and the impacts of climate change on the U.S., now and in the future, and is recommended by the CEQ 2014 draft guidance as the primary source for framing climate change discussions.

Formulating such thresholds is problematic, as it is difficult to determine what level of proposed emissions would substantially contribute to global climate change. The CEQ recommends that 25,000 metric tons of CO_{2e} or more being produced by a proposed action be considered the threshold warranting a more substantial evaluation of—but not necessarily a determination of—significance of climate change impact (CEQ 2014).

Table 4.14-2 summarizes the GHG emissions associated with implementation of the Preferred Alternative and Alternative #2. Appendix B presents estimates of GHG emissions generated by the PA. In the absence of formally-adopted thresholds of significance, this EA compares GHG emissions that would occur from the PA with the 25,000 metric ton level.

Table 4.14-2. Estimated Annual GHG Emissions

Scenario/Activity	*Preferred Alternative CO_2 (CO_2e)*	*Alternative #2 CO_2 (CO_2e)*
Estimated Annual Emissions	624	2,527
Draft NEPA Comparative Threshold for Annual Emissions[(a)]	25,000	25,000

Notes: CO_2 = carbon dioxide; CO_2e = carbon dioxide equivalent; NEPA = National Environmental Policy Act
Source: [(a)]CEQ 2014.

4.14.1.3. Noise

The long-term acoustic environment at Little Rock AFB and surrounding communities would not be expected to be influenced by the short-term construction activities described under the PA or those activities described in Section 4.14.1, and would continue to be dominated by aviation activities. Cumulative impacts from noise as a result of these actions would not be significant.

4.14.1.4. Land Use

In general, land uses at Little Rock AFB would not be adversely affected by the activities described under the PA or Section 4.14.1. The location and function of the proposed structures and improvements are generally compatible with the surrounding area. As the proposed structures and improvements would not be incongruent with the surrounding buildings or land uses, cumulative impacts to land use would not be significant.

4.14.1.5. Earth Resources

In addition to the 5.96 acres of increased impervious surface that would result from implementation of the PA described in this EA, additional surface area could be disturbed in the vicinity over the next several years as a result of the projects described above. Soil erosion or the introduction of suspended solids into waterways as a result of the Preferred Alternative could contribute to degradation of water quality. As this alternative would disturb at least 1 acre of soil, the contractor would be required to comply with the NPDES Construction General Permit. As part of the permit application, the contractor would prepare a SWPPP containing BMPs that would be implemented to prevent, or minimize the potential for, sedimentation and erosion. Other development projects in the area that disturb more than 1 acre of soil would also be required to develop SWPPPs. Thus, BMPs would keep sediment and suspended solids from entering the waterways and ensure that effects on water quality during construction would not be

adverse. Given the use of engineering practices that would minimize potential erosion, cumulative impacts to earth resources would not be significant.

4.14.1.6. Water Resources

In addition to the 5.96 acres of increased impervious surface that would result from implementation of the PA, additional land surface could be disturbed and converted to impervious surface over the next several years as a result of the projects described in Section 4.14.1 and Table 4.14-1. With implementation of the SWPPP and corresponding erosion control measures, construction of the Preferred Alternative would not result in adverse water quality impacts resulting from construction-related erosion and sediment pollution. Other development projects in the area that disturb more than 1 acre of soil would also be required to develop SWPPPs to prevent adverse water quality impacts. Therefore, construction of multiple projects in the area would not result in cumulative impacts on water quality. In addition, although the project would result in 5.96 acres of increased impervious surface, in accordance with UFC 3-210-10 (as amended 2015), pre-development site hydrology must be maintained or restored to the maximum extent technically feasible. Construction of multiple projects in the area would also be required to comply with UFC 3-210-10 (and/or similar detention requirements by the State of Arkansas for those projects without a federal nexus), thus resulting in minimal changes to stormwater runoff, which would not cumulatively impact downstream flooding. Similarly, groundwater recharge would be minimally affected with UFC 3-210-10 compliance; thus, there would be no cumulative impacts on groundwater recharge. Therefore, cumulative impacts to water resources would not be significant.

Although there are no floodplains directly within the construction footprint for the Preferred Alternative, there are 3 floodplain areas located within the parcel to be leased located along the southern boundary. Although the floodplain areas are not within the area proposed for disturbance, potential temporary minor, indirect, adverse impacts could occur as a result of changes to construction-related overland flow not appropriately mitigated by BMPs and by the close proximity of the floodplains to the proposed construction. Construction of multiple projects in the area concurrently building near neighboring floodplains could result in temporary, indirect adverse impacts; however, other development projects would also be required to reduce floodplain impacts to the maximum extent possible through project design and implementation of environmental protection measures similar to the Preferred Alternative. These measures could include flagging the floodplain boundary, installing silt fencing, establishing a floodplain buffer, and following policies and procedures as detailed in erosion and sediment control plans; SWPPPs; and Spill Prevention, Control, and Countermeasures Plans. As no physical structures are proposed for construction within the floodplain, long-term adverse cumulative effects on floodplains are anticipated to be negligible to minor.

4.14.1.7. Biological Resources

Impacts from the Preferred Alternative on threatened and endangered and special status species would not be significant. Impacts to additional habitat and noise disturbance over the next several years as a result of the construction and demolition projects described in Section 4.14.1 are not expected to be significant as they are located within highly urbanized areas that have been previously disturbed. Cumulative impacts to biological resources would not be significant.

4.14.1.8. Infrastructure

Transportation/Traffic

In general, cumulative impacts to transportation/traffic infrastructure as a result of described activities are expected to be positive over the long term. Specifically, the widening of Highway 67 would reduce delays and queues on these facilities, and the increase of capacity may cause existing trips to be redistributed from parallel routes to these expanded highways. This would in turn reduce congestion on parallel routes. Also, the construction of a roundabout at the General Samuels Road/Harris Road intersection would reduce delay at this location, particularly for eastbound and westbound left turns. As shown in Tables 3.9-2 and 3.9-3, all street segments are characterized by acceptable LOS C or better conditions, including new and redistributed traffic associated with the PA. Therefore, the PA would not contribute toward any significant cumulative transportation/traffic effect.

Utilities

Building space and facilities to be constructed as a component of this action as well as those identified in Table 4.14-1 would require additional electricity. In addition, wastewater, solid waste, demand for potable water, and traffic would temporarily increase during construction, and would increase slightly in the long-term due to increase in students and associated personnel. The proposed construction and demolition activities could temporarily affect the quality of stormwater runoff through potential increases in soil erosion. BMPs would be implemented during construction and demolition to minimize runoff. Any new facilities and additions associated with these projects would be implemented with more energy efficient design standards and utility systems than are currently in place. In addition, construction projects would incorporate Leadership in Energy and Environmental Design and sustainable development concepts to achieve optimum resource efficiency, sustainability, and energy conservation. In general, cumulative impacts to installation infrastructure as a result of described activities would be expected to be positive over the long term.

4.14.1.9. Cultural Resources

Cumulative impacts to cultural resources are not expected as a result of all planned activities at Little Rock AFB. Compliance with Section 106 of the NHPA, that includes SHPO and Native American consultations and requests to identify any known archaeological resources or items of cultural or religious significance to the Tribes, will be accomplished prior to implementation of any of the development actions described under the PA or in Section 4.14.1 and Table 4.14-1. In the event of any inadvertent discovery of human remains, and/or artifacts, or other historic cultural resources during construction, work would be halted at that specific location and the area would be secured. The Little Rock AFB Cultural Resources Manager should be immediately notified of such discoveries to include all other appropriate notifications, and, the discovered items or resources would be handled and managed in compliance with federal laws, and applicable DoD and/or Air Force regulations and policies or instructions. As stated in 3.10.2.2, the Cultural Resources Manager has established routine and informal working relationships with three of the four Tribal Historic Preservation Officers. Little Rock AFB has engaged in efforts to establish a cooperative working relationship with the Tribal Historic Preservation Officer of the Tunica-Biloxi Indians of Louisiana. After further outreach, the Tribal Historic Preservation Officer has not expressed any interest in this proposed action. The Osage Nation, Caddo Nation, and Quapaw Tribe have all requested informal discussion by telephone, electronic submission, or letter and the Caddo Nation stated it preferred electronic submission of the Draft EA during the 30-day comment period. Little Rock AFB will mail a hard-copy of the draft EA to the Tribal Historic Preservation Officer of the Tunica-Biloxi Indians of Louisiana. Finally, the Little Rock AFB Cultural Resources Manager will continue to contact the Tribal Historic Preservation Officer on related cultural resource issues unless the Tribe designates a different point of contact or consultation process.

4.14.1.10. Socioeconomics and Environmental Justice

Economic activity associated with proposed construction activities at Little Rock AFB would provide short-term economic benefits to the local economy. However, short-term beneficial impacts would be negligible on a regional scale. Because no significant adverse impacts are anticipated, there would be no adverse cumulative impact to minority or low-income populations. There are no known cumulative environmental health or safety risks associated with these activities that may disproportionately affect children.

4.14.1.11. Hazardous Materials and Waste

It is expected that short-term increases would be realized in terms of the quantity of fuel stored and used during construction and demolition activities for this action as well as those listed in Table 4.14-1. Due to the age of the existing educational facilities listed in Table 4.14-1, potential

for exposure to toxic substances like ACM, LBP, and PCBs would continue to exist during repair and demolition activities. Cumulative impacts as a result of hazardous materials and wastes would not be significant.

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APPENDIX A
INTERAGENCY COORDINATION

INTERAGENCY COORDINATION

U.S. Army Corps of Engineers
Little Rock District
700 W Capitol
Little Rock, AR 72201

U.S. Fish and Wildlife Service
Ecological Services Field Office
110 S Amity, Ste 300
Conway, AR 72032-8975
Telephone: (501) 513-4470

Ms. Becky Keogh, Director
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118-5317
Telephone: (501) 682-0744

Mr. Michael Sullivan
Natural Resources Conservation Service
Room 3416, Federal Building
700 W Capitol Ave
North Little Rock, AR 72201-3225
Telephone: (501) 301-3100

U.S. Environmental Protection Agency
Region 6
Compliance Assurance and Enforcement Division
Office of Planning and Coordination (6EN-XP)
1445 Ross Avenue, Suite 1200
Dallas, TX 75202
Telephone: (800) 887-6063

Ms. Stacy Hurst
State Historic Preservation Officer
State Historic Preservation Office
323 Center Street, Ste 1500
Little Rock, AR 72201

Arkansas Game and Fish Commission
2 Natural Resources Dr
Little Rock, AR 72205
Telephone: (501) 223-6300

Arkansas Natural Resources Commission
101 E Capitol, Ste 350
Little Rock, AR 72201
Telephone: (501) 682-1611

Arkansas State Highway and Transportation Department
10324 Interstate 30
Little Rock, AR 72209
Telephone: (501) 569-2000

Arkansas State Plant Board
1 Natural Resource Dr
Little Rock, AR 72205
Telephone: (501) 225-1598

Department of Planning and Development
723 W Markham St
Little Rock, AR 72201
Telephone: (501) 371-4790

Pulaski County Planning and Development
3200 Brown St
Little Rock, AR 72204
Telephone: (501) 340-8260

Ms. Tracy Copeland, Manager
Arkansas Department of Finance and Administration
Office of Intergovernmental Services
State Clearinghouse Section
Room 412, 1515 Building
1515 W Seventh St
Little Rock, AR 72201
Telephone: (501) 682-1074

*Mr. John L. Berrey, Tribal Chairman
Mr. Everett Bandy, Tribal Historic
Preservation Officer
Quapaw Tribe of Oklahoma
P.O. Box 765
Quapaw, OK 74363
Telephone: (918) 542-1853

*Ms. Tamara Francis-Fourkiller, Chairman
Tribal Historic Preservation Officer
Caddo Indian Tribe of Oklahoma
P.O. Box 487
Binger, OK 73009
Telephone: (405) 656-2344

*Mr. Joey Barbry, Chairman
Tunica-Biloxi Indians of Louisiana, Inc.
Mr. Earl Barbry, Jr., Tribal Historic
Preservation Officer
P.O. Box 1589
Marksville, Louisiana 71351
Telephone: (318) 253-9767

*Geoffrey Standing Bear, Principal Chief
Dr. Andrea Hunter, Tribal Historic
Preservation Office
Osage Nation
627 Grandview
Pawhuska, OK 74056
Telephone: (918) 287-5555

**Note:* Per instructions from Ron Love, the Base will manage all correspondence with the tribes and that correspondence will be included in the Project Record.

