Supplemental Programmatic Environmental Assessment for Army 2020 Force Structure Realignment

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FINDING OF NO SIGNIFICANT IMPACT FOR ARMY 2020 FORCE STRUCTURE REALIGNMENT

June 2014

The National Environmental Policy Act of 1969 (NEPA) requires federal agencies to consider potential environmental impacts prior to undertaking a course of action. NEPA is implemented through regulations promulgated by the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] Parts 1500–1508) and within the United States (U.S.) Department of the Army (Army) by 32 CFR Part 651, *Environmental Analysis of Army Actions*. In accordance with these requirements, the Army has prepared a Supplemental Programmatic Environmental Assessment (SPEA) to consider environmental effects on installations that could result from implementation of the Proposed Action to realign Army forces from Fiscal Year (FY) 2013 through FY 2020. The SPEA was prepared as a supplemental NEPA evaluation to the Army's 2013 Programmatic Environmental Assessment (2013 PEA) due to changes to the Purpose and Need described in the previous document.

1.0 Title of the Action

Supplemental Programmatic Environmental Assessment for Army 2020 Force Structure Realignment.

2.0 Background Information

To analyze the potential environmental and socioeconomic impacts associated with the initial realignment targets, the Army prepared a PEA titled *Programmatic Environmental Assessment for Army 2020 Force Structure Realignment* in 2013. The 2013 PEA analyzed a proposed action consisting of a reduction in active Army end-strength from 562,000 to 490,000. While the 2013 PEA analyzed reductions beyond those required to reach an end-strength of 490,000, the 2013 PEA indicated that analyzing the numbers studied provided flexibility to decision makers over the ensuing years as conditions change, including fiscal, policy, and security considerations that were beyond the scope of the Army to control. In April 2013, a Finding of No Significant Impact (FNSI) was signed based on the 2013 PEA analysis.

As discussed in the 2013 PEA, the Army's proposed action (Army 2020 realignment) was to conduct force reductions and force realignments to a size and configuration that was capable of meeting national security and defense objectives, implement the 2010 Quadrennial Defense Review (QDR) recommendations, sustain unit equipment and training readiness, and preserve a high quality of life for active component Soldiers and their Families. The Army's civilian workforce would also be reduced. Army 2020 realignment also allowed for the adjustment of forces to meet requirements in high demand military occupational specialties, while rebalancing the number and types of units in lower priority military occupational specialties. Implementation of Army 2020 realignment, as assessed in the 2013 PEA, enabled the Army to reduce its

operational costs with a smaller force that still could meet the mission requirements of the then-current and future global security environment. Reductions and realignments were required to achieve the savings specified in the 2011 Budget Control Act. To achieve these savings, the Army proposed to reduce the size of its force from a post-9/11 peak of about 570,000 in 2010 to 490,000. In June 2013, the Army announced the inactivation of 10 Regular Army Brigade Combat Teams (BCTs) in the continental U.S. Five of these BCTs are scheduled to be inactivated in FY 2014 and five in FY 2015. In addition to BCT reductions on U.S. installations, reductions were achieved through the elimination of Soldiers in temporary, wartime over-strength categories and drawdown of overseas forces, the latter of which reduced the impact of these force reductions on U.S. installations.

Since the 2013 PEA was completed, Department of Defense (DoD) fiscal guidance has continued to change, and the future end-strength of the Army must be reduced even further than the 490,000 considered in the 2013 PEA. The 2014 QDR states that the active Army will reduce from its war-time high of 570,000 to 440,000–450,000 Soldiers. The 2014 QDR also states if sequestration-level cuts are imposed in FY 2016 and beyond, active component end-strength would need to be reduced to 420,000. These further potential reductions from the authorized 2012 baseline end-strength of 562,000, therefore, call for an environmental and socioeconomic impact analysis of approximately two times the reductions analyzed in the 2013 PEA. In other words, the 2013 PEA analyzed reductions totaling approximately 72,000 (reducing the Army's end-strength from 562,000 to approximately 490,000); the QDR requires analysis of further reductions totaling 70,000 (reducing the Army's end-strength from 490,000 to 420,000). As a result, the Army has prepared this SPEA, building on the information and analysis contained in the 2013 PEA, to assess the environmental and socioeconomic impacts of a substantial increase in potential reductions. This does not mean that these losses will actually occur to the full extent analyzed or that each installation analyzed will incur losses. The Proposed Action for this SPEA is very similar to the reduction alternative in the 2013 PEA but is both broader in scope and allows for deeper potential reductions. The Army recognizes that these cuts down to 420,000 Soldiers could have serious impacts to the communities that host the Nation's force, and this document is intended to determine and disclose those impacts.

The SPEA analyzes the potential environmental and socioeconomic impacts associated with realignment of the Army's force structure between FY 2013 and FY 2020 that protects and advances U.S. interests and sustains U.S. leadership within the fiscal constraints of decreased DoD funding. In making these force structure decisions, the Army must consider how best to make trade-offs between programs and operations, while strategically moving forward to preserve mission capabilities and modernize the force to meet future threats. The SPEA presents an overarching perspective that provides decision makers, as well as regulatory agencies and the public, with information about the potential environmental and socioeconomic impacts, thereby enabling them to assess and compare those impacts. Decision makers will be able to make informed decisions and identify locations to reduce existing force structure or realign units.

3.0 Description of Proposed Action

The Army's Proposed Action is to reduce and realign its forces, both active component Soldiers and Army civilian employees, to attempt to meet current and future national security and defense requirements as outlined in the 2014 QDR. The implementation of Army 2020 realignment with the reduced Army end-strength as indicated in the 2014 QDR will be necessary to operate on a reduced budget.

4.0 Alternatives

In addition to the No Action Alternative, one action alternative has been formulated that considers the Army's needs for Army 2020 realignment.

Alternative 1—Implement Force Reductions

Under Alternative 1, the Army would reduce its end-strength to as low as 420,000 as indicated in the 2014 QDR (assuming sequestration-level cuts are resumed in FY 2016).[1] Table FNSI-1 presents the potential active component Soldier and Army civilian employee reductions that could occur at each of 30 locations considered under Alternative 1. These reductions are used as the maximum potential force reduction thresholds for each installation, thereby providing force structure decision makers with options as they consider what best serves the Nation's defense prior to determining the units and locations to be affected by reductions. The 30 locations include 21 that were analyzed for potential reductions under the 2013 PEA. The 30 locations were studied because they have the potential to lose 1,000 or more active component Soldiers and Army civilian employees. The studied reductions for all 30 locations, if added together, would reduce the Army's active force to well below 400,000. Such deep reductions are not envisioned, but analyzing the potential reductions at each of the 30 locations will provide Army leaders flexibility in making future decisions about how and where to make cuts to reach the necessary end-strength as dictated by current fiscal, policy, and strategic conditions.

The further reduction in active component Army Soldiers to 420,000, as indicated in the 2014 QDR, is approximately double that analyzed in the 2013 PEA (142,000 compared to 72,000) assuming the same baseline. For analysis in the SPEA, the Army is doubling the maximum reduction scenarios as presented in the 2013 PEA to achieve the increase in force reductions under current fiscal, policy, and strategic conditions. For each installation with two or more BCTs in FY 2012, the SPEA assumes the loss of two BCTs (approximately 3,450 Soldiers for Infantry BCTs, 3,850 for Armored BCTs, and 4,200 for Stryker BCTs), as well as 60 percent of the installation's non-BCT Soldiers and 30 percent of the Army civilian workforce. For installations with only one BCT, the SPEA assumes a loss of one BCT and 60 percent of the installation's non-BCT Soldiers and 30 percent of the Army civilian workforce. For installations

[1] As noted in the SPEA, Section 1.2, the Bipartisan Budget Act of 2013 provided some relief from sequestration cuts, but these cuts are set to resume in FY 2016 unless Congress acts to stop them.

Table FNSI-1. Alternative 1—Force Reductions

Installation Name	Fiscal Year of Baseline Population	Baseline Permanent Party Soldier and Army Civilian Population[a]	Potential Population Loss Analyzed in the 2013 PEA	Potential Population Loss Analyzed in SPEA[b]	Lowest Potential Fiscal Year 2020 Baseline Permanent Party Soldier and Army Civilian Population
Aberdeen Proving Ground, Maryland	2013	12,335	--	4,300	8,035
Fort Belvoir, Virginia	2013	9,721	--	4,600	5,121
Fort Benning, Georgia	2011	17,501	7,100	10,800	6,701
Fort Bliss, Texas	2011	31,380	8,000	16,000	15,380
Fort Bragg, North Carolina	2011	52,975	8,000	16,000	36,975
Fort Campbell, Kentucky	2011	32,281	8,000	16,000	16,281
Fort Carson, Colorado	2011	25,702	8,000	16,000	9,702
Fort Drum, New York	2011	19,011	8,000	16,000	3,011
Fort Gordon, Georgia	2011	8,142	4,300	4,600	3,542
Fort Hood, Texas	2011	47,190	8,000	16,000	31,190
Fort Huachuca, Arizona	2013	5,841	--	2,700	3,141
Fort Irwin, California	2011	5,539	2,400	3,600	1,939
Fort Jackson, South Carolina	2013	5,735	--	3,100	2,635
Fort Knox, Kentucky	2011	13,127	3,800	7,600	5,527
Fort Leavenworth, Kansas	2013	5,004	--	2,500	2,504
Fort Lee, Virginia	2011	6,474	2,400	3,600	2,874
Fort Leonard Wood, Missouri	2011	9,161	3,900	5,400	3,761
Fort Meade, Maryland	2013	6,638	--	3,500	3,138

Installation Name	Fiscal Year of Baseline Population	Baseline Permanent Party Soldier and Army Civilian Population[a]	Potential Population Loss Analyzed in the 2013 PEA	Potential Population Loss Analyzed in SPEA[b]	Lowest Potential Fiscal Year 2020 Baseline Permanent Party Soldier and Army Civilian Population
Fort Polk, Louisiana	2011	10,836	5,300	6,500	4,336
Fort Riley, Kansas	2011	19,995	8,000	16,000	3,995
Fort Rucker, Alabama	2013	4,957	--	2,500	2,457
Fort Sill, Oklahoma	2011	11,337	4,700	6,800	4,537
Fort Stewart, Georgia	2011	18,647	8,000	16,000	2,647
Fort Wainwright, Alaska	2011	7,430	4,900	5,800	1,630
Joint Base Elmendorf-Richardson, Alaska	2011	6,861	4,300	5,300	1,561
Joint Base Langley-Eustis, Virginia	2011	7,382	2,700	4,200	3,182
Joint Base Lewis-McChord, Washington	2011	36,222	8,000	16,000	20,222
Joint Base San Antonio-Fort Sam Houston, Texas	2013	12,256	--	5,900	6,356
USAG Hawaii (Fort Shafter), Hawai'i	2013	7,431	--	3,800	3,631
USAG Hawaii (Schofield Barracks), Hawai'i	2011	18,441	8,000	16,000	2,441

Note: These reductions are used as the maximum potential force reduction thresholds for each installation, thereby providing force structure decision makers with options as they consider what best serves the Nation's defense prior to determining units and locations to be affected by reductions. As with the 2013 PEA, the total maximum potential reduction numbers presented in this table far exceed what is needed to achieve the goals of the 2014 QDR.

[a] Populations include: Army military and Army civilians (excludes Army students and other military service personnel, contractors, and transients); population reduction numbers include full-time military and civilian employees only. Source of data is the Army Stationing Installation Plan (February 2012 for FY 2011 data and October 2013 for FY 2013 data). Where baseline populations differ from that in the 2013 PEA, differences represent corrections to data (e.g., removal of student populations because they are not part of the permanent party population). The population numbers do not include non-appropriated fund personnel.

[b] Potential population losses to be analyzed in the SPEA are inclusive of the numbers previously analyzed in the 2013 PEA.

with no BCTs, the SPEA assumes a loss of 70 percent of the installation's active component Soldiers and 30 percent of the Army civilian workforce. Because it is unlikely that any one installation would be selected to sustain a force reduction of more than 16,000 Soldiers and Army civilian employees, the potential reduction was capped at 16,000.

In addition, the Army may have to adjust force structure of the Reserve Component, and reduce Army Reserve and Army National Guard (ARNG) end-strength to complement active component force reductions. Those Reserve ARNG and changes are beyond the scope of the SPEA.

No Action Alternative

As described in the 2013 PEA, the No Action Alternative would retain the Army at a FY 2012 authorized end-strength of about 562,000 active component Soldiers and more than 320,000 Army civilians. The No Action Alternative generally assumes that units would remain stationed where they were stationed at the end of FY 2012. Under the No Action Alternative, no additional Army personnel would have been realigned or released from the Army to balance the composition of Army skill sets to match current and projected future mission requirements or to address budget requirements. No BCT restructuring would have occurred as proposed under Alternative 2 of the 2013 PEA, and no unit inactivations would have occurred.

While no longer realistic because force reductions and restructuring have occurred since FY 2012, as published in the Army Stationing and Installation Plan in FY 2012, the inclusion of the No Action Alternative within the SPEA provides a baseline against which to compare the potential environmental and socioeconomic impacts of the Proposed Action as required by CEQ regulations.

5.0 Summary of Environmental Effects

The analysis of the potential environmental impacts is documented in the SPEA for Army 2020 realignment. Tables FNSI-2 and FNSI-3 provide a summary of impacts that are anticipated to result under the No Action Alternative and those that would result from implementing Alternative 1, respectively.

Impacts Anticipated as a Result of the Implementation of Alternative 1

Alternative 1 would involve the reduction of active component Soldiers and Army civilians to achieve an active component end-strength of 420,000 Soldiers by reducing those forces at the 30 locations shown in Table FNSI-1. The resource areas and impacts are:

Air Quality: There would be a beneficial impact to regional air quality from reduced stationary and mobile emission sources at all installations considered under this alternative. There would be less combustion and generation of air pollutants for which there are National Ambient Air Quality Standards (e.g., ozone, sulfur byproducts, lead) and hazardous air pollutants associated

with military training. Long-term effects from implementation of Alternative 1 would include a decrease in stationary source emissions, such as from boiler units and by units using transportable generators during training operations. Fewer privately owned and fleet vehicles would decrease air pollutants (e.g., carbon monoxide and ozone) because there would be less traffic on and off installations; however, for installations in more urban areas, those vehicles would likely still be traveling within the same airshed. A net reduction in greenhouse gas and fossil fuel use would occur.

Airspace: No increases in airspace designations would be required to implement Alternative 1. Some beneficial impacts to the National Airspace System may occur because reduced use of airspace would occur, requiring less frequent activation of Special Use Airspace to support training activities.

Cultural Resources: Alternative 1 would result in a reduction of training activities at installations, which would reduce the risk of impacts on cultural resources. Installations would continue to manage cultural resources in accordance with Integrated Cultural Resource Management Plans to ensure that demolition, maintenance, and routine actions and training activities do not cause a significant impact to cultural resources. Before any action with the potential to affect an eligible or potentially eligible resource, the State Historic Preservation Officer would be consulted under Section 106 of the National Historic Preservation Act, as required, or under existing agreements.

Under Alternative 1, Fort Wainwright, Alaska, identified the potential for significant but mitigable impacts to cultural resources, namely to the installation's Historic District. The effects of this alternative are similar to those analyzed in the No Action Alternative—the reduction of forces at Fort Wainwright would not result in a change to the existing conditions. Therefore, if current operations are having a significant but mitigable impact on cultural resources, the potential reduction in troops proposed in Alternative 1 would not alter those impacts. Joint Base Elmendorf-Richardson, Alaska, and U.S. Army Garrison (USAG) Hawaii (including both Fort Shafter and Schofield Barracks) also may experience significant but mitigable cultural resource impacts as part of the implementation of Alternative 1. As noted above, the reduction of forces would not alter the existing conditions at these installations, which are analyzed in the No Action Alternative.

Noise: There would be a beneficial impact from a reduced frequency of training. Fewer weapons firing and less training, and maneuver activity would generally reduce nuisance noise impacts, resulting in beneficial impacts to overall noise levels. Some installations would continue to experience adverse, though reduced, noise impacts from ongoing mission activities.

Soils: There would be a beneficial impact from reduced frequency of training. Less firing and maneuver activity would reduce soil disturbances for a beneficial impact.

Biological Resources: There could be some beneficial, long-term impacts to biological resources (e.g., vegetation and wildlife) from a reduced frequency of training. In this case, less firing and maneuver activities would reduce biological resource impacts. There would be no significant impacts to threatened and endangered species anticipated because installations would continue to be able to implement conservation plans and measures in support of listed species.

Wetlands: Beneficial to minor impacts to wetlands are anticipated because of a reduced frequency of training.

Water Resources: Negligible to minor impacts to surface water and groundwater are anticipated at all installations due to reduced sedimentation, disturbance, or spills from training and testing activities. Application of best management practices would ensure that pollutants are properly handled and disposed of, and that any hazardous waste does not enter ground or surface waters. Water demand and treatment requirements would decrease for a beneficial impact at most installations.

Facilities: Overall, minor, adverse impacts to facilities are anticipated at all installations. Personnel reductions associated with Alternative 1 would reduce requirements for facilities and affect space utilization across all installations. Depending on the missions associated with the population reductions at a given installation, the facility effects would either create additional excess capacity or shrink existing capacity shortfalls. Occupants of older, underutilized, or excess facilities may be moved to newer facilities; in some cases this could require modification of existing facilities. Construction projects that had been programmed in the future may not occur or could be downscoped. Force reductions would reduce the Army's demand for utilities and housing units; therefore, the government could incur costs for not meeting any guaranteed minimum quantities required by existing privatization agreements. While excess facility capacity would be created in the aggregate across the Army's installations, as noted in Section 1.3 of the SPEA, reductions that could result in underutilization of training areas and facilities to the point that these training areas and facilities would become excess is not reasonably foreseeable at this time for purposes of NEPA.

Socioeconomics: The level of significance was determined by the Economic Impact Forecasting System (EIFS) model, which produces thresholds for assessing the significance of impacts based on deviations relative to historical averages. The EIFS model evaluates changes in sales, income, employment, and population. A summary of these potential impacts is provided in Table FNSI-4. If EIFS predicted one or more of these indicators as significant, the overall rating for socioeconomics was determined to be significant (Table FNSI-3).

There could be significant, adverse impacts to the regional economies of a number of installations. Significant, adverse regional economic impacts from force reduction, in terms of sales, employment, regional population, and/or income are anticipated at Aberdeen Proving Ground, Maryland; Fort Benning, Georgia; Fort Bliss, Texas; Fort Bragg, North Carolina; Fort

Carson, Colorado; Fort Campbell, Kentucky/Tennessee; Fort Drum, New York; Fort Gordon, Georgia; Fort Hood, Texas; Fort Huachuca, Arizona; Fort Jackson, South Carolina; Fort Knox, Kentucky; Fort Leavenworth, Kansas; Fort Lee, Virginia; Fort Leonard Wood, Missouri; Fort Polk, Louisiana; Fort Riley, Kansas; Fort Rucker, Alabama; Fort Sill, Oklahoma; Fort Stewart, Georgia; Fort Wainwright, Alaska; Joint Base Elmendorf-Richardson, Alaska; Joint Base Langley-Eustis, Virginia; Joint Base Lewis-McChord, Washington; and USAG Hawaii, Hawai'i. Less than significant economic impacts would occur in areas with more diversified economies at Fort Belvoir, Virginia; Fort Irwin, California; Fort Meade, Maryland; and Joint Base San Antonio-Fort Sam Houston, Texas.

Socioeconomic impacts could include greater impacts to lower income populations that provide services to military employees and installations, or where job losses affect communities whose proportion of minority population is higher than the state average. Some school districts may need to re-evaluate staffing plans for schools that could lose Soldiers and Army civilian-related students as part of their student populations.

Energy Demand and Generation: Beneficial impacts are anticipated at all installations because installation and regional energy demands would decrease.

Land Use Conflict and Compatibility: Beneficial impacts could occur as a result of reduced training activities and an associated decrease in the use of land for training. Depending on the installation, this could reduce adverse impacts associated with incompatible uses with areas surrounding the installation, reduce the impacts of installation noise on surrounding land uses, or allow for more use of installation land for recreational activities in lieu of training activities.

Hazardous Materials and Hazardous Waste: Negligible to less than significant impacts would result. Remediation activities are not expected to be affected by the reduced numbers of Soldiers and support personnel. It is expected that the potential for spills would be reduced during training and maintenance activities. Waste collection, storage, and disposal processes would remain mostly unchanged, although the quantities are expected to be reduced. Violations of hazardous waste regulations or hazardous waste permits are not anticipated to increase as a result of force reductions.

Traffic and Transportation: Beneficial impacts are anticipated as traffic decreases on and off the installations. Delays at access points would decrease at some installations during morning and evening peak traffic hours. At certain installations such as Fort Belvoir, Fort Bragg, Joint Base Elmendorf-Richardson, Joint Base Lewis-McChord, and USAG Hawaii, traffic back-ups from main gate access points to federal and state highways may be reduced during peak traffic hours.

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Table FNSI-2. Potential Environmental Impacts of the No Action Alternative

Valued Environmental Component	Resource Area													
	Air Quality	Airspace	Cultural Resources	Noise	Soils	Biological Resources	Wetlands	Water Resources	Facilities	Socio-economics	Energy Demand and Generation	Land Use Conflicts and Compatibility	Hazardous Materials and Hazardous Waste	Traffic and Transportation
Aberdeen Proving Ground	M	N	M	M	M	M	M	M	N	B	M	M	M	M
Fort Belvoir	M	N	N	N	M	N	N	M	N	B	M	M	M	LS
Fort Benning	M	M	M	LS	LS	LS	LS	LS	M	B	M	LS	M	M
Fort Bliss	M	M	N	N	M	N	N	M	N	B	N	M	M	SM
Fort Bragg	M	M	N	M	SM	N	M	N	N	B	M	N	N	SM
Fort Campbell	M	N	N	N	M	N	N	M	N	B	N	N	N	N
Fort Carson	LS	N	N	N	LS	N	M	M	M	B	N	N	M	LS
Fort Drum	M	N	M	N	N	M	M	N	N	B	M	N	N	M
Fort Gordon	M	N	N	N	N	N	N	N	LS	B	N	SM	N	N
Fort Hood	M	N	N	N	M	M	N	M	N	B	N	N	N	N
Fort Huachuca	M	N	M	M	M	M	M	M	N	B	M	M	M	N
Fort Irwin	M	N	M	N	M	M	N	LS	M	B	N	M	M	M
Fort Jackson	M	N	N	N	M	M	M	M	N	B	M	M	M	N
Fort Knox	M	N	N	N	M	N	N	M	N	B	N	N	N	N
Fort Leavenworth	M	N	M	N	M	M	N	M	N	B	M	N	M	M
Fort Lee	M	N	M	N	N	N	N	N	N	B	N	N	N	N
Fort Leonard Wood	M	N	N	N	N	N	N	N	N	B	N	N	N	N
Fort Meade	M	N	N	N	N	N	N	N	N	B	M	N	M	M
Fort Polk	N	N	N	N	M	N	N	N	N	B	N	N	N	N
Fort Riley	M	N	N	N	M	N	N	M	N	B	N	N	N	N
Fort Rucker	M	N	N	LS	M	N	M	M	N	B	M	LS	M	LS
Fort Sill	M	N	N	SM	N	N	N	N	N	B	N	N	N	M
Fort Stewart	M	N	N	N	M	N	M	M	N	B	N	N	N	M
Fort Wainwright	M	M	SM	M	M	M	M	M	N	B	N	N	N	M
Joint Base Elmendorf-Richardson	LS	N	SM	M	LS	SM	LS	M	M	B	M	M	LS	LS
Joint Base Langley-Eustis	M	N	M	N	N	M	M	N	M	B	M	N	M	LS
Joint Base Lewis-McChord	LS	S	LS	S	N	LS	N	LS	LS	B	N	M	M	S
Joint Base San Antonio-Fort Sam Houston	M	N	M	N	M	N	M	M	N	B	M	N	M	N
USAG Hawaii—Schofield Barracks and Fort Shafter	N-M	M	M-SM	LS-SM	N-SM	N-SM	M	M	N-M	B	N	N	M	N

Notes: B – beneficial, N – negligible/no impact, M – minor, LS – less than significant, SM – significant but mitigable, S – significant

Table FNSI-3. Potential Environmental Impacts of Alternative 1—Implement Force Reductions

Valued Environmental Component	Resource Area													
	Air Quality	Airspace	Cultural Resources	Noise	Soils	Biological Resources	Wetlands	Water Resources	Facilities	Socio-economics	Energy Demand and Generation	Land Use Conflicts and Compatibility	Hazardous Materials and Hazardous Waste	Traffic and Transportation
Aberdeen Proving Ground	B	N	M	M	B	B	B	B	M	S	B	M	M	B
Fort Belvoir	B	B	M	N	B	B	B	B	M	LS	B	N	M	B
Fort Benning	B	N	M	M	B	B	N	M	M	S	B	M	B	B
Fort Bliss	B	M	M	B	B	B	B	B	M	S	B	M	M	B
Fort Bragg	B	M	M	B	B	B	B	B	M	S	B	N	M	B
Fort Campbell	B	N	N	B	B	N	N	B	M	S	B	N	N	B
Fort Carson	B	B	B	B	B	B	B	B	M	S	B	N	B	B
Fort Drum	B	N	M	N	B	M	B	N	M	S	B	N	N	B
Fort Gordon	B	N	N	B	N	N	N	N	M	S	B	B	N	B
Fort Hood	B	B	M	B	B	B	N	B	M	S	B	N	N	B
Fort Huachuca	B	B	M	B	B	B	B	M	M	S	B	M	M	B
Fort Irwin	B	B	B	B	B	B	N	B	M	LS	B	M	M	M
Fort Jackson	B	B	N	B	B	B	B	B	M	S	B	B	M	B
Fort Knox	B	N	M	B	B	N	N	B	M	S	B	N	M	B
Fort Leavenworth	B	N	M	B	B	B	B	B	M	S	B	N	M	B
Fort Lee	B	N	M	B	N	N	N	N	M	S	B	B	M	B
Fort Leonard Wood	B	N	M	N	N	N	N	N	M	S	B	N	M	B
Fort Meade	B	N	N	N	N	N	N	N	M	LS	B	N	M	B
Fort Polk	B	N	N	N	N	N	B	B	M	S	B	N	M	B
Fort Riley	B	N	M	B	N	B	N	B	M	S	B	N	M	B
Fort Rucker	B	N	N	B	B	B	B	B	M	S	B	B	M	B
Fort Sill	B	N	M	B	N	N	N	B	M	S	B	B	LS	B
Fort Stewart	B	N	M	B	N	B	B	B	M	S	B	B	M	B
Fort Wainwright	B	B	SM	B	N	M	M	M	M	S	B	B	N	B
Joint Base Elmendorf-Richardson	B	B	SM	B	M	M	B	B	M	S	B	M	LS	B
Joint Base Langley-Eustis	B	N	M	B	B	M	B	N	M	S	B	N	M	B
Joint Base Lewis-McChord	B	N	M	B	N	B	N	B	M	S	B	B	LS	B
Joint Base San Antonio-Fort Sam Houston	B	N	M	B	B	B	B	B	M	LS	B	N	M	B
USAG Hawaii—Schofield Barracks and Fort Shafter	B	B	M-SM	B	B	B	M-B	M-B	M	S	B	B	M	B

Notes: B – beneficial, N – negligible/no impact, M – minor, LS – less than significant, SM – significant but mitigable, S – significant

Table FNSI-4. Potential Socioeconomic Impacts of Alternative 1—Implement Force Reductions

Installation	Sales	Income	Employment	Population
Aberdeen Proving Ground	LS	LS	LS	S
Fort Belvoir	LS	LS	LS	LS
Fort Benning	LS	LS	LS	S
Fort Bliss	LS	LS	S	S
Fort Bragg	LS	LS	S	S
Fort Campbell	LS	LS	S	S
Fort Carson	LS	LS	S	S
Fort Drum	S	S	S	S
Fort Gordon	LS	LS	LS	S
Fort Hood	LS	LS	S	S
Fort Huachuca	LS	LS	S	S
Fort Irwin	LS	LS	LS	LS
Fort Jackson	LS	LS	LS	S
Fort Knox	LS	S	S	S
Fort Leavenworth	S	S	S	S
Fort Lee	LS	LS	LS	S
Fort Leonard Wood	LS	S	S	S
Fort Meade	LS	LS	LS	LS
Fort Polk	LS	S	S	S
Fort Riley	S	S	S	S
Fort Rucker	LS	LS	LS	S
Fort Sill	S	S	S	S
Fort Stewart	S	S	S	S
Fort Wainwright	LS	LS	S	S
Joint Base Elmendorf-Richardson	LS	LS	S	S
Joint Base Langley-Eustis	LS	LS	S	S
Joint Base Lewis-McChord	LS	LS	LS	S
Joint Base San Antonio-Fort Sam Houston	LS	LS	LS	LS
USAG Hawaii—Schofield Barracks and Fort Shafter	LS	LS	S	S

Notes: LS – less than significant, S – significant

6.0 Conclusion

Based on a careful review of the SPEA, which is incorporated by reference, I have concluded that no significant environmental impacts, other than socioeconomic impacts, are likely to result from the implementation of the Proposed Action under the alternative analyzed. Therefore, an environmental impact statement (EIS) will not be required. Environmental impacts associated with the implementation of the Proposed Action could occur to air quality, airspace, cultural resources, noise, soils, biological resources, wetlands, water resources, facilities, socioeconomics, energy demand, land use, hazardous materials and waste, and traffic and transportation. The Army is committed to implementing required environmental compliance and meeting health and safety requirements despite reduced funding. The continued adherence to standard operating procedures, best management practices, and various existing installation management plans (e.g., Integrated Training Area Management Program, Integrated Natural Resources Management Plan, and Endangered Species Management Plan) would ensure no significant impacts under the Proposed Action. The Army is committed to monitoring the impacts of reductions on its environmental programs and will make staffing adjustments as necessary to ensure that these cuts do not significantly adversely affect Army programs. Significant but mitigable impacts could occur under the Proposed Action to cultural resources, but measures to reduce impacts to less than significant are currently in place and would continue under the Proposed Action. After further force structure decisions are made, it is possible that additional site-specific NEPA analyses would be conducted, as appropriate, to implement these decisions.

The SPEA has identified that socioeconomic impacts could be significant at many installations. These impacts are of particular concern to the Army. CEQ and Army regulations state that economic or social impacts are not intended by themselves to require preparation of an EIS. Therefore, in accordance with these federal regulations, the Army is not preparing an EIS. Even though an EIS will not be prepared, the SPEA contains a comprehensive analysis of the socioeconomic impacts, which will be carefully considered before any force structure decisions are made.

The Army has not completed its planning for unit realignment and inactivations. The information in the SPEA will be used to support a series of decisions in the coming years regarding how the force is to be realigned. Those decisions will be made based on mission-related criteria and other factors, in addition to potential environmental and socioeconomic impacts identified in the SPEA and any future environmental analysis needed to support Army realignment decisions.

This is a Draft FNSI and is available for public comment for 60 days following the publication of the Notice of Availability of the SPEA and Draft FNSI in the *Federal Register*. Written comments on the SPEA and Draft FNSI should be sent to: U.S. Army Environmental Command, ATTN: SPEA Public Comments, 2450 Connell Road (Building 2264), Joint Base San Antonio-Fort Sam Houston, TX 78234-7664 or emailed to usarmy.jbsa.aec.nepa@mail.mil. Inquiries may also be made via phone by calling 210-466-1590 or toll-free 855-846-3940.

_____ _____

James L. Huggins, Jr. Date
Lieutenant General, U.S. Army
Deputy Chief of Staff, G-3/5/7

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Supplemental

Programmatic Environmental Assessment for Army 2020 Force Structure Realignment

June 2014

Reviewed and Approved by the U.S. Army Environmental Command

Mark A. Lee

Colonel, U.S. Army

Commanding

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1.0 PURPOSE, NEED, AND SCOPE

1.1 Introduction

Current budget projections require the United States (U.S.) Department of the Army (Army) to analyze force reductions to a lower end-strength than previously planned. Previous expectations were initially addressed in January 2011, when the Secretary of Defense announced that the Army would move forward with a force reduction of 27,000 Soldiers from the Army's Fiscal Year (FY)[2] 2012 end-strength of 562,000. Reductions and realignments were required to achieve the savings specified in the 2011 Budget Control Act. To achieve these savings, the Army proposed to reduce the size of its force from a post-9/11 peak of about 570,000 in 2010 to 490,000.[3] To provide an updated defense strategy that protects and advances U.S. interests and sustains U.S. leadership within the fiscal constraints of decreased DoD funding, the Army must consider how best to make trade-offs between programs and operations, while strategically moving forward to preserve mission capabilities and modernize the force to meet future threats. To meet national security and defense requirements, enhance Army operational effectiveness, and maintain training and operational readiness (while preserving a high quality of life for Soldiers and Families within sustainable levels of resourcing), the Army identified the need to reduce, reorganize, and rebalance (collectively, "realign") its force structure. This Proposed Action is a continuation and expansion of the reductions addressed above and would continue through FY 2020.

To analyze the potential environmental and socioeconomic impacts associated with the FY 2013 budget request, the Army prepared the *Programmatic Environmental Assessment for Army 2020 Force Structure Realignment* in 2013 (2013 PEA) (U.S. Army, 2013). The 2013 PEA analyzed a proposed action consisting of a reduction in end-strength from 562,000 to 490,000. While the 2013 PEA assessed reductions greater than required to reach an end-strength of 490,000, the 2013 PEA indicated that analyzing the larger numbers provided flexibility to decision makers over the ensuing years as conditions changed, including fiscal, policy, and security considerations beyond the scope of the Army to control (U.S. Army, 2013).

As discussed in the 2013 PEA, the Army's proposed action (Army 2020 realignment) was to conduct force reductions and force realignment to a size and configuration that was capable of meeting national security and defense objectives, implement the 2010 Quadrennial Defense Review (QDR) recommendations, sustain unit equipment and training readiness, and preserve a high quality of life for Soldiers and their Families. The Army's civilian workforce would also be reduced. Army 2020 realignment also allowed for the adjustment of forces to meet requirements in high demand military occupational specialties, while rebalancing the number and types of

[2] The federal fiscal year runs from October 1 to September 30.

[3] See *Defense Budget Priorities and Choices* (DoD, 2012).

units in lower priority military occupational specialties. Implementation of Army 2020 realignment enabled the Army to reduce its operational costs with a smaller force that still could meet the mission requirements of the then-current and future global security environment.

Reductions and realignments required as a result of the Budget Control Act of 2011 are ongoing with the first of multiple force structure decisions having been announced in June 2013, which included the inactivation of 10 Regular Army Brigade Combat Teams (BCTs) in the continental U.S. Reductions were also achieved through elimination of unstructured end-strength and drawdown of overseas forces, the latter of which reduced the impact of these force reductions on U.S. installations.

When the 2013 PEA was completed, DoD was operating in accordance with the 2010 QDR. The 2010 QDR was truly a wartime QDR. Its first objective was to further rebalance the capabilities of America's Armed Forces to prevail in the country's wars, while building the capabilities needed to deal with future threats. The second objective was to further reform DoD's institutions and processes to better support the urgent needs of the warfighter; purchase weapons that are usable, affordable, and truly needed; and ensure taxpayer dollars are spent wisely and responsibly.

By comparison, the 2014 QDR expressly recognizes that DoD faces a changing and uncertain fiscal environment. It is principally focused on preparing for the future by rebalancing defense efforts during a period of increasing fiscal constraint. The 2014 QDR advances three important initiatives. First, it builds on the 2012 Defense Strategic Guidance, by outlining an updated defense strategy that protects and advances U.S. interests and sustains U.S. leadership. Second, the QDR describes how DoD is responsibly and realistically taking steps to rebalance major elements of the Joint Force given the changing fiscal environment. Third, the QDR demonstrates the intent to rebalance the DoD institution as part of the effort to control internal cost growth that is threatening to erode our combat power during this period of fiscal austerity.

Since the 2013 PEA was completed, DoD mission and fiscal considerations have continued to change, and the future end-strength of the Army must be reduced below the 490,000 considered in the 2013 PEA. The 2014 QDR states that the active Army will reduce from its wartime high force of 570,000 to 440,000–450,000 Soldiers. The 2014 QDR also states if sequestration-level cuts are imposed in FY 2016 and beyond, active component end-strength would be reduced to 420,000. These potential reductions, therefore, call for an environmental and socioeconomic impact analysis of approximately two times the reductions analyzed in the 2013 PEA. Consequently, the Army is preparing this supplement, building on the information and analysis contained in the 2013 PEA (the 2013 PEA is incorporated by reference) to assess the environmental and socioeconomic impacts of a substantial increase in potential reductions. The Proposed Action for this Supplemental PEA (SPEA) is very similar to the reduction alternative in the 2013 PEA but is both broader in scope and allows for deeper potential reductions. The

Army recognizes that these cuts down to 420,000 Soldiers could have serious impacts to the communities that host the Nation's force, and this document is intended to determine and disclose those impacts.