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 19TH AIRLIFT WING (AMC)
LITTLE ROCK AIR FORCE BASE, ARKANSAS

NOV 20 2015

Colonel Charles E. Brown Jr., USAF
Commander, 19th Airlift Wing
1250 Thomas Avenue, Suite 106
Little Rock Air Force Base AR 72099-4940

The Honorable Tamara Francis-Fourkiller
Chairman, Caddo Indian Tribe of Oklahoma
P.O. Box 487
Binger OK 73009-0487

Dear Chairman Francis-Fourkiller

I am the new Installation Commander at Little Rock Air Force Base, Arkansas. I understand your tribe is affiliated with the lands operated by Little Rock Air Force Base. Please accept this letter to continue our government-to-government relationship and consultation regarding any traditional heritage concerns your tribe may have with Little Rock Air Force Base controlled lands or federal government activity. I extend an invitation to you and your traditional heritage staff for a mission brief or to visit the base at your convenience for open discussion of any concerns or issues. Also, we will be sending letters to the Osage, Quapaw and Tunica-Biloxi tribes. If you know of any other tribes that are affiliated with the base please let us know.

Mr. James Popham had established a working relationship with your previous Tribal Historic Preservation Officer, Mr. Robert Cast. I understand you are presently serving as the current Tribal Historic Preservation Officer. Mr. Popham will continue to contact your office when dealing with related cultural resources issues unless you designate a different point of contact.

Thank you for your assistance. I look forward to hearing from you. Please feel free to contact me at (501) 987-1901 if you or your staff have any concerns.

Sincerely

CHARLES E. BROWN JR., Colonel, USAF
Commander

60 YEARS OF AIR POWER PARTNERS
Mission – Airmen – Partners

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 19TH AIRLIFT WING (AMC)
LITTLE ROCK AIR FORCE BASE, ARKANSAS

NOV 20 2015

Colonel Charles E. Brown Jr., USAF
Commander, 19th Airlift Wing
1250 Thomas Avenue, Suite 106
Little Rock Air Force Base AR 72099-4940

The Honorable Geoffrey Standing Bear
Principal Chief, Osage Nation
627 Grandview
Pawhuska OK 74056-4201

Dear Principal Chief Standing Bear

I am the new Installation Commander at Little Rock Air Force Base, Arkansas. I understand your tribe is affiliated with the lands operated by Little Rock Air Force Base. Please accept this letter to continue our government-to-government relationship and consultation regarding any traditional heritage concerns your tribe may have with Little Rock Air Force Base controlled lands or federal government activity. I extend an invitation to you and your traditional heritage staff for a mission brief or to visit the base at your convenience for open discussion of any concerns or issues. Also, we will be sending letters to the Caddo, Quapaw and Tunica-Biloxi tribes. If you know of any other tribes that are affiliated with the base please let us know.

Mr. James Popham has established a working relationship with your Tribal Historic Preservation Officer, Dr. Hunter. He will continue to contact her office when dealing with related cultural resources issues unless you designate a different point of contact.

Thank you for your assistance. I look forward to hearing from you. Please feel free to contact me at (501) 987-1901 if you or your staff have any concerns.

Sincerely

CHARLES E. BROWN JR., Colonel, USAF
Commander

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 19TH AIRLIFT WING (AMC)
LITTLE ROCK AIR FORCE BASE, ARKANSAS

NOV 2 0 2015

Colonel Charles E. Brown Jr., USAF
Commander, 19th Airlift Wing
1250 Thomas Avenue, Suite 106
Little Rock Air Force Base AR 72099-4940

The Honorable John Berrey
Chairman, Quapaw Tribe of Oklahoma
P.O. Box 765
Quapaw OK 74363-0765

Dear Chairman Berrey

I am the new Installation Commander at Little Rock Air Force Base, Arkansas. I understand your tribe is affiliated with the lands operated by Little Rock Air Force Base. Please accept this letter to continue our government-to-government relationship and consultation regarding any traditional heritage concerns your tribe may have with Little Rock Air Force Base controlled lands or federal government activity. I extend an invitation to you and your traditional heritage staff for a mission brief or to visit the base at your convenience for open discussion of any concerns or issues. Also, we will be sending letters to the Caddo, Osage and Tunica-Biloxi tribes. If you know of any other tribes that are affiliated with the base please let us know.

Mr. James Popham has established a working relationship with your Tribal Historic Preservation Officer, Mr. Everett Bandy. He will continue to contact his office when dealing with related cultural resources issues unless you designate a different point of contact.

Thank you for your assistance. I look forward to hearing from you. Please feel free to contact me at (501) 987-1901 if you or your staff have any concerns.

Sincerely

CHARLES E. BROWN JR., Colonel, USAF
Commander

60 YEARS OF AIR POWER PARTNERS
Mission – Airmen – Partners

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 19TH AIRLIFT WING (AMC)
LITTLE ROCK AIR FORCE BASE, ARKANSAS

NOV 2 0 2015

Colonel Charles E. Brown Jr., USAF
Commander, 19th Airlift Wing
1250 Thomas Avenue, Suite 106
Little Rock Air Force Base AR 72099-4940

The Honorable Joey Barbry
Chairman, Tunica-Biloxi Indians of Louisiana, Inc.
P.O. Box 1589
Marksville LA 71351-1589

Dear Chairman Barbry

I am the new Installation Commander at Little Rock Air Force Base, Arkansas. I understand your tribe is affiliated with the lands operated by Little Rock Air Force Base. Please accept this letter to continue our government-to-government relationship and consultation regarding any traditional heritage concerns your tribe may have with Little Rock Air Force Base controlled lands or federal government activity. I extend an invitation to you and your traditional heritage staff for a mission brief or to visit the base at your convenience for open discussion of any concerns or issues. Also, we will be sending letters to the Caddo, Osage and Quapaw tribes. If you know of any other tribes that are affiliated with the base please let us know.

Mr. James Popham has attempted to establish a working relationship with your Tribal Historic Preservation Officer, Mr. Earl Barbry, Jr, over the last four years without success. He will continue to contact his office when dealing with related cultural resources issues unless you designate a different point of contact.

Thank you for your assistance. I look forward to hearing from you. Please feel free to contact me at (501) 987-1901 if you or your staff have any concerns.

Sincerely

CHARLES E. BROWN JR., Colonel, USAF
Commander

60 YEARS OF AIR POWER PARTNERS
Mission – Airmen – Partners

From: POPHAM, JAMES T GS-11 USAF AMC 19 CES/CEIEC
To: Kimpenrod@yahoo.com
Subject: Jacksonville North Pulaski School District EA
Date: Friday, June 24, 2016 12:02:34 PM

Is the Caddo Tribe interested in reviewing our upcoming environmental assessment (EA) for leasing USAF property to the Jacksonville North Pulaski School District to create an educational campus for both military dependent and civilian students in the community?

Little Rock AFB proposes to lease property (approximately 103 acres) to the School District to construct an educational campus to be used by both school age children of military members on or off the installation and the civilian community. This proposal would provide updated educational facilities for students within the District. These facilities would be optimally located so that travel distance for many school age children would be minimized.

Please let me know if you're interested in reviewing this document. If so, would you like an electronic copy or hard copy?

Thank you,

James Popham
Natural Resources Manager
(501) 987-3681 DSN 731-3681

From: POPHAM, JAMES T GS-11 USAF AMC 19 CES/CEIEC
To: ahunter@osagenation-nsn.gov
Subject: Jacksonville North Pulaski School District EA
Date: Friday, June 24, 2016 12:02:11 PM

Is the Osage Nation interested in reviewing our upcoming environmental assessment (EA) for leasing USAF property to the Jacksonville North Pulaski School District to create an educational campus for both military dependent and civilian students in the community?

Little Rock AFB proposes to lease property (approximately 103 acres) to the School District to construct an educational campus to be used by both school age children of military members on or off the installation and the civilian community. This proposal would provide updated educational facilities for students within the District. These facilities would be optimally located so that travel distance for many school age children would be minimized.

Please let me know if you're interested in reviewing this document. If so, would you like an electronic copy or hard copy?

Thank you,

James Popham
Natural Resources Manager
(501) 987-3681 DSN 731-3681

From: POPHAM, JAMES T GS-11 USAF AMC 19 CES/CEIEC
To: ebandy@quapawtribe.com
Subject: Jacksonville North Pulaski School District EA
Date: Friday, June 24, 2016 11:52:24 AM

Is the Quapaw Tribe interested in reviewing our upcoming environmental assessment (EA) for leasing USAF property to the Jacksonville North Pulaski School District to create an educational campus for both military dependent and civilian students in the community?

Little Rock AFB proposes to lease property (approximately 103 acres) to the School District to construct an educational campus to be used by both school age children of military members on or off the installation and the civilian community. This proposal would provide updated educational facilities for students within the District. These facilities would be optimally located so that travel distance for many school age children would be minimized.

Please let me know if you're interested in reviewing this document. If so, would you like an electronic copy or hard copy?

Thank you,

James Popham
Natural Resources Manager
(501) 987-3681 DSN 731-3681

From: POPHAM, JAMES T GS-11 USAF AMC 19 CES/CEIEC
To: ejbarbry@tunica.org
Subject: Jacksonville North Pulaski School District EA
Date: Friday, June 24, 2016 10:15:59 AM

Is the Tunica-Biloxi Tribe interested in reviewing our upcoming environmental assessment (EA) for leasing USAF property to the Jacksonville North Pulaski School District to create an educational campus for both military dependent and civilian students in the community?

Little Rock AFB proposes to lease property (approximately 103 acres) to the School District to construct an educational campus to be used by both school age children of military members on or off the installation and the civilian community. This proposal would provide updated educational facilities for students within the District. These facilities would be optimally located so that travel distance for many school age children would be minimized.