1.2 Purpose and Need of the Proposed Action

The 2014 QDR indicated the Army needs to meet its national security mission with potentially reduced levels of funding and personnel. The Army's national security mission, along with the other U.S. Armed Forces, is to (1) counter terrorism and irregular warfare; (2) deter and defeat aggression; (3) project power despite anti-access/area denial challenges; (4) counter weapons of mass destruction; (5) operate effectively in cyberspace and space; (6) maintain a safe, secure, and effective nuclear deterrent; (7) defend the homeland and support civil authorities; (8) provide a stabilizing presence; (9) conduct stability and counter-insurgency operations; and (10) conduct humanitarian disaster relief and other operations (see 2013 PEA, pages 1-3 to 1-6 for a more complete explanation of the Army's mission). The end-strength of the Army as a whole and the future Soldier and Army civilian population at individual installations continue to be uncertain. In addition to the 10-year, $487 billion cut in spending instituted under the Budget Control Act of 2011, the Budget Control Act also instituted a sequestration mechanism requiring additional cuts of about $50 billion annually through FY 2021. While the Bipartisan Budget Act of 2013 provided some relief from sequestration, the annual sequestration cuts are set to resume in FY 2016, unless Congress passes legislation to stop sequestration from going into effect (DoD, 2014). In response to the fiscal constraints and recognizing that the Joint Force is currently out of balance, the 2014 QDR, which "seeks to adapt, reshape, and rebalance our military to prepare for the strategic challenges and opportunities we face in the years ahead," indicates the Army must reduce its active component strength from a war-time high of 570,000 to 440,000–450,000 Soldiers, and, possibly, active component Army end-strength would need to be further reduced to 420,000 (DoD, 2014).

The potential reduction in active Army force end-strength to 420,000 if sequestration-level cuts resume in FY 2016 is about double the 72,000 reduction in end-strength required as part of the FY 2013 defense budget request and considered in the 2013 PEA. Because the current potential force reduction numbers are more extensive than those envisioned in the 2013 PEA, further National Environmental Policy Act (NEPA) analysis is required to provide force structure decision makers information on the potential environmental and socioeconomic impacts at those installations where a cut of 1,000 or more Soldiers and Army civilians combined may occur. As explained in Section 1.4 of the 2013 PEA, the 1,000 Soldier/Army civilian threshold is an appropriate threshold for determining whether reductions should be analyzed programmatically. The Army must meet its national security mission under the potential budgetary constraints while accomplishing the purpose of sustaining, manning, training, equipping, stationing, deployment, and readiness activities to achieve the Nation's strategic security and defense objectives. This purpose includes (1) matching Army force structure and capabilities with mission requirements; (2) sustaining force readiness; (3) preserving Soldier and Family quality

of life and the all-volunteer force; and (4) adapting the force to reduce Army expenditures (see 2013 PEA, pages 1-6 to 1-7, for a more complete explanation of these goals).

1.3 Scope of the Analysis

This SPEA has been prepared in accordance with NEPA—the regulations issued by the Council on Environmental Quality (CEQ)—40 Code of Federal Regulations (CFR) Parts 1500–1508, and the Army's procedures for implementing NEPA, published in 32 CFR Part 651, *Environmental Analysis of Army Actions*. This SPEA addresses the potential environmental impacts of the proposed further reductions in the active component Soldier and Army civilian workforce to enable force structure decisions for the potential end-strengths outlined in the 2014 QDR. Military installations in the U.S. that could potentially lose 1,000 or more active component Soldiers and full-time Army civilians are included in the scope of this supplemental analysis. As part of the NEPA process, this SPEA will provide information about the significance of environmental and socioeconomic impacts of the Proposed Action, and will determine whether a Finding of No Significant Impact (FNSI) or an environmental impact statement (EIS) is an appropriate outcome. This SPEA will also provide the force structure decision makers important information regarding potential environmental and socioeconomic impacts associated with the Proposed Action.

In general terms, a change in the number of Army civilian employees is anticipated to occur in conjunction with Soldier reductions. A decrease from 562,000 to 420,000 Soldiers (approximately a 25 percent reduction) would result in some level of reduction in Army civilian positions across the Army, although there could be variations among installations. The scope of the analysis, therefore, includes potential reductions to full-time Army civilians, in addition to reductions of active component Soldiers.

In June 2013, the Army announced its stationing plan to draw down to 490,000 active component Soldiers, which included inactivating 10 BCTs in the U.S. This drawdown was analyzed in the 2013 PEA. The Army has not yet determined how to implement a reduction in end-strength of an additional 70,000 Soldiers. Options to achieve this additional force restructure are too numerous for analysis at this time; therefore, analysis of reductions related to specific units or organizations are not within the scope of this SPEA. The Army will identify specific units and organizations to be affected by reductions during future force structure decisions. These decisions could include changes in number and type of units, structural changes to units, or combinations of these actions at a given stationing location.

Once force structure decisions are made at Headquarters, Department of the Army (HQDA) and specific installations and joint bases know which units stationed at their location would be affected, determinations can be made regarding the need for potential follow-on NEPA documentation to support the implementation of stationing decisions. See Section 1.6 for an explanation of the relationship between the force structure decision making process and NEPA.

This analysis does not address changes at locations outside the U.S. The Army determined that units permanently stationed outside the U.S. were not within the scope of both the 2013 PEA and this SPEA because these reductions were already underway. Army forces outside the U.S. will continue to be considered for realignment, but these decisions represent a different set of stationing decisions with separate factors for consideration. Overseas realignments will continue according to the overall reductions of the QDR and budget restrictions discussed above.

As with the 2013 PEA, this SPEA looks at Army installations that have the potential to lose 1,000 or more full-time, active component Soldiers and Army civilians from FY 2013 to FY 2020. The 2013 PEA focused on installations with operational forces (i.e., BCTs). Because the 2014 QDR calls for additional cuts, the Army must consider more than operational forces for reductions; therefore, more installations now fit into this 1,000-person threshold than did for the reduction alternative of the 2013 PEA. The 1,000-Soldier/Army civilian threshold was chosen because it represents a level of reduction at a majority of installations that requires additional analysis under the Army's NEPA regulations (USAEC, 2007). It also represents, as it did in the 2013 PEA, a number that Army planners thought could produce significant economic impacts. The information in this SPEA will assist the Army in complying with other Congressional notifications required when the Army plans to reduce more than 1,000 military members at an installation (10 United States Code §993). Although this SPEA analyzes only installations that have the potential to lose 1,000 or more full-time, active component Soldiers and/or Army civilians, all Army organizations have the potential to be affected by the Army's force reduction.

Changes to the number of Army trainees, transients, holdees, and students (categories of Soldiers who are, for various reasons, not permanently assigned at a given installation) as a result of force reduction are unknown; therefore, any analysis can only be discussed generally and qualitatively in this SPEA. Some of the installations analyzed for reductions conduct training for students assigned to training units or commands at the installation (see Table 1.3-1). Until final decisions are made as to where force reductions will be made, the Army Training and Doctrine Command cannot make any decision about training loads or the frequency of training to be conducted at the installations indicated in Table 1.3-1. Neither can the Army Medical Command (MEDCOM) make similar decisions regarding those in medical specialties training programs. Therefore, impacts resulting from changes to student populations under the Proposed Action are analyzed qualitatively, instead of quantitatively, in this SPEA.

Similarly, changes to the number of Army contractors as a result of force reductions are unknown; therefore, any analysis can only be discussed generally and qualitatively in this SPEA. Reductions in contract support to the Army are also not necessarily in the same Region of Influence (ROI) of the affected installations, making it impossible to analyze all impacts when it is unknown how contracts will be affected.

Table 1.3-1. Installations with Major Army Training Missions

Installations	
Fort Benning, Georgia	Fort Leonard Wood, Missouri
Fort Gordon, Georgia	Fort Rucker, Alabama
Fort Huachuca, Arizona	Fort Sill, Oklahoma
Fort Jackson, South Carolina	Joint Base Langley-Eustis, Virginia
Fort Leavenworth, Kansas	Joint Base San Antonio-Fort Sam Houston, Texas
Fort Lee, Virginia	

The future end-strength of the Army as a whole and the future strength at individual installations are in flux at the moment. For example, while the 2014 QDR calls for reductions in the Army's active component end-strength, the 2014 QDR also says that the DoD will invest in new and expanded cyber capabilities and forces to enhance its ability to conduct cyberspace operations to support Combatant Commanders as they plan and execute military missions and to counter cyber-attacks against the U.S., potentially resulting in increases in military employee strength at some installations.

For instance, at Fort Gordon, Georgia, the Army analyzed the stationing of Army Cyber Command there, prepared an environmental assessment (EA), and reached a FNSI. The Army subsequently determined that the Cyber Command will be located at Fort Gordon to support the expanded cyber capabilities identified in the QDR. Currently, Fort Gordon is preparing a comprehensive EA that will look at other possible gains at the installation, an action that is reasonably foreseeable even though Fort Gordon is also being considered for reductions under this SPEA. Fort Gordon is just one example of an installation whose future force size is unknown and may include growth or reduction. Similar growth scenarios, while anticipated to be rare, may occur at other installations for various reasons. Regardless, force structure decisions will consider potential environmental and socioeconomic impacts. Until force reduction decisions are made, it is unknown which installations would actually be affected. Again referring to Fort Gordon, it is quite possible that the Signal School will have fewer students in the future as the Army as a whole reduces in size. As a result, the number of permanent instructors at the installation may be reduced, potentially offsetting any gains that Fort Gordon would have as a result of cyber initiatives and delaying or eliminating other proposed initiatives.

Fort Belvoir is another example of an installation in a similar situation. It is now included in this SPEA because it could lose more than 1,000 active component Soldiers and Army civilians; however, Fort Belvoir is also preparing an EIS that analyzes a revised master plan that would accommodate additional growth. Because so many non-Army and even non-DoD organizations are tenants of Fort Belvoir, growth could occur despite overall Army force structure reductions. Similar to Fort Gordon, possible overall reduction and growth are being examined at the proper level of NEPA analysis.

Evaluating potential losses at an installation as part of a nationwide programmatic approach while it is currently experiencing gains in personnel appears somewhat conflicting. Because neither set of actions will necessarily be implemented in the future, the predicted personnel numbers cannot be offset against each other. Just as the 2014 QDR highlights highly specific areas of expanded capability at the same time it outlines overall reductions, it is important for this nationwide programmatic SPEA and site-specific studies of mission-driven gain scenarios to proceed simultaneously.

The Army did not evaluate speculative impacts to the environment or safety and health based on potential cuts to environmental, hospital, military police, or fire and rescue personnel. Regardless of any drawdown in military or civilian personnel, the Army is committed to implementing required environmental compliance and meeting health and safety requirements. Specific future reductions in the level of Army staff that could result in potential impacts to the environment would be the subject of appropriate site-specific, follow-on NEPA analysis. Similarly, potential impacts resulting from any reductions in other staffing levels at the Air Force managed joint bases included in this SPEA could be analyzed in separate, future NEPA analyses, as appropriate, although these reductions would not be related to the Army 2020 reductions analyzed herein.

It is also possible that if force structure decisions result in a substantial reduction at one or more of the analyzed installations, underuse of training areas, cantonment facilities, and utilities could occur, including both government-owned and privatized housing and utilities. Because force structure decisions are yet to be made, the determination of whether specific land or facilities will become surplus, and eventually be transferred to other owners is not possible at this time and is not within the scope of this analysis. Also not within the scope of this analysis for the same reason is whether reductions would require buildings to be demolished or placed in caretaker status (“mothballed”). In the 2013 PEA, the proposed action largely only involved potential impacts at BCTs, so any building demolition at that installation would likely only include BCT-related facilities. Therefore, it was reasonable to assume that some demolition of existing facilities and structures could occur under the 2013 PEA’s proposed action. Since there are no specific units or programs identified for potential cuts with the current Proposed Action in this SPEA, it is impossible to determine any facilities or buildings that have the potential to be affected by any proposed cuts. Site-specific NEPA analysis of these potential impacts would be performed, as needed, following the force structure decisions. If Army reductions should result in impacts to the utilization of facilities and/or training areas at the Air Force managed joint bases, the Air Force could conduct any required site-specific NEPA analysis, as appropriate, and make the final determinations regarding disposition of these affected facilities and/or training areas.

Similar to the 2013 PEA, the reduction in force structure analyzed in this SPEA is not related to past or potential future Base Realignment and Closure (BRAC) actions. The current need to

consider changes to force structure and reduce the Army's end-strength is being driven by national defense strategy and budget considerations. Force structure reductions are not driven or caused by BRAC. Rather, the reverse is true. BRAC is a response to force structure reductions and is the way to address excess capacity that is created by force structure reductions. The recent DoD request to seek authorization for an additional base-closure round in FY 2017 is not addressed in this SPEA. BRAC-related recommendations would only occur if and after Congress authorized a future BRAC round and only after a long and thorough analysis. At this time, Congress has not authorized any future BRAC rounds, and the Army has not analyzed or developed future BRAC recommendations. In addition, the determinations made in this SPEA and the stationing decisions that may follow do not dictate or preclude recommendations that might be made under a future BRAC process. Finally, BRAC includes its own NEPA requirements to which the Army would be subject if its facilities were involved. The realignments considered in this SPEA and any future BRAC recommendations are not "connected" actions for purposes of NEPA.

The scope of this analysis excludes any potential reductions in the Army National Guard (ARNG) and U.S. Army Reserve. Under existing conditions, ARNG will continue its downsizing from a war-time high of 358,000 to 335,000 Soldiers, and the U.S. Army Reserve will reduce from 205,000 to 195,000 Soldiers (DoD, 2014). If sequestration-level cuts are imposed in FY 2016 and beyond, the ARNG will be further reduced to 315,000, and the U.S. Army Reserve will be further reduced to 185,000 (DoD, 2014). Soldiers in these components are generally not serving full time at installations. They serve at a variety of locations, including many installations not analyzed for reductions in this SPEA. It is currently not known how or where reductions in ARNG and U.S. Army Reserve forces would be enacted; therefore, they are not included in the analysis of this SPEA.

This SPEA does not analyze any potential reductions in other military departments. U.S. Air Force, U.S. Navy, and U.S. Marine Corps service members are tenants on some of the Army-managed installations analyzed in this SPEA. Three installations affected by the Proposed Action analyzed in this SPEA are joint bases managed by the Air Force—Joint Base Elmendorf-Richardson, Joint Base Langley-Eustis, and Joint Base San Antonio-Fort Sam Houston. Joint Base Lewis-McChord is managed by the Army. In addition to Army end-strength, the 2014 QDR also discusses reductions for other military services; however, specific information regarding these other services' force reductions was not available for incorporation in this SPEA.

1.4 Public Involvement

As part of the NEPA process, the Army has made this SPEA and Draft FNSI available to the public and interested stakeholders. The Notice of Availability of the SPEA and Draft FNSI was published in the *Federal Register*, announced nationally in USA Today, and announced locally in newspapers providing service to the affected installations and surrounding communities. The public will be given 60 days to comment on this SPEA and Draft FNSI. Public comments

submitted on the SPEA and Draft FNSI will be made part of the administrative record and will be considered prior to the Army documenting its decision on this NEPA process.

This SPEA and Draft FNSI are available for review on the U.S. Army Environmental Command website at: http://aec.army.mil/Services/Support/NEPA/Documents.aspx. Please submit comments to U.S. Army Environmental Command, ATTN: SPEA Public Comments, 2450 Connell Road (Building 2264), Joint Base San Antonio-Fort Sam Houston, TX 78234-7664 or via email to: usarmy.jbsa.aec.nepa@mail.mil. Inquiries may also be made via phone by calling 210-466-1590 or toll-free 855-846-3940.

1.5 Army NEPA Decision

This NEPA process will end with an Army decision documented in a FNSI or a Notice of Intent to prepare an EIS. The NEPA decision maker will consider both the environmental and socioeconomic impacts analyzed in this SPEA, along with all other relevant information, such as public issues of concern that arose during the comment period, prior to making a final decision. If the decision maker determines that there are no significant environmental impacts, that decision will be documented in a FNSI, which will be signed no earlier than the end of the public comment period. The Army may initiate a Notice of Intent for an EIS if new information warrants the need for additional analysis of potentially significant environmental impacts.

As with the 2013 PEA, the socioeconomic impacts analyzed in this SPEA are of particular concern to the Army. Socioeconomic impacts analyzed within this SPEA may approach or exceed significance thresholds. CEQ and Army NEPA regulations, however, do not require preparation of an EIS when the only significant impacts are socioeconomic. CEQ's regulation states: "economic or social effects are not intended by themselves to require preparation of an environmental impact statement" (40 CFR Part 1508.14). In the same vein, the Army's NEPA regulations do not require preparation of an EIS for realignment or stationing actions where the only significant impacts are socioeconomic with no significant environmental impact [32 CFR Part 651.42(e)]. Absent significant environmental impacts, the exceedance of significance thresholds for socioeconomic impacts alone would not require the Army to issue a Notice of Intent to prepare an EIS.

1.6 Force Structure Decision Making Process

It is important to understand the programmatic nature of the action alternative analyzed in this SPEA and the severity of the force reduction decisions to be made by the Army through FY 2020. This SPEA looks at possible losses at select installations using the greatest anticipated possible population loss. This does not mean that these losses will actually occur to the full extent analyzed or that each installation analyzed will incur losses. These scenarios, however, are being evaluated because force structure decision makers need information about potential environmental and socioeconomic impacts, along with other input, as they analyze force structure alternatives to rebalance the Army's capability, capacity, and readiness through FY

2020. This SPEA will provide the Army force structure decision makers with an understanding of the impacts to the human environment that would occur under the Proposed Action.

The force structure decision process is a complex process designed to assist Army leaders in reaching difficult decisions. The start of the force structure decision process includes specific guidance from DoD and Senior Leadership used to begin shaping possible outcomes. The 2014 QDR and current defense strategy are among the documents used to guide the force structure decision process. During the process, input is also received on operational and strategic considerations, mission readiness requirements and capabilities, Soldier and Family quality of life, past and future investment costs, statutory requirements, and community input. These and other inputs are all considered as part of the force structure decision process.

The analysis in this SPEA is only one of the military analysis factors considered. Separate and apart from the NEPA process, the Army will also conduct listening sessions for the communities surrounding the affected installations as was previously done during the decision making process for the Army 2020 realignment in 2013. These sessions will provide the opportunity for Army force management personnel to receive information related to the full spectrum of issues—not just environmental—that will be used in making force structure decisions. While the listening sessions are not public meetings related to the NEPA process, they give the affected communities the opportunity to provide input to the Army's force structure reduction decisions. The focus of the listening sessions is to capture community input for Army leaders to consider as part of the Army's overall force structure analysis before making any decisions on force structure reductions.

If this NEPA process ends in a FNSI, the FNSI will not identify the specific installations at which the actual losses would occur. The specific units to be affected by reductions and the specific installations and joint bases to which affected units are assigned will be identified during the force structure decision process. As noted, the Army will be able to make decisions on future force restructuring at the appropriate time with supporting information from not only this SPEA but also public feedback, strategic and operational requirements, and a military value analysis of installations.[4]

[4] A military value analysis is a decision analysis tool designed to rank-order installations based on attributes that the Army identifies as being operationally important to the type of unit in question for each stationing decision. The Army has generally used the military value analysis model "in stationing decisions with a large impact, potentially greater risk, and requirement for more rigorous analytical underpinning, such as in stationing decisions involving brigade combat teams" (GAO, 2013).

2.0 DESCRIPTION OF THE PROPOSED ACTION

2.1 Introduction

This section provides a description of the Proposed Action. The Proposed Action for this SPEA, which addresses the above-described purpose and need, is to further reduce the Army's end-strength beyond that analyzed in the 2013 PEA.

2.2 Proposed Action

The Army's Proposed Action is to reduce and realign its forces, both active component Soldiers and Army civilian employees, to a potential end-strength of 420,000 Soldiers, as outlined in the 2014 QDR.

As force structure decisions must take into account many factors other than potential environmental and socioeconomic impacts, the Proposed Action uses potential population losses at installations which far exceed the reductions called for in the 2014 QDR. This has been done to provide force structure decision makers the greatest flexibility to take other factors into consideration during the force structure decision process. The Proposed Action includes potential reductions at 30 locations across the continental U.S., Alaska, and Hawai'i (Figure 2.2-1). Installations included are those with the potential to lose a minimum of 1,000 active component Soldiers and full-time Army civilian employees.

The implementation of Army 2020 realignment to reach the reduced Army end-strength, as indicated in the 2014 QDR, will allow the Army to field a smaller force within budget constraints.

Notes:

1 – Aberdeen Proving Ground, MD	11 – Fort Gordon, GA	21 – Fort Polk, LA
2 – Fort Belvoir, VA	12 – Fort Hood, TX	22 – Joint Base Elmendorf-Richardson, AK
3 – Fort Benning, GA	13 – Fort Huachuca, AZ	23 – Fort Riley, KS
4 – Fort Bliss, TX	14 – Fort Irwin, CA	24 – Fort Rucker, AL
5 – Fort Bragg, NC	15 – Fort Jackson, SC	25 – Joint Base San Antonio-Fort Sam Houston, TX
6 – Fort Campbell, KY	16 – Fort Knox, KY	26 – Fort Sill, OK
7 – Fort Carson, CO	17 – Fort Leavenworth, KS	27 – Fort Stewart, GA
8 – Fort Drum, NY	18 – Fort Lee, VA	28 – Fort Wainwright, AK
9 – Joint Base Langley-Eustis, VA	19 – Fort Leonard Wood, MO	29a – USAG Hawaii, Fort Shafter, HI
10 – Fort Meade, MD	20 – Joint Base Lewis-McChord, WA	29b – USAG Hawaii, Schofield Barracks, HI

Figure 2.2-1. Installation Locations for Potential Reductions under the Proposed Action

3.0 ALTERNATIVES AND SCREENING CRITERIA

3.1 Introduction

This section discusses the alternatives the Army is considering to implement the Proposed Action. The purpose and need described in Chapter 1 provides the context within which to analyze the viability of alternatives. The purpose and need define necessary elements of the Proposed Action and allow consideration of alternatives for realignment and restructuring of Army forces. In addition, this section discusses the screening criteria used to select candidate installations for stationing actions to support the further reduction in end-strength.

One Army-wide action alternative and the No Action Alternative have been analyzed for 30 locations within the continental U.S., Alaska, and Hawai'i.

3.2 Alternatives Carried Forward for Analysis

One action alternative is analyzed in this SPEA—the further reduction in Army end-strength below the 490,000 Soldiers in the 2013 PEA to 420,000 Soldiers. Included in the one action alternative are related cuts to full-time Army civilian personnel. This reduction represents approximately twice the reduction of Soldiers and Army civilians previously analyzed in the 2013 PEA.

3.2.1 Alternative 1—Implement Force Reductions

Under Alternative 1, the Army would reduce its end-strength to as low as 420,000 as indicated in the 2014 QDR (assuming sequestration-level cuts are resumed in FY 2016). Table 3.2-1 presents the potential active component Soldier and Army civilian employee reductions that are analyzed at each of 30 locations considered under Alternative 1. These reductions are used as the maximum potential force reduction thresholds for each installation, thereby providing force structure decision makers with options as they consider what best serves the Nation's defense prior to determining the units and locations to be affected by reductions. As with the 2013 PEA, the total maximum potential reduction numbers presented in Table 3.2-1 far exceed what is needed to achieve the required reductions. Accordingly, it is important to realize that maximum potential reductions will not occur at all installations. The studied reductions for all 30 locations, if added together, would reduce the Army's active force to well below 400,000. However, because such deep reductions are not envisioned, the nationwide cumulative effects analysis aligns with the net reductions potentially needed per the QDR. Analyzing the potential reductions at each of the 30 locations as indicated in Table 3.2-1 will provide HQDA flexibility in making future decisions about how and where to make cuts to reach the necessary end-strength as dictated by current fiscal, policy, and strategic conditions.

This SPEA approximately doubles the reductions assessed in the 2013 PEA. To achieve the approximate reduction of 72,000 Soldiers resulting in an end-strength of 490,000, the following

assumptions were made in the 2013 PEA (see Section 3.2.1 of the 2013 PEA). For each installation with one or more BCT, the 2013 PEA assumed the loss of that BCT (approximately 3,450 Soldiers for Infantry BCTs [IBCTs], 3,850 for Armored BCTs [ABCTs], and 4,200 for Stryker BCTs), as well as 30 percent of the installation's non-BCT Soldiers and 15 percent of the Army civilian workforce. Because it was deemed unlikely that any one installation would be selected to sustain a force reduction of more than 8,000 military employees, the potential reduction was capped at 8,000 in the 2013 PEA reduction alternative. For installations with no BCTs, the 2013 PEA assumed a loss of 35 percent of the installation's Soldiers and 15 percent of the Army civilian employees. To achieve a potential Army end-strength of 490,000, 21 locations were identified in the 2013 PEA, with its focus on BCTs, as having the potential to lose 1,000 or more Soldier and Army civilian employees.

The further reduction in active component Army Soldiers to 420,000, as indicated in the 2014 QDR, is approximately double that analyzed in the 2013 PEA (142,000 compared to 72,000) assuming the same baseline, although, unlike the 2013 PEA, the types of units to be affected by further reductions are unknown and therefore not discussed. For analysis in this SPEA, to achieve the increase in force reductions under current fiscal, policy, and strategic conditions, the Army is doubling the maximum reduction scenarios that were presented in the 2013 PEA with one change. The formula for doubling the military employees to be lost at installations with only one BCT has changed. Installations with only one BCT cannot lose a second BCT. If the numerical reduction was doubled from that in the 2013 PEA, with no consideration of unit type, the number of non-BCT Soldiers would be reduced even further by the equivalent of the size of a BCT, and this is not a realistic scenario. Thus, in this SPEA, the formula for calculating the reduction of active component personnel at installations with only one BCT is the loss of one BCT and doubling the number of non-BCT Soldiers and Army civilian workforce (i.e., loss of one BCT plus two x (30 percent of non-BCT Soldiers + 15 percent of Army civilians). Table 3.2-2 provides a breakdown of permanent party Soldier and Army civilian reductions assessed in this SPEA.

For the numbers presented in Table 3.2-1, it is important to remember that these numbers represent the maximum reduction scenarios at these installations; they are not currently being proposed by the Army. Rather the numbers are analyzed to provide the Army flexibility as it continues to review and determine how best to structure its forces in response to changing fiscal, policy, and strategic conditions during the FY 2014 to FY 2020 time frame. This continued review recognizes that some installations have already seen some reductions in numbers based on force structure decisions analyzed under the 2013 PEA, while others have had force structure decisions announced but not yet completed. Additionally, the continued review recognizes that other stationing actions not foreseen at the time of the 2013 PEA (e.g., the establishment of Army Cyber Command at Fort Gordon) have already been implemented or are in the process of being implemented. To ensure consistency in the presentation of population figures and analysis, the reduction numbers in Table 3.2-1 are not additive to the numbers analyzed in the 2013 PEA,

Table 3.2-1. Alternative 1—Force Reductions

Installation Name	Fiscal Year of Baseline Population	Baseline Permanent Party Soldier and Army Civilian Population[a]	Potential Population Loss Analyzed in the 2013 PEA	Potential Population Loss Analyzed in the SPEA[b]	Lowest Potential Fiscal Year 2020 Baseline Permanent Party Soldier and Army Civilian Population
Aberdeen Proving Ground, Maryland	2013	12,335	--	4,300	8,035
Fort Belvoir, Virginia	2013	9,721	--	4,600	5,121
Fort Benning, Georgia	2011	17,501	7,100	10,800	6,701
Fort Bliss, Texas	2011	31,380	8,000	16,000	15,380
Fort Bragg, North Carolina	2011	52,975	8,000	16,000	36,975
Fort Campbell, Kentucky	2011	32,281	8,000	16,000	16,281
Fort Carson, Colorado	2011	25,702	8,000	16,000	9,702
Fort Drum, New York	2011	19,011	8,000	16,000	3,011
Fort Gordon, Georgia	2011	8,142	4,300	4,600	3,542
Fort Hood, Texas	2011	47,190	8,000	16,000	31,190
Fort Huachuca, Arizona	2013	5,841	--	2,700	3,141
Fort Irwin, California	2011	5,539	2,400	3,600	1,939
Fort Jackson, South Carolina	2013	5,735	--	3,100	2,635
Fort Knox, Kentucky	2011	13,127	3,800	7,600	5,527
Fort Leavenworth, Kansas	2013	5,004	--	2,500	2,504
Fort Lee, Virginia	2011	6,474	2,400	3,600	2,874
Fort Leonard Wood, Missouri	2011	9,161	3,900	5,400	3,761
Fort Meade, Maryland	2013	6,638	--	3,500	3,138

Installation Name	Fiscal Year of Baseline Population	Baseline Permanent Party Soldier and Army Civilian Population[a]	Potential Population Loss Analyzed in the 2013 PEA	Potential Population Loss Analyzed in the SPEA[b]	Lowest Potential Fiscal Year 2020 Baseline Permanent Party Soldier and Army Civilian Population
Fort Polk, Louisiana	2011	10,836	5,300	6,500	4,336
Fort Riley, Kansas	2011	19,995	8,000	16,000	3,995
Fort Rucker, Alabama	2013	4,957	--	2,500	2,457
Fort Sill, Oklahoma	2011	11,337	4,700	6,800	4,537
Fort Stewart, Georgia	2011	18,647	8,000	16,000	2,647
Fort Wainwright, Alaska	2011	7,430	4,900	5,800	1,630
Joint Base Elmendorf-Richardson, Alaska	2011	6,861	4,300	5,300	1,561
Joint Base Langley-Eustis, Virginia	2011	7,382	2,700	4,200	3,182
Joint Base Lewis-McChord, Washington	2011	36,222	8,000	16,000	20,222
Joint Base San Antonio-Fort Sam Houston, Texas	2013	12,256	--	5,900	6,356
USAG Hawaii (Fort Shafter), Hawai'i	2013	7,431	--	3,800	3,631
USAG Hawaii (Schofield Barracks), Hawai'i	2011	18,441	8,000	16,000	2,441

Note: These reductions are used as the maximum potential force reduction thresholds for each installation, thereby providing force structure decision makers with options as they consider what best serves the Nation's defense prior to determining the units and locations to be affected by reductions. As with the 2013 PEA, the total maximum potential reduction numbers presented in this table far exceed what is needed to achieve the goals of the 2014 QDR.

[a] Populations include: Army military and Army civilians (excludes Army students and other military service personnel, contractors, and transients); population reduction numbers include full-time military and civilian employees only. Source of data is the Army Stationing Installation Plan (February 2012 for FY 2011 data and October 2013 for FY 2013 data). Where baseline populations differ from that in the 2013 PEA, differences represent corrections to data (e.g., removal of student populations because they are not part of the permanent party population). The population numbers do not include non-appropriated fund personnel.

[b] Potential population losses to be analyzed in this SPEA are inclusive of the numbers previously analyzed in the 2013 PEA.

Table 3.2-2. Alternative 1 Breakout of Reduction Scenarios by Permanent Party Soldiers and Army Civilians

Installation Name	Fiscal Year of Baseline Population	Permanent Party Soldiers		Army Civilians		Total Assessed Installation Reduction[a]
		Baseline Population	Assessed Reduction	Baseline Population	Assessed Reduction	
Aberdeen Proving Ground, Maryland	2013	1,428	1,000	10,907	3,272	4,300
Fort Belvoir, Virginia	2013	4,121	2,885	5,600	1,680	4,600
Fort Benning, Georgia	2011	13,256	9,493	4,245	1,274	10,800
Fort Bliss, Texas	2011	28,194	15,044	3,186	956	16,000
Fort Bragg, North Carolina	2011	45,051	13,623	7,924	2,377	16,000
Fort Campbell, Kentucky	2011	29,683	15,221	2,598	779	16,000
Fort Carson, Colorado	2011	23,353	15,295	2,349	705	16,000
Fort Drum, New York	2011	17,067	15,417	1,944	583	16,000
Fort Gordon, Georgia	2011	5,604	3,922	2,538	761	4,600
Fort Hood, Texas	2011	42,545	14,606	4,645	1,394	16,000
Fort Huachuca, Arizona	2013	2,466	1,726	3,375	1,013	2,700
Fort Irwin, California	2011	4,658	3,260	881	264	3,600
Fort Jackson, South Carolina	2013	3,376	2,363	2,359	708	3,100
Fort Knox, Kentucky	2011	7,624	5,954	5,503	1,651	7,600
Fort Leavenworth, Kansas	2013	2,555	1,789	2,449	735	2,500
Fort Lee, Virginia	2011	3,988	2,792	2,486	746	3,600
Fort Leonard Wood, Missouri	2011	6,423	4,496	2,738	821	5,400
Fort Meade, Maryland	2013	3,772	2,640	2,866	860	3,500

Installation Name	Fiscal Year of Baseline Population	Permanent Party Soldiers		Army Civilians		Total Assessed Installation Reduction[a]
		Baseline Population	Assessed Reduction	Baseline Population	Assessed Reduction	
Fort Polk, Louisiana	2011	9,298	6,039	1,538	461	6,500
Fort Riley, Kansas	2011	17,853	15,357	2,142	643	16,000
Fort Rucker, Alabama	2013	2,505	1,754	2,452	736	2,500
Fort Sill, Oklahoma	2011	8,603	6,022	2,734	820	6,800
Fort Stewart, Georgia	2011	16,370	15,317	2,277	683	16,000
Fort Wainwright, Alaska	2011	6,342	5,485	1,088	326	5,800
Joint Base Elmendorf-Richardson, Alaska	2011	6,316	5,169	545	164	5,300
Joint Base Langley-Eustis, Virginia	2011	4,872	3,410	2,510	753	4,200
Joint Base Lewis-McChord, Washington	2011	31,084	14,459	5,138	1,541	16,000
Joint Base San Antonio-Fort Sam Houston, Texas	2013	5,641	3,949	6,615	1,985	5,900
USAG Hawaii (Fort Shafter), Hawai'i	2013	3,893	2,725	3,538	1,061	3,800
USAG Hawaii (Schofield Barracks), Hawai'i	2011	16,420	15,394	2,021	606	16,000

Note: Source of data is the Army Stationing Installation Plan (February 2012 for FY 2011 data and October 2013 for FY 2013 data).

[a] Total is rounded to an adjacent 100.

but are inclusive of those numbers. For example, the population loss of 16,000 for Fort Bliss includes the 8,000 analyzed in the 2013 PEA; it is not being added to the previously analyzed figure of 8,000.

The Army has already made some decisions based on the 2013 PEA that will result in reductions at various installations. The first of these was announced in June 2013. In most cases, the actual changes will occur in fall 2014 and the year following. A few have occurred already. Using the example of Fort Bliss, as described in the previous paragraph, the 16,000 potential reduction includes some losses for which decisions have already been made. By analyzing the loss in total rather than incrementally, this analysis provides a look at the impacts of the entire Army process, rather than eliminating from consideration reductions that have previously been decided upon, to provide decision makers and communities a more complete picture of what could happen. In the case of the nine installations not previously considered, the baseline population is October 2013. If reductions have occurred prior to October 2013, this will be noted and taken into account in the analysis for that installation.

If some installations were to realize 100 percent of the reductions indicated in Table 3.2-1, they would end up with a large Army civilian population supporting a small Soldier population. This apparent imbalance in populations is due to the programmatic nature in the application of the reduction formulas and the analysis. Examples where this could occur are installations where the Army civilians work in research and development or support non-Army tenants. Force structure outcomes will be inherently tied to future budget decisions and future national defense requirements. It is also important to remember that the realignment would occur over a number of years and that it could change during that period because of external events.

3.2.2 No Action Alternative

As described in the 2013 PEA, the No Action Alternative would retain the Army at a FY 2012 end-strength of about 562,000 active component Soldiers and more than 320,000 Army civilians. The No Action Alternative generally assumes that units would remain stationed where they were stationed at the end of FY 2012. Under the No Action Alternative, no additional Army personnel would have been realigned or released from the Army to balance the composition of Army skill sets to match current and projected future mission requirements or to address budget requirements. No BCT restructuring would have occurred as proposed under Alternative 2 of the 2013 PEA, and no unit inactivations would have occurred.

While no longer reasonable because force reductions and restructuring have occurred since FY 2012, as published in the Army Stationing and Installation Plan in FY 2012, the inclusion of the No Action Alternative within this SPEA provides a baseline against which to compare the potential environmental and socioeconomic impacts of the Proposed Action as required by CEQ regulations.

The No Action Alternative uses the 2011 baseline population for those installations analyzed for potential reductions in the 2013 PEA. This enables a comparison, for force structure decision makers, of the potential environmental and socioeconomic impacts of the 2013 PEA reduction alternative against the potential impacts of the reduction alternative analyzed in this SPEA. In general, any active component Soldier and Army civilian population reductions that have occurred between February 2012 and October 2013 at these 21 locations are part of the total Proposed Action reductions.

For those nine additional locations analyzed in this SPEA that were not analyzed in the 2013 PEA, the baseline is October 2013. Active component Soldier and Army civilian population changes that occurred at these nine additional locations from February 2013, published in the Army Stationing and Installation Plan in October 2013, are separate from and not part of the total Proposed Action reductions; therefore, it is not reasonable to have 2011 as the baseline for the nine additional locations.

3.3 Alternatives Considered but not Carried Forward for Analysis

The Army could reduce its number of active component Soldiers by having each installation and major unit reduce the same percentage of Soldiers across the board. For a reduction from 490,000 to 420,000, this would be a 14 percent reduction. Each BCT, for instance, would lose 14 percent of its Soldiers. While this solution would be easy to plan, its results would not support the purpose and need of the Proposed Action. Some units would have to be brought up to 100 percent for deployment, leaving others with even less than 86 percent strength. These units could not properly train and could not maintain their equipment. This situation would create a “hollow Army” with units existing in name only and not prepared for deployment, reducing the overall Army readiness and preventing it from meeting national security requirements. This method would also eliminate the flexibility the Army needs in planning force reductions, so the Army can build fewer but more mission capable units. World events, for instance, may require that Soldiers and units in some areas be maintained at current strengths. The military value analysis may indicate that the best possible path forward is to eliminate more forces at some locations than others. Because of these issues, this alternative would not support the purpose and need of the Proposed Action and was not carried forward for full analysis.

A potential alternative not carried forward for analysis was to evaluate a total reduction to an end-strength of either 440,000 or 450,000 because the 2014 QDR states that the active Army will reduce from its wartime high force of 570,000 to 440,000–450,000 Soldiers without considering potential sequestration level cuts. It was determined that because the 2013 PEA analyzed cuts of 126,000 that would have resulted in an end-strength of 436,000 (well below the required end-strength of 490,000); this alternative had already been assessed and was not required for this SPEA.

3.4 Screening and Evaluation Criteria used to Identify a Range of Potential Installations for Additional Force Reductions

Now that the second part of the 2011 Budget Control Act, commonly referred to as sequestration, was implemented in FY 2013 and may return in FY 2016, the Army needs to plan for reductions in both the operational and generating forces and to plan for additional overall reductions. In the 2013 PEA, the reductions were primarily focused on the "operational forces" or Soldiers in units subject to deployment. At that time, the "generating force," the organizations that establish doctrine and train Soldiers, was thought to be largely exempt from reductions because only the first budget cuts in the Budget Control Act of 2011 were thought to be taking effect, and the generating force would not be affected. This is no longer the case. With these deeper reductions that may affect both the operational and generating forces, 21 locations and 9 additional locations are included in this SPEA because each could possibly lose more than a combined 1,000 active component Soldiers and Army civilian employees.

Three of the locations now being analyzed were specifically excluded in the 2013 PEA with reasons given in Section 3.4.1—Joint Base San Antonio-Fort Sam Houston, Fort Meade, and Fort Huachuca (U.S. Army, 2013). They were excluded because their populations consisted of special missions and few operational forces. Those attributes no longer exclude these three installations.

This SPEA does not include installations whose mission is primarily run by the Army Materiel Command, such as depots, arsenals, and army ammunition plants, or installations used primarily for test and evaluation. Their missions are managed by the Army Materiel Command and the Army Test and Evaluation Command, and it is not now anticipated that they could have a combined reduction of 1,000 Soldiers or Army civilian employees. The exception is Aberdeen Proving Ground, which has 1,428 Soldiers, and is included in this analysis. U.S. Military Academy West Point Military Reservation is also excluded because it is not yet clear how its mission will be affected by overall force reduction. It is possible, for instance, that the Cadet training at West Point will continue at its current levels and that the Army will reduce its accession of officers from other commissioning sources.

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4.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS

4.0.1 Introduction

This section presents a consolidated discussion of the affected environment (baseline environmental conditions assessed) at each installation, and the environmental and socioeconomic impacts anticipated as a result of the implementation of the alternatives. The baseline for the Proposed Action for the 21 installations analyzed in the 2013 PEA is the same as the 2013 PEA (as well as in this SPEA), and the baseline is the end of 2013 for the 9 new installations assessed in this SPEA. Discussions in the installation sections of this SPEA will acknowledge HQDA stationing decisions that have been announced that are part of the total, deeper reduction now being analyzed.

4.0.2 Differences Between the SPEA and the 2013 PEA

The analyses conducted in this document and the 2013 PEA are mostly similar in nature, but important differences should be highlighted. The 2013 PEA assessed the effects of the Proposed Action on only 21 of the 30 locations covered in this document. The baseline for those 21 locations was based on environmental conditions at that time and the 2011 populations (Tables 3.3-1 and 3.3-2). Those baseline conditions and populations are carried over in this document because this document is a supplement to the original assessment. The nine new locations will be assessed based on current conditions and the 2013 installation populations (Tables 3.3-1 and 3.3-2).

As discussed in Section 3.3.1, the Army announced decisions following the 2013 PEA for force structure reductions currently scheduled between October 2013 and September 2015, with some already completed or in progress. On June 25, 2013, the Army announced that 12 BCTs would be inactivated by the end of FY 2017, including 10 BCTs in the U.S. at installations assessed in this SPEA—Fort Bliss, Texas; Fort Bragg, North Carolina; Fort Campbell, Kentucky; Fort Carson, Colorado; Fort Drum, New York; Fort Hood, Texas; Fort Knox, Kentucky; Fort Riley, Kansas; Fort Stewart, Georgia, and Joint Base Lewis-McChord, Washington (Feickert, 2014). Any future force structure decisions based on this SPEA will take into consideration those previous decisions. In the case of the nine locations not previously considered, the baseline population is October 2013. If there have been reductions that occurred prior to that baseline date, these reductions will be noted and taken into account in the analysis for that installation.

The methodology used to estimate the socioeconomic impacts has slight differences from the approach used in the 2013 PEA. These differences and a description of the updated Economic Impact Forecasting System (EIFS) model and inputs are provided in the remainder of this section. The version of EIFS used to complete the socioeconomic evaluation in the 2013 PEA included demographic and economic data through the year 2000 only. Because the evaluation in the 2013 PEA did not include updated demographic and economic data, the Army used the Regional Economic System (RECONS) model, which included more recent federal data to verify

the EIFS results. The EIFS model was recently updated and now includes census data through 2011 and was used for this analysis and it was not necessary to use the RECONS model to validate the results in the SPEA.

The entire EIFS system of models, tools, and databases is available to assess potential impacts to four elements of a local economy: sales, income, employment, and population. EIFS calculates income and employment multipliers based on the user defined ROI. Using the Bureau of Economic Analysis time series data, the Rational Threshold Value model within EIFS produces thresholds for assessing the significance of impacts. This model establishes a rate of change over time for each variable by estimating a straight line average between the first year of record and the last year of record. Then, each yearly deviation from that growth rate is calculated and converted to a percentage. The largest historical changes (both increase and decrease) are used to define significance thresholds. The significance thresholds for decreases are reduced further to ensure that negative impacts are fully recognized. The negative significance threshold for sales is set at 75 percent of the maximum decrease, for income and employment at 66 percent of the maximum decrease, and for population at 50 percent of the maximum decrease.

The 2000 EIFS model contained historical data from 1969 to 2000. The updated model contains historical data from 1969 to 2011. As a result, the updated EIFS model will have different ROI multipliers as well as revised significance thresholds. The more recent information in the updated EIFS model changes the average trends for the four impact variables, which, in turn, changes the significance threshold values for each parameter for each ROI.

The EIFS tool is a web-based modeling and information system that provides regional economic analyses to planners and analysts and has been used by the Army for more than 20 years. While the system algorithms are simple and easy to understand, they are firmly based on regional economic theory. It draws information from a tailored socioeconomic database for every county (or multi-county area) in the U.S. The model estimates economic impacts and significance of any project proposal as defined by the user. The database items are extracted from: Economic Censuses (wholesale, retail, services, and manufacturers), Census of Agriculture, the Bureau of Economic Analysis employment and income time series, the Bureau of Economic Analysis labor force time series, and the County Business Patterns. Extracted data elements are stored, by county, in the EIFS database.

Inputs used by the EIFS model in estimating impacts for the SPEA are change in military and civilian employment, average income of affected military and civilian employees, percentage of civilian employees expected to relocate with the proposed project, percentage of Soldiers living on-installation, and within the ROI. For each installation, the estimated number of Soldiers and Army civilians affected by force reductions at each installation is summarized in Table 3.2-2. The average salary for a Soldier in an IBCT is $46,760. This figure was used for the average

salary of all Soldiers who could potentially be eliminated at installations.[5] Because the Army does not know which units would be involved, it is impossible to determine the precise salaries. The IBCT serves as a good representative example of units that may be eliminated. Included in the $46,760 amount is Base Pay, a nationwide average amount for Basic Allowance for Housing, and Basic Allowance for Subsistence.

For Army civilian employees, the analysis uses an average salary as estimated for each state where an installation is located. The average is based on the prevailing General Schedule and Wage Grade rates at the midpoint of seniority for the installation area and the distribution by grade of Army civilians within that state. Again, the Army does not know which civilian employees would be involved in reductions, but computing a statewide average salary is appropriate for assessing the impact of potential civilian reductions. In all states the average civilian salary was above the average Soldier salary.

In addition to the salaries of the personnel affected by the potential reductions, the EIFS model requires inputs of the percent of Soldiers living on the installation and the percent of civilians expected to leave the area in the event of a job loss. To ensure the potential impacts were captured to the greatest extent possible, all Soldiers were assumed to be living off the installation and 100 percent of the civilians were assumed to leave the area in the event of a job loss.

Finally, the sales tax approach in the SPEA is different from that of the 2013 PEA. The 2013 PEA applied the state sales tax to the total sales to estimate the changes in sales tax receipts. Because sales taxes do not apply to the majority of economic output or sales, national data from the U.S. Economic Census were used to estimate the proportion of sales to which sales and use taxes would apply. Using the data from the 2012 U.S. Economic Census, the following industries were identified to which sales and use taxes are usually applied: retail sales; arts, entertainment and recreation; and accommodations and food services. Across the Nation, these industries account for 16 percent of total sales. This percentage was applied to the total change in sales associated with the force reductions to estimate a reduction sales tax receipts to state and local government entities. Additionally, current sales tax rates were used from the Tax Foundation, which provides combined state average and local sales tax rates together. The 2013 PEA used state sales tax rates only.

4.0.3 Valued Environmental Component Impact Ratings

As with the 2013 PEA, this SPEA adopts an analytic methodology similar to that used in the Army's Programmatic EIS for Army Transformation (USACE, 2002) and the Programmatic EIS

[5] Exceptions to this salary figure were made for installations located in Alaska and Hawai'i. The average salaries for Soldiers on these installations were increased to account for the Overseas Cost of Living Allowance they receive. The salaries included in the EIFS model were $53,989 for Joint Base Elmendorf-Richardson; $60,735 for Fort Wainwright; and $55,374 for USAG Hawaii.

for Army Growth and Force Structure Realignment (U.S. Army, 2007). The Army used the process in the Army's NEPA Analysis Guidance Manual (USAEC, 2007) for evaluating impacts to each environmental media area or valued environmental component (VEC) for each of the analyzed installations and their associated maneuver sites. A general description of these VECs is provided in Section 4.0.4 of the 2013 PEA. Through coordination with installation staff and subject matter experts at each location, current VEC ratings were identified and verified, and are described in this section. VEC ratings are the basis for determining whether the impact is significant or not. VEC ratings range from beneficial to significant:

- Beneficial—A positive net impact.
- No Impact/Negligible—An environmental impact that could occur but would be less than minor and might not be perceptible.
- Minor, Adverse—While impacts would be perceptible, they would clearly not be significant.
- Less than Significant—An impact that is not significant, but is readily apparent. Additional care in following standard procedures, or applying precautionary measures to minimize adverse impacts, may be called for.
- Significant but Mitigable—A significant impact is anticipated, but the Army can implement management actions or other mitigation measures to reduce impacts to less than significant.
- Significant—An adverse environmental impact, which, given the context and intensity, violates or exceeds regulatory or policy standards or otherwise exceeds the identified threshold. The significant impact, however, cannot be mitigated with practical means to a level below significance.

A summary of environmental impacts is provided in Section 4.30 and presented in consolidated tables of anticipated impacts in Tables 4.30-1 (No Action Alternative), and 4.30-2 (Alternative-1). Each installation sub-section also includes a table of anticipated impacts. A summary of potential socioeconomic effects comparing all of the analyzed locations can be found in Table 4.30-3 and Table 4.30-4.

Additional installation site-specific NEPA analyses will be conducted, as appropriate, to address actions necessary to implement Army 2020 realignment decisions. This is appropriate given the extended duration and numerous decisions that this SPEA is designed to support.

4.0.4 Valued Environmental Components and Thresholds of Significance

The Army uses a standardized methodology to complete NEPA analysis that is outlined in the Army's NEPA Guidance Manual (USAEC, 2007). The discussion that follows provides an overview description of each VEC evaluated in this document and provides a discussion of thresholds of significance.

To maintain consistent evaluation of impacts in this SPEA, thresholds of significance were established for each resource area. The Army developed these thresholds to take into account substantive environmental regulations and ensure an objective analysis of anticipated impacts. Although some thresholds have been designated based on legal or regulatory limits or requirements, others reflect some discretionary judgment on the part of the Army. Quantitative and qualitative analyses have been used, if appropriate, in determining whether, and the extent to which, a threshold is exceeded.

It is important to note, however, that significance is a matter of context and intensity. Loss of a small number of trees in an arid area with few trees could be significant while loss of the same number of trees in a forested area might not. Any variation in the significance criteria is set out in the discussion of impacts for specific locations.

An impact may trigger one of these thresholds, but mitigation could reduce the impact to less than significant. Also, note that ROIs for different VECs may vary at installations because of specific circumstances. In addition, the context of the affected environment at a given installation may mean that a site-unique threshold is applicable. Section 4.04 of the 2013 PEA provides a description of the individual resource areas as covered in the Army's NEPA Guidance Manual. The following text describes what conditions resulting from a proposed action or alternative would result in a significant impact under each resource category.

- **Air Quality**—An impact would be considered significant if it led to a violation of a Title V operating permit or synthetic minor permit.
- **Airspace**—An impact would be considered significant if it led to a violation of Federal Aviation Administration (FAA) regulations that undermines aviation safety or results in substantial infringement of private or commercial flight activity.
- **Cultural Resources**—An impact would be considered significant if there were substantial concerns raised by Indian Tribes or Native Hawaiian Organizations regarding potential impacts to properties of religious and cultural significance to those tribes or organizations; or direct or indirect alteration of the characteristics that qualify a property for inclusion in the National Register of Historic Places (NRHP) (may include physical destruction, damage, alteration, removal, change in use or character within setting, neglect causing deterioration, transfer, lease, sale) without appropriate mitigation.
- **Noise**—Significant impacts generally include noise impacts causing reclassification of Noise Zones (NZ) to NZ II or III around sensitive receptors (e.g., residences, schools, hospitals, churches, or daycare facilities), within the decibel (dB) limits of each NZ as defined in Army Regulation 200-1, a definition that is more current and accurate than that explained in Section 4.0.4 of the 2013 PEA.
- **Soils**—Significant impacts generally include soil loss or compaction from Army training to the extent that natural reestablishment of native vegetation within two growing seasons

is precluded on a land area greater than a total of 1,000 acres; or loss of soil productivity due to construction activities, which converts the soil to improved infrastructure on more than 5 percent of land under administrative control of the installation.

- **Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)**—Significant impacts would include substantial permanent conversion or net loss of habitat at landscape scale; long-term loss or impairment of a substantial portion of local habitat (species-dependent); and unpermitted "take" of threatened and endangered species.
- **Wetlands**—Significant impacts would include unpermitted loss or destruction of more than 1 acre of jurisdictional wetlands.
- **Water Resources**—Significant impacts would include the exceedance of total maximum daily loads for sediments that causes a change in surface water impairment status, or an unpermitted direct impact to a water of the U.S.
- **Facilities**—Significant impacts would occur if the capacity of current infrastructure or available space could not support the Proposed Action or if violation of regulatory limits occurs.
- **Socioeconomics**—Significant impacts would include indication from the EIFS that a change in Sales, Income, Employment, or Population would exceed the Rational Threshold Value.
- **Energy Demand and Generation**—Significant impacts would occur if the energy demands of the Proposed Action exceed the capacity of existing transmission infrastructure or the generating capacity of the energy provider.
- **Land Use Conflicts and Compatibility**—Significant impacts generally would occur when more than 5,000 acres of land is removed from public use. This amount is a matter of context and intensity, however, and could vary depending on the size of the installation.
- **Hazardous Materials and Hazardous Waste**—Significant impacts would occur when substantial additional risk to human health or safety would be attributable to Army actions.
- **Traffic and Transportation**—Significant impacts would generally occur when a reduction by more than two Levels of Service (LOS) at roads and intersections within the ROI occurs.

4.0.5 Cumulative Effects Analysis Methodology

CEQ regulations implementing NEPA define a "cumulative impact" as follows:

> Cumulative impact is the impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR §1508.7).

U.S. Environmental Protection Agency (EPA) guidance to reviewers of cumulative impacts analyses further adds:

> …the concept of cumulative impacts takes into account all disturbances since cumulative impacts result in the compounding of the effects of all actions over time. Thus, the cumulative impacts of an action can be viewed as the total effects on a resource, ecosystem, or human community of that action and all other activities affecting that resource no matter what entity (federal, non-federal or private) is taking the action (EPA, 1999).

For the purposes of this SPEA, significant cumulative impacts would occur if incremental impacts of the Proposed Action, added to the environmental impacts of past, present, and reasonably foreseeable actions, would exceed significance thresholds for resources at an installation and the surrounding regions. The Army considered a wide range of past, present, and reasonably foreseeable future actions by researching existing literature and information provided by installations to identify other projects in the region of each installation that could contribute to cumulative environmental impacts. The Army considered other past, present, or foreseeable future actions regardless of whether the actions are similar in nature to the Proposed Action or outside the jurisdiction of the Army. As part of this analysis, the Army acknowledges the non-federal investment of private companies and local communities to support Army installations. These investments were made given the prediction of growth at the time; however, the Army could not predict the potential changes in Army forces being evaluated in the SPEA. The impact these decisions will have on non-federal investments is beyond the scope of the SPEA. Cumulative impacts are addressed within each installation section following the discussion of environmental effects for each alternative. Each installation's cumulative effects analysis offers a fuller understanding of resource conditions that implementation of the Proposed Action might magnify, amplify, or otherwise exacerbate or cause beneficial or adverse impacts to resources on a regional or long-term scale. There are few impacts from actions proposed for installations that when taken together have the potential to cause a nationwide cumulative impact; these potential impacts are discussed in Section 4.32.

Generally, installation analyses includes past and present impacts in the discussion of the affected environment, and, therefore, most of the cumulative impacts discussion addresses reasonably foreseeable future actions.

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4.1 Aberdeen Proving Ground, Maryland

4.1.1 Introduction

Aberdeen Proving Ground encompasses about 72,000 acres. The bulk of Aberdeen Proving Ground lies within Harford County, Maryland (Figure 4.1-1). Two small sections (Carroll Island and Graces Quarters) on the western edge of the installation are located in Baltimore County, Maryland. The Bush River divides the installation into two areas, referred to in this document as Aberdeen Proving Ground's Northern Peninsula and the Aberdeen Proving Ground's Southern Peninsula. These two areas are also known as the Aberdeen and Edgewood Areas, respectively.

Aberdeen Proving Ground was established as two separate military installations in 1917. The two sites were the Ordnance Proving Ground and the Gunpowder Reservation. The Gunpowder Reservation became Edgewood Arsenal. The Ordnance Proving Ground area is referred to as Aberdeen Proving Ground's Northern Peninsula. The Edgewood Arsenal (formerly Gunpowder Reservation) area is referred to as Aberdeen Proving Ground's Southern Peninsula. In 1971, the Army administratively combined Aberdeen Proving Ground and Edgewood Arsenal into one Army installation. After consolidation, each area continued with its respective military role. Administration of both areas became the responsibility of U.S. Army Garrison (USAG) Aberdeen Proving Ground with the current 5 management and control offices, 6 directorates, 10 support offices, and more than 21,000 Army civilian, military, and contractor employees. Aberdeen Proving Ground encompasses more than 2,000 buildings with greater than 17 million square feet of space. It is home to 11 major commands and supports more than 80 tenants, 20 satellite, and 17 private activities. Today Aberdeen Proving Ground is considered a DoD and universal leader in the Research, Development, Test & Evaluation (RDTE) of Army materiel, including the training of military personnel who use the materiel (Aberdeen Proving Ground, 2014a).

Aberdeen Proving Ground's Northern Peninsula is divided into three main functions: the headquarters and research area, the training and support area, and the test range area. The test range area covers 26,500 acres and comprises most of Aberdeen Proving Ground's Northern Peninsula. The headquarters and research area is dedicated to special operations and research, such as ballistics research and testing laboratories. The training and support area, located on the northern portion of Aberdeen Proving Ground's Northern Peninsula, is the most highly developed portion of the installation. The training and support area includes training, technical, administrative, and housing facilities. Phillips Army Airfield (AAF) is located to the southwest of the headquarters and research area.

Figure 4.1-1. Aberdeen Proving Ground, Maryland

Land use on Aberdeen Proving Ground's Southern Peninsula, according to the Aberdeen Proving Ground Master Plan, includes the cantonment area, industrial area, training area, research and development area, and test range area. The cantonment area, located along the Gunpowder River, includes housing, administrative offices, training, and installation support. The industrial area of Aberdeen Proving Ground's Southern Peninsula is located east of the cantonment area, and includes supply and storage, maintenance shops, and the Weide Army Heliport (AHP). Research and development activities are mostly located east of the heliport. The Gunpowder River separates the Carroll Island and Graces Quarters sections on the western shore from the main portion of the Southern Peninsula on the eastern shore of the river.

As a result of the 2005 BRAC Commission report, Aberdeen Proving Ground has undergone significant growth. Units, activities, and personnel moved to Aberdeen Proving Ground from Fort Monmouth, New Jersey; Fort Knox, Kentucky; Fort Huachuca, Arizona; Redstone Arsenal, Alabama; Brooks City Base, Texas; Silver Spring, Maryland; Glenn, Ohio; and Fort Belvoir, Alexandria, Falls Church, and Langley, Virginia. The BRAC 2005 changes resulted in a net gain of approximately 4,403 positions, 1,656,718 square feet of facilities and a 26.5 percent increase

in the daily population to more than 21,000 personnel, including approximately 90 tenants and 11 Major Commands (Aberdeen Proving Ground, 2007).

Aberdeen Proving Ground's 2013 baseline permanent party population was 12,335. In this SPEA, Alternative 1 assesses a potential population loss of 4,300, including 1,000 permanent party Soldiers and 3,272 Army civilians.

4.1.2 Valued Environmental Components

For alternatives the Army is considering as part of Army 2020 force structure realignments, no significant, adverse environmental impacts are anticipated for Aberdeen Proving Ground; however, significant socioeconomic impacts are anticipated as a result of implementing Alternative 1—Implement Force Reductions. Table 4.1-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.1-1. Aberdeen Proving Ground Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Minor	Minor
Noise	Minor	Minor
Soils	Minor	Beneficial
Biological Resources	Minor	Beneficial
Wetlands	Minor	Beneficial
Water Resources	Minor	Beneficial
Facilities	No impact	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Minor	Beneficial
Land Use Conflict and Compatibility	Minor	Minor
Hazardous Materials and Hazardous Waste	Minor	Minor
Traffic and Transportation	Minor	Beneficial

4.1.3 Air Quality

4.1.3.1 Affected Environment

Aberdeen Proving Ground is located in an area in nonattainment for ozone (O_3) and particulate matter whose diameter is less than or equal to 2.5 micrometers ($PM_{2.5}$) (EPA, 2013). Harford County, which includes Aberdeen Proving Ground, is within the Metropolitan Baltimore

Intrastate Air Quality Control Region (AQCR), known as Area III of the State of Maryland Air Quality Control Area. The Metropolitan Baltimore Intrastate AQCR operates under a 10-year maintenance plan for carbon monoxide (CO), demonstrating continued attainment for this criteria pollutant through December 15, 2015; however, Harford County was never in nonattainment for CO (USACE, 2013).

Results of modeling and other studies indicate that existing Aberdeen Proving Ground activities cause minor impacts to ambient concentrations of sulfur dioxide (SO_2) and moderate impacts to ambient concentrations of nitrogen dioxide (NO_2), CO, and O_3 (USACE, 2013). Emissions of particulate matter whose diameter is less than or equal to 10 micrometers (PM_{10}) at certain vehicle testing tracks are considered to be a problem. Occasionally, smoke from brush fires at Aberdeen Proving Ground may extend for a distance and cause moderate impacts (local nuisance and impairment of visibility), while releases of global warming gases that may include carbon dioxide (CO_2) and O_3-depleting chemicals are estimated to cause negligible impacts (USACE, 2013). Annual criteria pollutant emissions from 2009 to 2013 are available in Table 4.1-2.

Aberdeen Proving Ground holds two Title V operating permits: permit number 025-00081 for the Aberdeen Proving Ground Northern Peninsula, which expires on January 31, 2015, and permit number 025-00082 for the Aberdeen Proving Ground Southern Peninsula, which expires on October 31, 2014. The permits include processes regarding boilers, paint booths, storage tanks, generators, and other emission units. Aberdeen Proving Ground conducts comprehensive annual air emission inventories for the installation (USACE, 2013).

Table 4.1-2. Criteria Pollutant Emissions for Aberdeen Proving Ground (2009 to 2013)

Year	NO_x	Sulfur Oxides	PM_{10}	CO	VOC
	(tons per year)				
2013	59.72	11.02	1.91	30.87	2.34
2012	45.46	13.48	1.58	26.75	7.75
2011	38.96	22.95	1.43	35.44	3.92
2010	51.05	22.14	2.63	49.59	8.09
2009	41.65	34.60	4.19	28.51	7.93

Source: USACE (2013)

4.1.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, existing levels of emissions would continue to result in minor to moderate impacts to air quality. Emissions would remain at levels below existing permit thresholds; however, PM_{10} emissions would continue to be a problem at certain vehicle testing tracks.

Alternative 1—Implement Force Reductions

A force reduction at Aberdeen Proving Ground would result in long-term beneficial air quality impacts due to reduced demand for heating/hot water and a reduction of mobile source emissions from vehicle trips to and from the facility.

Given the population density of the Metropolitan Baltimore Intrastate AQCR, it is likely that the vehicle trips to and from the installation that would be reduced, would occur at a new location within the same airshed, reducing the beneficial impact. Short-term, negligible impacts to air quality could result from the relocation of personnel outside of the area due to the force reduction. As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on air quality are not analyzed.

The Army is committed to ensuring that personnel cuts will not prevent environmental compliance from being implemented. Even if the full end-strength reductions were to be realized at Aberdeen Proving Ground, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.1.4 Airspace

4.1.4.1 Affected Environment

Aberdeen Proving Ground has two airfields. Phillips AAF, which is located on Aberdeen Proving Ground's Northern Peninsula, is the primary supporter of fixed wing aircraft operations at the installation. Phillips AAF provides garrison-controlled airlift and logistics capability and supports the DoD's RDTE efforts of Aberdeen Proving Ground's tenant organizations. Weide AHP, which is located on the Southern Peninsula, is a rotary-wing-only airfield. Weide AHP also supports the DoD's RDTE efforts of Aberdeen Proving Ground's tenant organizations. It is host to Maryland ARNG units and is used for training and maintenance by Army helicopter units.

Aberdeen Proving Ground underlies major air traffic corridors of the northeastern U.S. Nearby major airports with airline service are Baltimore/Washington International Thurgood Marshall Airport; Philadelphia International Airport; and New Castle Airport in Wilmington, Delaware. Other airports within 50 miles of Aberdeen Proving Ground that routinely handle military and jet aircraft traffic include Martin State Airport, Baltimore, Maryland, and Dover Air Force Base (AFB), Delaware. Similarly, nearby Harford County Airport, Churchville, Maryland and Cecil County Airport, Elkton, Maryland both serve as transportation centers for employees or private industry to commute to Aberdeen Proving Ground.

Aberdeen Proving Ground currently maintains restricted airspace over 210 square miles of the proving ground and surrounding areas designated as Restricted (R)-4001A, R-4001B, and R-4001C. The installation maintains flight restrictions from the surface to unlimited altitude to conduct daily missions in R-4001A without hazard to non-participating aircraft. If it can be safely done, Aberdeen Proving Ground releases the airspace above 3,000 feet mean sea level (msl) to FAA air traffic control each day to facilitate the movement of commercial and private air traffic. Flight restrictions from the surface to unlimited altitude are reinstated the next duty day (Aberdeen Proving Ground, 2014b). Flight restrictions below 3,000 msl are always maintained at Aberdeen Proving Ground. In R-4001B, the airspace restrictions are only activated via a published Notice to Airmen 24 hours in advance and only for a specific amount of time (Aberdeen Proving Ground, 2014b). Airspace R-4001C is to restrict access into the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System Operational area and still provide airspace to the controlling authority in R-4001A and R-4001B. R-4001C is active to 10,000 feet msl.

DoD established the Installation Compatible Use Zone (ICUZ) program to promote safe land use development in and around military airfields. ICUZ includes the delineation of Clear Zones and Accident Potential Zones (APZ) near the ends of runways. Runways 08/26 and 04/22 of the Phillips AAF and runway 01/19 of Weide AHP are classified as Class A runways, which are typically less than 8,000 feet long and intended for small aircraft (Aberdeen Proving Ground, 2014b).

The Clear Zones for Class A runways are 1,000 feet wide and 3,000 feet long. Class A runways also have two consecutive APZs that extend outward from the outer end of each Clear Zone. The APZs are 1,000 feet wide, 2,500 feet long, and oriented along the primary aircraft arrival and departure pathways. Activities such as agriculture, transportation, industrial, recreational use, and open space are considered acceptable in APZ I. More varied land use is acceptable in APZ II, including business services; small-scale commercial; and low-density, single-family residential development (DoDI 4165.57, Air Installations Compatible Use Zones [May 2, 2011]).

4.1.4.2 Environmental Effects

No Action Alternative

Aberdeen Proving Ground would maintain existing airspace operations under the No Action Alternative. All current airspace restrictions are sufficient to meet current airspace requirements, and no airspace conflicts are anticipated.

Alternative 1—Implement Force Reductions

The implementation of Alternative 1 would not result in a decreased requirement for airspace but would result in a slightly lower use of and requirements for airspace. The decrease in airspace use would result in negligible impacts to airspace at Aberdeen Proving Ground.

4.1.5 Cultural Resources

4.1.5.1 Affected Environment

The affected environment for cultural resources at Aberdeen Proving Ground is the installation footprint. Large-scale, planning-level surveys for archaeological resources have not been undertaken at Aberdeen Proving Ground because of the size, disturbance levels, and complexity of the installation (Aberdeen Proving Ground, 2008). The installation has created a predictive model to assist in identifying areas with a high potential for archaeological resources. The majority of surveys completed to date are project specific; these have resulted in the identification of 58 prehistoric and historic archaeological sites. Three sites have been determined eligible but none are listed in the NRHP. Many of the known archaeological sites are prehistoric and provide evidence for continual use of the area from the Middle Archaic (6,500 B.C.) to the early 1600s when contact occurred between Native Americans and Europeans (Aberdeen Proving Ground, 2008).

Aberdeen Proving Ground has completed several architectural surveys since the 1980s, resulting in the identification and evaluation of historic structures dating from the mid-19th century though the Cold War (Aberdeen Proving Ground, 2008). Three buildings are individually listed in the NRHP; Pooles Island Lighthouse (Building 816), Presbury House (also known as Quiet Lodge, Building E-4630), and the Gunpowder Meeting House (Building E-5715). More than 200 individual buildings and 6 historic districts have been determined eligible for listing in the NRHP.

Aberdeen Proving Ground has identified 11 federally recognized tribes that may have an interest in lands that are now part of the installation. An ethnohistory report was completed for the installation in 1999 (USACE, 1999), and consultations with the 11 tribes were conducted from 1999–2000 to assist in the identification of historic properties of religious or cultural significance to Native American tribes. To date, one Traditional Cultural Property (TCP) or sacred areas have been identified within Aberdeen Proving Ground-managed lands.

The Integrated Cultural Resources Management Plan (ICRMP) for Aberdeen Proving Ground was completed in 2008. This plan was intended to cover a 5-year period but continues to be used by the installation. Aberdeen Proving Ground follows implementing regulations for the National Historic Preservation Act (NHPA), Section 106 (36 CFR 800), for all undertakings that have the potential to affect cultural resources. This process includes consultation with the Maryland Historical Trust, which is the State Historic Preservation Office (SHPO), and other consulting parties. NHPA, Section 106 consultation is detailed in a standard operating procedure that is included within the ICRMP.

4.1.5.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, cultural resources would continue to be managed in adherence with all applicable federal laws and the ICRMP. The cultural resource management staff at the installation would continue to consult with the SHPO and applicable tribes on the effects of undertakings that may affect cultural resources. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventive and minimization measures. The effects of the No Action Alternative would be minor and would come from the continuation of undertakings that have the potential to affect archaeological and architectural resources (e.g., training, maintenance of historic buildings, new construction).

Alternative 1—Implement Force Reductions

Alternative 1 would have a minor impact on cultural resources. The effects of this alternative are considered to be similar to the No Action Alternative because future activities with the potential to affect cultural resources would continue to be monitored and the impacts reduced through preventive and minimization measures. This alternative could result in some beneficial effects because a decrease in RDTE activities could reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources. While it is not known if this alternative would result in buildings becoming vacant, the Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of force reductions, the installation would comply with applicable laws, such as the NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects.

4.1.6 Noise

4.1.6.1 Affected Environment

Sources of noise disturbance at Aberdeen Proving Ground include blasts from weapons testing (e.g., artillery firing, explosive demolitions); aircraft flyovers at Phillips AAF and Weide AHP; and vehicle testing noise (from wheeled and tracked vehicles) from the Munson, Perryman, and Churchville test areas. Sensitive noise receptors at Aberdeen Proving Ground include installation tenant facilities and service areas (USACE, 2013). Individuals on the installation may be subjected to multiple sources of continuous, intermittent, or impulsive noise during the day (USACE, 2007; USACE, 2013). Most of these noise sources are confined to the installation with the exception of blast noise and aircraft noise during over-flights. In general, noise is limited to the areas where the noise is created. Tenant facilities on Aberdeen Proving Ground, with the exception of the Army Test and Evaluation Command and Army Research Laboratory, do not

produce high levels of noise. Other minor noise sources include on-installation traffic, small arms firing at the field training exercise site, noise from the rail lines west of Aberdeen Proving Ground, on-installation facility construction, and maintenance activities (USACE, 2013, 2007).

During previous noise measurements, primary noise sources identified outside the installation include Amtrak trains, school activity, a water pumping station, construction activities, and traffic on Maryland Route 755 (USACE, 2013, 2007). Noise receptors located outside the installation include those sites lying within the various noise contours along the installation boundaries. Sensitive noise receptors within communities adjacent to the installation include single-family residences and schools. Depending on atmospheric conditions and type of munitions, blast noise can also affect residential areas across Chesapeake Bay (USACE, 2007; Aberdeen Proving Ground, 2014b). Individuals outside the installation within these areas may be subjected to multiple sources of continuous, intermittent, or impulsive noise during the day. Ninety percent of noise complaints received by Aberdeen Proving Ground from neighboring communities result from weapons and munitions testing and training activities, including large-caliber weapons firing and explosives and blast activities, and disposal of unexploded ordnance (UXO) and munitions and explosives of concern. Complaints tend to occur most commonly in the morning during January through March when atmospheric conditions are more favorable for noise propagation (USACE, 2013).

The state of Maryland regulates noise control. These regulations establish an allowable noise level for residential properties of 65 A-weighted decibels (dBA) during the day (7 a.m. to 10 p.m.) and 55 dBA during the night (10 p.m. to 7 a.m.). Impulsive noise, such as that resulting from munitions testing, is not covered by state regulations (Aberdeen Proving Ground, 2014b). In 2006, Aberdeen Proving Ground finalized an Installation Operational Noise Management Plan (IONMP), which is the framework document that guides the implementation of its Environmental Noise Management Program. The Aberdeen Proving Ground Environmental Noise Management Program is intended to eliminate unacceptable or unnecessary noises in populated areas. The Aberdeen Proving Ground test ranges are located within the Zones II and III noise contours. Large caliber and static detonation programs require command approval if the noise model prediction value is greater than 130 dBA. Atmospheric conditions such as wind speed and direction, temperature inversions, cloud cover, etc., are monitored periodically, and variables such as sound-pressure levels, sound-ray magnification and focus, intervening sound barriers, distance from sources, sound characteristics, and existing background noise are all taken into consideration. In general, clearances are usually granted for firing, as long as calculations show there will be no damaging effects beyond installation boundaries (U.S. Army, 2009a).

In addition, Aberdeen Proving Ground implements an Army Compatible Use Buffer (ACUB) program, whereby the installation works with local conservation organizations and willing landowners to create perpetual easements as buffers surrounding the installation. ACUBs prevent incompatible land uses in the vicinity of Aberdeen Proving Ground that could restrict or

compromise the installation's mission, and therefore limit the number of sensitive noise receptors in proximity to the installation (USACE, 2013).

4.1.6.2 Environmental Effects

No Action Alternative

Minor, adverse impacts are anticipated under the No Action Alternative. Sources of noise related to weapons testing, aircraft flyovers, and vehicle testing would remain the same, and noise would remain at current levels. Individuals on the installation and residents in areas surrounding the installation would continue to be subjected to multiple sources of continuous, intermittent, or impulsive noise during the day. In addition to continued implementation of efforts to minimize operational noise impacts as detailed in the IONMP, complaint reporting procedures for the public would remain in place and Aberdeen Proving Ground would continue to consult with surrounding residents and communities.