Please let me know if you're interested in reviewing this document. If so, would you like an electronic copy or hard copy?

Thank you,

James Popham
Natural Resources Manager
(501) 987-3681 DSN 731-3681

Caddo Nation of Oklahoma

Post Office Box 487 • Binger, Oklahoma 73009 • 405-656-2344 • 405-656-2345 • Fax 405-656-2892

July 7, 2016

Ron Love
Chief, Environmental Compliance
Little Rock Air Force Base
Little Rock, Arkansas

Ron,

We appreciate the recent correspondence related to the concerns from your legal office. Please be assured we have and will continue to exercise a strict close working relationship from beginning to end of all projects between our two agencies.

The THPO with the Caddo Nation of Oklahoma consults with county, state and federal agencies whenever proposed projects or activities fall within the numerous areas of interest including traditional ancestral territory and historic areas. The purpose of consultations is to ensure that the proposed projects/activities will not negatively affect cultural resources, archaeological sites, sacred sites, traditional cultural properties, or other areas of significance to the Tribe. The THPO reviews all requests for consultation pursuant to Section 106 of the National Historic Preservation Act (NHPA) and reviews all Schedules of Proposed Actions (SOPA) from various agencies. We ensure that this begins as early in the process as possible. We request electronic copies when possible for activities that only have ground disturbance.

The agencies our THPO consults with on a regular basis include but are not limited to the following: the United States Departments of the Interior, Bureau of Land Management, Agriculture, Fish & Wildlife, all branches of military installations, numerous National Parks, and State agencies. Consultation with other Tribal governments is an essential part of our traditional ways as well. Those local Tribes included the Osage, Quapaw, Wichita, Delaware, Apache, Comanche, Kiowa, Choctaw, Chickasaw, and other Tribes and Tribal groups/organizations throughout the country.

The Caddo Nation of Oklahoma is currently in the process of rebuilding the Historic Preservation Office. We have a staff of two that provide assistance, input and advice on Section 106 Consultation, historic preservation consultations, construction projects, participate in cultural affairs and gatherings, attend trainings, and other duties as assigned. We also work closely with NAGPRA, our EPA department and Our Caddo Nation Tribal Council. The protection of our tribal cultural resources and tribal trust resources takes all of us working together. As with any new project, we never know what may come to light until work begins and we ask that you keep us up to date on the progress of this project and others. If discoveries arise, please contact us immediately.

I hope this letter clarifies the positive government-to-government relationship we have built. If there are, any additional, questions or concerns please feel free to contact me at any time.

Respectfully,

Kim Penrod
Cultural Preservation Director
Caddo Nation Museum, Library and Archives
NAGPRA Coordinator
THPO
Caddo Nation of Oklahoma
P.O. Box 487
Binger, OK 73009
405-656-2344 wk
405-924-9485 cell
kimpenrod@yahoo.com
kim.penrod@gmail.com
kpenrod@cadddonatio.org

7/7/2014

Tamara Francis-Fourkiller
Tribal Chairman
Caddo Nation of Oklahoma
P.O. Box 487
Binger, OK 73009
405-656-2344
tffourkiller@caddonation.org

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 19TH AIRLIFT WING (AMC)
LITTLE ROCK AIR FORCE BASE, ARKANSAS

Colonel Charles E. Brown Jr., USAF
Commander, 19th Airlift Wing
1250 Thomas Avenue, Suite 106
Little Rock Air Force Base AR 72099-4940

The Honorable Tamara Francis-Fourkiller
Chairman, Caddo Nation
P.O. Box 487
Binger, OK 73009-0487

Dear Chairman Francis-Fourkiller,

Thank you for your letter dated July 7, 2016. This letter is not intended to alter or change our existing informal arrangement regarding Government-to-Government consultation. Instead, it is intended to document what we have in place to ensure we are meeting all of the Caddo Nation's expectations regarding such consultation. The United States Air Force (Air Force) is in the process of preparing an Environmental Assessment (EA) at Little Rock Air Force Base (LRAFB). As the Installation Commander, I understand your tribe is affiliated with the lands operated by this military facility. Please accept this letter to confirm our existing government-to-government relationship and informal consultation process regarding any traditional heritage concerns your tribe may have with Little Rock Air Force Base controlled lands or federal government activities.

The proposed action involves leasing property to the Jacksonville North Pulaski School District. To ensure we both achieve our goal, we will request input (comments, concerns, and suggestions) from your acting Tribal Historic Preservation Officer (THPO), as we have in the past. This procedure is in accordance with Executive Order 13175 and Section 106 of the National Historic Preservation Act (NHPA) (36 CFR Sections 800.2, 800.3, and 800.4), Under these authorities, the Air Force desires to consult and discuss with you on details of the proposed action triggering our preparation of an EA. We want to consider any comments, concerns and suggestions you may have. While our informal relationship (explained in greater detail below) has worked very well over many years we want to acknowledge this on-going working relationship in writing at this time. However, please also know that if you would like to meet with me and base personnel to discuss this current proposed action and the EA in question such a meeting can be arranged at a time and date mutually convenient to our schedules. My point of contact (POC) to arrange such a meeting is the Cultural Resources Manager (CRM), Mr. James Popham, at (501) 987-3681, or, by email at james.popham@us.af.mil.

It is my present understanding that the CRM, Mr. James Popham, has already established a good working relationship with your acting THPO, Ms. Kimberly Penrod, in bringing to your attention the varied proposed actions that occur on this facility and specifically the action that relates to the current EA being prepared. Ms. Penrod has advised Mr. Popham that he contact her by e-mail messages when LRAFB engages in actions that will involve new ground disturbances necessitating preparation of an EA. Further, Ms. Penrod prefers to be contacted (electronic submission of Draft EA) upon official publication of the Draft EA where public comment is being requested during a 30-day comment period. Given that applicable regulations and Air Force policies requires LRAFB to engage in early outreach to recognized Native American Tribes, I have directed our CRM to contact the THPO, even though informally, prior to official release of the Draft EA. However, please know there is not any requirement for the THPO to

Combat Airlift… Anywhere, Anytime!

respond to this early outreach and the THPO still has the opportunity to submit any concerns or comments during the 30-day comment period preferred.

Finally, it my understanding that the Caddo Nation and the designated THPO, Ms. Penrod, do not desire to engage in a formal consultation process with LRAFB and the particular proposed action in question. However, please be aware that the invitation to enter into such formal consultations is available and open if that need ever arises. Additionally, if you desire to engage in informal discussions by telephone, electronically (e-mail messages) or by letter, please advise me or the CRM, Mr. Popham, as I presented earlier in this letter. I will also ask Mr. Popham to reach out to Ms. Penrod after your receipt of this letter to confirm receipt and address any questions.

I appreciate your efforts in assisting LRAFB fulfill its requirements under NHPA laws, Executive Orders and Air Force policies and I look forward to our continuing cooperation and relationship in the years to come. Our goal is to ensure that we are honoring the Caddo Nation's desires regarding Air Force outreach and consultation processes whether accomplished formally or informally.

Sincerely

CHARLES E. BROWN JR., Colonel, USAF
Commander

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 19TH AIRLIFT WING (AMC)
LITTLE ROCK AIR FORCE BASE, ARKANSAS

Colonel Charles E. Brown Jr., USAF
Commander, 19th Airlift Wing
1250 Thomas Avenue, Suite 106
Little Rock Air Force Base AR 72099-4940

The Honorable Geoffrey Standing Bear
Principal Chief, Osage Nation
627 Grandview
Pawhuska, OK 74056-4201

Dear Chief Standing Bear,

Thank you for Dr. Andrea Hunter's e-mail dated 24 Jun 2016. This letter is not intended to alter or change our existing informal arrangement regarding Government-to-Government consultation. Instead, it is intended to document what we have in place to ensure we are meeting all of the Osage Nation's expectations regarding such consultation. The United States Air Force (Air Force) is in the process of preparing an Environmental Assessment (EA) at Little Rock Air Force Base (LRAFB). As the Installation Commander, I understand your tribe is affiliated with the lands operated by this military facility. Please accept this letter to confirm our existing government-to-government relationship and informal consultation process regarding any traditional heritage concerns your tribe may have with Little Rock Air Force Base controlled lands or federal government activities.

The proposed action involves leasing property to the Jacksonville North Pulaski School District. To ensure we both achieve our goal, we will request input (comments, concerns, and suggestions) from your acting Tribal Historic Preservation Officer (THPO), as we have in the past. This procedure is in accordance with Executive Order 13175 and Section 106 of the National Historic Preservation Act (NHPA) (36 CFR Sections 800.2, 800.3, and 800.4), Under these authorities, the Air Force desires to consult and discuss with you on details of the proposed action triggering our preparation of an EA. We want to consider any comments, concerns and suggestions you may have. While our informal relationship (explained in greater detail below) has worked very well over many years we want to acknowledge this on-going working relationship in writing at this time. However, please also know that if you would like to meet with me and base personnel to discuss this current proposed action and the EA in question such a meeting can be arranged at a time and date mutually convenient to our schedules. My point of contact (POC) to arrange such a meeting is the Cultural Resources Manager (CRM), Mr. James Popham, at (501) 987-3681, or, by email at james.popham@us.af.mil.

It is my present understanding that the CRM, Mr. James Popham, has already established a good working relationship with your THPO, Dr. Andrea Hunter, in bringing to your attention the varied proposed actions that occur on this facility and specifically the action that relates to the current EA being prepared. Dr. Hunter has advised Mr. Popham, in the past, that he send her electronic and hard copies of documents when LRAFB engages in actions that require an EA. After official publication of the Draft EA, Dr. Hunter prefers to receive both an electronic copy and hard-copy of the Draft EA during the 30-day public comment period. Given that applicable regulations and Air Force policies requires LRAFB to engage in early outreach to recognized Native American Tribes, I have directed our CRM to contact the THPO, even though informally, prior to official release of the Draft EA. However, please know there is

Combat Airlift… Anywhere, Anytime!

not any requirement for the THPO to respond to this early outreach and the THPO still has the opportunity to submit any concerns or comments during the 30-day comment period preferred.

Finally, it my understanding that the Osage Nation and the designated THPO, Dr. Hunter, do not desire to engage in a formal consultation process with LRAFB and the particular proposed action in question. However, please be aware that the invitation to enter into such formal consultations is available and open if that need ever arises. Additionally, if you desire to engage in informal discussions by telephone, electronically (e-mail messages) or by letter, please advise me or the CRM, Mr. Popham, as I presented earlier in this letter. I will also ask Mr. Popham to reach out to Dr. Hunter after your receipt of this letter to confirm receipt and address any questions.

I appreciate your efforts in assisting LRAFB fulfill its requirements under NHPA laws, Executive Orders and Air Force policies and I look forward to our continuing cooperation and relationship in the years to come. Our goal is to ensure that we are honoring the Osage Nation's desires regarding Air Force outreach and consultation processes whether accomplished formally or informally.

Sincerely

CHARLES E. BROWN JR., Colonel, USAF
Commander

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 19TH AIRLIFT WING (AMC)
LITTLE ROCK AIR FORCE BASE, ARKANSAS

Colonel Charles E. Brown Jr., USAF
Commander, 19th Airlift Wing
1250 Thomas Avenue, Suite 106
Little Rock Air Force Base AR 72099-4940

The Honorable John Berrey
Chairman, Quapaw Tribe of Oklahoma
P.O. Box 765
Quapaw, OK 74363-0765

Dear Chairman Berrey,

This letter is not intended to alter or change our existing informal arrangement regarding Government-to-Government consultation. Instead, it is intended to document what we have in place to ensure we are meeting all of the Quapaw Tribe's expectations regarding such consultation. The United States Air Force (Air Force) is in the process of preparing an Environmental Assessment (EA) at Little Rock Air Force Base (LRAFB). As the Installation Commander, I understand your tribe is affiliated with the lands operated by this military facility. Please accept this letter to confirm our existing government-to-government relationship and informal consultation process regarding any traditional heritage concerns your tribe may have with Little Rock Air Force Base controlled lands or federal government activities.

The proposed action involves leasing property to the Jacksonville North Pulaski School District. To ensure we both achieve our goal, we will request input (comments, concerns, and suggestions) from your Tribal Historic Preservation Officer (THPO), as we have in the past. This procedure is in accordance with Executive Order 13175 and Section 106 of the National Historic Preservation Act (NHPA) (36 CFR Sections 800.2, 800.3, and 800.4), Under these authorities, the Air Force desires to consult and discuss with you on details of the proposed action triggering our preparation of an EA. We want to consider any comments, concerns and suggestions you may have. While our informal relationship (explained in greater detail below) has worked very well over many years we want to acknowledge this on-going working relationship in writing at this time. However, please also know that if you would like to meet with me and base personnel to discuss this current proposed action and the EA in question such a meeting can be arranged at a time and date mutually convenient to our schedules. My point of contact (POC) to arrange such a meeting is the Cultural Resources Manager (CRM), Mr. James Popham, at (501) 987-3681, or, by email at james.popham@us.af.mil.

It is my present understanding that the CRM, Mr. James Popham, has already established a good working relationship with your THPO, Everett Bandy, in bringing to your attention the varied proposed actions that occur on this facility and specifically the action that relates to the current EA being prepared. Mr. Bandy has advised Mr. Popham, in the past, that he send him electronic copies of documents and contact him by e-mail when LRAFB engages in actions that require preparation of an EA involving ground disturbance. Given that applicable regulations and Air Force policies requires LRAFB to engage in early outreach to federally recognized Native American Tribes, I have directed our CRM to contact the THPO, even though informally, prior to official release of the Draft EA. However, please know there is not any requirement for the THPO to respond to this early outreach and the THPO still has the opportunity to submit any concerns or comments during the 30-day comment period preferred.

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Finally, it is my understanding that the Quapaw Tribe and the designated THPO, Mr. Bandy, do not desire to engage in a formal consultation process with LRAFB and the particular proposed action in question. However, please be aware that the invitation to enter into such formal consultations is available and open if that need ever arises. Additionally, if you desire to engage in informal discussions by telephone, electronically (e-mail messages) or by letter, please advise me or the CRM, Mr. Popham, as I presented earlier in this letter. I will also ask Mr. Popham to reach out to Mr. Bandy after your receipt of this letter to confirm receipt and address any questions.

I appreciate your efforts in assisting LRAFB fulfill its requirements under NHPA laws, Executive Orders and Air Force policies and I look forward to our continuing cooperation and relationship in the years to come. Our goal is to ensure that we are honoring the Quapaw Tribe's desires regarding Air Force outreach and consultation processes whether accomplished formally or informally.

Sincerely

CHARLES E. BROWN JR., Colonel, USAF
Commander

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 19TH AIRLIFT WING (AMC)
LITTLE ROCK AIR FORCE BASE, ARKANSAS

Colonel Charles E. Brown Jr., USAF
Commander, 19th Airlift Wing
1250 Thomas Avenue, Suite 106
Little Rock Air Force Base AR 72099-4940

The Honorable Joey Barbry
Chairman, Tunica-Biloxi Indians of Louisiana
P.O. Box 1589
Marksville, LA 71351-1589

Dear Chairman Barbry,

The purpose of this letter is to establish and document an informal arrangement regarding Government-to-Government consultation. My goal is to ensure we are meeting all of the Tunica-Biloxi Tribe's expectations regarding such consultation. The United States Air Force (Air Force) is in the process of preparing an Environmental Assessment (EA) at Little Rock Air Force Base (LRAFB). As the Installation Commander, I understand your tribe is affiliated with the lands operated by this military facility.

The proposed action involves leasing property to the Jacksonville North Pulaski School District. To ensure we both achieve our goal, we will request input (comments, concerns, and suggestions) from your Tribal Historic Preservation Officer (THPO), as we have in the past. This procedure is in accordance with Executive Order 13175 and Section 106 of the National Historic Preservation Act (NHPA) (36 CFR Sections 800.2, 800.3, and 800.4). Under these authorities, the Air Force desires to consult and discuss with you on details of the proposed action triggering our preparation of an EA. We want to consider any comments, concerns and suggestions you may have. We have attempted to establish a cooperative relationship (explained in greater detail below) over many years. We would like to establish an informal working relationship between your THPO and our Cultural Resources Manager (CRM) as we have accomplished with other affiliated tribes. However, please also know that if you would like to formally meet with me and base personnel to discuss this current proposed action and the EA in question such a meeting can be arranged at a time and date mutually convenient to our schedules. My point of contact (POC) to arrange such a meeting is the CRM, Mr. James Popham, at (501) 987-3681, or, by email at james.popham@us.af.mil.

It is my present understanding that the CRM, Mr. James Popham, has tried to garner your interest in establishing a working relationship with your THPO, Earl Barbry, Jr., to inform the Tunica-Biloxi Tribe of the varied proposed actions that occur on this facility and specifically the action that relates to the current EA being prepared. To date, Mr. Barbry has not informed Mr. Popham of any interest in the proposed action and whether he would like us to send him copies of documents when LRAFB engages in actions that require Section 106 consultation and notification. Since there has not been an expression of interest from the Tunica-Biloxi Tribe, we will naturally assume that if there was a specific interest or concern then that would be raised through Mr. Barbry. Therefore, our CRM will contact your THPO, Mr. Barbry, informally by e-mail or telephone when LRAFB engages in actions that will require an EA. Following the publication of a draft EA for public comment, our CRM will send a hard-copy of the draft EA to your THPO. Given that applicable regulations and policies require LRAFB to engage in early outreach to federally recognized Native American Tribes, I have asked Mr. Popham to inform Mr. Barbry

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of the Draft EA prior to its official release to provide the Tunica-Biloxi Tribe sufficient time to present any concerns. However, please know there is not any requirement for the THPO to respond to this early outreach and the THPO still has the opportunity to submit any concerns or comments during the 30-day comment period preferred.

Finally, even if Mr. Barbry or the Tunica-Biloxi Tribe do not desire to engage in formal consultations at this time, please be aware that the invitation to enter into such formal consultations is available and open if that need ever arises. Additionally, if you desire to engage in informal discussions by telephone, electronically (e-mail messages) or by letter, please advise me or the CRM, Mr. Popham, as I presented earlier in this letter. I will also ask Mr. Popham to reach out to Mr. Barbry after your receipt of this letter to confirm receipt and address any questions.

I appreciate your efforts in assisting LRAFB fulfill its requirements under NHPA laws, Executive Orders and Air Force policies and I look forward to our mutual cooperation in the years to come. Our goal is to ensure that we are honoring the Tunica-Biloxi Tribe's desires regarding Air Force outreach and consultation processes whether accomplished formally or informally.

Sincerely

CHARLES E. BROWN JR., Colonel, USAF
Commander

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 19TH AIRLIFT WING (AMC)
LITTLE ROCK AIR FORCE BASE, ARKANSAS

8 August 2016

Ms. Stacy Hurst
State Historic Preservation Officer
State Historic Preservation Office
323 Center Street, Ste 1500
Little Rock, AR 72201

Dear Ms. Hurst,

The 19th Airlift Wing (19 AW) has prepared a Draft Environmental Assessment (EA) for Little Rock Air Force Base (AFB), Arkansas. The Draft EA analyzes the leasing of property to the Jacksonville North Pulaski School District (the District) to construct an educational campus to be used by both military dependents and the civilian community. This proposal would provide updated educational facilities for students within the District. These facilities would be optimally located and minimize travel distance to the greatest extent possible.

The cultural resources analysis for the Proposed Action is being conducted by the 19 AW in accordance with 36 CFR Part 800 of the National Historic Preservation Act of 1966, as amended. We request your participation by reviewing the attached Draft EA, and solicit your comments concerning the proposal and any potential consequences to cultural resources from the action.

Four archaeological sites are located with the project APE: 3PU417, 3PU418, 3PU419, and 3PU297. All of these sites have been recommended not eligible for inclusion in the NRHP and are therefore not considered historic properties. Pursuant to 36 CFR Part 800.4(a)(1), the Air Force requests your concurrence that the proposed efforts to identify historic properties are reasonable.

We also request information regarding other recently completed, on-going, or proposed projects in the vicinity that create cumulative impacts in association with the Proposed Action. Please provide any comments you may have within 30 days of receipt of this letter. Further, if upon completion of the environmental impact analysis process it is determined that a Finding of No Significant Impact (FONSI) and Finding of No Practicable Alternative (FONPA) is appropriate, a FONSI/FONPA will be signed. Please indicate in writing if you wish to receive the final EA and/or signed FONSI/FONPA.

Please forward your written comments to me, Ronald Love at 19 CES/CEIE, 528 Thomas Avenue, Little Rock AFB, Arkansas 72099-4987. Thank you for your assistance.

Sincerely

Ronald D. Love

Ron Love
Chief, Environmental Compliance
Little Rock Air Force Base

Attachment:
Draft EA and Draft FONSI

Combat Airlift… Anywhere, Anytime!

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 19TH AIRLIFT WING (AMC)
LITTLE ROCK AIR FORCE BASE, ARKANSAS

8 August 2016

U.S. Army Corps of Engineers
Little Rock District
700 W Capitol
Little Rock, AR 72201

Dear Sir/Madam

The 19th Airlift Wing (19 AW) has prepared a Draft Environmental Assessment (EA) for Little Rock Air Force Base (AFB), Arkansas. The Draft EA analyzes the leasing of property to the Jacksonville North Pulaski School District (the District) to construct an educational campus to be used by both military dependents and the civilian community. This proposal would provide updated educational facilities for students within the District. These facilities would be optimally located and minimize travel distance to the greatest extent possible.

The environmental analysis for the Proposed Action is being conducted by the 19 AW in accordance with the Council on Environmental Quality guidelines pursuant to the National Environmental Policy Act of 1969. In accordance with Executive Order 12372, *Intergovernmental Review of Federal Programs*, we request your participation by reviewing the attached Draft EA, and solicit your comments concerning the proposal and any potential environmental consequences of the action. We also request information regarding other recently completed, on-going, or proposed projects in the vicinity that create cumulative impacts in association with the Proposed Action. Please provide any comments you may have within 30 days of receipt of this letter. Further, if upon completion of the environmental impact analysis process it is determined that a Finding of No Significant Impact (FONSI) and Finding of No Practicable Alternative (FONPA) is appropriate, a FONSI/FONPA will be signed. Please indicate in writing if you wish to receive the final EA and/or signed FONSI/FONPA.