Alternative 1—Implement Force Reduction

Under Alternative 1, long-term, minor, and adverse noise impacts would still be associated with training and testing activities on the installation, but these could be reduced from current levels. Noise generated from weapons and vehicle testing areas and aircraft flyovers would not be anticipated to change current NZ contours; however, the anticipated decrease in activity could reduce the amount of civilian and military vehicle traffic, Soldier foot-traffic, and use of test vehicles and other military equipment within the installation, and could also result in less frequent large-caliber weapons fire. Potential noise impacts to the human and natural environment could therefore decrease with force reductions. The noise program at Aberdeen Proving Ground is currently managed by a tenant organization with funding from the installation under its current budget. It is assumed that Aberdeen Proving Ground would continue implementing its IONMP and continue coordinating with the public regarding noise issues or complaints.

4.1.7 Soils

4.1.7.1 Affected Environment

Aberdeen Proving Ground lies within the Atlantic Coastal Plain Physiographic Province, characterized by low hills, shallow valleys, and flat plains. Elevations within Aberdeen Proving Ground range from sea level to about 60 feet above sea level. Major portions of Aberdeen Proving Ground are within the 100-year floodplain, which extends to the 8-foot elevation contour (above sea level). Most slopes on the installation occur within the 0 to 10 percent range, with few areas exceeding 2 percent. The Atlantic Coastal Plain Province is underlain by unconsolidated sediments such as clay, silt, sand, and gravel.

The predominant upland soil on Aberdeen Proving Ground is generally very deep, nearly level to gently rolling, and somewhat poorly drained to moderately well drained. Loamy and silty alluvial and marine sediments underlie the upland soil. Soil of the floodplains and swamps of Aberdeen Proving Ground is generally deep to very deep, smooth and nearly level, and very poorly drained to moderately well drained. It is underlain by highly decomposed material and sandy or loamy alluvial, estuarine, and marine sediment. Predominant soil types on the installation are the Mattapex, Romney, Udorthents, and Woodstown series (NRCS, 2013).

Soil in the Aberdeen Proving Ground area has been affected by operations primarily associated with range activities and chemically affected by past operations. Because test ranges occupy a large portion of the land area at the installation (about 40 percent), physical effects (e.g., changes in the soil's topography, permeability, and erosion potential) have been moderate. Effects caused by past demolition and construction are negligible because of the small area associated with the activities relative to the size of Aberdeen Proving Ground (U.S. Army, 2009a; USACE, 2007).

The dominant soil map units on the installation are moderately to highly erodible mostly because they are composed primarily of silt. Silty soils are easily detached and produce the greatest rates of runoff if they are left bare or exposed to wind and water. Thus, the dominant soils on Aberdeen Proving Ground, if not adequately protected by vegetation cover, are easily eroded. However, at Aberdeen Proving Ground, activities that could disturb soils are managed in accordance with the provisions of the Code of Maryland Regulations, which require approved sediment and erosion plans for projects that disturb more than 5,000 square feet of land area and more than 100 cubic yards of earth.

Inland erosion at the installation is moderate and restricted to areas that have little vegetative cover, high relief, and flowing water (e.g., the southwestern part of Boone Creek basin; the drainage basins of Kings, Lauderick, and Monks creeks; the headwaters of Romney and Mosquito creeks; the Munson Test Area; and the southern part of the Perryman Test Area). Shoreline erosion, although a moderate to severe problem at Aberdeen Proving Ground, is localized and not caused by past or current operations; that is, most shoreline erosion at the installation is natural. Natural shoreline erosion and accretion occur primarily along the bay shoreline of Spesutie Island and the windward shore of Aberdeen Proving Ground's Southern Peninsula. Shoreline stabilization projects to reduce wave energy that have been undertaken in localized areas have been very effective (U.S. Army, 2009a).

4.1.7.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, minor, adverse impacts to soils are anticipated at Aberdeen Proving Ground. Aberdeen Proving Ground would continue to conduct range activities under its

current schedule, resulting in minimal impacts to soils from ground disturbance and removal of vegetation.

Alternative 1—Implement Force Reductions

Under Alternative 1, minor, beneficial impacts to soils are anticipated. The presence of fewer personnel would likely result in decreased use of the testing ranges; additionally, there would likely be less need for new construction because of fewer personnel, which could have beneficial impacts to soils because there would be an anticipated decrease in soil compaction and vegetation loss. Over time, less sediment may discharge into state and federal waters and wetlands. Additionally, Aberdeen Proving Ground would continue to comply with existing and future National Pollutant Discharge Elimination System (NPDES) permits for present and foreseeable construction activities to ensure these actions do not create sediment pollution.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Aberdeen Proving Ground, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As indicated in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils were not analyzed.

4.1.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.1.8.1 Affected Environment

Vegetation

The elevation of Aberdeen Proving Ground is fairly low, ranging from 0 to 60 feet above msl, which results in a relatively shallow water table (USACE, 2007). Consequently, 65 percent of the 72,000-acre installation has hydric vegetation, comprising 46 percent open estuarine waters and 19 percent tidal and non-tidal wetlands (USACE, 2007). The remaining acreage (35 percent) includes a variety of uplands (USACE, 2007). The plants of Aberdeen Proving Ground are generally those typical of the Atlantic Plain physiographic province (Aberdeen Proving Ground, 2014b).

These open estuarine waters are the shallow water areas of the Chesapeake Bay, which provides suitable habitat of many kinds of submerged aquatic vegetation (SAV) (USACE, 2007). SAV is a diverse group of rooted aquatic plants that perform a number of irreplaceable ecological functions, yet historical SAV areas have been declining since 1980 (Aberdeen Proving Ground, 2014b). The Virginia Institute of Marine Sciences conducts annual aerial surveys to photograph and map SAV in the Chesapeake Bay, which Aberdeen Proving Ground supports by conducting

ground surveys and the photographic interpretation (Aberdeen Proving Ground, 2014b). The dominant species of SAV in the Aberdeen Proving Ground area include the native species wild celery (*Vallisneria americana*), water stargrass (*Heteranthera dubia*), coontail (*Ceratophyllum demersum*), and redhead grass (*Potamogeton perfoliatus*) (Aberdeen Proving Ground, 2014b). Also, there are about 42,731 acres of tidal and non-tidal wetlands on Aberdeen Proving Ground (USFWS, 2010), as discussed in detail in Section 4.1.9.

Major terrestrial plant community types on the land areas of Aberdeen Proving Ground include mixed deciduous forests, meadows, and a variety of developed areas (buildings and roads with adjacent maintained turf area and street trees) (Aberdeen Proving Ground, 2014b). Although most (as much as 90 percent) of Aberdeen Proving Ground lands were farmland prior to military use, forests now cover about 15,862 acres of the land area at the installation (Aberdeen Proving Ground, 2014b).

Wildlife

Given Aberdeen Proving Ground's diverse terrestrial and aquatic habitats, Aberdeen Proving Ground is host to hundreds of birds, and dozens of reptiles, amphibians, and mammals, several fish species, and the blue crab (*Callinectes sapidus*) (Aberdeen Proving Ground, 2014b). A discussion of threatened and endangered species and bald eagles (*Haliaeetus leucocephalus*) is located later in this section.

Aberdeen Proving Ground is located on the upper Chesapeake Bay and within the Atlantic Flyway, which is a major migratory bird route. Therefore, the installation's location makes it particularly important for a number of bird groups, including waterfowl, colonial water birds, raptors, neotropical migrants, and forest interior dwelling species. Approximately 250 species of birds may occur at Aberdeen Proving Ground throughout the year, including 108 species of non-migratory or waterfowl bird species. The installation provides breeding, foraging, and wintering habitat for many of the 29 species of waterfowl that use the Chesapeake Bay, including mallards (*Anas platyrhynchos*), American black duck (*Anas rubripes*), wood ducks (*Aix sponsa*), blue-winged teal (*Anas discors*), hooded mergansers (*Lophodytes cucullatus*), and Canada geese (*Branta canadensis*). Colonial waterbirds, which can be found seasonally at Aberdeen Proving Ground, include the great blue heron (*Ardea herodias*), snowy egret (*Egretta thula*), green heron (*Butorides virescens*), and the black-crowned night heron (*Nycticorax nycticorax*). There are several great blue heron rookeries; and the largest occurring on Pooles Island. As a participant in the North American Waterfowl Management Plan, the Army established the Aberdeen Proving Ground Waterfowl Sanctuary System, which includes about 600 acres of important nesting and feeding areas that are closed to waterfowl hunting (Aberdeen Proving Ground, 2014b).

There are more than 40 species of reptiles and amphibians on Aberdeen Proving Ground property. Most of these species inhabit the forests, wetlands, ponds, and streams. The most common reptile species include the Eastern box turtle (*Terrapene carolina carolina*) and Eastern

garter snake (*Thamnophis sirtalis*). Common amphibians include the bullfrog (*Rana catesbeiana*), green frog (*Lithobates clamitans*), Northern spring peeper (*Pseudacris crucifer*), Southern leopard frog (*Rana utricularia*), Fowler's toad (*Anaxyrus fowleri*), and the red back salamander (*Plethodon cinereus*) (Aberdeen Proving Ground, 2014b).

Twenty-four mammalian species have been recorded on Aberdeen Proving Ground, including red fox (*Vulpes vulpes*), white-tailed deer (*Odocoileus virginianus*), eastern cottontail rabbit (*Sylvilagus floridanus*), muskrat (*Ondatra zibethicus*), gray squirrel (*Sciurus carolinensis*), striped skunk (*Mephitis mephitis*), groundhog (*Marmota monax*), and beaver (*Castor canadensis*).

Freshwater fish species observed at Aberdeen Proving Ground include bluegill (*Lepomis macrochirus*), brown bullhead (*Ameiurus nebulosus*), carp (*Cyprinus carpio*), channel catfish (*Ictalurus punctatus*), largemouth bass (*Micropterus salmoides*), pumpkinseed (*Lepomis gibbosus*), white catfish (*Ameiurus catus*), and yellow perch (*Perca flavescens*). Fish living in brackish portions of Aberdeen Proving Ground include alewife (*Alosa pseudoharengus*), American shad (*Alosa sapidissima*), blueback herring (*Alosa aestivalis*), hickory shad (*Alosa mediocris*), shortnose sturgeon (*Acipenser brevirostrum*), striped bass (*Morone saxatilis*), and white perch (*Morone americana*) (Aberdeen Proving Ground, 2014b).

Blue crabs inhabit Aberdeen Proving Ground waters during their juvenile stages and parts of their adult stages. During their juvenile stages, blue crabs avoid predators and find food sources in the extensive beds of SAV in Aberdeen Proving Ground's waters. Blue crabs are critical to the economic health of Chesapeake Bay and depend on its ecological health to mature and thrive (Aberdeen Proving Ground, 2014b).

Threatened and Endangered Species

The U.S. Fish and Wildlife Service (USFWS) and the Maryland Department of Natural Resources were contacted to obtain a list of threatened and endangered species known to occur in Harford County, Maryland. Table 4.1-3 provides a list of threatened and endangered species documented at the installation. Numerous plant and animal surveys and inventories have been conducted at Aberdeen Proving Ground to determine the presence of protected species.

Although the bald eagle is no longer federally listed, it is still protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. Aberdeen Proving Ground has a Bald Eagle Management Plan, which USFWS approved in 2009. Habitat preservation is the cornerstone of the Aberdeen Proving Ground Bald Eagle Management Plan. Another component of the plan is to maintain protective measures on overhead electrical lines, and to bury existing infrastructure and any new infrastructure in areas deemed to pose the highest risk to eagles. Electrical utility wires pose risks to eagles that may fly into the lines or be electrocuted from perching on lines or poles. Aberdeen Proving Ground has installed industry-standard protective

measures including spinning reflectors on lines (flappers), and insulating covers on transformer bushings, cutouts, jumper wires, and insulators. Aberdeen Proving Ground will continue to maintain these protective measures.

Table 4.1-3. Threatened and Endangered Species Known to Occur at Aberdeen Proving Ground, Maryland

Common Name	Scientific Name	Federal Status	State Status
Shortnose sturgeon	*Acipenser brevirostrum*	Endangered	Endangered
Least bittern	*Ixobrychus exilis*	None	In need of conservation
Nashville warbler	*Vermivora ruficapilla*	None	In need of conservation
Sedge wren	*Cistothorus platensis*	None	Endangered
Black rail	*Laterallus jamaicensis*	None	In need of conservation
Henslow's sparrow	*Ammodramus henslowii*	None	Threatened

Sixty-two vascular plant species listed as rare, threatened, or endangered by the Maryland Natural Heritage Program were found on Aberdeen Proving Ground (Aberdeen Proving Ground, 2014c). Two taxa under review for federal listing were found—Delmarva beggarticks (*Bidens bidentoides*) and butternut (*Juglans cinerea*) (Aberdeen Proving Ground, 2014c). Of the 62 rare species collected, 42 were associated with wetland habitats, and 20 were found on dry to mesic soils (Aberdeen Proving Ground, 2014c). Carroll Island and Spesutie Island collectively contained populations of 32 percent of the rare species identified (Aberdeen Proving Ground, 2014c).

4.1.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in minor impacts to biological resources, and the affected environment would remain in its current state. There would not be any significant effects because the Aberdeen Proving Ground would continue to abide by federal and state regulations governing the management of biological resources. Although several plants considered rare in Maryland have been documented at the installation, none are known or expected to be affected (USACE, 2007).

Alternative 1—Implement Force Reductions

Implementing force reductions under Alternative 1 would result in beneficial impacts to biological resources and habitat within the Aberdeen Proving Ground. With a reduced operational tempo because of the reduction in force, habitat would have more time to recover between events that create disturbances. Additionally, conservation management practices would be easier to accomplish with a reduction in mission throughput. Except for those species listed in Table 4.1-3, no other federally proposed or listed endangered or threatened species are known to

occur on Aberdeen Proving Ground. Aberdeen Proving Ground would continue to conserve bald eagle populations by using its Bald Eagle Management Plan. Aberdeen Proving Ground would continue to conserve other sensitive animal and plant species.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Aberdeen Proving Ground, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.1.9 Wetlands

4.1.9.1 Affected Environment

Aberdeen Proving Ground has both freshwater and estuarine wetlands throughout the installation (USFWS, 2010). Deepwater estuarine habitats occur offshore where the mean water depth exceeds 2.0 meters (Cowardin et al., 1979); at Aberdeen Proving Ground, the deepwater estuarine wetlands coincide with waters of the Chesapeake Bay, Bush River, and Gunpowder River. Closer to the shore of these three estuaries the installation contains tidal estuarine marshes that are alternately submersed and exposed, based on tidal cycles and inundation. Inland, separated from estuarine waters, are almost 1,000 freshwater wetlands, including ponds, lakes, and rivers (USFWS, 2010).

The Integrated Natural Resources Management Plan (INRMP) for Aberdeen Proving Ground reported that approximately 19 percent of the installation's land and water is wetlands (U.S. Army, 2009a). Recent National Wetlands Inventory (NWI) data place that estimate closer to 14 percent after estuarine deepwater habitats are subtracted from the total acres of wetlands on the installation. Approximately 42,730 acres of wetlands exist on Aberdeen Proving Ground, of which approximately 32,375 are estuarine deepwater wetlands (USFWS, 2010). Table 4.1-4 identifies the types of wetlands on Aberdeen Proving Ground and quantifies their approximate acreage.

Table 4.1-4. Acres of Wetland Types on Aberdeen Proving Ground

Wetland Type	Acres
Estuarine deepwater	32,375
Estuarine tidal	6,477
Palustrine forested	2,926
Palustrine scrub-shrub	218
Palustrine emergent	585
Palustrine open water	100
Lacustrine	39
Riverine tidal	2
Riverine lower perennial	9
Total acres	**42,731**

Source: USFWS (2010)

4.1.9.2 Environmental Effects

No Action Alternative

Minor, adverse impacts are anticipated under the No Action Alternative on Aberdeen Proving Ground. Impacts to wetlands from any current projects under construction would have already been assessed and, if required, been properly permitted and mitigated. Additionally, activities that occur in range areas would continue at current schedules, resulting in minimal impacts to wetlands. Under the No Action Alternative, Aberdeen Proving Ground would maintain its commitment to avoiding impacts to wetlands, to the extent practicable. Unavoidable impacts would continue to be mitigated, according to the INRMP (U.S. Army, 2009a).

Alternative 1—Implement Force Reductions

Beneficial impacts to wetlands on Aberdeen Proving Ground are anticipated under Alternative 1. A force reduction would decrease the daily activity on the installation and decrease the amount of testing occurring on the installation. Additionally, it is likely less new construction would occur with a decrease in personnel. Soil compaction and erosion would decrease due to less construction and test activity, reducing the amount of sediment and runoff that can enter wetlands and open waters, thus offshore SAV could experience fewer sedimentation events. Wetlands currently affected could begin to return to their reference state values and functions.

Impacts to wetlands could conceivably occur if force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized

at Aberdeen Proving Ground, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met.

4.1.10 Water Resources

4.1.10.1 Affected Environment

Surface Water/Watersheds

The surface waters present on Aberdeen Proving Ground are contained within the Upper Western Shore watershed of Maryland and the smaller Bush River, Gunpowder River, and Aberdeen Proving Ground subwatersheds (U.S. Army, 2009a). These waters, which encompass almost half (32,722 acres) of the area within the installation boundaries, include rivers; estuarine and freshwater creeks and streams; freshwater and ephemeral ponds; and large, open-water portions of the Chesapeake Bay, the Bush River, and the Gunpowder River (U.S. Army, 2009a). Because of the flat coastal topography of the region, the installation waterways are mainly shallow, slow flowing streams. Located on the upper western shore of the Chesapeake Bay, surface drainage flows to the larger Bush or Gunpowder rivers or to the numerous smaller tributaries throughout the area, and eventually to the Bay. The Northern Peninsula of Aberdeen Proving Ground contains Abbey Creek, Back Creek, Bridge Creek, Church Creek, Cod Creek, Delph Creek, Dipple Creek, Little Romney Creek, Mosquito Creek, Romney Creek, Swan Creek, and Woodrest Creek. The Southern Peninsula includes Boone Creek, Canal Creek, Coopers Creek, Kings Creek, Lauderick Creek, Monk’s Creek, Reardon Inlet, Swaderick Creek, Watson Creek, and Wright Creek.

The influence of the Chesapeake Bay on installation surface waters results in waters that are fresh, with salinities of zero parts per thousand, to brackish, with salinities up to 12 parts per thousand (U.S. Army, 2003, as cited by USACE, 2007; U.S. Army, 2009a). This influence is also characterized by the presence of tidal estuaries and brackish marshes at stream mouths and shorelines (U.S. Army, 2003, as cited by USACE, 2007; U.S. Army, 2009a). Close to the installation, the Chesapeake Bay waters average 15 feet in depth, whereas estuarine water depth on the installation varies on average from 7 to 15 feet (U.S. Army, 2009a).

The larger waters of the installation are used for recreation in the form of fishing, boating, and swimming (U.S. Army, 2009a). Water quality concerns on the installation include sedimentation, nutrients, and chemical contaminants due to previous military activities (U.S. Army, 2009a). Surface water contamination from industrial, laboratory, and sanitary sources, including organic and inorganic constituents (U.S. Army, 2003, as cited by USACE, 2007) as well as stormwater runoff, has impaired the water quality of installation waterbodies and resulted in exceedances of water quality standards (U.S. Army, 2009a). The Nutrient Management Plan developed by Aberdeen Proving Ground includes goals for the protection of water quality through nutrient loading and soil erosion prevention and reduction measures. These prevention and reduction

measures include construction site best management practices (BMPs), vegetated stream buffers, conservation landscaping, low-impact development techniques, and street sweeping. Also the Bush River and Deer Creek Watershed Restoration Action Strategies, developed by Harford County, support water quality, monitoring, and conservation banking projects (U.S. Army, 2009a).

In the *Army Chesapeake Bay Strategy*, the U.S. Army developed objectives to protect and restore the Chesapeake Bay while also continuing its national defense mission (U.S. Army, 2009b). These objectives address water quality, flora and fauna, habitat, fisheries management, stormwater management, and Bay stewardship.

Groundwater

The main aquifer in the vicinity of Aberdeen Proving Ground is the Patuxent formation within the Atlantic Coastal Plain Province (U.S. Army, 2003, as cited by USACE, 2007). Other formations in the region are the Potomac Group and the Patapsco formation. The Patapsco is directly connected to the Chesapeake Bay, which may lead to intrusion of brackish water into the freshwater aquifer supply. The flow of groundwater in the area is towards the southeast (USACE, 2007). Numerous wells that supply potable water to the installation and to the city of Aberdeen are located within installation boundaries.

Over the years, monitoring wells have showed that installation groundwater has been contaminated by a variety of chemicals, metals, and organic compounds with the concentrations of some exceeding groundwater quality standards (U.S. Army, 2003, as cited by USACE, 2007). Detected contaminants include volatile and chlorinated volatile organic compounds (VOCs), perchlorate, trichloroethylene, and nerve agent compounds (USACE, 2007). Two contaminant plumes were detected within the groundwater in the Canal Creek vicinity leading to contamination of the surficial and Canal Creek aquifers (U.S. Army, 2003, as cited by USACE, 2007). Groundwater remediation measures that have been used on the installation include filters, carbon treatment system, treatment plant, phytoremediation, and other cleanup techniques (USACE, 2007; U.S. Army, 2009a).

Water Supply

Drinking water for Aberdeen Proving Ground is supplied by two water distribution systems and multiple wells. The northern system is owned and operated by the city of Aberdeen, and the southern system is owned and operated by the installation. For northern supplies, water is withdrawn from Deer Creek and passes through a pumping station to the Chapel Hill water treatment plant for standard treatment procedures. The pumping station has a capacity of 4 million gallons per day (mgd), and the water treatment plant has a 6 mgd capacity (USACE, 2007). Following treatment, water can be stored in a 1.6 million gallon well. Maximum water withdrawal from the system is 3 mgd; however, requirements for keeping some water as backup

limit the withdrawal to 1.5 mgd (Overbay, 2007, as cited by USACE, 2007). Average annual water use for 2006 was 1.02 mgd (USACE, 2007).

The city of Aberdeen, which supplies potable water to the city and the installation, has a Water Appropriation and Use Permit from Maryland Department of the Environment to withdraw an additional 4.9 mgd from Deer Creek to make up for issues associated with possible well contamination (USACE, 2007). The additional withdrawal is limited to 3.5 mgd with a possible allowance of 0.5 mgd to be purchased from Harford County during an emergency (USACE, 2007).

Southern water supplies are drawn from the Van Bibber impoundment of Winters Run (Harford County, 2005, as cited by USACE, 2007) under a permit capped at 2.5 mgd (U.S. Army, 2006, as cited by USACE, 2007). The filtration capacity of the Van Bibber Water Treatment Plant is 4 mgd, and storage capacity is 1.3 million gallons. As of 2005, water demand on this water treatment plant was 1.0 to 1.3 mgd depending on the season. Withdrawals from Winters Run are not allowed during low flows, thereby forcing the installation to obtain water from an alternative source; in the past, Harford County supplied this alternative source (U.S. Army, 2005b, as cited by USACE, 2007). Water is distributed through the southern system through 10- to 24-inch lines that interconnect and form a looped network. Water storage in the southern portion of the installation is provided by several storage tanks. Most lines in the southern distribution system are more than 60 years old resulting in conditions ranging from average to unacceptable (USACE, 2007).

In addition to water systems, Aberdeen Proving Ground receives potable water from 24 wells on the Northern Peninsula and two wells on the Southern Peninsula (Overbay, 2007, as cited by USACE, 2007). These wells are monitored for bacteria, nitrate, and turbidity. The city of Aberdeen also has four wells located within the northern boundaries of the installation. To protect these wells from contamination, the installation has created source water protection areas for the well recharge areas.

Wastewater

The wastewater treatment plant (WWTP) serving the Northern Peninsula of Aberdeen Proving Ground is privatized and operated by the city of Aberdeen (Wiggins, 2007, as cited by USACE, 2007). The discharge outfall is to the Spesutie Narrows. This WWTP has a biological nutrient removal system as well as removal technology allowing the plant to meet the Enhanced Nutrient Reduction standards of the Chesapeake Bay Restoration Act. As of 2006, the WWTP capacities were a maximum of 6 mgd and an average flow of 3 mgd (Overbay, 2006, as cited by USACE, 2007). In the mid-2000s, average daily wastewater flows treated were approximately 1.0 mgd with peak flows not exceeding 2.5 mgd (USACE, 2007). Wastewater collection infrastructure includes gravity mains, force mains, and sewer pumps. Sewage holding tanks serve areas without other conveyances.

The installation operates the WWTP serving the Southern Peninsula; however, future privatization options for this treatment plant are under evaluation (USACE, 2007). This plant discharges to the Bush River (U.S. Army, 2006, as cited by USACE, 2007). This WWTP has been upgraded to a secondary treatment system through the use of trickling filters and tertiary treatment with chemicals for phosphorus removal. The treatment capacity of this plant is 2.8 mgd although it is permitted for 3 mgd (U.S. Army, 2006, as cited by USACE, 2007). In the mid-2000s, the average daily wastewater flows treated were 0.9 mgd (winter) and 1.1 mgd (summer) (USACE, 2007). Wastewater collection infrastructure includes more than 40 miles of collection lines and lift stations associated with force mains (U.S. Army, 2005a, as cited by USACE, 2007). Septic tanks and leach fields serve areas without other conveyances (Harford County, 2005, as cited by USACE, 2007).

The installation has an NPDES permit for the discharge of water used for cooling, vehicle washing, and artillery operations (U.S. Army, 2005b, as cited by USACE, 2007).

Stormwater

Stormwater management infrastructure for Aberdeen Proving Ground includes a system of storm sewers and catch basins within the developed portions and drainage swales within the undeveloped areas (U.S. Army, 1997, as cited by USACE, 2007). Impervious surfaces throughout the installation lead to increased stormwater runoff as well as modification of natural drainage patterns (U.S. Army, 1997, as cited by USACE, 2007). An installation Stormwater Pollution Prevention Plan (SWPPP) details measures to reduce surface runoff. Decreases in surface drainage can reduce sediment erosion and the washoff of surface pollutants into waterbodies. Stormwater is permitted under an NPDES General Permit for Discharges from State and Federal Small Municipal Separate Storm Sewer Systems (MS4), MDR 055501. Under this permit, BMPs must be enacted, including: public education and outreach, illicit discharge detection and participation, construction site runoff control, post-construction stormwater management, and pollution prevention and good housekeeping (U.S. Army, 2014a). Some BMPs for stormwater management and water quality protection include landscaping, erosion control techniques (e.g., silt fences, sediment traps, and retention ponds), porous pavement, easements, management programs, and forest conservation.

Floodplains

Executive Order (E.O.) 11988, *Floodplain Management*, requires federal agencies to avoid floodplain development and any adverse impacts from the use or modification of floodplains when there is a feasible alternative. Specifically, Section 1 of E.O. 11988 states that an agency is required to “reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities.” The 100-year floodplain indicates areas where the flood has a 1 percent chance of being equaled or exceeded in any year. Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps indicate that portions of the shoreline

adjacent to the Chesapeake Bay, as well as land adjacent to tributary rivers and creeks close to the Bay, are within the 100-year zone (FEMA, 2000) and experience flooding. Specific areas of flooding include areas adjacent to the Bush and Gunpowder rivers (U.S. Army, 2009a).

4.1.10.2 Environmental Effects

No Action Alternative

Minor, adverse impacts to water resources would continue under the No Action Alternative. Testing and training activities would continue to occur at Aberdeen Proving Ground ranges, as would potential disturbance to and sedimentation of surface water resources. Aberdeen Proving Ground would continue to strive to meet federal and state water quality criteria, drinking water standards, and floodplain management requirements. Stormwater management would continue under the existing NPDES permits as would adherence to state stormwater requirements and BMP guidelines. Current water resources management and compliance activities would continue to occur under this alternative.

Alternative 1—Implement Force Reductions

Beneficial impacts to water resources are anticipated under Alternative 1. A force reduction would result in fewer testing and training exercises thereby decreasing the potential for surface water disturbance and sedimentation. The decrease in personnel would reduce potable water demand and wastewater treatment allowing additional capacity for other users. Implementation of Alternative 1 would reduce the amount of treated wastewater discharged to the receiving surface water source.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Aberdeen Proving Ground, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations. Force reduction at Aberdeen Proving Ground is not anticipated to cause violations of federal and state water quality regulations and discharge permits. Current water resources management and compliance activities would continue to occur under this alternative.

4.1.11 Facilities

4.1.11.1 Affected Environment

Aberdeen Proving Ground is located on the northwestern shore of the Chesapeake Bay and covers about 72,000 acres, more than half of which is water or wetlands. The majority of the installation is located on peninsulas bordered by the Bush and Gunpowder rivers. There are more than 6,800 acres of improved grounds, nearly 300 miles of road, and more than 567,000 square yards of airfield pavement. Aberdeen Proving Ground’s facilities include more than 17 million square feet of building space in more than 2,000 buildings (including offices; administrative and

training facilities; and warehouses, barracks, and Family housing). There are more than 40 miles of vehicle test track, nearly 200 firing positions, 8 medical research laboratories, 10 chemical laboratories, 2 physics laboratories, 5 human engineering laboratories, a materiels research laboratory and Phillips AAF and Weide Army AHP (Aberdeen Proving Ground, 2014a).

Aberdeen Proving Ground is home to 11 major commands and more than 80 installation-supported organizations. The installation provides facilities to perform RDTE of Army materiel. Facilities include state-of-the-art ranges, engineering test courses for wheeled and tracked vehicles, and laboratories for research. The installation supports a wide variety of training, mechanical maintenance, health promotion and preventive medicine, chemical and biological defense, chemical casualty care, and chemical demilitarization activities. Aberdeen Proving Ground also hosts ARNG and U.S. Army Reserve operations and training (Aberdeen Proving Ground, 2014a).

The implementation of recent initiatives including the 2005 BRAC recommendations, the Enhanced Use Lease Program, the Demolition Buyout/Facility Reduction Program, and various privatization initiatives have had major impacts to Aberdeen Proving Ground facilities. The 2005 BRAC recommendations led to a net increase of approximately 6,500 positions and 2.8 million square feet of new construction involving 18 buildings and 2.5 million square feet of new parking. The Maryland Boulevard Enhanced Use Lease Program, also known as the Government and Technology Enterprise, involves the lease of 415 acres for commercial development (USACE, 2013).

The Army has been using its Demolition Buyout Program since 2009 to augment the installation's Facilities Reduction Program and demolish obsolete and unneeded buildings. These programs reduce operating costs associated with maintaining unused buildings and structures, and comply with Army regulations requiring consolidation of operations and reduction of obsolete and unused square footage. Between 2009 and 2012, both programs were responsible for the demolition of 76 Aberdeen Proving Ground buildings and structures (USACE, 2013).

4.1.11.2 Environmental Effects

No Action Alternative

No impacts are anticipated under the No Action Alternative. Aberdeen Proving Ground would continue to use its existing facilities to support its tenants and missions.

Alternative 1—Implement Force Reductions

Overall, minor, adverse impacts would result from a reduction of forces under Alternative 1. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater

number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts to testing and training facilities are also expected as a result of force reductions. A reduction in the frequency of training and testing exercises would be beneficial for maintaining ranges and training areas and thereby improving sustainability of those facilities. A decrease in training and testing operational tempo and related heavy equipment use would be beneficial for the maintenance and sustainability of roadways and off-road maneuver areas. Other impacts to facility and infrastructure may vary depending on what commands or organizations are identified for reductions and how the reductions are dispersed across Aberdeen Proving Ground. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.1.12 Socioeconomics

4.1.12.1 Affected Environment

Aberdeen Proving Ground is near the urban city centers of Baltimore, Philadelphia, and Washington, DC (Rod, 2014). The ROI includes counties that are generally considered the geographic extent in which the majority of the installation's Soldiers, Army civilians, and contractor personnel and their Families reside. The ROI for Aberdeen Proving Ground includes Baltimore, Cecil, Harford, and Kent counties in Maryland.

Population and Demographics

Using 2013 as a baseline, Aberdeen Proving Ground has a total working population of 21,412 consisting of active component Soldiers and Army civilians, students and trainees, other military services, civilians and contractors. Of the total working population, 12,335 are permanent party Soldiers and Army civilians. The population that lives on the installation consists of 689 Soldiers and their 1,046 Family members, for a total on-installation resident population of 1,735. The portion of the Soldiers and Army civilians living off the installation is estimated to be 29,325 and consists of Soldiers, Army civilians, and their Families (Marcum, 2014). The installation does not have a substantial student or trainee population.

In 2012, the population of the ROI was 1,188,018. Compared to 2010, the 2012 population increased in Baltimore, Cecil, and Harford counties, while population decreased slightly in Kent County (Table 4.1-5). The racial and ethnic composition of the ROI is presented in Table 4.1-6 (U.S. Census Bureau, 2012a).

Table 4.1-5. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Baltimore County, Maryland	817,682	+1.6
Cecil County, Maryland	101,684	+0.6
Harford County, Maryland	248,540	+1.5
Kent County, Maryland	20,112	- 0.4

Source: U.S. Census Bureau (2012a)

Table 4.1-6. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
Maryland	60.8	30.0	0.5	6.0	2.5	8.7	53.9
Baltimore County, Maryland	64.8	27.0	0.4	5.4	2.2	4.6	61.4
Cecil County, Maryland	90.0	6.5	0.4	1.1	2.0	3.7	86.9
Harford County, Maryland	81.4	13.1	0.3	2.8	2.3	3.8	78.4
Kent County, Maryland	81.8	15.2	0.3	1.1	1.6	4.5	78.2

Source: U.S. Census Bureau (2012a)

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Income

Compared to 2000, the 2012 total employed labor force (including civilian and military) increased in all of the counties, with the largest increase in Harford and Cecil counties. In 2012, the total employed labor force in the ROI was 592,517 people (U.S. Census Bureau, 2012b). Employment, median home value, household income, and poverty levels are presented in Table 4.1-7.

Information regarding the workforce by industry for each county within the ROI was obtained from the U.S. Census Bureau. Information presented below is for the employed labor force.

Table 4.1-7. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Maryland	2,924,344	+11.8	$304,900	$72,999	6.5
Baltimore County, Maryland	408,698	+7.8	$263,900	$66,068	5.7
Cecil County, Maryland	48,360	+12.7	$261,900	$66,025	6.5
Harford County, Maryland	125,964	+12.1	$290,700	$80,441	5.7
Kent County, Maryland	9,495	+2.1	$267,600	$54,614	5.6

Source: U.S. Census Bureau (2012b; 2000)

Baltimore County, Maryland

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector account for the greatest share of total workforce in Baltimore County (26 percent). Professional, scientific, and management, and administrative and waste management services is the second largest employment sector (12 percent), followed by retail trade (11 percent). The finance and insurance and real estate and rental/leasing sectors employ 9 percent of the working population, while the public administration industry accounts for 8 percent. The Armed Forces account for less than 1 percent of the county's workforce. The remaining eight industries employ 34 percent of the county's workforce (U.S. Census Bureau, 2010).

Major employers in Baltimore County include Social Security Administration/CMS, Baltimore County Public Schools, and Baltimore County Government (Baltimore County Department of Economic Development, 2010).

Cecil County, Maryland

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of total workforce in Cecil County (20 percent). Retail trade is the second largest employment sector (12 percent), followed by manufacturing (11 percent). Construction sector accounts for 10 percent of the employment sector, followed by professional, scientific, and management, and administrative and waste management services (9 percent). The Armed Forces account for less than 1 percent of the county's workforce. The remaining eight industries employ 38 percent of the county's workforce (U.S. Census Bureau, 2010).

Major employers in Cecil County include W.L. Gore & Associates, Perry Point VA Medical Center, Union Hospital of Cecil County (Maryland Department of Labor, Licensing and Regulation, 2013).

Harford County, Maryland

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of total workforce in Harford County (22 percent). Retail trade is the second largest employment sector (13 percent), followed by professional, scientific, and management, and administrative and waste management services (11 percent). The public administration sector employs 10 percent of the working population and the construction and manufacturing sectors each both account for 8 percent of the employed labor force. The Armed Forces account for 1 percent of the county's workforce. The remaining seven industries employ 28 percent of the county's workforce (U.S. Census Bureau, 2010).

Major employers in Harford County include Aberdeen Proving Ground, Harford County Government, and Harford County Public Schools (Broadwater, 2013).

Kent County, Maryland

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of total workforce in Kent County (28 percent). Arts/entertainment, recreation, and accommodation/food services is the second largest employment sector (12 percent), followed by construction (9 percent), followed by retail trade (7 percent) and professional, scientific, and management, and administrative and waste management services (7 percent). The Armed Forces accounts for a negligible portion of Kent County's workforce. The remaining eight industries employ 37 percent of the county's workforce (U.S. Census Bureau, 2010).

Major employers in Kent County are Washington College, Chester River Hospital Center, and Dixon Valve & Coupling Company (Maryland Department of Labor, Licensing and Regulation, 2013).

Housing

Aberdeen Proving Ground housing inventory, after a 6-year initial development period, would be 372 homes for military members and their Families with an additional 457 homes occupied by DoD employees and military retirees. Family housing on Aberdeen Proving Ground has been privatized under the Residential Communities Initiative (RCI) and is managed by Corvias (USACE, 2013; U.S. Army Garrison, 2014).

Approximately 96 beds (100 percent of the barracks spaces on all of Aberdeen Proving Ground) are located on the Northern Peninsula where the housing extends in clusters from Havre De Grace Street to Maryland Boulevard along Susquehanna Avenue.

Housing is located across from the U.S. Army Research Development and Engineering Command Buildings 3071, 3072, and 3073, as well as on Plumb Point Loop (U.S. Army Garrison, 2008). On the Southern Peninsula, Family housing is located within the following areas: along the northern edge of the installation and four distinct neighborhoods along Everette Road, Skully Road, Austin Road, and Parrish Road; in the center of the installation east of the airfield; and in the southwestern corner of the installation west of the 4400 Block.

Approximately 11,646 permanent military and civilian personnel at Aberdeen Proving Ground live off the installation. The majority of military personnel that live off the installation reside in Harford or Cecil counties (U.S. Army Garrison, 2008).

Schools

There are no public or private schools located on Aberdeen Proving Ground (USACE, 2013). The majority of children of military personnel residing on the installation attend public and private schools in Harford County. In Harford County, there are 32 elementary schools, 9 middle schools, 10 high schools (including 1 technical high school), and 6 magnet programs. The schools with the highest proportion of military-connected students attending elementary school, middle school, and high school are listed in Table 4.1-8.

Public school districts in the state of Maryland are funded by the tax revenue of the respective county, and supplemented with state and federal sources. The U.S. Department of Education provides Federal Impact Aid (Section 8003) to local school districts to help educate federally connected children, children of members of the uniformed services, children who reside on Indian lands, children who reside on federal property or in federally subsidized low-rent housing, and children whose parents work on federal property. Educational agencies need to apply for the impact aid yearly. In FY 2012, Harford County Public Schools received $453,229 in additional federal revenue from the Federal Impact Aid program (Harford County Government, 2013).

In Harford County, there are several capital projects that are planned for completion over the next 2 years. The Deerfield Elementary School Replacement and the Edgewood High School Replacement opened in August 2010. The state-rated capacities of the replacement schools are 771 and 1,380, respectively. The recently constructed Red Pump Elementary School opened for the 2011 school year and has approximately 700 students (Harford County Government, 2011). Calvert Elementary School in Cecil County is currently being renovated.

Table 4.1-8. Local Area Harford County Public Schools for Children Residing on Installation, 2013–2014 Academic Year

School Name	Total Enrollment	Military-Connected Student Enrollment (number)	Military-Connected Student Enrollment (percent)
Elementary School			
Roye-Williams Elementary School	546	360	66
Churchville Elementary School	379	76	20
Meadowvale Elementary School	552	97	18
Church Creek Elementary School	777	120	15
Fountain Green Elementary School	522	70	13
Edgewood Elementary School	428	41	10
Middle School			
Aberdeen Middle School	1,119	190	17
Havre de Grace Middle School	543	63	12
Bel Air Middle School	1,288	103	8
Edgewood Middle School	1,104	64	6
Fallston Middle School	873	50	6
High School			
Aberdeen High School	1,417	234	17
Havre de Grace High School	581	73	13
Patterson Mill High School	921	113	12
C. Milton Wright High School	1,402	138	10
Harford Technical High School	1,013	95	9

Source: APG/Harford County Public Schools Partnership Program for the 2013–2014 School Year

Note: Schools with the highest percentage of military affiliate students of total enrollment were included in the table.

Public Health and Safety

Police Services

The Aberdeen Proving Ground Police Department, a part of the Directorate of Emergency Services (DES), provides law enforcement and property protection at Aberdeen Proving Ground. Police functions include protecting life and property, enforcing criminal law, conducting investigations, regulating traffic, providing crowd control, and performing other public safety duties. In 2014, there were 113 officers serving on the installation. City, county, and state police departments provide law enforcement in the ROI.

Fire and Emergency Services

Aberdeen Proving Ground Fire Department, a part of DES, has three fire stations and is authorized to have up to 79 professional firefighters. There is a mutual aid agreement between the installation and outside agencies for Aberdeen Proving Ground Fire Department to respond to calls for service; however, the U.S. Army, by law, cannot rely on mutual aid responses if the organization is a volunteer agency.

Medical Facilities

Aberdeen Proving Ground has one health clinic, Kirk Health Clinic. This clinic is supported by four ambulances which are run by the Fire Department on the installation and staffed by 17 staff members, including paramedics and support staff. There is no medical hospital on the installation. The closest level one trauma center, which is located in Baltimore, is the Baltimore Shock Trauma Center. The closest hospital to the Southern Peninsula is Upper Chesapeake Medical Center, located in Bel Air, Maryland (Ferris, 2014). The closest hospital to the Northern Peninsula is Harford Memorial, located in Havre de Grace, Maryland.

Family Support Services

The Aberdeen Proving Ground Family Morale Welfare and Recreation (FMWR) and Army Community Service (ACS) provide programs, activities, facilities, services, and information to support Soldiers and Families. Services provided at Aberdeen Proving Ground include child care, youth programs, deployment readiness for Families, employment readiness, financial readiness, relocation readiness, exceptional Family member support, Warrior in transition support, and survivor outreach.

Recreation Facilities

Aberdeen Proving Ground recreation facilities include recreation centers, swimming pools, athletic fields, two golf courses, bowling center, outdoor recreation opportunities, and sports teams. The installation supports numerous fee and non-fee recreational programs for Soldiers and their Families annually.

4.1.12.2 Environmental Effects

No Action Alternative

The operations at Aberdeen Proving Ground would continue to benefit regional economic activity. The demand for public services and local school spaces by the Families of Soldiers living off-installation is expected to continue at current levels. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of 4,272[6] Army positions (1,000 active component Soldiers and 3,272 Army civilians), each with an average annual income of $46,760 and $64,203 respectively. In addition, this alternative would affect an estimated 6,485 Family members, including 2,384 spouses and 4,101 dependent children. The total number of Army employees and their Families directly affected under Alternative 1 is projected to be 10,757.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative range. Table 4.1-9 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, changes in sales, income, and employment in the ROI under Alternative 1 fall within the historical range and are not categorized as significant impact. Changes in population are anticipated to be significant because the forecast value is very close to the historical negative threshold value.

Table 4.1-9. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+5.4	+3.4	+4.2	+1.1
Economic contraction significance value	-6.7	-3.3	-2.4	-0.4
Forecast value	-0.9	-0.7	-1.5	-0.4

Table 4.1-10 summarizes the predicted impacts to income, employment, and population of the reductions against the 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. The affected population of 10,757 military employees and Families equates to a potential 0.9 percent population reduction from 2012, which is higher than the EIFS prediction. A reduction of this magnitude falls outside of the historical range of population loss determined by the EIFS model.

[6] This number was derived by assuming the loss of 70 percent of Aberdeen Proving Ground's Soldiers and 30 percent of the Army civilians.

To ensure the potential impacts were captured to the greatest extent possible, this population loss was assessed against the EIFS threshold and determined to be a significant impact.

Table 4.1-10. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$382,369,400	-5,132 (Direct)	-10,757
		-2,189 (Induced)	
		-7,321 (Total)	
Total 2012 ROI economic estimates	$62,361,573,00	592,517	1,188,018
Percent reduction of 2012 figures	-0.6	-1.2	-0.9

Note: Sales estimates are not consistently available from public sources for all counties in the United States; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from EIFS is described in the paragraphs below.

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 4,272 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 860 direct contract service jobs would be also lost. An additional 2,189 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. The total reduction in employment is estimated to be 7,321, a reduction of 1.2 percent from the total employed labor force in the ROI of 592,517. Income is estimated to reduce by $382.4 million, a 0.6 percent decrease in the ROI in 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $687 million. There would also be a loss in sales tax receipts to local and state governments. The state and average local sales tax for Maryland is 6 percent (Tax Foundation, 2014). To estimate sales tax reductions, information was utilized on the proportion of sales that would be subject to sales taxes on average across the country. According to the U.S. Economic Census, an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $686.8 million resulting in an estimated sales tax receipts decrease of $6.6 million under Alternative 1.

Of the approximately 1.2 million people (including those residing on Aberdeen Proving Ground) who live within the ROI, 10,757 Army employees and their Families are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 0.9 percent. To ensure the potential impacts were captured to the greatest extent possible, this population loss was assessed against the EIFS threshold value of 0.45 percent and determined to be a significant impact. This number likely overstates potential population impacts because some of the people no longer employed by the Army would continue to live and work within the ROI, finding employment in other industry sectors.

Housing

The population reduction under Alternative 1 would lead to a decreased demand for housing and increased housing availability on the installation and in the region, potentially resulting in a slight reduction in median home values.

Schools

Under Alternative 1, the decrease of 4,272 Soldiers and Army civilians would decrease the number of children in the ROI by 4,101. Because there are no schools on Aberdeen Proving Ground, the schools in Harford County are likely to be most affected by reductions in enrollment. With total enrollment in Harford County schools near Aberdeen Proving Ground of approximately 6,056, there could be significant impacts to schools associated with Alternative 1. Elementary schools close to Aberdeen Proving Ground are likely to be most affected by the decrease in enrollment associated with Alternative 1. Table 4.1-8 displays Aberdeen Proving Ground school partnerships in Harford County which could be impacted by Alternative 1. The schools with the higher percentage of Army children enrollment are likely to be more affected; these include Roye-Williams Elementary School (66 percent), Churchville Elementary School (20 percent), Meadowvale Elementary School (18 percent), Aberdeen Middle School (17 percent), and Aberdeen High School (17 percent) in Harford County (Table 4.1-8). If enrollment in individual schools declines sharply, schools may need to reduce the number of teachers, administrators, and other staff, and potentially close or consolidate with other schools within the same school district should enrollment fall below sustainable levels.

The reduction of Soldiers on Aberdeen Proving Ground would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal School Impact Aid a district receives is based on the number of students who are considered “federally connected” and attend district schools. Actual projected dollar amounts cannot be determined at this time due to the variability of appropriated dollars from year to year and the uncertainty regarding the actual number of affected school-age children for military and civilian Families. Schools with higher proportions of Army children in attendance would be more adversely impacted (Table 4.1-8). School districts in the ROI would likely need fewer teachers and materials as enrollment drops, which would partially offset the reduced Federal Impact Aid. Overall, schools in the ROI could experience minor to significant impacts associated with decreased enrollment and reduced Federal Impact Aid.

Public Services

Law enforcement, medical care providers, and fire and emergency service providers on the installation may experience a decrease in demand should Soldiers and Army civilians, and their Families, affected by Alternative 1, move to areas outside the ROI. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect the health clinic, military police, and fire and rescue crews on the installation. These scenarios are not reasonably

foreseeable, however, and are therefore not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements so they are not compromised because of force reductions. Overall, there would be minor impacts to public health and safety as a result of Alternative 1. The impacts to public services are not expected to be significant because the existing service level for the installation and the ROI would still be available.

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. As a result, minor impacts to Family Support Services and recreation facilities would occur under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, provides: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). In general, Alternative 1 would not have a disproportionate adverse impact to minorities, economically disadvantaged populations, or children in the ROI. Job losses would be experienced across all income levels and economic sectors and spread geographically throughout the ROI. Minority populations in the ROI are proportionally smaller than in the state as a whole, while Kent County and Cecil County have slightly higher populations living below the poverty line than in the state as a whole. As a result, there would be no disproportionate impacts to environmental justice populations.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of the people associated with the installation, including children. Therefore, it is not anticipated that implementing Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.1.13 Energy Demand and Generation

4.1.13.1 Affected Environment

Aberdeen Proving Ground's energy needs are currently met by a combination of electric power and natural gas. Since September 2012, these utilities are managed on the installation by City Power and Light (Aberdeen Proving Ground, 2014b). During the past decade, Congress has enacted major energy bills, and the President has issued Executive Orders that direct federal agencies to address energy efficiency and environmental sustainability. The federal requirements for energy conservation that are most relevant to Aberdeen Proving Ground include the following: the Energy Policy Act of 2005; E.O. 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, issued January 2007; Energy Independence and Security Act of 2007; and E.O. 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, issued October 2009. Aberdeen Proving Ground is responsible for complying with these requirements.

Electricity

Baltimore Gas and Electric supplies Aberdeen Proving Ground electricity from its Perryman Island Power Plant. The Perryman Island Power Plant supplies the Northern Peninsula's Harford substation with up to 190,000 kilovolt-amps and the Southern Peninsula's Magnolia substation with 30,000 kilovolt-amps (USACE, 2007).

Natural Gas

Baltimore Gas and Electric supplies the Northern Peninsula with gas from its main lines in Harford County via an 8-inch line that runs on the installation near Maryland Boulevard at the Harford Electric Substation. This line can supply up to 900,000 cubic feet per hour of natural gas. Many of the boilers on the installation are fired by fuel oil. These facilities could be retrofitted with dual-fuel capable boilers and connected into the gas system by Baltimore Gas and Electric, which would then operate and maintain the gas lines. Limited gas service is available on the Southern Peninsula (USACE, 2007).

4.1.13.2 Environmental Effects

No Action Alternative

Minor, adverse impacts are anticipated on energy demand. The continued use of outdated, energy inefficient facilities could hinder Aberdeen Proving Ground's requirement to reduce energy consumption. Some older facilities may require renovations to improve energy efficiency to comply with the federal mandates.

Alternative 1—Implement Force Reductions

Minor, beneficial impacts to energy demand are anticipated because force reductions would reduce the installation's overall demand for energy. The installation would also be better

positioned to meet energy and sustainability goals. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on energy demand are not analyzed.

4.1.14 Land Use Conflicts and Compatibility

4.1.14.1 Affected Environment

Regional Setting

The regional setting of Aberdeen Proving Ground is described above in Sections 4.1.1 and 4.1.12.

Land Uses on the Installation

Aberdeen Proving Ground is home to 11 major commands and supports more than 80 tenant, 20 satellite, and 17 private activities. The installation provides facilities to perform RDTE of Army materiel (Aberdeen Proving Ground, 2014a). Land use on the Northern Peninsula cantonment area contains a mixture of urban and suburban development. Land use designations include mainly ranges and training on the southern portion, with areas of airfield, community, residential, troop, and industrial land use surrounding a large professional/institutional area in the center of the cantonment (USACE, 2013). The Northern Peninsula is divided into three main functions: the headquarters and research area, the training and support area, and the test range area. The test range area covers 26,500 acres and comprises most of the Northern Peninsula. The headquarters and research area is dedicated to special operations and research, such as ballistics research and testing laboratories. The training and support area, located on the northern portion of the Northern Peninsula, is the most highly developed portion of the installation. The training and support area includes training, technical, administrative, and housing facilities. Phillips AAF is located to the southwest of the headquarters and research area (USACE, 2007). Land use on the Southern Peninsula is mostly suburban in context with some moderately dense pockets of development. Designated land uses within the Southern Peninsula include community, industrial, professional, residential, training, troop, and airfield (USACE, 2013). Major functional areas of the Southern Peninsula include the test range area, cantonment area, industrial area, training area, and research and development area. Most of the development is concentrated in the center of the cantonment around Weide AHP (USACE, 2013). The principal research and development activities are concentrated in the area east of Weide AHP, and involve chemical and biological research. The cantonment area is dedicated to housing, administrative, training, and installation support. The industrial area of the Southern Peninsula is located east of the cantonment area, and ongoing activities include supply and storage and vehicular maintenance (Aberdeen Proving Ground, 2014b).

Surrounding Land Use

Regional land uses outside the installation consist of urban residential, commercial, industrial, and agricultural uses (Harford County, 2014). Land use adjacent to the Northern Peninsula is dominated by industrial parks and low-intensity residential areas. County parks are scattered northeast and northwest of the Northern Peninsula (USACE, 2013). Higher density residential development occurs along the western edge of the Northern Peninsula and north of the Southern Peninsula (Aberdeen Proving Ground, 2009).

Land use surrounding the Southern Peninsula is predominately low- to medium-intensity urban residential areas. In addition to the residential areas, there are a few industrial areas and county parks north and northwest of the Southern Peninsula (USACE, 2013). The Southern Peninsula is bounded by the Bush River to the east, Gunpowder River to the west, and the Chesapeake Bay to the south. These bodies of water are typically used for recreational purposes including boating, fishing, and swimming.

The 2012 Harford County Master Plan and Land Use Element Plan (Harford County, 2012) identifies different areas in the county for resource conservation, community growth, and economic growth. The area of economic growth consists of an inverted T-shaped area referred to as the Development Envelope which abuts the entire land boundary between Aberdeen Proving Ground and Harford County. The Master Plan and Land Use Element Plan continues to focus future business and economic development within the Development Envelope (Harford County, 2012).

Joint Land Use Study

Land use conflicts and compatibility issues can result from incompatible development or uses by surrounding communities or interference of installation activities with surrounding uses. Aberdeen Proving Ground is currently conducting a Joint Land Use Study (JLUS). The JLUS is a cooperative planning effort among an active military installation, surrounding cities and counties, state and federal agencies, and other stakeholders. The Aberdeen Proving Ground JLUS Study Area encompasses the Northern and Southern Peninsulas areas; the Churchville Test Area; Graces Quarters; Carroll Island; Pooles Island; Spesutie Island; and smaller properties containing utilities, towers and other range infrastructure, as well as all land and operational areas near and adjacent to installation locations and use areas that may impact current or future military operations. The goal of the JLUS is to protect the health and safety of residents and workers; preserve long-term land use compatibility between Aberdeen Proving Ground and the surrounding communities; promote comprehensive community planning that addresses compatibility issues; enhance a cooperative spirit between the installation and community officials; and coordinate comprehensive plans and regulations between local jurisdictions and Aberdeen Proving Ground. In particular, the issues of noise exposure and dust generation are the paramount concerns of the JLUS. The Aberdeen Proving Ground JLUS report is expected to be released in February 2015 (U.S. Army, 2014b).

4.1.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, minor impacts to land use compatibility are expected. With the current operational tempo, the growth of communities along Aberdeen Proving Ground's boundary could lead to conflicts in land use. Such conflicts would be primarily due to noise generated by training and testing activities and aircraft noise, coupled with the proximity of sensitive noise receptors as discussed in Section 4.1.6, *Noise*. Aberdeen Proving Ground would continue the ongoing JLUS program to minimize potential land use conflicts between testing activities at the installation and the surrounding community.

Alternative 1—Implement Force Reductions

Minor to negligible impacts to land use are anticipated with a reduction in force strength. Force reductions would not change the types of existing land use at Aberdeen Proving Ground. It is anticipated that, while the frequency of training and testing activities would decrease, the current relationship of activities occurring on the installation with surrounding land uses is not expected to change because of the character of the surrounding area. Similar to the No Action Alternative, Aberdeen Proving Ground would continue the ongoing JLUS program to minimize potential land use conflicts between testing activities at the installation and the surrounding community.

4.1.15 Hazardous Materials and Hazardous Waste

4.1.15.1 Affected Environment

Hazardous Materials

A number of Aberdeen Proving Ground RDTE programs require use of hazardous materials. The goal of Aberdeen Proving Ground is to reduce the use of selected toxic chemicals and hazardous substances as well as the generation of hazardous and radioactive waste through identifying proven substitutes and established facility management practices, including pollution prevention. Pollution prevention is the preferred approach to environmental management at Aberdeen Proving Ground. Aberdeen Proving Ground's Hazardous Materials Management Policy and Hazardous Materials Management Procedures Manual provide the baseline hazardous materials requirements for all installation, tenant, and contractor activities (USACE, 2007).

Reporting of hazardous chemical storage quantities and locations is required under the Emergency Planning and Community Right-to-Know Act of 1987. The installation's automated Hazardous Inventory Tracking System tracks all installation hazardous material inventories. The tracking system provides current inventories on all hazardous materials used and stored onsite. Aberdeen Proving Ground personnel have noted that the tracking system is currently inoperable and may not be in use in the near future. Currently there is concern over how the current inventories of hazardous materials will be tracked at Aberdeen Proving Ground.

The Hazardous Materials Pharmacy at Aberdeen Proving Ground is a consolidated chemical and hazardous material pharmacy designed for maintaining positive control over all hazardous materials from Army research and development operations. Ultimately, all information amassed through both physical inventory and electronic inventory is transmitted to the Hazardous Materials Pharmacy where it is verified before it becomes an actual part of the inventory or reference database (USACE, 2007).

Hazardous Waste Treatment, Storage, and Disposal

At Aberdeen Proving Ground, hazardous materials and hazardous waste are subject to applicable Resource Conservation and Recovery Act (RCRA) regulations. This includes the use, storage, transport, and disposal of hazardous materials and wastes. Aberdeen Proving Ground is a RCRA large quantity hazardous waste generator. Over the past 8 years Aberdeen Proving Ground has generated 36 percent of the hazardous waste generated by all of the Army Installation Management Command (IMCOM) garrisons. A wide variety of waste materials are generated, with much of the hazardous waste generated from the RDTE activities performed by tenants and ongoing site remediation activities (Aberdeen Proving Ground, 2014b).

Recurring operations typically generate 300,000 to 500,000 pounds of hazardous waste annually. Special projects and restoration activities sometimes contribute additional quantities. The installation also generates large quantities of industrial wastes (often well in excess of a million pounds per year) that do not meet hazardous waste criteria, but nonetheless require special management and disposal to protect human health and the environment (USACE, 2013).

A majority of permitted facilities at Aberdeen Proving Ground are covered under Controlled Hazardous Substances Permit A-190. In addition to the permitted facilities, Aberdeen Proving Ground operates up to 15 90-day hazardous materials storage facilities and more than 200 satellite accumulation sites (Aberdeen Proving Ground, 2014b).

Hazardous Waste Investigation and Remediation Sites

Historical testing, training, manufacturing, and disposal activities at Aberdeen Proving Ground have led to numerous sites with contaminated soil, sediments, groundwater, and/or surface water. Investigation and remediation of these sites is being conducted in accordance with EPA's Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). There are numerous groundwater pollution plumes across the installation (USACE, 2013). In 1983, Aberdeen Proving Ground assumed total management responsibility of its Installation Restoration Program (IRP) projects. In 1989, Michaelsville Landfill in Aberdeen Proving Ground (Northern Peninsula) was listed on EPA's National Priorities List (NPL), while in 1990 all of Aberdeen Proving Ground (Southern Peninsula) was listed on the NPL.

Aberdeen Proving Ground has participated in the Army's IRP since 1978. DoD developed the IRP to identify, evaluate, and clean up contamination from past operations on military bases

worldwide. The IRP is designed to ensure DoD compliance with federal and state regulations that protect the environment. Aberdeen Proving Ground has prepared an Installation Action Plan (IAP) and updates it annually. The IAP defines IRP requirements and proposes an implementation plan to address future investigation and remedial efforts at the IRP sites. There are 301 identified sites within the IRP at Aberdeen Proving Ground. Of these sites, 162 are considered "Response Complete," requiring no further action. Under current reporting limitations, the remedies would be incorporated at Aberdeen Proving Ground by the end of 2021 and completed by the end of 2043; however many sites within Aberdeen Proving Ground are not able to be projected beyond the study phase. Once the study phase for these sites is completed, the remedy and completion dates may grow considerably (Smith, 2014).

In addition to the IRP, Aberdeen Proving Ground updates a Compliance-Related Cleanup IAP for storage tanks that do not affect groundwater off the installation and UXO exposed by erosion. These sites are not covered as part of the IRP.

Other Hazards

Other hazards present at Aberdeen Proving Ground are controlled, managed, and removed through specific programs and plans and include UXO, lead-based paint (LBP), asbestos, pesticides, and ionizing and non-ionizing radiation.

4.1.15.2 Environmental Effects

No Action Alternative

Minor, adverse impacts are anticipated under the No Action Alternative because there would be continued use and generation of hazardous materials and wastes on Aberdeen Proving Ground. The existing types and quantities of hazardous wastes generated on the installation have been accommodated by the existing hazardous waste management system, and all materials and waste would continue to be handled in accordance with all applicable laws, regulations, and plans minimizing potential impacts.

Alternative 1—Implement Force Reductions

Minor, adverse impacts are anticipated under Alternative 1. As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

It is anticipated that Aberdeen Proving Ground would decrease generation of hazardous wastes with a decrease in active component Soldiers and Army civilians. Remediation activities generated 70 percent of the total hazardous waste generated in 2012; these activities are not expected to be affected under Alternative 1 because remediation would be required to continue in accordance with legal mandates. Because of the reduced numbers of Soldiers and support

activities, it is expected that the potential for spills would be reduced during testing training and maintenance activities. Waste collection, storage, and disposal processes would remain mostly unchanged, although the quantities may be reduced. This potential decrease is not expected to affect Aberdeen Proving Ground's RCRA large quantity generator status.

Adverse impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Aberdeen Proving Ground, the Army would ensure that adequate staffing remains so that mandated environmental requirements, such as the IRP, would continue to be met and implemented.

4.1.16 Traffic and Transportation

4.1.16.1 Affected Environment

Aberdeen Proving Ground is located about 20 miles northeast of the city of Baltimore, Maryland. The ROI for traffic and transportation issues is Harford County and a small section of Baltimore County, Maryland. The nearest major population center is Aberdeen, Maryland, which is 4 miles and a 10-minute drive from the main gate at Aberdeen Proving Ground (Aberdeen Proving Ground, 2014b).

All entrances to Aberdeen Proving Ground are accessible regionally from Interstate 95 (I-95), which is a national freeway located 3 miles northwest of the installation. It connects Aberdeen Proving Ground to Baltimore, Maryland; Washington, DC; and other points south; and Philadelphia, Pennsylvania; Wilmington, Delaware; and other points north. U.S. 40 runs parallel to I-95 and is closer to Aberdeen Proving Ground. These highways also connect the Northern and Southern Peninsulas of Aberdeen Proving Ground because there are no on-installation roads and bridges that connect the two peninsulas. Major state highways provide access to the main installation gates (the Magnolia Road, Wise Road, and Hoadley Road gates) from I-95 and U.S. 40, including MD 22 (Aberdeen Thruway/Harford Boulevard), MD 715 (Shore Lane/Maryland Boulevard), MD 755 (Edgewood Road), MD 24 (Emmorton Road), and MD 152 (Magnolia Road) (Aberdeen Proving Ground, 2014b).

The installation road system consists of more than 300 miles of paved roads. The Aberdeen Proving Ground Northern Peninsula and Southern Peninsula are both accessed by three gates. The Northern Peninsula experiences a larger share of on-installation daily traffic than the Southern Peninsula (USACE, 2007).

Commercial and passenger air service is available through airports in the metropolitan areas of Baltimore, Maryland (Baltimore/Washington International); Washington, DC (Reagan National

and Dulles International); Philadelphia, Pennsylvania (Philadelphia International); and Wilmington, Delaware (New Castle Airport) (USACE, 2007).

Aberdeen Proving Ground has Phillips AAF on the Northern Peninsula and Weide AHP on the Southern Peninsula; neither is available for commercial or civilian access. Both helicopter and fixed-wing aircraft use Phillips AAF. Located in the secured area south of Ruggles Golf Course, Phillips AAF has one 8,300-foot and two 5,000-foot hard surfaced runways; one 35-foot by 35-foot helipad; three ramps totaling 43,750 square feet; and three bomb ramps totaling 518,000 square feet. Weide AHP, which is used exclusively for helicopters, is operated by the Maryland ARNG (USACE, 2007).

Amtrak and Maryland Rail Commuter (MARC) lines provide passenger rail service to facilities near Aberdeen Proving Ground. The Amtrak line parallels the installation boundary in Harford County and has a station in the town of Aberdeen. Amtrak operates daily service to Washington, DC, and New York City. MARC uses the same rail line as Amtrak and has stations on the Northern and Southern Peninsulas. MARC provides daily commuter service to Baltimore and Washington, DC. Norfolk Southern provides freight rail service in the Aberdeen Proving Ground area. The Norfolk Southern lines share a corridor with Amtrak and have interchange access to both the Northern and Southern Peninsulas of the proving ground (USACE, 2007).

Restricted water access to the Northern Peninsula is provided at two docking facilities along the shoreline in Spesutie Narrows. One is located southeast of Phillips AAF near Building 429, and the other is located at the mouth of Spesutie Narrows at the end of Mulberry Road. Access to the Chesapeake Bay from Spesutie Narrows is via a 12-foot-deep shipping channel marked with lights and maintained by the U.S. Coast Guard. Access to the Southern Peninsula from the Chesapeake Bay is via piers on Lauderick Creek and the Bush River northwest of Tapler Point (USACE, 2007).

4.1.16.2 Environmental Effects

No Action Alternative

The No Action Alternative would maintain the current conditions of traffic and transportation. The impact is anticipated to be minor on and near the Northern Peninsula, with some congestion at major Access Control Points (ACPs) and key intersections. The impact is anticipated to be negligible to minor on the Southern Peninsula.

Alternative 1—Implement Force Reductions

Alternative 1 is expected to have a beneficial impact to on-installation traffic and transportation at Aberdeen Proving Ground. If the full population reduction were to be implemented, the reduction in traffic congestion would likely be noticeable. Traffic congestion at ACPs during peak hours would be reduced if current gate staffing levels were maintained; if some gates were

closed or staffed at reduced levels, the potential impact would have to be further evaluated. The impact on off-installation roads would be beneficial, due to reduced traffic at peak hours and reduced traffic congestion, with the greatest benefit at intersections and roadways closest to Aberdeen Proving Ground.

4.1.17 Cumulative Effects

The ROI for the cumulative analysis includes Baltimore, Cecil, Harford, and Kent counties in Maryland. The geographic extent of the ROI includes all counties surrounding or near Aberdeen Proving Ground that may be impacted by projects noted below. Cumulative effects include Army-related activities at Aberdeen Proving Ground on the northeastern shore of the Chesapeake Bay.

Reasonably Foreseeable Future Projects on Aberdeen Proving Ground

- Implementation of Joint Land Attack Cruise Missile Elevated Netted Sensor System, helium-filled aerostats that would be tethered at an altitude of 2 miles over Aberdeen Proving Ground (FY 2014/FY 2015)
- Implementation of Rapid Expedition Deployment Initiative (FY 2014/FY 2015)
- Military Construction (MILCON) projects and other projects identified by Aberdeen Proving Ground Master Planning, Energy, or tenants (e.g., future Enhanced Use Lease development/expansion)

Reasonably Foreseeable Future Projects outside Aberdeen Proving Ground

The Army is not aware of any reasonably foreseeable future projects outside Aberdeen Proving Ground which would be appropriate for inclusion in the cumulative impacts analysis. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, larger economies with more job opportunities could absorb some of the displaced Army workforce, lessening adverse effects from force reductions.

No Action Alternative

Implementation of the No Action Alternative in conjunction with these projects would not result in any significant cumulative effects on resources at the installation. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reductions

Implementation of Alternative 1 with these projects would not result in any significant cumulative effects on resources at the installation. The cumulative socioeconomic impact within

the ROI, in addition to impacts described in Section 4.1.12.2 with a reduction of 4,272 Soldiers and Army civilians, would be significant and adverse on population, minor and adverse on the regional economy and housing, with potential significant impacts to some schools.

Aberdeen Proving Ground is located in the greater Baltimore metropolitan area, and the ROI has a population of more than 1.2 million. Because of the large employment base and diverse economy in the region, the ROI would be less vulnerable to these force reductions because other industries and considerable economic activity occur within the ROI. Other construction and development activities on the installation and in the ROI would benefit the regional economy through additional economic activity, jobs, and income in the ROI.

Other potential stationing and realignment activities on the installation, which would be unrelated to the Proposed Action, are not expected to add substantially to these force reductions. Fort Meade, which is also located within the Baltimore region, could incur a loss of 3,500 Soldiers and Army civilians. Aberdeen Proving Ground is located northeast of the city of Baltimore, while Fort Meade is located southwest of the city. The two installations have one common county in their ROIs, Baltimore County. While the majority of the regional economic impact would be experienced within the respective ROIs, the cumulative impacts associated with both installations' force reductions could lead to additional adverse regional economic impacts in the greater Baltimore metropolitan region and the state of Maryland overall.

Under Alternative 1, the loss of approximately 4,300 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have a minor, adverse impact on regional economic conditions in the broader ROI. However, schools that provide education to Aberdeen Proving Ground students might continue to be significantly adversely impacted under Alternative 1; the cumulative force reductions at Fort Meade are not expected to contribute to these impacts.

4.2 Fort Belvoir, Virginia

4.2.1 Introduction

Fort Belvoir is located along the Potomac River in southern Fairfax County, Virginia (Figure 4.2-1). Fort Belvoir contributes to the Nation's defense primarily by providing a secure operating environment for regional and worldwide DoD missions and functions. As a strategic sustaining base for America's Army in the National Capital Region, the organizations on Fort Belvoir include more than 140 Army, DoD, and federal agency organizations with a variety of logistics, intelligence and administrative functions. DoD Headquarters located at Fort Belvoir include the Defense Logistics Agency, the Defense Acquisition University, the Defense Contract Audit Agency, the Defense Technical Information Center, U.S. Army Military Intelligence Readiness Command, the Missile Defense Agency, the Defense Threat Reduction Agency, and the National Geospatial-Intelligence Agency. The work done at Fort Belvoir is vital to the success of the goals and objectives of the Nation's defense strategy. The military mission goal at Fort Belvoir is global; providing intelligence, logistical, medical, and administrative support to a diverse mix of tenant and satellite organizations.

Fort Belvoir provides services to more than 245,000 military, defense civilians, retirees, and Families. The garrison also provides housing, medical services, recreational facilities, and other support services for active component military members and retirees in the National Capital Region. Fort Belvoir consists of approximately 13.5 square miles (including Main Post and Fort Belvoir North Area [FBNA, formerly known as Engineering Proving Ground]) and is located approximately 15 miles south of Washington, DC. Fairfax County is one of the largest and most populated jurisdictions in the Washington, DC, area.

In September 2011, the baseline year of this SPEA, the workforce population at Fort Belvoir was approximately 39,400. Since then, the installation population has grown incrementally to approximately 39,740 (February 2013). This value does not include the adjacent property of the Humphreys Engineer Center, which is operated by the U.S. Army Corps of Engineers (USACE); the Mark Center, a property Fort Belvoir acquired in 2008 with a population of 6,400 personnel; or Rivanna Station because of its remote location in Charlottesville, Virginia, with approximately 3,000 personnel. South Post has approximately 15,600 employees. North Post has approximately 14,000 employees. Approximately 1,200 employees work at Davison AAF, and FBNA has a workforce of approximately 8,600 personnel.

Of the Fort Belvoir workforce, about 60 percent is DoD civilians, 30 percent contractors, and 10 percent active component military or 214 reservists on duty. Belvoir is home to 26 DoD agencies, 2 Army major command headquarters and elements of 10 others, 19 other Army agencies, 8 elements of the U.S. Army Reserve and the ARNG, a U.S. Navy construction battalion, a U.S. Marine Corps detachment, a U.S. Air Force activity, and a Department of the Treasury agency.

Figure 4.2-1. Fort Belvoir, Virginia

In 2007, in response to the 2005 BRAC actions, the Army updated and amended the land use plan in Fort Belvoir's 1993 Real Property Master Plan (RPMP). The Final EIS for Implementation of the 2005 BRAC Recommendations and Related Army Actions at Fort Belvoir, Virginia, addressed the adoption of the amended land use plan as well as the BRAC realignment actions at Fort Belvoir (USACE, 2007). Currently, the Army is preparing an update of Fort Belvoir's RPMP to address future growth on the installation through 2030.

Fort Belvoir's 2013 baseline permanent party population was 9,721. In this SPEA, Alternative 1 assesses a potential population loss of 4,600, including approximately 2,885 permanent party Soldiers and 1,680 Army civilians.

4.2.2 Valued Environmental Components

For alternatives the Army is considering as part of Army 2020 force structure realignments, no significant, adverse environmental or socioeconomic impacts are anticipated for Fort Belvoir as a

result of implementing Alternative 1—Implement Force Reductions. Table 4.2-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.2-1. Fort Belvoir Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	No Impacts	Beneficial
Cultural Resources	Negligible	Minor
Noise	Negligible	Negligible
Soils	Minor	Beneficial
Biological Resources	Negligible	Beneficial
Wetlands	Negligible	Beneficial
Water Resources	Minor	Beneficial
Facilities	No Impacts	Minor
Socioeconomics	Beneficial	Less than Significant
Energy Demand and Generation	Minor	Beneficial
Land Use Conflict and Compatibility	Minor	Negligible
Hazardous Materials and Hazardous Waste	Minor	Minor
Traffic and Transportation	Less than Significant	Beneficial

4.2.3 Air Quality

4.2.3.1 Affected Environment

Fort Belvoir is located in an area in nonattainment for $PM_{2.5}$ and in marginal nonattainment for O_3. Federal regulations designate AQCRs in violation of the National Ambient Air Quality Standards (NAAQS) as nonattainment areas. The Washington Metropolitan area, including Fairfax County and Fort Belvoir, is AQCR 47. AQCR 47 was previously in nonattainment for CO; however, that portion of the airshed does not include Fairfax County (EPA, 2013).

The Virginia Department of Environmental Quality (DEQ) administers a program for permitting the construction and operation of new, existing, and modified stationary sources of air emissions in Virginia. Air permitting is required for many industries and facilities that emit regulated pollutants. Virginia DEQ sets permit rules and standards for emissions sources on the basis of the age and size of the emitting units, attainment status of the region where the source is located, dates of equipment installation and/or modification, and type and quantities of pollutants emitted.

As a major stationary source for emissions, Fort Belvoir operates under a Title V permit. The current installation-wide Title V permit had an expiration date of March 21, 2008. Fort Belvoir submitted a renewal application by the regulatory deadline; however, the current permit does not expire until Virginia DEQ either issues or denies a renewal permit, which it has not done to date. All terms and conditions of the Title V permit issued on March 21, 2003, remain in effect (Fort Belvoir, 2013a). The installation is required to submit a comprehensive emission statement annually.