Please forward your written comments to me, Ronald Love at 19 CES/CEIE, 528 Thomas Avenue, Little Rock AFB, Arkansas 72099-4987. Thank you for your assistance.

Sincerely

Ronald D. Love

Ron Love
Chief, Environmental Compliance
Little Rock Air Force Base

Attachment:
Draft EA and Draft FONSI

Combat Airlift… Anywhere, Anytime!

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 19TH AIRLIFT WING (AMC)
LITTLE ROCK AIR FORCE BASE, ARKANSAS

8 August 2016

U.S. Fish and Wildlife Service
Ecological Services Field Office
110 S Amity, Ste 300
Conway, AR 72032-8975

Dear Sir/Madam

The 19th Airlift Wing (19 AW) has prepared a Draft Environmental Assessment (EA) for Little Rock Air Force Base (AFB), Arkansas. The Draft EA analyzes the leasing of property to the Jacksonville North Pulaski School District (the District) to construct an educational campus to be used by both military dependents and the civilian community. This proposal would provide updated educational facilities for students within the District. These facilities would be optimally located and minimize travel distance to the greatest extent possible.

The environmental analysis for the Proposed Action is being conducted by the 19 AW in accordance with the Council on Environmental Quality guidelines pursuant to the National Environmental Policy Act of 1969. In accordance with Executive Order 12372, *Intergovernmental Review of Federal Programs*, we request your participation by reviewing the attached Draft EA, and solicit your comments concerning the proposal and any potential environmental consequences of the action. We also request information regarding other recently completed, on-going, or proposed projects in the vicinity that create cumulative impacts in association with the Proposed Action. Please provide any comments you may have within 30 days of receipt of this letter. Further, if upon completion of the environmental impact analysis process it is determined that a Finding of No Significant Impact (FONSI) and Finding of No Practicable Alternative (FONPA) is appropriate, a FONSI/FONPA will be signed. Please indicate in writing if you wish to receive the final EA and/or signed FONSI/FONPA.

Please forward your written comments to me, Ronald Love at 19 CES/CEIE, 528 Thomas Avenue, Little Rock AFB, Arkansas 72099-4987. Thank you for your assistance.

Sincerely

Ronald D. Love

Ron Love
Chief, Environmental Compliance
Little Rock Air Force Base

Attachment:
Draft EA and Draft FONSI

Combat Airlift… Anywhere, Anytime!

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 19TH AIRLIFT WING (AMC)
LITTLE ROCK AIR FORCE BASE, ARKANSAS

8 August 2016

Becky Keogh
Director
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118-5317

Dear Ms. Keogh

The 19th Airlift Wing (19 AW) has prepared a Draft Environmental Assessment (EA) for Little Rock Air Force Base (AFB), Arkansas. The Draft EA analyzes the leasing of property to the Jacksonville North Pulaski School District (the District) to construct an educational campus to be used by both military dependents and the civilian community. This proposal would provide updated educational facilities for students within the District. These facilities would be optimally located and minimize travel distance to the greatest extent possible.

The environmental analysis for the Proposed Action is being conducted by the 19 AW in accordance with the Council on Environmental Quality guidelines pursuant to the National Environmental Policy Act of 1969. In accordance with Executive Order 12372, *Intergovernmental Review of Federal Programs*, we request your participation by reviewing the attached Draft EA, and solicit your comments concerning the proposal and any potential environmental consequences of the action. We also request information regarding other recently completed, on-going, or proposed projects in the vicinity that create cumulative impacts in association with the Proposed Action. Please provide any comments you may have within 30 days of receipt of this letter. Further, if upon completion of the environmental impact analysis process it is determined that a Finding of No Significant Impact (FONSI) and Finding of No Practicable Alternative (FONPA) is appropriate, a FONSI/FONPA will be signed. Please indicate in writing if you wish to receive the final EA and/or signed FONSI/FONPA.

Please forward your written comments to me, Ronald Love at 19 CES/CEIE, 528 Thomas Avenue, Little Rock AFB, Arkansas 72099-4987. Thank you for your assistance.

Sincerely

Ronald D. Love

Ron Love
Chief, Environmental Compliance
Little Rock Air Force Base

Attachment:
Draft EA and Draft FONSI

Combat Airlift… Anywhere, Anytime!

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 19TH AIRLIFT WING (AMC)
LITTLE ROCK AIR FORCE BASE, ARKANSAS

8 August 2016

Michael Sullivan
Natural Resources Conservation Service
Room 3416, Federal Building
700 W Capitol Ave
North Little Rock, AR 72201-3225

Dear Mr. Sullivan

The 19th Airlift Wing (19 AW) has prepared a Draft Environmental Assessment (EA) for Little Rock Air Force Base (AFB), Arkansas. The Draft EA analyzes the leasing of property to the Jacksonville North Pulaski School District (the District) to construct an educational campus to be used by both military dependents and the civilian community. This proposal would provide updated educational facilities for students within the District. These facilities would be optimally located and minimize travel distance to the greatest extent possible.

The environmental analysis for the Proposed Action is being conducted by the 19 AW in accordance with the Council on Environmental Quality guidelines pursuant to the National Environmental Policy Act of 1969. In accordance with Executive Order 12372, *Intergovernmental Review of Federal Programs*, we request your participation by reviewing the attached Draft EA, and solicit your comments concerning the proposal and any potential environmental consequences of the action. We also request information regarding other recently completed, on-going, or proposed projects in the vicinity that create cumulative impacts in association with the Proposed Action. Please provide any comments you may have within 30 days of receipt of this letter. Further, if upon completion of the environmental impact analysis process it is determined that a Finding of No Significant Impact (FONSI) and Finding of No Practicable Alternative (FONPA) is appropriate, a FONSI/FONPA will be signed. Please indicate in writing if you wish to receive the final EA and/or signed FONSI/FONPA.

Please forward your written comments to me, Ronald Love at 19 CES/CEIE, 528 Thomas Avenue, Little Rock AFB, Arkansas 72099-4987. Thank you for your assistance.

Sincerely

Ronald D. Love

Ron Love
Chief, Environmental Compliance
Little Rock Air Force Base

Attachment:
Draft EA and Draft FONSI

Combat Airlift… Anywhere, Anytime!

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 19TH AIRLIFT WING (AMC)
LITTLE ROCK AIR FORCE BASE, ARKANSAS

8 August 2016

U.S. Environmental Protection Agency
Region 6
Compliance Assurance and Enforcement Division
Office of Planning and Coordination (6EN-XP)
1445 Ross Avenue, Suite 1200
Dallas, TX 75202

Dear Sir/Madam

The 19th Airlift Wing (19 AW) has prepared a Draft Environmental Assessment (EA) for Little Rock Air Force Base (AFB), Arkansas. The Draft EA analyzes the leasing of property to the Jacksonville North Pulaski School District (the District) to construct an educational campus to be used by both military dependents and the civilian community. This proposal would provide updated educational facilities for students within the District. These facilities would be optimally located and minimize travel distance to the greatest extent possible.

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Please forward your written comments to me, Ronald Love at 19 CES/CEIE, 528 Thomas Avenue, Little Rock AFB, Arkansas 72099-4987. Thank you for your assistance.

Sincerely

Ronald D. Love

Ron Love
Chief, Environmental Compliance
Little Rock Air Force Base

Attachment:
Draft EA and Draft FONSI

Combat Airlift… Anywhere, Anytime!

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 19TH AIRLIFT WING (AMC)
LITTLE ROCK AIR FORCE BASE, ARKANSAS

8 August 2016

Arkansas Game and Fish Commission
2 Natural Resources Dr
Little Rock, AR 72205

Dear Sir/Madam

The 19th Airlift Wing (19 AW) has prepared a Draft Environmental Assessment (EA) for Little Rock Air Force Base (AFB), Arkansas. The Draft EA analyzes the leasing of property to the Jacksonville North Pulaski School District (the District) to construct an educational campus to be used by both military dependents and the civilian community. This proposal would provide updated educational facilities for students within the District. These facilities would be optimally located and minimize travel distance to the greatest extent possible.

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Please forward your written comments to me, Ronald Love at 19 CES/CEIE, 528 Thomas Avenue, Little Rock AFB, Arkansas 72099-4987. Thank you for your assistance.

Sincerely

Ronald D. Love

Ron Love
Chief, Environmental Compliance
Little Rock Air Force Base

Attachment:
Draft EA and Draft FONSI

Combat Airlift… Anywhere, Anytime!

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 19TH AIRLIFT WING (AMC)
LITTLE ROCK AIR FORCE BASE, ARKANSAS

8 August 2016

Arkansas Natural Resources Commission
101 E Capitol, Ste 350
Little Rock, AR 72201

Dear Sir/Madam

The 19th Airlift Wing (19 AW) has prepared a Draft Environmental Assessment (EA) for Little Rock Air Force Base (AFB), Arkansas. The Draft EA analyzes the leasing of property to the Jacksonville North Pulaski School District (the District) to construct an educational campus to be used by both military dependents and the civilian community. This proposal would provide updated educational facilities for students within the District. These facilities would be optimally located and minimize travel distance to the greatest extent possible.

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Please forward your written comments to me, Ronald Love at 19 CES/CEIE, 528 Thomas Avenue, Little Rock AFB, Arkansas 72099-4987. Thank you for your assistance.

Sincerely

Ronald D. Love

Ron Love
Chief, Environmental Compliance
Little Rock Air Force Base

Attachment:
Draft EA and Draft FONSI

Combat Airlift… Anywhere, Anytime!

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 19TH AIRLIFT WING (AMC)
LITTLE ROCK AIR FORCE BASE, ARKANSAS

8 August 2016

Arkansas State Highway and Transportation Department
10324 Interstate 30
Little Rock, AR 72209

Dear Sir/Madam

The 19th Airlift Wing (19 AW) has prepared a Draft Environmental Assessment (EA) for Little Rock Air Force Base (AFB), Arkansas. The Draft EA analyzes the leasing of property to the Jacksonville North Pulaski School District (the District) to construct an educational campus to be used by both military dependents and the civilian community. This proposal would provide updated educational facilities for students within the District. These facilities would be optimally located and minimize travel distance to the greatest extent possible.

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Please forward your written comments to me, Ronald Love at 19 CES/CEIE, 528 Thomas Avenue, Little Rock AFB, Arkansas 72099-4987. Thank you for your assistance.

Sincerely

Ronald D. Love

Ron Love
Chief, Environmental Compliance
Little Rock Air Force Base

Attachment:
Draft EA and Draft FONSI

Combat Airlift… Anywhere, Anytime!