As part of its Title V permit, Fort Belvoir calculates permanent source emissions annually. Construction and vehicle emissions are not included in the calculation of annual emissions because these emission sources are temporary and not regulated by Title V of the Clean Air Act. Total emissions from significant sources at Fort Belvoir in 2011 are shown in Table 4.2-2.

Table 4.2-2. Emissions from Permitted Stationary Sources (2011)

SO_2	CO	PM_{10}	$PM_{2.5}$	NO_x	VOC
(tons per year)					
0.26	31.10	2.79	2.73	55.06	3.86

Source: Fort Belvoir (2013a)

Notes: Emission totals do not include emissions from stationary sources that are not significant under Title V and/or otherwise subject to permit terms or restrictions.

Greenhouse gas (GHG) emission sources at Fort Belvoir include vehicle use, boilers, chillers, water heaters, and emergency generators. Current carbon dioxide equivalent emissions at Fort Belvoir in 2011 were 30,296.9 metric tons. The emission total is the amount reported annually under the requirements of 40 CFR Part 98 and does not include GHG emissions from mobile sources or emergency generator use (Fort Belvoir, 2013a).

4.2.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the existing levels of emissions would continue to result in minor impacts to air quality. Emissions would continue to occur from mobile and stationary sources and would continue to be below the permitted thresholds.

Alternative 1—Implement Force Reductions

A force reduction of 4,600 at Fort Belvoir would result in long-term, beneficial air quality impacts due to reduced demand for heating/hot water and a reduction of mobile source emissions from vehicle trips to and from the facility.

Given the population density of AQCR 47, it is likely that the vehicle trips to, from, and around the installation that would be reduced would occur at a new location within the same airshed,

reducing the beneficial impact. Short-term, negligible impacts to air quality could result from the relocation of personnel outside of the area due to the force reductions. As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of force reduction is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on air quality are not analyzed. The Army is also committed to ensuring that personnel cuts will not result in non-compliance with air quality regulations. Even if the full end-strength reductions were to be realized at Fort Belvoir, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.2.4 Airspace

4.2.4.1 Affected Environment

Because of its proximity to Washington, DC, Fort Belvoir is located in the Washington, DC, Metropolitan Area Flight Restricted Zone Special Use Airspace (SUA). SUA refers to airspace that is designed and regulated to limit operations and aircraft activities, with limitations varying greatly dependent on the individual SUA. The Flight Restricted Zone is centered on the very high frequency omni-directional range/distance measuring equipment at the Ronald Reagan Washington National Airport and extends cylindrically 15 to 17 miles; Fort Belvoir is located about 13 miles to the southwest. Established for the purpose of national security, the Flight Restricted Zone is the most limiting of airspace classifications, and restricts airspace use to governmental flights, with some scheduled commercial and a limited set of waivered flights allowed at set altitudes and flight paths (73 Federal Register 242, 76195–76215 December 16, 2008).

Airspace use at Fort Belvoir is centered on use of Davison AAF. The airway consists of a 450-by-40 foot helipad and a 5,500-by-80 foot paved runway with a parallel 4,900-foot taxiway. The mission of Davison AAF is to transport passengers and freight for the Army and DoD to, from, and within the National Capital Region. The airfield fulfills this mission with an average of 20 missions per day (takeoffs and landings). The airfield is home to five tenant flight units and two Army aviation commands: the Army’s fixed-wing Operational Support Airlift Agency under the ARNG with its co-located Operational Support Airlift Command headquarters, and the rotary-wing 12th Aviation Battalion under the administration of the Military District of Washington. Two and three-dimensional safety use zones are centered on the airfield; these zones are defined around all runways and taxiways to minimize the potential for accidents during take-off and landing operations. The safety zones constrain the presence and height of potential developments and keep the area clear of objects that could cause or be affected by an accident (USACE, 2007).

4.2.4.2 Environmental Effects

No Action Alternative

Fort Belvoir would maintain existing airspace operations under the No Action Alternative. All current airspace restrictions are sufficient to meet current airspace requirements, and no airspace conflicts are anticipated. There would be no impacts to airspace.

Alternative 1—Implement Force Reductions

Force reductions under Alternative 1 would not alter the current airspace use and would not be projected to require additional SUA. Airspace restrictions and classifications around Fort Belvoir are sufficient to meet current and future airspace requirements. If force reductions are applied to those units using Davison AAF, use of aviation assets and SUA could potentially be reduced, leading to decreased airspace activity, resulting in minor, beneficial impacts to airspace.

4.2.5 Cultural Resources

4.2.5.1 Affected Environment

The affected environment for cultural resources at Fort Belvoir is the installation's footprint, which consists of Fort Belvoir and six associated remote sites. The majority have been surveyed for archaeological resources. These surveys indicate that the Belvoir Peninsula was occupied 11,500 years ago when the climate was cooler and the peninsula was a high upland approximately 160 miles from the Atlantic coast (Fort Belvoir, 2013b). The archaeological sites present at Fort Belvoir include artifact scatters that provide evidence for 8,000 years of human habitation of the area. A total of 303 archaeological sites have been identified at the Main Post and the installation's 6 associated remote sites. Of these, 15 sites have been determined eligible for inclusion in the NRHP and 154 require additional study to determine their eligibility status. One archaeological site, the Belvoir Manor Ruins and Fairfax Gravesite, is listed in the NRHP.

Fort Belvoir has completed architectural surveys of the majority of the buildings constructed prior to 1946. Historic buildings at the installation date from the mid-19th century to the Cold War Era. While Cold War Era buildings have been identified, a comprehensive survey of these resources has not been completed. Completed surveys resulted in the identification of one historic district, the Fort Belvoir Historic District, and nine historic buildings and structures that are individually eligible for listing in the NRHP. The Fort Belvoir Historic District encompasses 269 acres and consists of 213 contributing and 92 non-contributing resources dating from 1921 to 1953 (Fort Belvoir, 2013b). Five of the nine individually eligible resources are part of the Fort Belvoir Military Railroad Multiple-Property Listing. The remaining four NRHP eligible resources include the Cold War Era U.S. Army Package Power Reactor (SM-1), Camp A.A. Humphreys Pump Station and Filter Building, Thermo-Con House (Building 172) and the Amphitheater (Facility 2287).

Four federally recognized Indian tribes have been identified that maintain connections to the cultural resources at Fort Belvoir. Only one, the Catawba Nation, has been active in consultation with the installation. To date, these consultations have not resulted in the formal identification of TCPs, sacred areas or areas of concern.

The latest Fort Belvoir ICRMP was updated in 2013. The document outlines the procedures for the management of cultural resources at the installation in accordance with applicable federal laws and Army policy. At the time the ICRMP was drafted, a programmatic agreement for streamlining NHPA, Section 106 compliance was in progress and is anticipated to be finalized in 2014. The ICRMP does include standard operating procedures for compliance with Section 106.

4.2.5.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, cultural resources would continue to be managed in adherence with all applicable federal laws and the ICRMP. The cultural resource management staff at the installation would continue to consult with the SHPO and applicable tribes on the effects of undertakings that may affect cultural resources. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures. The effects of the No Action Alternative would be negligible. Training operations at Fort Belvoir are non-intrusive and normal operations have a beneficial impact on architectural resources.

Alternative 1—Implement Force Reductions

Alternative 1 would have a minor impact on cultural resources. As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic structures from demolition activities are not analyzed. Additionally, the Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of force reductions, the installation would comply with applicable laws such as the NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects.

The effects of this alternative are considered to be similar to the No Action Alternative–future activities with the potential to effect cultural resources would continue to be monitored and the impacts reduced through preventative and minimization measures. This alternative could result in some beneficial effects as a decrease in training activities could reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources.

4.2.6 Noise

4.2.6.1 Affected Environment

Existing sources of noise at Fort Belvoir include local road traffic, aircraft overflights and activities, and natural noises such as the rustling of leaves and bird vocalizations. The primary source of noise both on and off the installation is vehicle traffic. Morning and afternoon peak traffic periods have the highest potential for adverse noise conditions (USACE, 2007). Additionally, some sources of intermittent noise include construction activities, yard maintenance activities, the testing and use of standby generators, and other non-training activities typically associated with an Army installation of this size and type (USACE, 2007). Noise sensitive receptors adjacent to the installation include numerous residences, one school, and two churches (USACE, 2007).

Except for Davison AAF (discussed below) and some light industrial areas on the installation, sound levels are comparable to a quiet urban residential area with some mixed commercial activities (USACE, 2007; Fort Belvoir, 2013c). Davison AAF supports operations from helicopters, military fixed-wing aircraft, military jets, and general aviation aircraft. A review of the airfield's noise footprint and its compatibility with surrounding land uses on and adjacent to the Main Post was performed for BRAC 2005 (USACE, 2007). Operations at Davison AAF do not generate noise levels above NZ III (>75 dB Average Daily Noise Level). NZ II extends beyond the northwestern boundary of the installation to I-95. The area within NZ II that is located outside the installation is designated "industrial" and does not contain any non-recommended land uses. The portion of the installation within NZ II extends into an undeveloped area. Aviation activity at Davison AAF generates one to two noise complaints per year, primarily from low flying helicopter operations (Fort Belvoir, 2013c).

4.2.6.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, there would be no change in the existing noise environment. Existing sources and levels of noise on and off the installation would continue and sound levels would remain similar to those characteristic of an urban residential area with some commercial uses. Intermittent noise from periodic construction and yard maintenance activities would continue, and occasional noise complaints related to Davison AAF are expected to continue at current levels. Overall, there would be a continued negligible, adverse impact to noise.

Alternative 1—Implement Force Reductions

Under Alternative 1, the noise environment would be similar to that described under the No Action Alternative, but at slightly lower dB. No change to the types of noise sources on or surrounding the installation are anticipated. No additional aircraft activity or construction would occur. Occasional noise complaints related to Davison AAF may continue to occur, but would

likely become less frequent. Reductions in force are therefore anticipated to have negligible impacts to sensitive noise receptors.

4.2.7 Soils

4.2.7.1 Affected Environment

Fort Belvoir is located within the Atlantic Coastal Plain and Piedmont physiographic provinces. The two physiographic provinces are divided by the fall line, which represents the boundary between hard, crystalline rock and softer, sedimentary rock. The Coastal Plain is characterized by low hills, shallow valleys, and flat plains underlain by unconsolidated sediments such as sand, silt, clay, and quartz. The Piedmont is characterized by flat, rolling hills underlain by meta-sedimentary and igneous rocks.

The predominant upland soil on Fort Belvoir is generally very deep, nearly level to gently rolling, somewhat poorly to moderately well-drained. Windblown and marine water transported sediments underlie the upland soils. Floodplain and wetland soils on Fort Belvoir are very deep, nearly level, poorly drained to somewhat poorly drained and are underlain by fluvial marine deposits and alluvial igneous deposits (NRCS, 2013). The dominant mapped soils on Fort Belvoir are the Beltsville, Codorus, Grist Mill, Gunston, Mattapex, Sassafras, and Woodstown series (NRCS, 2013).

Soils on Fort Belvoir have been physically affected by training activities; approximately 1,800 acres on Fort Belvoir are used solely for training (U.S. Army, 2001). These acres include explosive ordnance disposal areas as well as land set aside for military training maneuvers. Maneuver and ordnance ranges occupy a small part of the installation's area, so physical, adverse impacts have been minor.

The dominant soil map units on Fort Belvoir are moderately to highly erodible mostly because they are primarily silt. Silty soils are easily detached and produce the greatest rates of runoff if they are left bare or exposed to wind and water. The dominant soils on Fort Belvoir, therefore, if not adequately protected by vegetation cover, are easily eroded (NRCS, 2013).

4.2.7.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, minor, adverse impacts to soils are anticipated at Fort Belvoir. Fort Belvoir would continue to conduct range activities under its current schedule, resulting in minor impacts to soils from ground disturbance and removal of vegetation.

Alternative 1—Implement Force Reductions

Under Alternative 1, minor, beneficial impacts to soils are anticipated from force reductions. Fort Belvoir training is restricted to non-mechanized practices that have a softer impact than

mechanized practices; however, repeated foot traffic still can cause impacts to soils. Force reductions would likely result in decreased use of the training ranges, which could have beneficial impacts to soils because there would be an anticipated decrease in soil compaction and vegetation loss. Over time, less sediment would discharge to state and federal waters and wetlands.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Belvoir, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.2.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.2.8.1 Affected Environment

Vegetation

Fort Belvoir is in an ecologically complex area where three ecological subregions converge: the Outer Piedmont subregion of the Piedmont Plateau to the west; the Coastal Plain ecoregion to the east; and the Upper Atlantic Coastal Plain subregion of the Eastern Broadleaf Forest (Oceanic) ecoregion to the north (U.S. Army, 2014a).

Fifteen (11 native, 3 planted, and 1 “urban” landscaping) plant community types have been identified on Fort Belvoir’s Main Post. Table 4.2-3 lists the plant communities in order of their abundance and provides information about the general distribution of the community types. On the Main Post, three types of hardwood forest [oak/ericad (heath family), beech/mixed oak, and tulip poplar/mixed hardwood forest], each with nearly 1,000 acres or more, are the most abundant natural plant communities. Some of the communities, such as the oak/ericad forest, occur as relatively large, contiguous areas, while others occur as smaller areas intermixed with other community types. A few plant communities have been planted (loblolly pine [*Pinus taeda*], white pine [*Pinus strobus*], and Virginia pine [*Pinus virginiana*]), although the majority have grown in response to natural constraints of soil type, topography, and moisture.

Table 4.2-3. Fort Belvoir Plant Communities

Plant Community	Acreage		Distribution
	Main Post	Fort Belvoir North Area	
Oak/Ericad (Heath Family) Forest	1,172	225	Upland areas of gravelly ridges and dry slopes
Beech-Mixed Oak Forest	1,079	12	Upland areas of gradual, well-drained ravine slopes
Tulip Poplar Mixed Hardwood Forest	895	75	Moist, fertile ravine slopes and ravine bottoms
Virginia Pine Forest	423	185	Previously disturbed areas in mid-succession
Floodplain Hardwood Forest	470	53	Moderately well-drained to very poorly drained floodplain bottomlands and sloughs
Loblolly Pine Forest	221	11	Planted stands
Old Field Grassland	208	53	Previously disturbed areas in early successional stages
Mixed Pine Hardwood Forest	185	49	Previously disturbed areas in late succession
Nontidal Marsh/Beaver Pond	121	3	Above tidal limits of Accotink, Pohick, and Dogue creeks
Tidal Marsh	34	0	Shallow tidal areas (Accotink and Pohick Creeks) and at the mouths of several small streams
Freshwater Tidal Swamp Forest	39	0	Tidally influenced palustrine areas
Seep Forest	27	1	Groundwater-saturated flats and slopes
Tidal Scrub/Shrub Wetland	13	0	Edges of tidal swamp forests near the transition to tidal marsh
White Pine Forest	6	0	Planted stands
Urban	2,747	136	All developed areas including improved and semi-improved grounds.
Total	7,640	803	

Source: U.S. Army (2014a)

Wildlife

Fort Belvoir has designated three significant habitat areas within the installation as wildlife refuges: the 1,480-acre Accotink Bay Wildlife Refuge along Accotink and Pohick Bays, the 234-acre Jackson Miles Abbott Wetland Refuge along Dogue Creek, and the 126-acre former T-17 training range along Gunston Cove. Fort Belvoir has also designated an additional 740 acres as the Forest and Wildlife Corridor through the Main Post, and 204 acres as the Accotink Conservation Corridor through FBNA. These large areas of habitat not only are valuable by themselves, but provide for ecological connectivity through the installation to the other regional habitats (e.g., Huntley Meadows County Park to the northeast and the federal, state and regional refuge and parks on Mason Neck peninsula to the southwest).

Many different kinds of animals have been recorded on Fort Belvoir. Forty-three species of mammals have been identified as occurring or potential occurring on Fort Belvoir. The installation is located within the Atlantic Flyway, a major North American bird migration route from the southeastern Great Lakes region to along the Delaware River. Annual bird surveys have identified 275 bird species including resident, temperate migrant, and neotropical migrants. Thirty-two species of reptiles have been identified as occurring or likely to occur on Fort Belvoir, including 10 species of turtle, 18 species of snake, and 4 species of lizard. Twenty-seven amphibian species have been identified as occurring or potentially occurring on Fort Belvoir, including 11 species of frog, 3 species of toad, and 13 species of salamander.

Threatened and Endangered Species

Only two federally listed species has been observed on Fort Belvoir, the threatened small whorled pogonia (*Isotria medeoloides*), which is a perennial terrestrial orchid in the Fort's North Area, and the endangered shortnose sturgeon. There are no designated critical habitats for federally listed species on this installation. Also, the bald eagle was federally delisted in 2007; however, Fort Belvoir has also established bald eagle management areas around its shoreline to comply with the Bald and Golden Eagle Protection Act (U.S. Army, 2014a).

Additional inventories conducted by the Virginia Department of Conservation and Recreation-Natural Heritage Program for the 2005 BRAC EIS (USACE, 2007) identified seven Virginia state rare animal species and four Virginia state rare plant species on the installation. The Virginia state listed species identified on Fort Belvoir include the North American wood turtle (*Clemmys insculpta*) (state listed, threatened), bald eagle (protected), American peregrine falcon (*Falco peregrinus*) (state listed, threatened), small whorled pogonia (state listed, endangered; federally listed, threatened), Northern Virginia well amphipod (*Stygobromus phreaticus*) (state listed, extremely rare; federal species of concern) and the shortnose sturgeon (federally listed, endangered).

High-priority Partners in Flight species that have been known to breed on Fort Belvoir include the American black duck, American woodcock (*Philohela minor*), whip-poor-will (*Caprimulgus*

vociferus), yellow-throated vireo (*Vireo flavifrons*), wood thrush (*Hylocichla mustelina*), hooded warbler (*Wilsonia citrina*), prairie warbler (*Dendroica discolor*), worm-eating warbler (*Helmitheros vermivorus*), prothonotary warbler (*Protonotaria citrea*), Kentucky warbler (*Opororins formosus*), scarlet tanager (*Prianga olivacea*), and the field sparrow (*Spizella pusilla*).

The threatened and endangered species recorded on the installation are currently managed in accordance with the installation INRMP and Endangered Species Management Components; and with the requirements identified within Biological Opinions issued by USFWS.

4.2.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to biological resources, and the affected environment would remain in its current state. There would not be any significant effects, because Fort Belvoir would continue to abide by federal and state regulations governing the management of biological resources.

Alternative 1—Implement Force Reductions

Implementation of force reductions under Alternative 1 would result in beneficial impacts to biological resources and habitat within Fort Belvoir. With a reduced mission tempo because of the reduction in force, habitat would have more time to recover between events that create disturbances. Additionally, conservation management practices would be easier to accomplish with a reduction in mission throughput.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Belvoir, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.2.9 Wetlands

4.2.9.1 Affected Environment

NWI maps identify approximately 867 acres of palustrine, freshwater pond, and riverine wetlands within the Fort Belvoir Main Post (USFWS, 2010). NWI mapping, however, is a best guess based upon interpreting U.S. Geological Survey (USGS) topographic data, USGS National Hydrography Dataset, Natural Resources Conservation Service (NRCS) soil data, and aerial imagery; rarely are NWI maps ground-truthed.

A baseline wetland inventory was performed on the Main Post in 1997, which included a formal wetland delineation (Paciulli, 1997, as cited by U.S. Army, 2001). Approximately 1,245 acres of wetlands were identified, representing approximately 11 percent of the overall area of the Main

Post. The majority of the wetlands surveyed were palustrine forested wetlands; however, palustrine scrub-shrub, palustrine emergent, palustrine open water, and riverine wetlands were also identified. Table 4.2-4 identifies the acres of each wetland class on the Main Post.

Table 4.2-4. Acres of Wetland Types on Fort Belvoir

Wetland Type	Acres
Palustrine forested	855.6
Palustrine scrub-shrub	0.05
Palustrine emergent	141.9
Palustrine open water	31.9
Riverine tidal	165.4
Riverine lower perennial	23.7
Riverine emergent	26.5
Total acres	**1,245**

Source: Paciulli (1997, as cited by U.S. Army, 2001)

4.2.9.2 Environmental Effects

No Action Alternative

Negligible impacts are anticipated under the No Action Alternative. Under the No Action Alternative, Fort Belvoir would continue to set aside ecologically significant wetlands for conservation, avoid impacts to all other wetlands to the extent practicable, and mitigate for any future losses of wetlands. Future losses are anticipated to be minimal based upon the installation's historical avoidance of wetland impacts (U.S. Army, 2001).

Alternative 1—Implement Force Reductions

Beneficial impacts to wetlands are anticipated from implementing Alternative 1. A force reduction at Fort Belvoir would mean that airfields and training ranges would be less used. As a result, there would be less sedimentation from runoff entering wetland areas, fewer instances of vegetation becoming denuded, and wetland functions and values would remain intact. Impacts to wetlands could conceivably occur if force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Belvoir, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory regulations.

4.2.10 Water Resources

4.2.10.1 Affected Environment

Surface Water/Watersheds

Fort Belvoir contains approximately 200 miles of perennial and intermittent streams (U.S. Army, 2014b). The primary watersheds on Fort Belvoir include those associated with non-tidal Accotink Creek, Dogue Creek, and Pohick Creek and the tidal Accotink Bay, Gunston Cove, Pohick Bay, and Potomac River (U.S. Army, 2014c). Accotink Creek, Dogue Creek, and Pohick Creek drain most of the installation and much of the urbanized Fairfax County. Most surface waters on the installation drain to the lower Accotink, Dogue, or Pohick Creeks as well as to the Potomac River. Dogue Creek runs through the far eastern side of the installation and Pohick Creek forms part of the southwestern boundary, eventually draining into their respective bays. Accotink Creek runs south through the middle of the installation. The meeting of Accotink Bay and Pohick Bay forms Gunston Cove. Additionally, Mason Run, other unnamed tributaries, and man-made ponds are present within the installation boundaries (U.S. Army, 2002, as cited by USACE, 2007).

The *Draft Virginia 2012 Water Quality Assessment 305(b)/303(d) Integrated Report* list of impaired waters includes portions of Accotink Creek, Long Branch, Pohick Creek, and Pohick Bay due to impaired uses caused by polychlorinated biphenyl (PCB) in fish tissue, *Escherichia coli*, benzo[k]fluoranthene, and pH (Virginia DEQ, 2012). Virginia DEQ water quality monitoring stations have shown levels of aluminum, manganese, and iron greater than EPA chronic aquatic life or human health criteria as well as some dissolved oxygen issues in Dogue Creek (U.S. Army, 2014c). The main nonpoint pollution source is stormwater runoff from developed areas whereas the point sources include effluent discharge and stormwater discharges (USACE, 2007, 2014c). Stormwater discharges are regulated by several permits from Virginia DEQ.

Protections for surface waters are provided by compliance with the Virginia Stormwater Program (9 VAC 25-870) and associated implementation of SWPPPs, application of Energy Independence and Security Act Section 438 and stormwater management guidelines, and siting of development at appropriate distances from surface waters and floodplains (U.S. Army, 2014c).

Groundwater

Fort Belvoir is underlain by unconsolidated sediments, characteristic of the Coastal Plain geologic province, within the Potomac Group. The Fort Belvoir vicinity supports three subsurface aquifers: the Lower Potomac, Middle Potomac, and Bacons Castle Formations. The portion of the Lower Potomac aquifer underneath the installation contains potable water. Infiltration recharges this aquifer in an area northwest of the installation. The shallow nature of

the Bacon Castles aquifer allows it to discharge to and be recharged by installation surface waters (U.S. Army, 2001; U.S. Army, 2002, as cited by USACE, 2007). The groundwater in the area generally flows to the southeast; however, the direction is variable and can be influenced by the local geologic characteristics.

The depth of the water table within the installation boundaries is typically 10 to 35 feet below the surface. However, within or close to floodplains and wetlands and/or areas underlain by impermeable clay layers, the water table may be at or near the surface (U.S. Army, 2005, as cited by USACE, 2007; U.S. Army, 2002, as cited by USACE, 2007). Installation boundaries contain numerous wells mainly for groundwater monitoring and several for golf course irrigation or stables water supply. None of these wells supply potable water.

Water Supply

Potable water treatment and supply on Fort Belvoir is handled by Fairfax Water (formerly Fairfax County Water Authority) whereas most of the distribution system on the installation is owned and operated by American Water. Groundwater wells do not supply any drinking water to the installation. Of the 220 groundwater wells located within Fort Belvoir, all active wells either function as monitoring wells or water supply for golf course irrigation and horse stables (USACE, 2007). Water supply infrastructure for the installation includes the Frederick P. Griffith, Jr. Water Treatment Plant, with a 120 mgd capacity (Fairfax County Water Authority, 2006, as cited by U.S. Army, 2014c), and the Corbalis Water Treatment Plant and three vault/pump stations.

American Water owns and operates the distribution system on the Main Post although some individual installation areas are not covered by that contract. Water distribution infrastructure includes 78 miles of water main pipes, two pumping stations, and four storage tanks (U.S. Army, 2014c). Total water available to Fort Belvoir through a contract with Fairfax Water is 4.6 mgd peak flow. In 2012, Fort Belvoir had an average water demand of 2.3 mgd and a peak demand of 3.5 mgd (U.S. Army, 2014b).

The current water distribution system on Fort Belvoir includes four storage tanks with a combined capacity of 2.3 million gallons (U.S. Army, 2013a). These tanks are older, and their effectiveness and reliability have decreased with age; therefore, American Water is currently replacing all four storage tanks and increasing the available storage capacity to 4.5 million gallons with completion set for 2015 (Fort Belvoir, 2014).

Wastewater

The wastewater collection system for the Main Post is owned and operated by American Water and contains laterals, pipes, mains, pumping stations, and lift stations. Fairfax County provides treatment through the Norman M. Cole Jr., Pollution Control Plant using various pumping stations, force mains, and trunk lines to move the wastewater. Located on the Pohick Creek

upstream of the installation, the plant received a daily average wastewater flow of 45 mgd in the mid-2000s and had a treatment capacity of 67 mgd (Osei-Kwadwo, 2007, as cited by USACE, 2007). Treatment processes reduce up to 99.5 percent of pollutants such as bacteria, nutrients, and particulates from the received wastewater (Fairfax County DPWES, 2011). Connections exist between the sanitary sewer and stormwater systems. During wet weather events, stormwater can enter the sanitary sewer system leading to overflow and performance issues (U.S. Army, 2014c).

In 2012, Fort Belvoir produced on average 1.4 mgd of wastewater flow with a peak flow of 1.9 mgd (U.S. Army, 2014b). The plant discharges effluent into Pohick Creek under a Virginia Pollutant Discharge Elimination System permit (VA0025364) (USACE, 2007). Although the treatment plant has a high pollutant removal efficiency, plant effluent may influence water quality in the lower Pohick Creek adjacent to the installation (U.S. Army, 2001). Wastewater treatment in other individual installation areas includes a septic tank at the golf course (USACE, 2007).

Stormwater

Stormwater management for developed areas of Fort Belvoir consists of almost 60 miles of storm drain pipes and over 22 miles of impervious drainage ditches (USACE, 2007). Less developed and little used areas have more limited systems served by drainage ditches and culverts. Stormwater drainage from the installation flows to surface waters. Stormwater BMPs implemented through the installation include detention ponds, oil/water separators (U.S. Army, 2001), a rock catchment, management ponds, underground storage/detention, filter systems, bioretention systems, rain gardens, and natural infiltration areas.

Stormwater discharges from MS4 areas, industry, and construction are considered primary point sources for pollution on the installation (USACE, 2007, 2014c). Stormwater discharges from the MS4 and industrial activities on Fort Belvoir are permitted by Virginia DEQ with an MS4 Stormwater Permit (No. VAR040093), an Industrial Stormwater General Permit (No. VAR051080), and other stormwater permits for remediation activities (U.S. Army, 2014c).

The construction of many developed areas on Fort Belvoir prior to the institution of stormwater regulations resulted in a lack of or inadequate stormwater management infrastructure. Due to these shortcomings, stormwater runoff is frequently discharged directly to streams and has led to stream and soil erosion, safety issues, pollution, and infrastructure degradation (USACE, 2007, 2014c). During the 2005 BRAC process, Fort Belvoir corrected existing stormwater management and protection problems and incorporated methods such as the use of BMPs and SWPPPs into future planning and development designs (U.S. Army, 2014c). This initiative led to reduction in unmanaged stormwater runoff areas.

Floodplains

E.O. 11988, *Floodplain Management*, requires federal agencies to avoid floodplain development and any adverse impacts from the use or modification of floodplains when there is a feasible alternative. Specifically, Section 1 of E.O.11988 states that an agency is required "to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities." Fort Belvoir has approximately 1,540 acres of land within a 100-year floodplain (U.S. Army, 2006, as cited by U.S. Army, 2014c) indicating that these are areas where a flood event has a 1 percent chance of being equaled or exceeded in any year. Specific areas of flooding include areas adjacent to the Potomac River as well as land adjacent to Accotink, Dogue, and Pohick creeks and their tributary creeks (U.S. Army, 2014c).

4.2.10.2 Environmental Effects

No Action Alternative

Minor, adverse impacts to water resources would continue under the No Action Alternative. Training activities would continue to occur at Fort Belvoir ranges and courses as would potential disturbance to and sedimentation of surface water resources. Fort Belvoir would continue to strive to meet federal and state water quality criteria, drinking water standards, and floodplain management requirements. Stormwater management would continue under the existing NPDES permits as would adherence to state stormwater requirements and BMP guidelines. Current water resources management and compliance activities would continue to occur under this alternative.

Alternative 1—Implement Force Reductions

Beneficial impacts to water resources are anticipated as a result of implementing Alternative 1. A force reduction would result in fewer training exercises thereby decreasing the potential for surface water disturbance and sedimentation. The decrease in personnel would reduce potable water demand and wastewater treatment allowing additional capacity for other users. Implementation of Alternative 1 would reduce the amount of treated wastewater discharged to the receiving surface water source. Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Fort Belvoir, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented. Force reduction at Fort Belvoir is not anticipated to cause violations of federal and state water quality regulations and discharge permits.

4.2.11 Facilities

4.2.11.1 Affected Environment

Fort Belvoir occupies about 8,500 acres and supports a variety of logistics, intelligence, and administrative agencies. Fort Belvoir is home to 2 Army major command headquarters, 10 different Army major commands, 19 different agencies of the Army, 8 elements of the U.S. Army Reserve and ARNG, and 26 DoD agencies (U.S. Army, 2014d).

The 7,682-acre main installation supports a wide variety of facilities including training areas, ranges, airfield and aviation support facilities, maintenance and storage facilities, research facilities, administrative facilities, Family housing, schools, troop housing, healthcare facilities, recreational facilities, and a variety of other community and commercial services. The 807-acre FBNA includes professional, administrative, and institutional facilities.

BRAC 2005 actions had significant impacts to Fort Belvoir's facilities. BRAC 2005 actions included construction of Fort Belvoir Community Hospital and the Missile Defense Agency facility on the main installation; the National Geospatial-Intelligence Agency facility on FBNA; and a host of associated infrastructure improvements on and off the installation. Building space (not including housing) on the main installation and FBNA totals 15.9 million square feet, an increase of 5.1 million square feet from 2005 levels (U.S. Army, 2013b).

4.2.11.2 Environmental Effects

No Action Alternative

No impacts are anticipated under the No Action Alternative. Fort Belvoir would continue to use its existing facilities to support its tenants and missions.

Alternative 1—Implement Force Reductions

Minor impacts to facilities are anticipated as a result of implementation of force reductions under Alternative 1. Personnel reductions associated with Alternative 1 would reduce requirements for facilities and affect space utilization across the installation. Construction projects that had been programmed in the future may not occur or could be downscoped. Occupants of older, underutilized, or excess facilities may be moved to newer facilities; in some cases, this could require modification of existing facilities. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.2.12 Socioeconomics

4.2.12.1 Affected Environment

Fort Belvoir, located in Fairfax County in Virginia, occupies approximately 13.5 square miles. Fort Belvoir's Main Post is located within the county's Lower Potomac Planning District, which connects Fort Belvoir's open space to other areas in Fairfax County such as floodplains, stream influence zones, and tidal and non-tidal wetlands associated with major watercourses, including the Potomac River (U.S. Army, 2001).

The ROI includes the areas that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, and contractor personnel and their Families reside. The installation ROI includes the following counties and cities: Arlington County, Fairfax County, Loudoun County, Prince William County, Stafford County; and the cities of Alexandria, Fairfax, Falls Church, Manassas, and Manassas Park.

Population and Demographics

Using 2013 as a baseline, Fort Belvoir has a total working population of 45,867, consisting of active component Soldiers and Army civilians, students and trainees, other military services, civilians and contractors. Of the total working population, 9,721 were permanent party Soldiers and Army civilians. The population that lives on Fort Belvoir consists of 3,376 Soldiers and their 5,125 Family members, for a total on-installation resident population of 8,501. The portion of the Soldiers, Army civilians, and Family members living off the installation is estimated to be 15,977. Additionally, there are 280 students and trainees associated with the installation.

In 2012, the population of the ROI was almost 2.5 million. Compared to 2010, the 2012 population increased in all counties and municipalities within the ROI (Table 4.2-5). The racial and ethnic composition of the ROI is presented in Table 4.2-6.

Table 4.2-5. Population and Demographics, 2012

Region of Influence Counties/Cities	Population	Population Change 2010–2012 (percent)
Arlington County, Virginia	221,275	+6.5
Fairfax County, Virginia	1,118,683	+3.4
Loudoun County, Virginia	337,248	+8.0
Prince William County, Virginia	430,100	+7.0
Stafford County, Virginia	134,251	+4.1
City of Alexandria, Virginia	146,294	+4.5
City of Fairfax, Virginia	23,461	+4.0
City of Falls Church, Virginia	13,229	+7.3

Region of Influence Counties/Cities	Population	Population Change 2010–2012 (percent)
City of Manassas, Virginia	40,605	+7.4
City of Manassas Park, Virginia	15,798	+10.7

Source U.S. Census Bureau (2012a)

Table 4.2-6. Racial and Ethnic Composition, 2012

State and Region of Influence Counties/Cities	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of Virginia	71.1	19.7	0.5	6.0	2.6	8.4	64.1
Arlington County, Virginia	77.3	8.9	0.8	9.9	3.0	15.4	63.8
Fairfax County, Virginia	67.7	9.7	0.7	18.4	3.3	16.1	53.4
Loudoun County, Virginia	72.3	7.7	0.5	16.0	3.4	12.8	60.9
Prince William County, Virginia	65.3	21.3	1.1	8.1	4.1	20.9	47.5
Stafford County, Virginia	74.9	17.6	0.6	3.1	3.6	10.0	66.7
City of Alexandria, Virginia	60.9	21.8	0.4	6.0	3.7	16.1	53.5
City of Fairfax, Virginia	69.6	4.7	0.5	15.2	4.0	15.8	61.4
City of Falls Church, Virginia	79.9	4.3	0.3	9.4	4.0	9.0	73.7
City of Manassas, Virginia	61.7	13.7	0.6	5.0	4.3	31.4	47.6
City of Manassas Park, Virginia	55.9	13.0	0.4	9.0	5.4	32.5	42.5

Source U.S. Census Bureau (2012a)

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Income

Compared to 2000, the 2012 total employed labor force (including civilian and military) increased in all of the ROI counties and cities with the largest increase in Loudoun County of approximately 80 percent. In 2012, the total employed labor force in the ROI was 1,320,105 people (U.S. Census Bureau, 2012b). Employment, median home value, and household income, and poverty levels are presented in Table 4.2-7.

Table 4.2-7. Employment and Income, 2012

State and Region of Influence Counties/Cities	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Virginia	3,989,521	+0.0	$249,700	76,566	7.8
Arlington County, Virginia	137,453	+17.0	$577,300	136,611	4.8
Fairfax County, Virginia	598,598	+11.9	$480,200	128,102	3.6
Loudoun County, Virginia	169,118	+80.4	$448,700	133,732	2.4
Prince William County, Virginia	214,701	+40.5	$330,700	105,235	4.4
Stafford County, Virginia	65,460	+33.5	$309,300	105,211	3.8
City of Alexandria, Virginia	88,544	+12.9	$475,900	105,721	5.8
City of Fairfax, Virginia	12,168	+0.8	$465,100	116,429	3.0
City of Falls Church, Virginia	6,854	+16.2	$645,600	151,906	2.8
City of Manassas, Virginia	19,369	+5.2	$247,100	74,464	10.5
City of Manassas Park, Virginia	7,840	+41.3	$233,100	76,696	4.5

Source: U.S. Census Bureau (2012b, 2000)

Information regarding the workforce by industry for each county within the ROI was obtained from the U.S. Census Bureau. Information presented below is for the employed labor force.

Arlington County

According to the U.S. Census Bureau, professional, scientific, management, administrative and waste management services account for the greatest share of total workforce in Arlington County (28 percent). Public administration is the second largest employment sector (18 percent), followed by educational services, and health care and social assistance (15 percent). The Armed Forces account for 2 percent of the county's workforce. The remaining 10 industries account for 39 percent of the workforce.

Major employers in Arlington County include Deloitte, Accenture, and Science Applications International Corporation (Arlington County Planning Research, Analysis and Graphics Department, 2013).

Fairfax County

According to the U.S. Census Bureau, professional, scientific, management, administrative and waste management services sector account for the greatest share of total workforce in Fairfax County (25 percent). The educational, health, and social services sector is the second largest employment sector (16 percent), followed by public administration (12 percent). The Armed Forces account for 1 percent of the county's workforce. The remaining 10 industries employ 47 percent of the workforce.

Major employers in Fairfax County include Fairfax County Public Schools, county of Fairfax, and DoD (Virginia Employment Commission, 2013a).

Loudoun County

According to the U.S. Census Bureau, professional, scientific, management, administrative and waste management services sector accounts for the greatest share of total workforce in Loudoun County (26 percent). Educational services, and health care and social assistance is the second largest employment sector (15 percent), followed by retail trade (10 percent). The Armed Forces account for less than 1 percent of the county's workforce. The remaining 10 industries employ 49 percent of the workforce.

Major employers in Loudoun County include Loudoun County Schools, county of Loudoun, and United Airlines Inc. (Virginia Employment Commission, 2013b).

Prince William County

According to the U.S. Census Bureau, professional, scientific, management, administrative and waste management services sector account for the greatest share of total workforce in Prince William County (19 percent). Educational services, and health care and social assistance is the second largest employment sector (17 percent), followed by public administration (13 percent). The Armed Forces account for 3 percent of the county's workforce. The remaining 10 industries employ 49 percent of the workforce.

Major employers in Prince William County include Prince William County School Board, DoD, and county of Prince William (Virginia Employment Commission, 2013c).

Stafford County

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of total workforce in Stafford County (19 percent). Public administration is the second largest employment sector (18 percent), followed by professional, scientific, management, administrative and waste management services sector (16 percent). The Armed Forces account for 6 percent of the county's workforce. The remaining 10 industries employ 47 percent of the workforce.

Major employers in Stafford County include GEICO, Stafford County Schools, and the U.S. Federal Bureau of Investigation (Virginia Employment Commission, 2013d).

City of Alexandria

According to the U.S. Census Bureau, professional, scientific, management, administrative and waste management services sector account for the greatest share of total workforce in Alexandria City (25 percent). Public administration is the second largest employment sector (17 percent), followed by educational services, and health care and social assistance (15 percent). The Armed Forces account for 2 percent of the county's workforce. The remaining 10 industries employ 43 percent of the workforce.

Major employers in Alexandria City include the U.S. Department of Commerce, DoD, and the city of Alexandria (Virginia Employment Commission, 2013e).

City of Fairfax

According to the U.S. Census Bureau, professional, scientific, management, administrative and waste management services sector account for the greatest share of total workforce in Fairfax City (23 percent). Educational services, and health care and social assistance is the second largest employment sector (19 percent), followed by public administration (10 percent). The Armed Forces account for 1 percent of the county's workforce. The remaining 10 industries employ 48 percent of the workforce.

Major employers in Fairfax City include the city of Fairfax, Inova Health System, and Fairfax Nursing Center (City of Fairfax, Virginia, 2012).

City of Falls Church

According to the U.S. Census Bureau, professional, scientific, management, administrative and waste management services sector account for the greatest share of total workforce in Falls Church City (24 percent). Educational services, and health care and social assistance is the second largest employment sector (19 percent), followed by public administration (17 percent).

The Armed Forces account for approximately 1 percent of the county's workforce. The remaining 10 industries employ 40 percent of the workforce.

Major employers in Falls Church City include DoD, the city of Falls Church School Board, and the city of Falls Church (Virginia Employment Commission, 2013f).

City of Manassas

According to the U.S. Census Bureau, professional, scientific, management, administrative and waste management services sector account for the greatest share of total workforce in Manassas City (16 percent). Construction is the second largest employment sector (15 percent), followed by educational services, and health care and social assistance (14 percent). The Armed Forces account for less than 1 percent of the county's workforce. The remaining 10 industries employ 55 percent of the workforce.

Major employers in Manassas City include Micron Technology, Prince William Hospital - General Hospital Division, and the city of Manassas School Board (Virginia Employment Commission, 2013g).

City of Manassas Park

According to the U.S. Census Bureau, professional, scientific, and management, and administrative and waste management services sector account for the greatest share of total workforce in Manassas Park City (21 percent). Construction is the second largest employment sector (16 percent), followed by educational services, and health care and social assistance (14 percent). The Armed Forces account for less than 1 percent of the county's workforce. The remaining 10 industries employ 41 percent of the workforce.

Major employers in Manassas Park City include Manassas Park City School Board, the city of Manassas Park, and Atlas Plumbing LLC (Virginia Employment Commission, 2013h).

Housing

Approximately 2,106 permanent military Family housing units are currently on Fort Belvoir, housing approximately 7,500 residents or about 3.5 people per household (U.S. Army, 2014b). The units are all located in villages primarily on the east side of South Post, with the exception of Lewis and Woodlawn Villages, which are along the east edge of North Post. On South Post, Bennett Barracks has a capacity of 140 personnel and houses trainees. Also on South Post, Doss and Vaccaro halls, with a combined capacity of 288 personnel, provide Warriors-in-Transition unaccompanied personnel housing. On North Post, McRee Barracks has space for 800 permanent party personnel in non-emergency conditions, with an additional 1,200 maximum capacity available in support of a national emergency or disaster. Fort Belvoir also provides transient lodging facilities for visitors and new arrivals in several buildings on the east side of South Post.

Currently, there are 526 transient lodging rooms, suites, and apartments on Fort Belvoir, as well as 12 distinguished visitors' quarters in the Officers' Club (U.S. Army, 2014c).

Schools

Approximately 90.2 percent of the estimated 2,287 children in grades kindergarten through 12 living on Fort Belvoir attend public schools (U.S. Census Bureau, 2012b). There are a total of 242 schools and centers in the Fairfax County public school system, including elementary, middle, and high schools, along with alternative schools and special education centers. Enrollment within these schools for the 2013-2014 school year is 184,625 students, which accounts for the largest enrollment within a school system in Virginia and the 11th largest within the U.S. (Fairfax County Public Schools, 2013). The growth in enrollment between the 2012-2013 and 2013-2014 school years was estimated to be 2.1 percent, and is a rate that is expected to continue for the next 10 years. To address the increase in enrollment, the Fairfax County Public School system is continuously implementing capital projects, including the construction of new schools as well as renovations and maintenance of infrastructure on existing schools (Fairfax County Public Schools, 2013).

Public Health and Safety

Police Services

The Fort Belvoir DES provides all professional law enforcement, access control, fire, and emergency services on the installation. The 212th Military Police Detachment provides law enforcement and public safety services for the installation. These services include overseeing physical security and essential community law enforcement operations including traffic, canine, and investigative operations.

Fire and Emergency Services

Fire response operations are currently located in four fire stations and one fire prevention office on Fort Belvoir: Station 463, Abbott Road, North Post; Station 464, Barta Road, FBNA; Station 465 and the Fire Prevention Office, Gunston Road, South Post; and Station 466, Gavin Road, Davison AAF. Fire and rescue departments, with 138 fire and emergency service locations within the Northern Virginia region, provide cooperative emergency services through a memorandum of agreement known as the Northern Virginia Emergency Service Mutual Response Agreement. Fort Belvoir is among the signatories of this memorandum of agreement, which sets standardized response protocols and operational procedures for the fire, rescue, and emergency medical service agencies for the Northern Virginia jurisdictions that are signatories to this agreement.

Medical Facilities

Medical services on the installation are provided by the Fort Belvoir Community Hospital, which operates under the Joint-Task Force National Capital Region MEDCOM, based at the Walter

Reed National Military Medical Center in Bethesda, Maryland. The Fort Belvoir Community Hospital replaced the aging DeWitt Army Community Hospital as a result of the BRAC 2005 actions and provides medical services to active component military, reservists, veterans, and their Family members on the installation and throughout the region. The hospital includes more than 1.2 million square feet and 120 inpatient rooms. Services and medical treatments featured at the hospital include an intensive care unit, state-of-the-art operating rooms, a cancer care center, a center for the treatment of musculoskeletal disorders, and a full range of primary care services, along with medical and surgical subspecialties.

When medical emergencies occur on or near the installation, military personnel and their Family members are usually taken to Fort Belvoir Community Hospital while civilians are taken to local hospitals. Emergency 911 calls on and near the installation are directed through Fairfax County's Department of Public Safety Communications and then transferred to Fort Belvoir's Emergency Services Center to be dispatched. Off-installation assets only respond to on-installation emergencies when all Fort Belvoir units are committed to other calls.

Family Support Services

The Fort Belvoir ACS, which is a division of the Army's FMWR consists of more than 15 programs that promote successful Army living, such as Warriors-in-Transition, which provides resources to Wounded Warriors and their Family members; the Employment Readiness Program, which helps to assist and prepare individuals find employment; and the Mobilization and Deployment Readiness Program, which provides support to those facing deployment. FMWR also provides child care, youth developmental programs, and recreation and socialization opportunities for children 4 weeks to 19 years old through Fort Belvoir's Child, Youth, and School Services (CYSS). Currently, three child development centers on the installation offer full-time, hourly, and before- and after-school services for children 6 weeks to 5 years old: the North Post Child Development Center, the South Post Child Development Center, and the JoAnn Blanks Child Development Center.

Recreation Facilities

Fort Belvoir FMWR provides stores, restaurants, service facilities, and recreation and leisure opportunities and activities for those eligible, including active component military personnel, their Family and guests, reservists, retired military, DoD civilian employees, contractors, and their families (U.S. Army, 2014a). Outdoor and indoor recreational facilities are provided (e.g., outdoor/indoor pools, golf courses, parks, volleyball courts, outdoor grills, playgrounds) along with scheduled special events on the installation and trips off the installation. Activities such as hunting, archery, and fishing are permitted and available within the undeveloped areas on the installation. These areas also offer wildlife viewing, nature hiking, and environmental education programs. Other recreation facilities on the installation include a publicly accessible buffet, the Potomac Room, the community center, a single Soldiers center, a bowling alley and grill, a movie theater, two fitness centers, and the Van Noy Library. The community center often hosts

special events and parties, classes and lessons, organizes group outings, offers discounted events, leisure and travel tickets, and features a game room, lounge and deli.

4.2.12.2 Environmental Effects

No Action Alternative

The operations at Fort Belvoir would continue to benefit regional economic activity. Families living off the installation would continue to use local schools at current levels. No additional impacts to population, housing, public services, or recreational facilities are anticipated under the No Action Alternative.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a less than significant impact to socioeconomic resources. A description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of 4,565[7] Army positions (2,885 Soldiers and 1,680 Army civilians), each with an average annual income of $46,760 and $78,963 respectively. In addition, this alternative would affect an estimated 6,929 Family members (2,547 spouses and 4,382 children). The total number of Army employees and their Family members directly affected under Alternative 1 is projected to be 11,494.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative ranges. Table 4.2-8 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, changes in population, income, employment, and sales in the ROI under Alternative 1 fall within the historical range and are not categorized as a significant impact.

[7] This number was derived by assuming the loss of 70 percent of Fort Belvoir's Soldiers and 30 percent of the Army civilians.

Table 4.2-8. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	10.8	+4.1	+3.8	+2.2
Economic contraction significance value	-9.4	-6.3	-2.7	-2.1
Forecast value	-0.7	-0.7	-1.5	-1.1

Table 4.2-9 shows the predicted impacts to income, employment, and population of the reductions against the 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

Table 4.2-9. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$358,208,500	-5,393 (Direct)	-11,494
		-1,086 (Induced)	
		-6,479 (Total)	
Total 2012 ROI economic estimates	$162,113,171,000	1,388,031	1,320,105
Percent reduction of 2012 figures	-0.2	-0.5	-0.9

Note: Sales estimates are not consistently available from public sources for all counties in the United States; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from EIFS is described in the paragraphs below.

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 4,565 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 828 direct contract service jobs would also be lost. An additional 1,086 induced jobs would be lost due to the reduction in demand for goods and services within the ROI. Total reduction in employment is estimated to be 6,479; a reduction of 0.5 percent from the total employed labor force in the ROI of 1,388,031. Income is estimated to reduce by $358.2 million, a 0.2 percent decrease in income in 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $402 million. There would also be a loss in sales tax receipts to local and state governments. The state and average local sales tax for Virginia is 5.6 percent (Tax Foundation, 2014). To estimate sales tax

reductions, information was utilized on the proportion of sales that would be subject to sales taxes on average across the country. According to the U.S. Economic Census, an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $402.3 million resulting in an estimated sales tax receipts decrease of $3.6 million under Alternative 1.

Of the approximately 1,320,105 people (including those residing on Fort Belvoir) who live within the ROI, 11,494 Army employees and their Families are predicted to no longer reside in the area under Alternative 1, resulting in a population reduction of 0.87 percent. This number likely overstates potential population impacts because some of the people no longer employed by the Army would continue to live and work within the ROI, finding employment in other industry sectors.

Housing

The population reduction under Alternative 1 would lead to a decreased demand for housing and an increased housing availability on the installation and in the region. This change is expected to have negligible impacts to housing and housing values in the region.

Schools

Reduction of 4,600 Army personnel would affect the number of children within the ROI, estimated to be 4,382. It is anticipated that school districts that provide education to Army children would be impacted by this action. Schools on Fort Belvoir and in the ROI are expected to experience a decline in enrollment of military-connected students. The Fairfax County Public School System, with an enrollment of 184,625, would likely be most affected by these decreases in military student enrollment. The majority (approximately 90.2 percent) of school children living on Fort Belvoir attend Fairfax County Public Schools. However, given the magnitude of the school system and the current and projected growth in overall enrollment in the school district, these decreases in enrollment may benefit schools with capacity concerns.

The potential reduction of Soldiers on Fort Belvoir would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal School Impact Aid a district receives is based on the number of students who are considered “federally connected” and attend district schools. Actual projected dollar amounts cannot be determined at this time due to the variability of appropriated dollars from year to year, and the uncertainty regarding the actual number of affected school-age children for Army Families. School districts in the ROI would likely need fewer teachers and materials as enrollment drops, which would partially offset the reduced Federal Impact Aid. Overall, impacts to schools associated with Alternative 1 would range from beneficial to minor and adverse.

Public Services

The demand for law enforcement, medical care providers, and fire and emergency service providers on the installation may decrease if Soldiers and Army civilians, and their Family members, affected under Alternative 1, move to areas outside the ROI. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements. Overall, there would be negligible to minor impacts to public health and safety as a result of Alternative 1. The impacts to public services are not expected to be significant because the existing service level for the installation and the ROI would still be available.

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. As a result, minor impacts to Family Support Services and recreation facilities would occur under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, provides: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). In general, Alternative 1 would not have a disproportionate adverse impact to minorities, economically disadvantaged populations or children in the ROI. Job losses would be experienced across all income levels and economic sectors and spread geographically throughout the ROI.

Minority populations in the ROI vary across the cities and counties. In particular, there are Hispanic concentrations considerably greater than the state average in Manassas, Manassas Park, and Prince William County. Manassas also has slightly more residents living in poverty when compared to the state overall. Because of the higher percentage of minority populations in these areas, the implementation of Alternative 1 has the potential to result in adverse impacts to minority-owned and/or -staffed businesses should Soldiers and Army civilians directly affected under Alternative 1 move to areas outside the ROI, although the impacts to these populations are not likely to be disproportional.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not

result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of the people associated with the installation, including children. Therefore, it is not anticipated that implementing Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.2.13 Energy Demand and Generation

4.2.13.1 Affected Environment

Fort Belvoir's energy needs are currently met by a combination of electric power and natural gas. During the past decade, Congress has enacted major energy bills, and the President has issued Executive Orders that direct federal agencies to address energy efficiency and environmental sustainability. The federal requirements for energy conservation that are most relevant to Fort Belvoir include the following: the Energy Policy Act of 2005, E.O. 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, issued January 2007; Energy Independence and Security Act of 2007; and E.O. 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, issued October 2009. As noted in the 2013 PEA, Fort Belvoir tracks its energy use and is striving to comply with these requirements.

Electricity

Dominion Virginia Power supplies electricity to both the main installation and FBNA. The extensive electric distribution system on the main installation has been privatized since August 2007 under a 50-year contract with Dominion Virginia Power. The privatization agreement excludes FBNA, Aerospace Data Facility-East, Humphreys Engineer Center, and Building 2310, which continue to be managed by the federal government. Dominion Virginia Power provides electric power to the main installation from two 34.5-kilovolt (kV) distribution circuits. Several overhead feeder lines serve the various areas of the main installation, with some lines being interconnected to form looped feeder areas. Power is stepped down to lower voltages for local use throughout the installation using additional substations. Dominion Virginia Power provides electric service to the FBNA boundary, as well as distribution lines within the installation. It constructed off-site transmission lines and a new substation to provide electric service (U.S. Army, 2013).

The associated 2005 BRAC projects added a substantial load to the Fort Belvoir electrical systems. In response, Dominion Virginia Power completed a number of projects to provide additional capacity, reliability, and redundancy to the distribution system. The distribution

system is now well balanced and has adequate capacity to serve existing needs (U.S. Army, 2013).

Natural Gas

Washington Gas Light Company supplies natural gas to Fort Belvoir and the surrounding area. It owns and operates the extensive network of distribution lines covering large parts of the main installation. Natural gas is supplied to the installation at two delivery points, one along U.S. Route 1 and a second at Woodlawn Road. Washington Gas Light Company also provides natural gas service to FBNA (U.S. Army, 2013).

4.2.13.2 Environmental Effects

No Action Alternative

Minor, adverse impacts are anticipated on energy demand and generation. The continued use of outdated, energy-inefficient facilities could hinder Fort Belvoir's requirement to reduce energy consumption. Some older facilities may require renovations to improve energy efficiency to achieve federal mandate requirements.

Alternative 1—Implement Force Reductions

Minor, beneficial impacts to energy demand are anticipated because force reductions would reduce the installation's overall demand for energy. The installation would also be better positioned to meet energy and sustainability goals. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA.

4.2.14 Land Use Conflicts and Compatibility

4.2.14.1 Affected Environment

Regional Setting

Fort Belvoir occupies roughly 8,640 acres located in Fairfax County, Virginia, approximately 15 miles south of Washington, DC. Fairfax County covers approximately 400 square miles and is home to more than 1 million people. It is a mostly urban jurisdiction that combines residential developments of various densities with major employment and commercial centers. It is bordered by several other counties that are intensely developed (Arlington and the city of Alexandria) or that have portions that have become more developed over the last several decades as the Washington, DC metropolitan area has expanded (Prince William and Loudoun counties in Virginia and Montgomery and Prince George's counties in Maryland) (USACE, 2007; Fort Belvoir, 2013c).

Fort Belvoir's primary mission is to provide logistical and administrative support to its tenants (U.S. Army, 2001). The military mission goal at the installation includes providing intelligence, logistical, medical and administrative support to a diverse mix of DoD tenant and satellite organizations. The installation also provides housing, medical services, recreational facilities, and other support services for active component military members and retirees in the National Capital Region. Belvoir is home to more than 140 Army, DoD and federal agencies. DoD Headquarters located at Fort Belvoir include the Defense Logistics Agency, the Defense Acquisition University, the Defense Contract Audit Agency, the Defense Technical Information Center, the United States Army Military Intelligence Readiness Command, the Missile Defense Agency, the Defense Threat Reduction Agency, and the National Geospatial-Intelligence Agency (USACE, 2007; Fort Belvoir, 2013c).

Land Use at Fort Belvoir

Approximately 65 percent of Fort Belvoir is undeveloped, although the density of development is uneven throughout the installation. Fort Belvoir consists of five general areas: North Post, South Post, Southwest Area, Davison AAF, and FBNA, formerly known as the Engineering Proving Ground. The approximately 2,720-acre South Post, south of U.S. Route 1, is the most developed portion of the installation and is the location for the installation headquarters and its associated functions, administrative facilities, warehouses, and housing areas. The North Post occupies about 2,400 acres in most of the area between U.S. Route 1 and Telegraph Road from its intersection with Route 1 westward towards Fairfax County Parkway and northward toward Telegraph Road. The North Post is somewhat developed with administrative facilities for larger tenant agencies, two housing areas, and two 18-hole golf courses. The generally undeveloped Southwest Area occupies approximately 1,900 acres extending west of Accotink Creek and south of U.S. Route 1 and the Davison AAF to Pohick Bay. It is separated from South Post by Accotink Bay and Accotink Creek. Davison AAF occupies about 740 acres in the portion of the installation west of Fairfax County Parkway and north of U.S. Route 1, and provides airfield and associated functions for Fort Belvoir. These four areas—South Post, North Post, Southwest Area, and Davison AAF—comprise Fort Belvoir's Main Post of a little more than 7,700 acres. FBNA is a former military training and testing area on an 807-acre noncontiguous portion of the installation approximately 1.5 miles northwest of the Main Post. FBNA is bounded by I-95 to the east and by commercial and residential properties to the north, west, and south. FBNA is further inland and on higher ground than the Main Post (USACE, 2007; Fort Belvoir, 2013c). Land use designations and associated uses at Fort Belvoir are: Professional/Institutional, Community, Residential, Troop, Industrial, Ranges and Training, and Airfield Fort Belvoir (2013).

Surrounding Land Use

Fort Belvoir is entirely surrounded by Fairfax County. The Fairfax County Comprehensive Plan defines the goals, objectives, and policies guiding planning and development review for lands in Fairfax County by describing future development patterns in the county and protecting natural

and cultural resources for present and future generations (Fairfax County, 2013). As a federal facility, Fort Belvoir is not bound by the plan. However, to the greatest extent possible, the Army strives to ensure that its actions are compatible with county planning (USACE, 2007). Additionally, Fort Belvoir implements an INRMP, which establishes procedures to ensure the sustainability of the land to accomplish Fort Belvoir's military mission. The INRMP outlines conservation efforts for Fort Belvoir′s natural resources (e.g., aquatic resources, flora, and fauna) and establishes procedures to ensure compliance with related environmental laws and regulations (U.S. Army, 2001).

Fort Belvoir is located in a predominantly residential part of Fairfax County, which is rich in natural and cultural resources. Adjacent to or near the installation to the southwest are Pohick Bay Regional Park, Mason Neck State Park, and Mason Neck National Wildlife Refuge, and, to the northeast, Huntley Meadows County Park. Fort Belvoir's Forest and Wildlife Corridor (consisting of approximately 742 acres) provides a connection for all these natural areas (USACE, 2007). Other uses adjacent to Fort Belvoir include smaller areas of business and industrial development. Planned land uses in the areas adjacent to the installation largely represent a continuation of existing conditions, consisting predominantly of residential and open space with interspersed business and industrial uses (Fairfax County, 2014a).

4.2.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, negligible to minor, adverse impacts to land use compatibility are anticipated. The logistical and administrative nature of the installation's functions as described above is not in direct conflict with surrounding residential, open space, business and industrial uses surrounding the installation. Any foreseeable land use compatibility impacts would likely be related to pressures on buildable land outside the installation, as robust population growth is expected to continue through 2025 (Fairfax County, 2014b). While approximately 5,525 acres, or about 65 percent, of Fort Belvoir is undeveloped, numerous land use constraints are found throughout the installation, which limits the land area that is actually available for future development. These constraints include habitat protection and conservation areas, prehistoric and cultural sites, and hazardous waste management areas, among others (Fort Belvoir, 2013c). The Fort Belvoir Short-Term Projects and RPMP Update identifies areas that are "Most Suitable for Development." With continued implementation and revision of the RPMP and continued coordination between the installation and Fairfax County, it is anticipated these impacts would be minimized.

Alternative 1—Implement Force Reductions

Under Alternative 1, force reductions are not expected to result in incompatibilities with adjacent land use. Reductions in force are not expected to change existing land uses within the installation or regional land use outside the installation. Similar to the No Action Alternative, the nature of

the installation's functions would remain administrative and logistical, and not in conflict with surrounding land uses. Force reductions would reduce the possibility of any land development pressure that may be generated as described under the No Action Alternative. Therefore, negligible, adverse impacts are anticipated as a result of force reductions at Fort Belvoir.

4.2.15 Hazardous Materials and Hazardous Waste

4.2.15.1 Affected Environment

Hazardous Materials

Fort Belvoir manages hazardous substances and hazardous materials in compliance with state and federal regulatory programs. Fort Belvoir must follow myriad mandated environmental requirements including federal and Commonwealth of Virginia regulations. Fort Belvoir must also comply with applicable regulations implementing federal statutory requirements, including Army regulations. Fort Belvoir has an active environmental program that maintains compliance specific to each hazardous material.

Nearly 1,000 petroleum storage areas (PSAs) formerly existed or still exist at Fort Belvoir. PSAs include aboveground storage tanks (ASTs) and active underground storage tanks (USTs) that store petroleum. These current or former PSAs range in size from 55-gallon ASTs to a 50,000-gallon UST (Fort Belvoir, 2013c). For more than 2 decades, Fort Belvoir's Petroleum Management Program has been addressing PSAs and petroleum release sites (PRSs). This program manages all aspects of PSAs and PRSs, including scheduling operation and maintenance, compliance monitoring, tank closure and removal, environmental investigations, remediation system design, management, and reporting. At the federal level, storage of petroleum is regulated by RCRA Subtitle I; however, EPA has given Virginia DEQ enforcement authorization. Fort Belvoir is managing its PSAs and PRSs under the Virginia DEQ Petroleum Program.

Active USTs and ASTs at Fort Belvoir contain substances such as heating oil, diesel fuel, gasoline, jet fuel, lubricants, and used oils, and include 57 active heating oil tanks in residential housing areas. To comply with UST regulatory deadlines, Fort Belvoir recently completed a program of tightness-testing, removal, replacement, and upgrading for the regulated USTs on the installation. All UST replacements have double walls and state-of-the-art leak-detection systems to comply with UST regulations under RCRA Subtitle I (Fort Belvoir, 2013c). Nevertheless, both these new, replacement USTs and existing, unregulated USTs have the potential to release their contents into subsurface materials. Any petroleum-affected soils and groundwater would need to be properly addressed under the aforementioned regulatory programs.

Fort Belvoir complies with E.O. 13423, *Strengthening Federal Environmental, Energy and Transportation Management*, by promoting the use of products to reduce solid and hazardous waste. In addition, the cleaning and maintenance departments have replaced toxic and hazardous

materials with environmentally friendly chemicals and adhere to an Integrated Pest Management Plan (Louis Berger, 2013).

Hazardous Waste Treatment, Storage, and Disposal

The RCRA/Waste Management Program at Fort Belvoir is responsible for the storage, use, characterization, manifesting, remediation, and proper disposal of all hazardous waste generated at the installation. Fort Belvoir has had an active RCRA Program in place for more than 20 years.

Fort Belvoir has several plans in place to help manage hazardous materials and waste including an Installation Spill Contingency (ISC) Plan, Spill Prevention, Control, and Countermeasures (SPCC) Plan, SWPPP, and Hazardous Waste Management Plan (HWMP).

Hazardous Waste Investigation and Remediation Sites

Fort Belvoir manages an active Solid Waste Management Unit (SWMU) Cleanup Program that is conducted in accordance with Army, federal, and state regulations. In 2005, Fort Belvoir identified and investigated potential releases of hazardous substances to the environment on FBNA. As of December 2011, 62 sites received a no further action concurrence from EPA. Ten sites will require additional actions with regard to soil or groundwater contamination in accordance with CERCLA (Atkins, 2014).

As a result of BRAC 2005, Fort Belvoir has significantly reduced the number of SWMUs from more than 200 (pre-BRAC) to about 40 (post-BRAC). As a result of the SWMU cleanup program, efforts to remove these remaining SWMUs continue.

Of the more than 1,000 PSAs at Fort Belvoir, approximately 150 have released petroleum into the environment, resulting in designation of PRSs. Site investigations are performed to delineate the affected areas of soil and groundwater. Fort Belvoir is actively managing its PRSs under the Virginia DEQ Petroleum Program regulation guidance (Atkins, 2014).

At sites where environmental restoration activities have occurred, responsible parties sometimes need to limit exposure to hazardous substances or pollutants. When required, this can be accomplished through Land Use Controls in accordance with applicable laws and regulations (e.g., CERCLA, RCRA, or the Defense Environmental Restoration Program). Land Use Controls include any physical, legal, or administrative mechanism that places restrictions on the use of, or limits access to, real property to prevent exposure to chemicals above permissible levels. The intent of these controls is to protect the integrity of the selected remedy at the release site as well as human health and the environment by limiting the activities that may occur at a particular site.

Others Hazards

Other hazards present at Fort Belvoir are controlled, managed, and removed through specific programs and plans and include UXO, LBP, asbestos, PCBs, radioactive materials, pesticides, and mold.

4.2.15.2 Environmental Effects

No Action Alternative

Minor, adverse impacts are anticipated under the No Action Alternative because there would be continued use and generation of hazardous materials and wastes on Fort Belvoir. The existing types and quantities of hazardous wastes generated on the installation have been accommodated by the existing hazardous waste management system, and all materials and waste would continue to be handled in accordance with all applicable laws, regulations, and plans.

Alternative 1—Implement Force Reductions

Minor, adverse impacts are anticipated as a result of implementing Alternative 1. As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

No violation of hazardous waste regulations or the Fort Belvoir hazardous waste permit is anticipated as a result of force reductions. Volumes of generated waste are expected to decline depending on the specific units affected.

Remediation activities are not expected to be affected by Alternative 1. Due to the reduced numbers of people, it is expected that the potential for spills would be reduced during training and maintenance activities. Waste collection, storage, and disposal processes would remain mostly unchanged, although the quantities may be reduced.

The Army is committed to ensuring that personnel cuts will result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Fort Belvoir, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.2.16 Traffic and Transportation

4.2.16.1 Affected Environment

Fort Belvoir is located in Fairfax County, Virginia, one of the largest and most populous jurisdictions in the Washington, DC, area. The installation is located approximately 15 miles south of Washington, DC.

Regional Road Network

The Main Post and FBNA are well served by their proximity to the regional roadway network. A number of these interstate highways and local roadways, however, currently operate above design capacity so congestion on these facilities in the vicinity of the installation is a daily occurrence. Regional public highways that serve Fort Belvoir are the following:

- I-95, including I-395 and I-495 (Capital Beltway), is one of the busiest and most congested transportation corridors in the country. In addition to indirectly facilitating traffic to both the Main Post and FBNA, the I-95 roadways serve as major commuter corridors for the entire Washington, DC, National Capital Region, and carry long-distance traffic along the Eastern Seaboard. Region-wide, the I-95 roadway serves commuter traffic from predominantly residential counties to the south to major employment centers in Washington, DC, and Arlington County.

- Virginia Route 286 (Fairfax County Parkway) is an east-west highway that was recently widened to four lanes as part of the construction of FBNA, which has significantly reduced the travel time and increased accessibility between Fort Belvoir and western parts of Fairfax County. It directly serves both Fort Belvoir's Main Post and FBNA as the main access to I-95. The roadway bisects the northern Main Post and is the eastern boundary of FBNA.

- U.S. Route 1 (Richmond Highway) is a north-south highway that primarily serves local trips but can be used as an alternate route to I-95 because it runs parallel to the interstate. U.S. Route 1 physically divides the Main Post into North Post and South Post and is the primary access route to the installation. This highway is currently four lanes as it passes through Fort Belvoir and is often congested due to heavy demand from both Fort Belvoir and the region.

- Virginia Route 289 (Franconia-Springfield Parkway) is an east-west highway that is six lanes along its entire length and includes several interchanges as well as some signalized and non-signalized intersections. It is located just north of FBNA.

- The George Washington Memorial Parkway is a four-lane roadway adjacent to the Potomac River west and south of Washington, DC. Coupled with Mount Vernon Memorial Highway, Main Post traffic with an origin or destination via Old Town Alexandria can use this roadway (USACE, 2014).

Local roadways that directly serve the Main Post include the following:

- Virginia Route 611 (Telegraph Road) generally parallels Route 1 until its terminus south of Fort Belvoir, and it serves as the northern boundary of the Main Post. It links the city of Alexandria to residential areas of Fairfax County, including Fort Belvoir, and serves both local and commuter traffic.

- Virginia Route 235 (Mount Vernon Memorial Highway) forms a loop off U.S. Route 1 to the southeast, serving Mount Vernon and the southern end of the George Washington Parkway. This facility is two lanes and is the most western boundary of the southern Main Post.
- Virginia Route 613 (Beulah Street) is a north-south highway that links Telegraph Road and Fort Belvoir to Franconia Road. It is a four-lane highway that serves both local and commuter traffic.
- Mulligan Road is a new four-lane divided highway, to be completed mid-2014, on the eastern edge of the Main Post that will link Telegraph Road to U.S. Route 1 for the general public.

Local roadways that directly serve FBNA include the following:

- Virginia Route 617 (Backlick Road) parallels I-95 through Springfield and ends at Fairfax County Parkway, where it meets Alban Road. Backlick Road is a four-lane road next to FBNA, and it is congested through the Springfield area to the north.
- Virginia Route 638 (Rolling Road) serves local and commuter traffic and runs along the western border of FBNA. It runs in a northwest-southeast direction between Braddock Road and the intersection of Pohick/Alban Road. This road is currently two lanes (USACE, 2014).

Installation Road Network

The roadway system on Fort Belvoir's Main Post includes roads that provide access to area roads via access gates. Mount Vernon Road provides access to the South Post from Mount Vernon Memorial Highway via Walker Gate. Pohick Road and Belvoir Road provide access to the South Post from U.S. Route 1 via Tulley Gate and Pence Gate, respectively.

The existing on-installation roadway network was upgraded during the recent BRAC 2005 and supports the current workforce. Choke points occur at the connections where the installation roads meet the regional roadways. Other than congestion at the ACPs during peak hours, there is no major congestion within the installation. BRAC-related improvements increased installation roadway capacity to accommodate current and some future demand (USACE, 2014).

Access Control Points

Fort Belvoir regularly operates seven ACPs—six onto the Main Post, and one onto Davison AAF. FBNA access is monitored at four traffic control points and mission partner gates within the site. These ACPs do not include numerous mission partner-operated gates, such as monitoring access to secure facilities, within the installation (USACE, 2014).

Transit

There are a variety of alternative transportation options in and through Fairfax County, with several serving Fort Belvoir commuters in some capacity.

Rail

While no rail transit service is directly provided to Fort Belvoir, a rail line serving both the Washington Metropolitan Area Transit Authority (WMATA) Metrorail and the Virginia Railway Express is less than 1 mile from both the boundary of the Main Post and FBNA. Additionally, each service has rail stations within a few miles of Fort Belvoir.

Bus and Shuttle Service

Several bus routes directly serve portions of Fort Belvoir; several more operate within the vicinity of Fort Belvoir, either terminating immediately outside the boundaries of the installation or passing nearby. Additionally, government-operated shuttles provide non-competing services (USACE, 2014).

Pedestrian/Bicycle Network

Fort Belvoir has a fairly well-developed network of pedestrian trails and more recently has completed the construction of dedicated bicycle lanes on several primary roads as part of BRAC 2005 (USACE, 2014).

4.2.16.2 Environmental Effects

No Action Alternative

The No Action Alternative would continue current levels of congestion and result in overall less than significant impacts. Congestion on off-installation roadways is substantial. Choke points at ACPs and intersections with off-installation roadways would also continue at current levels, which can be substantial. As noted above in the Affected Environment, on-installation roadways have sufficient capacity for current traffic levels and can accommodate modest expansion.

Alternative 1—Implement Force Reductions

A reduction in existing forces would cause a beneficial impact to traffic conditions on-installation and off-installation because of reduced traffic and reduced traffic congestion. If the full force reductions were to be implemented, the beneficial impact on the installation would be very noticeable. The beneficial impact at ACPs and nearby roadways and intersections would likely be noticeable. The beneficial impact might not be noticeable, however, on major roadways such as I-95.

4.2.17 Cumulative Effects

The ROI for the cumulative analysis includes Fort Belvoir and the surrounding counties and cities, including Fairfax County, Arlington County, Loudoun County, Manassas City, Manassas Park City, Prince William County, Stafford County, and the cities of Alexandria, Fairfax, Falls Church, Manassas, and Manassas Park. The geographic extent of the ROI includes all counties surrounding or nearby Fort Belvoir that may be impacted by additional projects, either on the installation or in the region. Cumulative effects could include Army-related activities at Fort Belvoir and community activities in the ROI.

Reasonably Foreseeable Future Projects on Fort Belvoir

Additional actions identified by the installation that could have cumulative impacts include the 52 short term projects proposed in the RPMP EIS, as well as longer term proposed actions.

Reasonably Foreseeable Future Projects outside Fort Belvoir

No additional actions were identified by the installation that could have cumulative impacts; however, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, larger economies with more job opportunities could absorb some of the displaced Army workforce, lessening adverse effects from force reductions.

No Action Alternative

There would be no cumulative effects associated with the No Action Alternative because no projects have been identified that could contribute to cumulative impacts. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1–Implement Force Reductions

Implementation of Alternative 1 with the short-term projects listed in the RPMP EIS would not result in any significant cumulative effects on resources at the installation.

The socioeconomic impact within the ROI, as described in Section 4.2.12.2 with a reduction of 4,535 Soldiers and Army civilians, would be minor and adverse on population, the regional economy, schools, and housing. Fort Belvoir is located in Fairfax County in the Washington, DC, metropolitan area. Because of the large employment base, diverse economy, and economic growth in the region, the ROI would be less vulnerable to these force reductions because other industries and considerable economic activity occur within the ROI.