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 19TH AIRLIFT WING (AMC)
LITTLE ROCK AIR FORCE BASE, ARKANSAS

8 August 2016

Arkansas State Plant Board
1 Natural Resource Dr
Little Rock, AR 72205

Dear Sir/Madam

The 19th Airlift Wing (19 AW) has prepared a Draft Environmental Assessment (EA) for Little Rock Air Force Base (AFB), Arkansas. The Draft EA analyzes the leasing of property to the Jacksonville North Pulaski School District (the District) to construct an educational campus to be used by both military dependents and the civilian community. This proposal would provide updated educational facilities for students within the District. These facilities would be optimally located and minimize travel distance to the greatest extent possible.

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Please forward your written comments to me, Ronald Love at 19 CES/CEIE, 528 Thomas Avenue, Little Rock AFB, Arkansas 72099-4987. Thank you for your assistance.

Sincerely

Ronald D. Love

Ron Love
Chief, Environmental Compliance
Little Rock Air Force Base

Attachment:
Draft EA and Draft FONSI

Combat Airlift… Anywhere, Anytime!

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 19TH AIRLIFT WING (AMC)
LITTLE ROCK AIR FORCE BASE, ARKANSAS

8 August 2016

Department of Planning and Development
723 W Markham St
Little Rock, AR 72201

Dear Sir/Madam

The 19th Airlift Wing (19 AW) has prepared a Draft Environmental Assessment (EA) for Little Rock Air Force Base (AFB), Arkansas. The Draft EA analyzes the leasing of property to the Jacksonville North Pulaski School District (the District) to construct an educational campus to be used by both military dependents and the civilian community. This proposal would provide updated educational facilities for students within the District. These facilities would be optimally located and minimize travel distance to the greatest extent possible.

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Please forward your written comments to me, Ronald Love at 19 CES/CEIE, 528 Thomas Avenue, Little Rock AFB, Arkansas 72099-4987. Thank you for your assistance.

Sincerely

Ronald D. Love

Ron Love
Chief, Environmental Compliance
Little Rock Air Force Base

Attachment:
Draft EA and Draft FONSI

Combat Airlift… Anywhere, Anytime!

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 19TH AIRLIFT WING (AMC)
LITTLE ROCK AIR FORCE BASE, ARKANSAS

8 August 2016

Pulaski County Planning and Development
3200 Brown St
Little Rock, AR 72204

Dear Sir/Madam

The 19th Airlift Wing (19 AW) has prepared a Draft Environmental Assessment (EA) for Little Rock Air Force Base (AFB), Arkansas. The Draft EA analyzes the leasing of property to the Jacksonville North Pulaski School District (the District) to construct an educational campus to be used by both military dependents and the civilian community. This proposal would provide updated educational facilities for students within the District. These facilities would be optimally located and minimize travel distance to the greatest extent possible.

The environmental analysis for the Proposed Action is being conducted by the 19 AW in accordance with the Council on Environmental Quality guidelines pursuant to the National Environmental Policy Act of 1969. In accordance with Executive Order 12372, *Intergovernmental Review of Federal Programs*, we request your participation by reviewing the attached Draft EA, and solicit your comments concerning the proposal and any potential environmental consequences of the action. We also request information regarding other recently completed, on-going, or proposed projects in the vicinity that create cumulative impacts in association with the Proposed Action. Please provide any comments you may have within 30 days of receipt of this letter. Further, if upon completion of the environmental impact analysis process it is determined that a Finding of No Significant Impact (FONSI) and Finding of No Practicable Alternative (FONPA) is appropriate, a FONSI/FONPA will be signed. Please indicate in writing if you wish to receive the final EA and/or signed FONSI/FONPA.

Please forward your written comments to me, Ronald Love at 19 CES/CEIE, 528 Thomas Avenue, Little Rock AFB, Arkansas 72099-4987. Thank you for your assistance.

Sincerely

Ronald D. Love

Ron Love
Chief, Environmental Compliance
Little Rock Air Force Base

Attachment:
Draft EA and Draft FONSI

Combat Airlift… Anywhere, Anytime!

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 19TH AIRLIFT WING (AMC)
LITTLE ROCK AIR FORCE BASE, ARKANSAS

8 August 2016

Tracy Copeland
Manager
Arkansas Department of Finance and Administration
Office of Intergovernmental Services
State Clearinghouse Section
Room 412, 1515 Building
1515 W Seventh St
Little Rock, AR 72201

Dear Ms. Copeland

The 19th Airlift Wing (19 AW) has prepared a Draft Environmental Assessment (EA) for Little Rock Air Force Base (AFB), Arkansas. The Draft EA analyzes the leasing of property to the Jacksonville North Pulaski School District (the District) to construct an educational campus to be used by both military dependents and the civilian community. This proposal would provide updated educational facilities for students within the District. These facilities would be optimally located and minimize travel distance to the greatest extent possible.

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Sincerely

Ronald D. Love

Ron Love
Chief, Environmental Compliance
Little Rock Air Force Base

Attachment:
Draft EA and Draft FONSI

Combat Airlift… Anywhere, Anytime!

SATURDAY

142nd Kentucky race
Three Arkansas Derby horses possess big odds, strong late runs. – Sports, 1C

CEO eager to go driverless
Fiat Chrysler chief touts deal to add Google's tech to minivans. – Business, 1D

Arkansas Democrat Gazette

ARKANSAS' NEWSPAPER

Printed at Little Rock • May 7, 2016 ArkansasOnline.com 50 Pages • 8 Sections $1.00

Public Notice

Jacksonville North Pulaski School Environmental Assessment at Little Rock Air Force Base

Little Rock Air Force Base (LRAFB) announces the intent to prepare an environmental assessment to lease property to the Jacksonville North Pulaski School District (the District) to construct educational facilities. Activities on the leased land may potentially include renovations to existing school facilities and/or new construction of elementary, middle, and/or high school facilities for those students within the District.

Flood plains and wetlands have been identified within tracts of land that may be considered to be leased to the District upon completion of an appropriate environmental analysis and report. Pursuant to Executive Order 11988, Floodplain Management, supplemental Executive Order 13690, Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input, and Executive Order 11990, Protection of Wetlands, the long and short term adverse impacts to floodplains and wetlands should be avoided from proposed development and construction to the extent possible and direct and indirect impacts to these resources should be avoided wherever there is a practicable alternative.

Additionally, Executive Orders 11988 and 11990 require a Finding of No Practicable Alternative if warranted prior to proceeding with proposed project activities. In accordance with the Executive Orders, LRAFB and the Air Force invites the public a 30 day public review and comment period ending June 6, 2016, on the preliminary evaluation of the Air Force land that may be leased for school projects, and on the resources (floodplains and wetlands) existing on the LRAFB properties proposed to be leased. LRAFB will require that current wetland and/or floodplain maps or information are obtained from appropriate federal, state and local agencies or offices and evaluated to avoid adverse impacts to these resources.

Comments should be sent to Capt. Walker, Chief, Public Affairs, 1255 Vandenberg Blvd., Ste 138, LRAFB, AR 72099 or emailed to 19aw.pa@us.af.mil.

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 19TH AIRLIFT WING (AMC)
LITTLE ROCK AIR FORCE BASE, ARKANSAS

13 May 2016

MEMORANDUM FOR ARKANSAS HISTORIC PRESERVATION PROGRAM
ATTN: BOB SCOGGINS
1500 TOWER BUILDING
323 CENTER STREET
LITTLE ROCK, ARKANSAS 72201

FROM: 19 CES/CEIE
528 Thomas Avenue
Little Rock AFB AR 72099-4987

SUBJECT: Historic Status of Arnold Drive Elementary School

1. Request concurrence for National Register eligibility of Arnold Drive Elementary School (Building 798). The federal property is owned by Little Rock AFB (LRAFB), and the Pulaski Special School District owns the building. In July 2016 the proposed action is to transfer the lease from Pulaski Special School District to the Jacksonville North Pulaski School District. The overall plan of the school district is to build a new facility, demolish the existing building due to its state-wide assessment and continued degradation of the facility.

2. The building is on 10.79 acres, located on Arnold Drive at LRAFB. The building was constructed in March 1968 and is approximately 31,040 SF. It is a pre-engineered metal building with a low slope metal roof and metal wall panels. The structure is comprised of a steel frame exterior and interior finishes are made up of gypsum board walls, lay-in ceilings, and VCT tile flooring on a concrete slab. Building 798 is simply not individually significant enough to meet the National Register criteria.

3. Based on our current available information and the condition of this building we do not believe this building is eligible for the National Register. Do you concur?

4. Thank you for your assistance. If you have any questions you can contact Jim Popham at (501) 987-3681.

RONALD D. LOVE, GS-13
Chief, Environmental Compliance

Attachments:
1. GIS Map showing location of building
2. Photos of Building 798

Combat Airlift... Anywhere, Anytime!

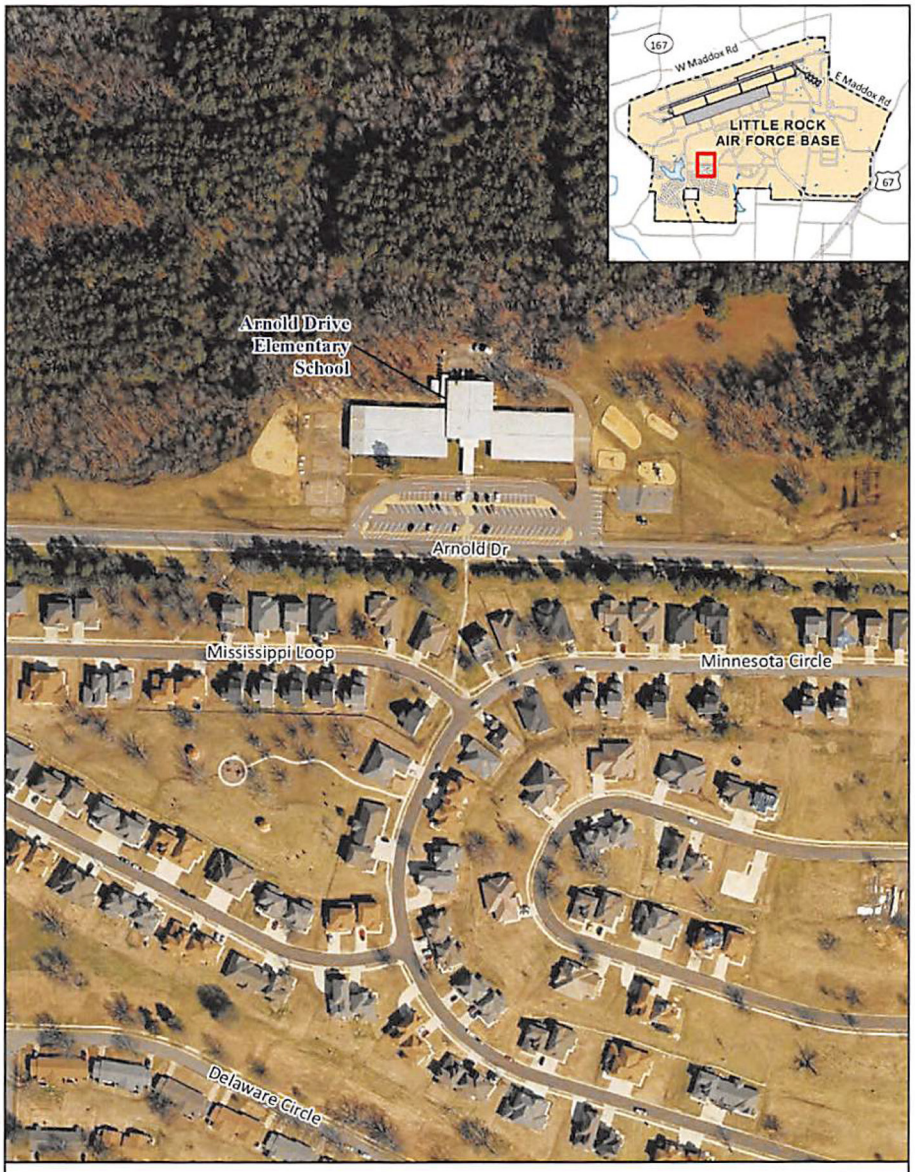

Figure 2-2
Arnold Drive Elementary School

1

Building 798, East Side

Building 798, Front of Building

Building 798, North Side

Building 798, Side View, East Side

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 19TH AIRLIFT WING (AMC)
LITTLE ROCK AIR FORCE BASE, ARKANSAS

95793
USAF

13 May 2016

MEMORANDUM FOR ARKANSAS HISTORIC PRESERVATION PROGRAM
ATTN: BOB SCOGGINS
1500 TOWER BUILDING
323 CENTER STREET
LITTLE ROCK, ARKANSAS 72201

AHPP
MAY 12 2016

FROM: 19 CES/CEIE
528 Thomas Avenue
Little Rock AFB AR 72099-4987

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2. The building is on 10.79 acres, located on Arnold Drive at LRAFB. The building was constructed in March 1968 and is approximately 31,040 SF. It is a pre-engineered metal building with a low slope metal roof and metal wall panels. The structure is comprised of a steel frame exterior and interior finishes are made up of gypsum board walls, lay-in ceilings, and VCT tile flooring on a concrete slab. Building 798 is simply not individually significant enough to meet the National Register criteria.

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RONALD D. LOVE, GS-13
Chief, Environmental Compliance

Attachments:
1. GIS Map showing location of building
2. Photos of Building 798

MAY 13 2016
Date
No known historic properties will be affected by this undertaking. This effect determination could change should new information come to light.
Frances McSwain, Deputy State Historic Preservation Officer

MAY 13 2016

Combat Airlift... Anywhere, Anytime!

APPENDIX B
EMISSIONS CALCULATIONS

TAB A. CONSTRUCTION SUMMARY

Proposed Action	VOC T/yr	CO T/yr	NOx T/yr	SO_2 T/yr	PM_{10} T/yr	$PM_{2.5}$ T/yr	CO_2 MT/yr
Alternative 1	0.50	2.22	7.10	0.11	19.29	2.27	624
Alternative 2	1.95	9.24	28.23	0.41	190.59	20.44	2526.88

Note: The summary total of each criteria pollutant for Alternative is the total of the Phase I construction emissions, as shown on the following page. The summary total of each criteria pollutant for Alternative 2 is the sum of the Phase I and Phase II construction emissions, as shown on the following pages.

TAB B. **PHASE I CONSTRUCTION EMISSIONS**

Basic Conversions

453.59	grams per pound
43,560	Conversion from Acre to SF
0.03704	Cubic feet to Cubic Yards
0.1111	Square Feet to Square Yards
1.4	tons/CY for Gravel
80,000	lbs/Truck Load for Delivery
0.33	asphalt thickness for pavement
2000	pounds per ton
145.00	lb/ft^3 density of Hot Mix Asphalt

Table 1 **Clearing** 11 acres

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Dozer	128	145	0.58	0.38	1.41	4.17	0.12	0.30	0.29	536
Loader/Backhoe	128	87	0.21	1.43	7.35	6.35	0.15	1.06	1.03	692
Small Backhoe	128	55	0.21	1.43	7.35	6.35	0.15	1.06	1.03	692

	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Dozer	8.94	33.57	99.05	2.73	7.02	6.81	12,713
Loader w/ integral Backhoe	7.38	37.89	32.73	0.77	5.48	5.32	3,566
Small backhoe	4.67	23.96	20.69	0.48	3.47	3.36	2,254

On-road Equipment	Hours of Operation	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO_2 lb/mile	PM10 lb/mile	PM2.5 lb/mile	CO_2 lb/mile
Dump Truck	11	230	16	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385

	VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM2.5 lb	CO_2 lb
Dump Truck	0.27	1.43	6.43	0.00	0.27	0.26	613
Subtotal in lbs	21	97	159	4	16	16	19,147
Clearing Grand Total in Tons	**0.01**	**0.05**	**0.08**	**0.00**	**0.01**	**0.01**	
Clearing Grand Total in Metric Tons							**9**

Table 2 **Site Prep**

Site Prep - Excavate/Fill (CY) 6,862 CY 900 LF Trenching

Grading (SY) 111,320 SY Assume compact 0.5 feet (0.166 yards) = 18,479 CY

Off-road Equipment	Hours	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Excavator	23	243	0.59	0.34	1.21	4.03	0.12	0.22	0.22	536
Skid Steer Loader	27	160	0.23	0.38	1.47	4.34	0.12	0.31	0.30	536
Dozer (Rubber Tired)	25	145	0.59	0.38	1.41	4.17	0.12	0.30	0.29	536
Compactor	86	103	0.58	0.40	1.57	4.57	0.12	0.32	0.31	536
Grader	40	285	0.58	0.34	1.21	4.07	0.12	0.23	0.22	536
Backhoe/loader	16	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	536

	VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM2.5 lb	CO_2 lb
Excavator	2.50	8.79	29.29	0.84	1.62	1.57	3,895
Skid Steer Loader	0.84	3.22	9.50	0.25	0.67	0.65	1,173
Dozer (Rubber Tired)	1.78	6.67	19.68	0.54	1.40	1.35	2,526
Compactor	4.48	17.79	51.72	1.31	3.61	3.51	6,067
Grader	5.01	17.61	59.33	1.68	3.29	3.19	7,810
Backhoe/loader	0.63	2.26	7.66	0.21	0.43	0.42	970

On-road Equipment	Hours	MPH	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO_2 lb/mile	PM10 lb/mile	PM2.5 lb/mile	CO_2 lb/mile
Dump Truck (14 CY)	23	5	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385

	VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM2.5 lb	CO_2 lb
Dump Truck	0.17	0.92	4.15	0.00	0.17	0.17	395
Subtotal in lb:	**15**	**57**	**181**	**5**	**11**	**11**	**22,837**
Site Prep Grand Total in Tons	**0.01**	**0.03**	**0.09**	**0.00**	**0.01**	**0.01**	
Site Prep Grand Total in Metric Tons							**10**

Table 3 **Gravel Work** 3,377 CY

Off-road Equipment	Hours	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM_{10} g/hp-hr	$PM_{2.5}$ g/hp-hr	CO_2 g/hp-hr
Dozer	34	185	0.59	0.34	1.21	4.08	0.12	0.23	0.22	536
Wheel Loader for Spreading	42	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	536
Compactor	93	103	0.43	0.36	1.34	4.45	0.12	0.26	0.25	536

	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Dozer	2.81	9.88	33.38	0.94	1.85	1.79	4,384
Wheel Loader for Spreading	1.66	5.93	20.12	0.55	1.13	1.10	2,546
Compactor	3.27	12.16	40.43	1.05	2.33	2.26	4,865

On-road Equipment	Miles	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO_2 lb/mile	PM_{10} lb/mile	$PM_{2.5}$ lb/mile	CO_2 lb/mile
Dump Truck	6,754	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385

	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Dump Truck	10.28	54.32	243.62	0.12	10.16	9.85	23,224
Subtotal (lbs):	**18**	**82**	**338**	**3**	**15**	**15**	**35,019**
Gravel Work Grand Total in Tons	**0.01**	**0.04**	**0.17**	**0.00**	**0.01**	**0.01**	
Gravel Work Grand Total in Metric Tons							**16**

Table 4 **Concrete Work**

Foundation Work	3,370	CY
Sidewalks, etc.	14	CY
Total	3,384	CY

Note: Assume all excavated soil is accounted for in Excavate/Fill and Trenching

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Concrete Mixer	178	3.5	0.43	0.69	3.04	6.17	0.13	0.54	0.52	588
Concrete Truck	161	300	0.43	0.38	1.75	6.18	0.11	0.27	0.26	530

	Annual Emissions VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM2.5 lb	CO_2 lb
Concrete Mixer	0.41	1.80	3.64	0.07	0.32	0.31	347
Concrete Truck	17.38	79.93	283.08	5.22	12.30	11.93	24,263
Subtotal (lbs):	**18**	**82**	**287**	**5**	**13**	**12**	**24,610**
Concrete Work Grand Total in Tons	**0.01**	**0.04**	**0.14**	**0.00**	**0.01**	**0.01**	
Concrete Work Grand Total in Metric Tons							**11**

Table 5 **Building Construction**

91,000 SF Foundation
91,000 SF Total

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Crane	455	330	0.58	0.25	1.22	5.26	0.11	0.21	0.20	530
Concrete Truck	455	300	0.43	0.19	1.45	4.32	0.12	0.21	0.20	536
Diesel Generator	364	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	536
Telehandler	910	99	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Scissors Lift	728	83	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Skid Steer Loader	455	67	0.59	1.69	7.97	6.70	0.15	1.19	1.15	691
Pile Driver	4,692	260	0.43	0.46	1.55	5.90	0.11	0.31	0.30	530
All Terrain Forklift	18	84	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595

	Annual Emissions VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM2.5 lb	CO_2 lb
Crane	47.17	234.14	1,009.85	21.90	39.88	38.69	101,815
Concrete Truck	24.28	188.22	559.10	14.93	27.18	26.37	69,393
Diesel Generator	3.62	19.45	48.42	1.49	3.20	3.10	7,401
Telehandler	59.71	461.67	577.59	14.99	61.07	59.23	69,679
Scissors Lift	40.05	309.65	387.40	10.05	40.96	39.73	46,734
Skid Steer Loader	67.11	315.94	265.59	5.89	47.15	45.74	27,395
Pile Driver	536.65	1,794.64	6,825.48	131.75	362.98	352.09	612,512
All Terrain Forklift	1.00	7.75	9.69	0.25	1.02	0.99	1,169

On-road Equipment	Hours of Operation	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO2 lb/mile	PM lb/mile	PM2.5 lb/mile	CO_2 lb/mile
Delivery Truck	2,184	265	45	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385

	VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM2.5 lb	CO_2 lb
Delivery Truck	149.52	790.36	3544.96	1.77	147.86	143.27	337,940
Subtotal (lbs):	**929**	**4,122**	**13,228**	**203**	**731**	**709**	**1,274,038**
Building Construction Grand Total in Tons	**0.46**	**2.06**	**6.61**	**0.10**	**0.37**	**0.35**	
Building Construction Grand Total in Metric Tons							**578**

Table 6 **Fugitive Dust Emissions**

Year	PM_{10} tons/acre/ mo	acres	days of disturbance	PM_{10} Total	PM2.5/ PM_{10} Ratio	$PM_{2.5}$ Total
Annual	0.42	15.00	60	18.9	0.1	1.9

Table 7 **Total Emissions**

Year	VOC Tons	CO Tons	NOx Tons	SO2 Tons	PM10 Tons	PM2.5 Tons	CO_2 Metric Tons
Annual	0.50	2.22	7.10	0.11	19.29	2.27	624

TAB C. **PHASE II CONSTRUCTION EMISSIONS**

Basic Conversions

453.59	grams per pound
43,560	Conversion from Acre to SF
0.03704	Cubic feet to Cubic Yards
0.1111	Square Feet to Square Yards
1.4	tons/CY for Gravel
80,000	lbs/Truck Load for Delivery
0.33	asphalt thickness for pavement
2000	pounds per ton
145.00	lb/ft^3 density of Hot Mix Asphalt

Table 1 **Clearing** 68 acres

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Dozer	789	145	0.58	0.38	1.41	4.17	0.12	0.30	0.29	536
Loader/Backhoe	789	87	0.21	1.43	7.35	6.35	0.15	1.06	1.03	692
Small Backhoe	789	55	0.21	1.43	7.35	6.35	0.15	1.06	1.03	692

	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Dozer	55.10	206.90	610.53	16.86	43.30	42.00	78,365
Loader w/ integral Backhoe	45.50	233.58	201.76	4.73	33.79	32.77	21,981
Small backhoe	28.77	147.66	127.55	2.99	21.36	20.72	13,896

On-road Equipment	Hours of Operation	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO_2 lb/mile	PM10 lb/mile	PM2.5 lb/mile	CO_2 lb/mile
Dump Truck	361	230	16	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385

	VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM2.5 lb	CO_2 lb
Dump Truck	8.91	47.08	211.16	0.11	8.81	8.53	20,129
Subtotal in lbs	138	635	1151	25	107	104	134,371
Clearing Grand Total in Tons	**0.07**	**0.32**	**0.58**	**0.01**	**0.05**	**0.05**	
Clearing Grand Total in Metric Tons							**60.9**

Table 2 **Site Prep**

Site Prep - Excavate/Fill (CY) 20,129 CY 2,362 LF Trenching

Grading (SY) 440,440 SY Assume compact 0.5 feet (0.166 yards) = 73,113 CY

Off-road Equipment	Hours	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Excavator	67	243	0.59	0.34	1.21	4.03	0.12	0.22	0.22	536
Skid Steer Loader	81	160	0.23	0.38	1.47	4.34	0.12	0.31	0.30	536
Dozer (Rubber Tired)	73	145	0.59	0.38	1.41	4.17	0.12	0.30	0.29	536
Compactor	338	103	0.58	0.40	1.57	4.57	0.12	0.32	0.31	536
Grader	156	285	0.58	0.34	1.21	4.07	0.12	0.23	0.22	536
Backhoe/loader	40	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	536

	VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM2.5 lb	CO_2 lb
Excavator	7.28	25.61	85.33	2.44	4.72	4.58	11,347
Skid Steer Loader	2.52	9.66	28.51	0.76	2.01	1.95	3,520
Dozer (Rubber Tired)	5.19	19.47	57.46	1.59	4.08	3.95	7,376
Compactor	17.59	69.90	203.25	5.13	14.21	13.78	23,844
Grader	19.55	68.67	231.39	6.55	12.82	12.44	30,460
Backhoe/loader	1.58	5.65	19.16	0.52	1.08	1.05	2,425

On-road Equipment	Hours	MPH	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO_2 lb/mile	PM10 lb/mile	PM2.5 lb/mile	CO_2 lb/mile
Dump Truck (14 CY)	67	5	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385

	VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM2.5 lb	CO_2 lb
Dump Truck	0.51	2.69	12.08	0.01	0.50	0.49	1,152
Subtotal in lb:	**54**	**202**	**637**	**17**	**39**	**38**	**80,124**
Site Prep Grand Total in Tons	**0.03**	**0.10**	**0.32**	**0.01**	**0.02**	**0.02**	
Site Prep Grand Total in Metric Tons							**36**

Table 3 **Gravel Work** 6,692 CY

Off-road Equipment	Hours	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM_{10} g/hp-hr	$PM_{2.5}$ g/hp-hr	CO_2 g/hp-hr
Dozer	67	185	0.59	0.34	1.21	4.08	0.12	0.23	0.22	536
Wheel Loader for Spreading	84	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	536
Compactor	185	103	0.43	0.36	1.34	4.45	0.12	0.26	0.25	536

	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Dozer	5.54	19.47	65.78	1.86	3.65	3.54	8,638
Wheel Loader for Spreading	3.31	11.87	40.24	1.10	2.27	2.20	5,093
Compactor	6.50	24.18	80.42	2.08	4.64	4.50	9,678

On-road Equipment	Miles	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO_2 lb/mile	PM_{10} lb/mile	$PM_{2.5}$ lb/mile	CO_2 lb/mile
Dump Truck	13,384	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385

	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Dump Truck	20.36	107.63	482.76	0.24	20.14	19.51	46,021
Subtotal (lbs):	**36**	**163**	**669**	**5**	**31**	**30**	**69,430**
Gravel Work Grand Total in Tons	**0.02**	**0.08**	**0.33**	**0.00**	**0.02**	**0.01**	
Gravel Work Grand Total in Metric Tons							**31**

Table 4 **Concrete Work**

Foundation Work 13,281 CY
Sidewalks, etc. 103 CY
Total 13,384 CY

Note: Assume all excavated soil is accounted for in Excavate/Fill and Trenching

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors: VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Concrete Mixer	705	3.5	0.43	0.69	3.04	6.17	0.13	0.54	0.52	588
Concrete Truck	637	300	0.43	0.38	1.75	6.18	0.11	0.27	0.26	530

	Annual Emissions: VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM2.5 lb	CO_2 lb
Concrete Mixer	1.61	7.12	14.44	0.30	1.26	1.23	1,376
Concrete Truck	68.76	316.26	1,120.02	20.65	48.68	47.22	95,996
Subtotal (lbs):	**70**	**323**	**1,134**	**21**	**50**	**48**	**97,372**
Concrete Work Grand Total in Tons	**0.04**	**0.16**	**0.57**	**0.01**	**0.02**	**0.02**	
Concrete Work Grand Total in Metric Tons							**44**

Table 5 **Building Construction**

179,300 SF Foundation

358,600 SF Total

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Crane	1,793	330	0.58	0.25	1.22	5.26	0.11	0.21	0.20	530
Concrete Truck	1,793	300	0.43	0.19	1.45	4.32	0.12	0.21	0.20	536
Diesel Generator	1,434	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	536
Telehandler	3,586	99	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Scissors Lift	2,869	83	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Skid Steer Loader	1,793	67	0.59	1.69	7.97	6.70	0.15	1.19	1.15	691
Pile Driver	9,246	260	0.43	0.46	1.55	5.90	0.11	0.31	0.30	530
All Terrain Forklift	72	84	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595

	Annual Emissions VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM2.5 lb	CO_2 lb
Crane	185.89	922.66	3,979.48	86.31	157.16	152.45	401,217
Concrete Truck	95.67	741.71	2,203.24	58.82	107.12	103.91	273,454
Diesel Generator	14.27	76.61	190.77	5.87	12.61	12.23	29,157
Telehandler	235.29	1,819.29	2,276.10	59.06	240.64	233.42	274,580
Scissors Lift	157.82	1,220.29	1,526.70	39.62	161.41	156.57	184,176
Skid Steer Loader	264.45	1,245.02	1,046.60	23.22	185.81	180.24	107,955
Pile Driver	1,057.51	3,536.50	13,450.21	259.63	715.28	693.82	1,207,010
All Terrain Forklift	4.01	30.99	38.78	1.01	4.10	3.98	4,678

On-road Equipment	Hours of Operation	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO2 lb/mile	PM lb/mile	PM2.5 lb/mile	CO_2 lb/mile
Delivery Truck	8,606	265	45	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385

	VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM2.5 lb	CO_2 lb
Delivery Truck	589.16	3,114	13,969	6.99	582.64	564.55	1,331,644
Subtotal (lbs):	**2,604**	**12,707**	**38,681**	**541**	**2,167**	**2,101**	**3,813,869**
Building Construction Grand Total in Tons	**1.30**	**6.35**	**19.34**	**0.27**	**1.08**	**1.05**	
Building Construction Grand Total in Metric Tons							**1,730**

Table 6 **Fugitive Dust Emissions**

Year	PM_{10} tons/acre/ mo	acres	days of disturbance	PM_{10} Total	PM2.5/ PM_{10} Ratio	$PM_{2.5}$ Total
Annual	0.42	45.00	180	170.1	0.1	17.0

Table 7 **Total Emissions**

Year	VOC Tons	CO Tons	NOx Tons	SO2 Tons	PM10 Tons	PM2.5 Tons	CO_2 Metric Tons
Annual	1.45	7.02	21.14	0.30	171.30	18.17	1,903

TAB D. CONSTRUCTION ASSUMPTIONS

Project Name	Clearing (AC)	Grading (SY)	Trenching (LF)	Site Prep - Excavate/Fill (CY)	Foundation footprint (sf)	Building Construction - Total Size (sf)	Foundation footprint (sf)	# Stories	Gravel Work (CY)	Concrete Work - sidewalks, etc (CY)	Concrete Work - foundation (CY)	Paving Surface Area (SF)	Paving - HMA (CF)
Phase I Building	11	111,320	900	6,862	91,000	91,000	91,000	1	3,377	14	3,370	158,486	52,776
Phase 2 Building	68	440,440	2,360	20,340	179,300	358,600	358,600	2	6,692	103	13,281	483336	160,951
	80	551,760	3,260	27,202	270,300	449,600	449,600	-	10,070	118	16,652	641,822	213,727

All Construction

Equipment list from National Estimator, PACES and CALEEMOD information.

The Cumulative Hours of Operation is based on the productivity of the equipment or process.

Productivity of the Equipment is based on a number of sources including:

PACES (US Air Force Estimator) and 2012 National Construction Estimator (Craftsman Book Company 2012).

Additional sources for the productivity factor include: Henderson, Chris. Project Management for Construction. Fundamental Concepts for Owners, Engineers, Architects, and Builders. Version 2.2. 2008.

Equipment Manufacturer's websites such as Freightliner and Caterpillar

U.S. EPA. Open Burning and Construction Activities: Improved PM Fine Emission Estimation Techniques in the Nation Emissions Inventory Appendix F Debris Estimating Guides

Henderson, Chris. Department of Civil and Environmental Engineering Carnegie Mellon University, "Project Management for Construction. Fundamental Concepts for Owners, Engineers, Architects, and Builders." Version 2.2. 2008.

South Coast Air Quality Management District. "Technical Paper: Methodology Reasoning and Policy Development of the California Emission Estimator Model" July 2011.

Estimated speed based on Henderson, Chris. Department of Civil and Environmental Engineering Carnegie Mellon University, "Project Management for Construction. Fundamental Concepts for Owners, Engineers, Architects, and Builders." Version 2.2. 2008.