Other construction and development activities on the installation and in the ROI would benefit the regional economy through additional economic activity, jobs, and income in the ROI. Under Alternative 1, the loss of approximately 4,500 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have a minor, adverse impact on socioeconomic conditions in the broader ROI, and may provide some benefits for installation and ROI schools.

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4.3 Fort Benning, Georgia

4.3.1 Introduction

Fort Benning was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population, is discussed in Section 4.1.1 of the 2013 PEA.

Fort Benning's 2011 baseline permanent party population was 17,501. In this SPEA, Alternative 1 assesses a potential population loss of 10,800, including approximately 9,493 permanent party Soldiers and 1,274 Army civilians.

4.3.2 Valued Environmental Components

For alternatives the Army is considering as part of Army 2020 force structure realignments, no significant, adverse environmental impacts are anticipated for Fort Benning; however, significant socioeconomic impacts are anticipated as a result of the implementation of Alternative 1—Implement Force Reductions. Table 4.3-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.3-1. Fort Benning Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Minor	Negligible
Cultural Resources	Minor	Minor
Noise	Less than Significant	Minor
Soils	Less than Significant	Beneficial
Biological Resources	Less than Significant	Beneficial
Wetlands	Less than Significant	Negligible
Water Resources	Less than Significant	Minor
Facilities	Minor	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Minor	Beneficial
Land Use Conflict and Compatibility	Less than Significant	Minor
Hazardous Materials and Hazardous Waste	Minor	Beneficial
Traffic and Transportation	Minor	Beneficial

4.3.3 Air Quality

4.3.3.1 Affected Environment

The air quality affected environment of the Fort Benning ROI remains the same as described in Section 4.1.2.1 of the 2013 PEA. Fort Benning is not within an EPA-designated nonattainment or maintenance area (EPA, 2014).

4.3.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that mobile and stationary source emissions at current levels, as well as prescribed burns for vegetation management, would result in minor and adverse impacts to air quality. Air quality impacts under the No Action Alternative for this SPEA would remain the same as for the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Benning would result in long-term, minor, beneficial impacts to air quality due to reduced operations and maintenance activities, and reduced vehicle miles travelled associated with the facility. The increased force reductions under Alternative 1 would continue to result in beneficial air quality effects assuming a corresponding decrease in operations, training, and vehicle travel to and from Fort Benning. The size of this beneficial impact under Alternative 1 would be slightly larger than anticipated at the time of the 2013 PEA.

Personnel relocating from the area due to the force reductions could result in negligible, short-term effects on air quality associated with mobile sources. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

The Army is also committed to ensuring that personnel cuts will not result in non-compliance with air quality regulations. Even if the full end-strength reductions were to be realized at Fort Benning, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.3.4 Airspace

4.3.4.1 Affected Environment

Fort Benning was analyzed in the 2013 PEA (Section 4.1.3), and there have been no changes to the affected environment for airspace at Fort Benning since that time.

4.3.4.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, impacts would be similar to those described in the 2013 PEA No Action analysis (Section 4.1.3.2) with minor, adverse impacts. Adverse impacts to airspace would continue to occur as a result of potential airspace use conflicts between military and private pilots.

Alternative 1—Implement Force Reductions

Under Alternative 1, negligible impacts to airspace are expected as a result of continued potential airspace use conflicts between military and private pilots. The loss of the ABCT could potentially reduce the number of Unmanned Aircraft Systems (UAS) in operation at Fort Benning. No additional airspace restrictions or adjustments to existing classifications would occur.

4.3.5 Cultural Resources

4.3.5.1 Affected Environment

The affected environment for cultural resources at Fort Benning has not changed since it was described in Section 4.1.4 of the 2013 PEA.

4.3.5.2 Environmental Effects

No Action Alternative

Implementation of the SPEA No Action Alternative would result in minor impacts to cultural resources as described in the 2013 PEA No Action analysis in Section 4.1.4.2. The potential for adverse impact to cultural resources during training exercises involving heavy equipment and tracked vehicles would continue. However, Fort Benning would continue to review undertakings with the potential to affect cultural resource and would mitigate training impacts in accordance with the ICRMP.

Alternative 1—Implement Force Reductions

Similar to impacts described in Section 4.4.1.2 of the 2013 PEA, the SPEA Alternative 1 would have a minor impact on cultural resources. As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic structures from demolition activities are not analyzed. Additionally, the Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of force reductions, the installation would comply with applicable laws,

such as the NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects.

The effects of this alternative are considered to be similar to the 2013 PEA No Action Alternative–future activities with the potential to affect cultural resources would continue to be monitored, as detailed in existing agreements, and the impacts reduced through preventative and minimization measures. This alternative could result in some beneficial effects as a decrease in training activities could reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources.

4.3.6 Noise

4.3.6.1 Affected Environment

The noise affected environment of the Fort Benning ROI remains the same as described in Section 4.1.5.1 of the 2013 PEA.

4.3.6.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated less than significant (moderate and adverse) impacts to NZ II and III from operational noise overlapping areas with sensitive noise receptors on and off the installation. Existing NZ II and III noise contours for small and large caliber weapons are not anticipated to change. Mitigation measures would remain in place to minimize operational noise impacts including public noise complaint reporting procedures and public notification when large caliber and/or night-time training events occur. Impacts under the SPEA No Action Alternative at Fort Benning would remain the same as those discussed in Section 4.1.5.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Benning would result in minor, adverse impacts to noise. With the departure of Soldiers, Army civilians, and their Family members, noise volumes would remain the same as anticipated in the 2013 PEA, but the number of noise producing events would be lower. Any decrease in noise generated from firing ranges and maneuver areas would not likely be sufficient to change current NZ contours. Minor, adverse impacts under Alternative 1 would continue as described in the 2013 PEA.

The Army is also committed to ensuring that personnel cuts will not result in non-compliance with noise ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Benning, the Army would ensure that adequate staffing remains so that the

installation would comply with all mandatory environmental regulations including noise ordinances and regulations.

4.3.7 Soils

4.3.7.1 Affected Environment

The soils affected environment on the installation remains the same as was discussed in Section 4.1.6.1 of the 2013 PEA.

4.3.7.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, less than significant impacts to soils were anticipated from continuing training, to include impacts to soils from ground disturbance from wheeled and tracked vehicles. Under the No Action Alternative in this SPEA, impacts to Fort Benning would remain the same as those discussed in Section 4.1.6.2 of the 2013 PEA.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Benning, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

Alternative 1—Implement Force Reductions

Under Alternative 1 in the 2013 PEA, minor impacts to soils were anticipated from continuing training, to include impacts to soils from ground disturbance from wheeled and tracked vehicles. Under this SPEA, a greater force reduction is anticipated, which would lead to even less use of training areas and would allow greater rotation time between maneuvers to allow the regrowth of vegetation and reduce soil erosion as a result of vegetation removal. Thus, under this SPEA, Alternative 1 would provide beneficial impacts to soils.

4.3.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.3.8.1 Affected Environment

Fort Benning's affected environment for biological resources can be found in Section 4.1.7 of the 2013 PEA. The affected environment remains essentially the same in this SPEA with one change: a new plant species, Georgia rockcress (*Arabis georgiana*), and its critical habitat are found on Fort Benning and are proposed for federal listing.

4.3.8.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, impacts would be similar to those described in the 2013 PEA (Section 4.1.7.2) with less than significant (moderate and adverse) impacts to vegetation, wildlife, and threatened and endangered species, particularly the red-cockaded woodpecker (RCW).

Alternative 1—Implement Force Reductions

Under Alternative 1, beneficial impacts are expected to natural resources and threatened and endangered species at Fort Benning. Beneficial impacts would result from less noise disturbance because of less use of the airspace, fewer vehicles in the heavy maneuver areas, and fewer small and large caliber firing exercises, resulting in less encroachment and soil erosion, which would potentially allow vegetation regeneration. Also, with less use of the maneuver and training areas, wildlife habitat and species would benefit because environmental staff would have more opportunities to schedule natural resources and threatened and endangered species monitoring and comply with INRMP management requirements, and any conservation measures agreed to in any Endangered Species Act (ESA) Section 7 consultation documents.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Benning, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.3.9 Wetlands

4.3.9.1 Affected Environment

The wetlands affected environment on the installation remains the same as was discussed in Section 4.1.8.1 of the 2013 PEA.

4.3.9.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, less than significant impacts to wetlands were anticipated from continuing training, to include impacts from sedimentation created by ground disturbance from wheeled and tracked vehicles. Under the No Action Alternative of this SPEA the impacts to Fort Benning would remain the same as those discussed in Section 4.1.8.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 in the 2013 PEA, minor impacts to wetlands were anticipated from continuing training, to include impacts from sedimentation created by ground disturbance from wheeled and tracked vehicles. Under this SPEA, a greater force reduction is anticipated, which would lead to even less use of training areas and would allow greater rotation time between maneuvers to allow wetlands to restore themselves towards their reference functions and values. Thus, under this SPEA, Alternative 1 would provide negligible impacts to wetlands.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Benning, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory regulations.

4.3.10 Water Resources

4.3.10.1 Affected Environment

The affected environment for water resources on Fort Benning remains the same as that described in Section 4.1.9.1 of the 2013 PEA. There are no changes to groundwater, water supply, wastewater, stormwater, and surface water quality resources.

4.3.10.2 Environmental Effects

No Action Alternative

In the 2013 PEA under the No Action Alternative, less than significant (moderate and adverse) impacts to water resources were anticipated due to sedimentation and disturbance impacts to surface waters from continuing heavy maneuver training activities. Also negligible impacts were anticipated for groundwater, water supply, and wastewater resources under the 2013 PEA No Action Alternative. Impacts to water resources on Fort Benning under the No Action Alternative of this SPEA would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

Minor, adverse impacts to water resources were anticipated from implementation of force reductions under Alternative 1 in the 2013 PEA because of the potential sedimentation effects on surface waters from continuing training activities. Although force reductions were anticipated to decrease the potential sedimentation of surface waters, the highly erodible nature of Fort Benning soils does not allow for complete removal of potential sedimentation impacts. Minor, beneficial impacts to water resources were anticipated for groundwater, water supply, and wastewater because of reduced demand for potable water and wastewater treatment. Increased force reductions under Alternative 1 of this SPEA would continue to have the same minor, adverse impacts to surface water and the same minor, beneficial impacts to water usage, groundwater, and wastewater.

Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Fort Benning, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented.

4.3.11 Facilities

4.3.11.1 Affected Environment

The facilities affected environment of the Fort Benning installation remains the same as described in Section 4.1.10.1 of the 2013 PEA.

4.3.11.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that there would be minor impacts to facilities at Fort Benning under the No Action Alternative. For the current analysis, Fort Benning would continue to use its existing facilities to support its tenants and missions, and impacts to facilities would remain the same described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to facilities would occur on Fort Benning. Under Alternative 1, implementation of additional proposed force reductions would cause overall minor, adverse impact. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demands for utilities and reduced demands for training facilities and support services. Force reductions would also provide opportunities to reduce reliance on select outdated facilities. Some facilities could be re-purposed to reduce crowding or support other units. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.3.12 Socioeconomics

4.3.12.1 Affected Environment

As described in the 2013 PEA, Fort Benning is located in the Columbus, Georgia-Alabama Metropolitan Statistical Area, which includes Chattahoochee, Harris, Marion, and Muscogee counties in Georgia and Russell County in Alabama. The ROI evaluated in this socioeconomic analysis consists of the counties in the Columbus, Georgia-Alabama Metropolitan Statistical Area as well as Talbot County, Georgia, and Lee County, Alabama. The ROI includes areas that are generally considered the geographic extent to which the majority of the installation's military, civilian, and contractor personnel, and their Families reside. This ROI constitutes the vast majority of potential socioeconomic impacts from force restructuring proposed for Fort Benning. Information provided in Section 4.1.11 of the 2013 PEA is summarized here and, where applicable, incorporated by reference.

Population and Demographics

Using 2011 as a baseline, Fort Benning has a total working population of 47,601 consisting of active component Soldiers and Army civilians, students and trainees, other military services, civilians and contractors. Of the total working population, 17,501 were permanent party Soldiers and Army civilians. The population that lives on Fort Benning consists of approximately 3,300 Soldiers and Army civilians, and their 9,000 Family members, for a total on-installation resident population of 12,300 (Lovejoy, 2014). The portion of Soldier and Army civilians living off the installation was estimated to be 35,758 and consists of active component Soldiers, Army civilians, and their Family members. Further detailed information on population and demographics is available in the 2013 PEA.

Fort Benning is home to the Maneuver Center of Excellence and several tenant units that live, train, deploy and redeploy from the installation. The units are from Forces Command (FORSCOM), U.S. Special Operations Command (SOCOM), MEDCOM, ARNG, and U.S. Army Reserve organizations. The three critical missions of the Maneuver Center of Excellence are conducting initial entry training (IET) for Soldiers, providing professional military education for Noncommissioned Officers (NCOs) and Commissioned officers, and developing and integrating the maneuver force. Students are based at Fort Benning for the expected length of their assigned curriculum, which may range from 3 weeks to 6 months. Fort Benning averages approximately 12,800 students assigned for training and can accommodate up to 22,534 in on installation housing (Fort Benning, 2014d; Lovejoy, 2014). Any additional students would be accommodated in local lodging facilities or rental units.

In 2012, the ROI had a population of 457,305. The population in Harris and Marion counties was relatively stable compared to the rest of the ROI between 2010 and 2012, while the population of Chattahoochee County increased by more than 15 percent during this period. Table 4.3-2

presents the 2012 census population information for each county and the percent of population change since 2010. The racial and ethnic composition of the ROI is presented in Table 4.3-3.

Table 4.3-2. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
State of Alabama	4,817,528	+0.8
State of Georgia	9,915,646	+2.4
Lee County, Alabama	140,257[a]	+5.0
Russell County, Alabama	57,820	+9.2
Chattahoochee County, Georgia	13,037	+15.7
Harris County, Georgia	32,550	+1.6
Marion County, Georgia	8,711	-0.4
Muscogee County, Georgia	198,413	+4.5
Talbot County, Georgia	6,517	-5.0

[a] In the 2013 PEA, this number was 6,057. This population was incorrect and the correct population, updated to the year 2012, is included here.

Table 4.3-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of Alabama	70.0	26.5	0.7	1.2	1.5	4.1	66.6
State of Georgia	62.8	31.2	0.5	3.5	1.8	9.2	55.1
Lee County, Alabama	72.0	23.2	0.3	2.9	1.5	3.6	69.0
Russell County, Alabama	54.1	42.3	0.5	0.7	2.1	4.6	50.7
Chattahoochee County, Georgia	72.3	19.6	1.1	2.4	3.8	14.1	61.1
Harris County, Georgia	79.8	17.3	0.4	1.0	1.4	2.9	77.3
Marion County, Georgia	63.5	32.8	0.9	1.0	1.5	6.8	58.1
Muscogee County, Georgia	48.3	46.1	0.5	2.3	2.6	7.2	43.0
Talbot County, Georgia	40.1	58.0	0.4	0.2	1.4	1.8	39.2

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Income

Employment and income information provided in Table 4.3-4 has been updated from the 2013 PEA. Talbot County had the lowest median household income of all counties in the ROI, with approximately half of the median household income of the state of Georgia as a whole while Harris County had the highest median household income among the ROI counties at $68,816 (U.S. Census Bureau, 2012).

Table 4.3-4. Employment and Income, 2012

States and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Alabama	2,034,230	+5.2	$122,300	$43,160	18.1
State of Georgia	4,333,284	+10.9	$156,400	$49,604	17.4
Lee County, Alabama	64,412	+20.8	$149,300	$43,189	21.1
Russell County, Alabama	22,692	+11.6	$102,000	$33,591	22.2
Chattahoochee County, Georgia	6,182	-30.1	$84,400	$48,684	13.6
Harris County, Georgia	14,811	+24.0	$214,200	$68,816	8.4
Marion County, Georgia	3,245	+7.0	$75,300	$33,875	26.1
Muscogee County, Georgia	85,090	+0.2	$132,900	$41,443	18.8
Talbot County, Georgia	2,403	-5.1	$74,500	$26,750	23.4

Information regarding the workforce by industry for each county within the ROI was obtained from the U.S. Census Bureau (U.S. Census Bureau, 2012). Information presented below is for the employed labor force.

Chattahoochee County, Georgia

According to the U.S. Census Bureau, the Armed Forces is the primary source of employment in Chattahoochee County (68 percent). Educational services, and health care and social assistance is the second largest employment sector (5 percent), followed by public administration (4 percent). The remainder of the employment sectors account for 23 percent of the workforce.

Harris County, Georgia

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Harris County (24 percent). Retail trade is the second largest employment sector (10 percent); followed by manufacturing; the finance and insurance, and real estate and rental and leasing; and the professional, scientific, and management, and administrative and waste management services sectors (each at 9 percent). The Armed Forces account for less than 1 percent of the Harris County workforce. The remaining eight sectors account for 38 percent of the workforce.

Lee County, Alabama

The U.S. Census Bureau reported that the educational services, and health care and social assistance sector accounts for the greatest share of the total workforce (28 percent). Retail trade is the second largest employment sector (12 percent), followed by manufacturing (11 percent). The arts, entertainment, and recreation, and accommodation and food services also account for a significant share of the total workforce (9 percent). The Armed Forces account for 1 percent of the Lee County workforce. The remaining 10 sectors account for 39 percent of the workforce.

Marion County, Georgia

The U.S. Census Bureau reported that the manufacturing sector accounts for the greatest share of the total workforce in Marion County (19 percent). The educational services, and health care and social assistance services sector is the second largest employment sector (17 percent), followed by construction (10 percent). Retail trade and public administration also account for a significant share of the total workforce in Marion County (9 percent each). The Armed Forces account for less than 1 percent of the workforce. The remainder of sectors in Marion County account for 36 percent of the workforce.

Muscogee County, Georgia

The U.S. Census Bureau reported that the educational services, and health care and social assistance services sector is the primary source of employment in Muscogee County (20 percent). The Armed Forces are the second largest employer (12 percent), followed by the finance and insurance, and real estate and rental and leasing sector (10 percent). The retail trade sector and the arts, entertainment, and recreation, and accommodation and food services sectors also account for a significant share of the total workforce in Muscogee County (each at 10 percent). The remaining sectors account for 38 percent of the total workforce in Muscogee County.

Russell County, Alabama

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Russell County (21 percent). Retail trade; manufacturing; and the arts, entertainment, and recreation, and

accommodation and food services sectors are the second, third, and fourth largest employment sectors (each at 10 percent). The Armed Forces account for 4 percent of the Russell County workforce. The remaining employment sectors account for 45 percent of the workforce.

Talbot County, Georgia

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Talbot County (22 percent). Manufacturing is the second largest employment sector (14 percent), followed by the professional, scientific, and management, and administrative and waste management services sector (9 percent). Retail trade and the construction sectors also account for a significant share of the total workforce in Talbot County (each at 8 percent) while the Armed Forces account for 1 percent of the workforce. The remaining employment sectors account for 39 percent of the workforce.

Housing

Housing resources at Fort Benning were described in Section 4.1.11.1 of the 2013 PEA. Fort Benning has 3,524 military Family units and 4,208 units in barracks for permanent residents (Lovejoy, 2014). Additionally, the installation maintains 5,178 units in barracks for students and transients and 17,356 units in barracks for trainees. While housing is not available for all active service members on Fort Benning, off-installation housing is available in the forms of town homes, apartments, and single-family homes in the surrounding counties. Information on housing is presented in further detail in the 2013 PEA.

Schools

As described in the 2013 PEA, Fort Benning has 7 on-installation DoD schools, 6 elementary schools, 1 middle school, and 29,963 students. A number of schools located off installation provide kindergarten through grade 12 services. On- and off-installation school facilities are further described in the 2013 PEA.

Public Health and Safety

Police Services

While the Provost Marshal provides on-installation law enforcement services, according to the 2013 PEA, there are approximately 1,000 off-installation law-enforcement officers in the ROI.

Fire and Emergency Services

Fort Benning has a fire department on the installation. In addition, it has Memoranda of Understanding to provide fire assistance in times of increased need with fire departments in Phenix City, the city of Columbus, and Chattahoochee County. The Muscogee County and Phenix City Fire departments have 342 and 58 paid firefighters, respectively (USACE, 2011).

Medical Facilities

The U.S. Army Medical Department Activity provides medical care to the installation. Additional information on public services is provided in the 2013 PEA.

Family Support Services

The Fort Benning ACS, which is a division of the Directorate of FMWR, assists Soldiers and their Families with programs that include Army Emergency Relief, Army Family Action Plan, Army Volunteer Corps, Employment Readiness, Exceptional Family Member, Family Advocacy, Financial Readiness, Information & Referral, and Relocation Readiness. The Fort Benning CYSS, also under FMWR, provides recreational and learning programs for children and teens at Fort Benning (Fort Benning, 2014b).

Recreation Facilities

Fort Benning FMWR provides its military community, Families, and civilians with outdoor recreation equipment rental opportunities; hunting and fishing opportunities; sport and fitness programs, a flea market; leisure activities (kayaking, horsemanship, and group hiking and camping trips), parks, ponds and picnic areas (including two dog parks, several lakes, a paintball course, and a disc golf course); a recreational shooting complex; and Destin Army Recreation Area (a vacation resort destination owned and operated by the installation located in Destin, Florida) (Fort Benning, 2014c).

4.3.12.2 Environmental Effects

No Action Alternative

The operations at Fort Benning would continue to benefit regional economic activity and there would be no change to socioeconomic conditions anticipated as part of the No Action Alternative. Fort Benning would continue to have the same levels of economic and social impacts to employment, housing, schools, and public services.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of 10,767[8] Army positions (9,493 Soldiers and 1,274 Army civilians), each with an average annual income of $46,760 and $56,723 respectively. In addition, this alternative would affect an estimated 6,008 spouses and 10,336 children, for a total estimated potential impact to 16,344 Family members. The total population of Army employees and their Family members that would be directly affected is projected to be 27,111 under Alternative 1.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative ranges. Table 4.3-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, changes in population in the ROI under Alternative 1 fall outside the historical range and are categorized a significant impact. However, there would not be a significant impact to sales, income, and employment because the estimated percentage change is within the historical range.

Table 4.3-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	6.3	5.1	4.8	2.4
Economic contraction significance value	-6.2	-5.4	-8.3	-1.6
Forecast value	-2.8	-3.9	-7.2	-5.6

Table 4.3-6 shows the predicted impacts to income, employment, and population of the reductions against the 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

[8] This number was derived by assuming the loss of one BCT, 60 percent of Fort Benning's non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 10,767. The 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 7,100.

Table 4.3-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impact	-$626,973,000	-11,940 (Direct)	-27,111
		-1,918 (Induced)	
		-13,859 (Total)	
Total 2012 ROI economic estimates	$16,820,339,000	198,835	457,305
Percent reduction of 2012 figures	-3.7	-7.0	-5.9

Note: Sales estimates are not consistently available from public sources for all counties in the United States; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from EIFS is described in the paragraphs below.

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 10,767 active component Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 1,173 direct contract service jobs would also be lost. An additional 1,918 induced jobs would be lost due to the reduction in demand for goods and services within the ROI. The total reduction in employment is estimated to be 13,859, a reduction of 7 percent from the total employed labor force in the ROI of 198,835. Income is estimated to fall by $627.0 million, a 3.7 percent decrease in income in the ROI from 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $727.9 million. There would also be a loss in sales tax receipts to local and state governments. The state and average local sales tax for Georgia is 7.0 percent and Alabama is 8.5 percent (Tax Foundation, 2014). To estimate sales tax reductions, information was utilized on the proportion of sales that would be subject to sales taxes on average across the country. According to the U.S. Economic Census an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rates were applied to the estimated decrease in sales of $727.9 million, resulting in an estimated sales tax receipts decrease ranging from $8.1 million to $9.9 million under Alternative 1.

Of the 457,305 people (including those residing on Fort Benning) who live within the ROI, 27,111 Army employees and their Families are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 5.9 percent. This number possibly overstates potential population impacts, as some of the people no longer employed by the military would continue to live and work within the ROI, finding employment in other industry sectors. A small number of displaced forces may stay in the ROI and find work, and others may remain unemployed and possibly affect the unemployment rate in the ROI. However, Fort Benning is a dominant employer and economic driver in the ROI. As a result, most displaced forces would likely move out of the area to seek other opportunities with the Army or elsewhere.

Additionally, installation students and their visitors may have a substantial impact on the local economy through lodging, eating, and shopping expenditures. Formal graduation ceremonies generate demand for lodging and dining facilities when Family members attend. The impact to Fort Benning's training mission(s) cannot be determined until after the Army completes its force structure decisions; therefore, analyzing the impact to those mission(s) is beyond the scope of this document.

Housing

The population reduction would lead to a decreased demand for housing and increased housing availability on the installation and in the region. This could potentially lead to a reduction in housing values. It is expected that a minor to potentially significant impact on housing would occur throughout the ROI under Alternative 1, depending on the proximity of the communities and housing markets to the installation.

Schools

A reduction of 10,767 active component Soldiers and Army civilians would result in a potential reduction of 16,344 Family members, of which 10,336 would be children. It is anticipated that school districts that provide education to on installation Army children would be impacted by this action. Schools on and off the installation are expected to experience a decline in enrollment. School districts with larger portions of military children in proximity to Fort Benning would be more affected than those with fewer military students. Alternative 1 may have beneficial impacts in some of the school systems, particularly in Russell, Muscogee, and Chattahoochee counties where student enrollment is close to school capacity. Within these schools, Alternative 1 could lead to reduced school crowding, smaller class sizes, and a reduction in student to teacher ratios.

The reduction of Soldiers on Fort Benning would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal School Impact Aid a district receives is based on the number of students who are considered "federally connected" and attend district schools. Actual projected dollar amounts cannot be determined at this time due to the variability of appropriated dollars from year to year, and the actual number of affected school-age children for military and civilian Families. School districts in the ROI would likely need fewer teachers and materials as enrollment drops, which may partially offset the reduced Federal Impact Aid. However, schools may also have invested in capital improvements or new facilities, which require bond repayment/debt servicing. With decreased revenue for these school districts, it may place additional burden on school districts with potential implications for operations. These are fixed costs that would not be proportionately reduced such as those operational costs (teachers and supplies). Overall, adverse impacts to schools associated with Alternative 1 would be minor to significant depending on the number of Soldiers and Family members attending community schools that may no longer do so if Alternative 1 is implemented.

Public Services

A reduction in personnel would have minor impacts to emergency services, fire, police, and medical services because the reduction is anticipated to decrease the need for these services. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements. The impacts to public services are not expected to be significant because the existing service level for the installation and the ROI would still be available.

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. As a result, minor impacts to Family Support Services and recreation facilities would occur under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, provides: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). The racial and ethnic composition of the ROI differs from that of the state as a whole. There are larger African American and Hispanic populations in some of the ROI counties when compared to the states' proportions of these populations. Additionally, five counties in the ROI have a higher percentage of their populations living below the poverty line compared to percentage of those living below the poverty line in their respective states. In these areas with higher proportions of environmental justice populations, there is a potential that these populations could be adversely impacted under Alternative 1. However it is not likely that these impacts would fall disproportionally on these environmental justice populations.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of the people associated with the installation, including children. Therefore, it is not anticipated that any environmental health and safety risks to

children within the ROI would occur under Alternative 1. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.3.13 Energy Demand and Generation

4.3.13.1 Affected Environment

The energy demand and generation affected environment of the Fort Benning installation remains the same as described in Section 4.1.12.1 of the 2013 PEA.

4.3.13.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that there would be minor impacts to energy demand and generation at Fort Benning under the No Action Alternative. For the current analysis, Fort Benning would continue to consume similar types and amounts of energy, and impacts to energy demand would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

Minor, beneficial impacts to energy demand are anticipated because force reductions would reduce the installation's overall demand for energy. The installation would also be better positioned to meet energy and sustainability goals.

4.3.14 Land Use Conflicts and Compatibility

4.3.14.1 Affected Environment

The land use affected environment of the Fort Benning ROI remains effectively the same as described in Section 4.1.13.1 of the 2013 PEA.

4.3.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated less than significant (moderate and adverse) impacts to land use compatibility because of the potential for noise from live-fire and night-time training events to impact communities encroaching along Fort Benning's boundary. Prescribed burning, required for training area sustainment and to maintain RCW habitat, could also cause conflicts in land use related to smoke. The impacts of the SPEA No Action

Alternative on land use are expected to be the same as those described in Section 4.1.13.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Benning would result in minor, adverse impacts to land use. With the departure of Soldiers, Army civilians, and their Family members, any resulting decrease in large arms fire and night-time training exercises would not likely be sufficient to change current NZ contours and associated land use impacts. Under Alternative 1, adverse impacts to land use would be similar to that anticipated at the time of the 2013 PEA, resulting in minor impacts.

The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with regulations governing land use compliance issues. Even if the full end-strength reductions were to be realized at Fort Benning, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including land use ordinances and regulations.

4.3.15 Hazardous Materials and Hazardous Waste

4.3.15.1 Affected Environment

At Fort Benning, hazardous materials and hazardous waste are subject to applicable RCRA regulations. Routine operations on Fort Benning require the use of a variety of hazardous materials, including petroleum products, solvents, cleaning agents, paints, adhesives, and other products necessary to perform vehicle and equipment maintenance, military training activities, installation upkeep, and administrative and housing functions. Fort Benning has numerous USTs and ASTs across the installation, primarily in the cantonment areas. No substantial changes have occurred to the affected environment as described in the 2013 PEA.

4.3.15.2 Environmental Effects

No Action Alternative

The 2013 PEA stated that minor, adverse impacts are anticipated under the No Action Alternative. Use of hazardous materials and generation of hazardous wastes would continue on Fort Benning in accordance with all applicable laws, regulations, and plans.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that minor, adverse impacts from hazardous materials and hazardous waste would occur on Fort Benning. Further force reductions would likely result in beneficial impacts, especially depending on which units would be identified for loss.

Under Alternative 1, hazardous wastes generated would likely decrease in volume as vehicle and equipment maintenance activities decrease with a decrease in Soldiers and civilians. It is likely that there would be a reduction of satellite hazardous waste accumulation points. Because of the reduced numbers of people, it is expected that the potential for spills would be reduced further during training and maintenance activities.

The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Fort Benning, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on hazardous materials are not analyzed.

4.3.16 Traffic and Transportation

4.3.16.1 Affected Environment

The transportation affected environment of the Fort Benning ROI remains the same as described in Section 4.1.15.1 of the 2013 PEA. Major road routes in the region include I-185, and U.S. Routes 27, 280, and 431, and Georgia State Routes 1 and 26.

4.3.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated minor, adverse impacts. Traffic studies prepared for analysis in Fort Benning's BRAC and Maneuver Center of Excellence EIS identified traffic delay and congestion deficiencies within the installation. Mitigation measures to widen roads, improve intersections, and encourage use of travel demand management tools were implemented to reduce significant impacts to traffic and transportation both on and off the installation. Even with these mitigation measures, the number of personal and work vehicles associated with Fort Benning would continue to cause some traffic congestion.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Benning would result in minor, beneficial impacts to traffic and transportation systems. With the departure of Soldiers, Army civilians and their Family members, Fort Benning anticipates a decrease in traffic congestion and improvements in LOS on the installation and neighboring communities. Depending on the units identified for loss, there could be a substantial reduction in tactical, non-tactical and civilian traffic on the installation and in maneuver training areas (Fort Benning, 2014a). The population

decrease may have a minor reduction of risk to the safety of motorists, pedestrians, and bicyclists. The size of this beneficial impact under Alternative 1 would be larger than anticipated in the 2013 PEA force reduction alternative.

4.3.17 Cumulative Effects

The ROI for cumulative impact analysis consists of Muscogee, Chattahoochee, Harris, Talbot, and Marion counties in Georgia and Lee and Russell counties in Alabama. These are the counties that may be impacted by the regional projects that may produce cumulative effects. Cumulative effects include not only Army but also any other government or non-government activities in the ROI as noted in the 2013 PEA.

Reasonably Foreseeable Future Projects on Fort Benning

A number of reasonably foreseeable future projects have been identified at Fort Benning that would occur by 2020, to include school replacements, a new commissary facility, and RCI Town Center project. Projects listed below are updates or additional projects to those presented in the 2013 PEA cumulative impacts analysis. These projects are not expected to result in cumulative impacts. Additional actions identified by the installation that could have cumulative impacts include the following:

- **Training Land Expansion Program (TLEP):** The Army proposes to acquire up to 82,800 acres of additional training lands near Fort Benning by approximately 2017. Currently, the Army is undergoing a study to assess environmental and socioeconomic impacts of the acquisition of additional training lands in proximity to Fort Benning. The TLEP Draft EIS was published in May 2011 for comment per the requirements of NEPA. The TLEP Final EIS and final decision on land purchase is deferred until more information is available on Army fiscal and force realignments.

  Fort Benning would re-evaluate the need for land acquisition as proposed in the TLEP if force reductions involve the loss or restructuring of the ABCT. The competition for training facilities such as heavy maneuver land would be reduced from current demand. The re-evaluation may indicate that either a smaller TLEP land acquisition of approximately 25,000 acres would be needed, or may result in no land acquisition being pursued under TLEP for the foreseeable future. The TLEP Draft EIS indicated that there may be a positive regional economic impact from the larger land acquisition due to land purchase and relocation activities over several years. Some comments received on the TLEP Draft EIS, however, indicate community concerns about significant economic losses for the counties involved. With the information available to date, the Army cannot determine the potential economic impacts related to a reduced or no TLEP land acquisition.

- **Training Enhancement Proposals:** Fort Benning has three training proposals: installation level impacts of realignment of the 3/3rd ABCT to an IBCT in 2015, relocation of the heavy maneuver portion of the Army Reconnaissance Course in 2016 to the Good Hope Maneuver Training Area, and enhancement of off-road maneuver areas in the Good Hope Maneuver Training Area as funding becomes available. Fort Benning is preparing an installation-specific EA and Biological Assessment to study these training proposals. Initial indications are that environmental impacts generally would be reduced in heavy maneuver areas, including reduced impacts to the RCW during training in and around the Southern Maneuver Training Area. There would be slightly increased soil erosion impacts in the Good Hope Maneuver Training Area. In other areas of Fort Benning, the amount of tracked vehicle training impacts in heavy maneuver areas and training ranges would be substantially reduced, thereby reducing the amount of disturbance to soils, vegetation, and water resources.

- **Energy Initiative Task Force:** Georgia Power is partnering with Fort Benning to establish a solar energy collection system on approximately 500 acres on the installation by 2016. This proposal involves re-designation of a relatively small land area to that use, and is expected to have energy efficiencies and independence benefits for Fort Benning.

Reasonably Foreseeable Future Projects outside Fort Benning

Additional actions identified beyond those noted in the cumulative effects analysis of the 2013 PEA are listed below. In addition, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, smaller, less diversified regional economies will be more vulnerable to the force reductions and provide fewer opportunities to displaced Army employees.

- **165 Highway Connector to the Eddy Bridge:** Russell County, Alabama, planners propose to fund construction of a direct route from Fort Mitchell, Alabama, into the western Fort Benning ACP, at a date to be determined. Siting of the roadway is attempting to avoid as many environmental resources on Fort Benning as possible, but it may involve reconstruction of a major bridge across the Chattahoochee River, (constructed in 1964), or other cultural resources. This project may also affect designated potential future RCW habitat that may require formal consultation with USFWS. Additionally, current siting of this project crosses Uchee Creek, which has been designated as critical habitat for the shiny-rayed pocketbook mussel. Non-federal proponents will prepare an EA for this project. Current siting of this roadway could cross an ACUB property. This proposal is intended to not only assist traffic flow to/on Fort Benning, but also to energize development in the Alabama communities.

- **Benning Technology Park Interchange:** Columbus, Georgia, community planners propose to upgrade the road access to the Technology Park area located to the north of Fort Benning near highway I-185 to be started in 2015. The access road may cross Fort Benning, and siting is being planned to avoid as many environmental resources on Fort Benning as possible. This proposal is intended to enhance the economic development of the area as a Technology Park.

No Action Alternative

There would be no cumulative effects with the No Action Alternative. Current environmental impacts and socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1–Implement Force Reductions

Future projects that involve infrastructure improvements and construction would have short-term, adverse environmental impacts primarily due to soil disturbance and water resource impacts. Those future projects must follow applicable environmental regulations that contain mitigation, and the impacts are expected to be localized and occurring over a span of several years. The Training Enhancement Proposals may have long-term, reduced environmental impacts, especially in heavy maneuver areas and training ranges. Implementation of force reductions would also have reduced environmental impacts to soils, vegetation, protected species, and water resources. Therefore, Alternative 1 would have beneficial cumulative impacts to those environmental resources.

The socioeconomic impact under Alternative 1, as described in Section 4.3.12.2 with a loss of 10,767 Soldiers and Army civilians, could lead to significant impacts to the population, schools, and housing. Fort Benning is an important economic driver in the Columbus metropolitan area, with total employment on the installation of more than 17,000. Specifically, in Muscogee and Chattahoochee counties, the Armed Forces account for 12 and 68 percent of the workforce, respectively, demonstrating the importance of installation to employment opportunities in the region. The considerable reliance on the installation, in combination with 10,767 lost Army jobs, could lead to reduced Fort Benning and supporting activities in the ROI, could lead to reduced supporting activities in the ROI, additional losses in jobs and income, with fewer job opportunities for displaced Army employees in the ROI.

Force reductions would also affect regional economic conditions by related reductions in the jobs and income within the region. Permanent military personnel, temporary trainees, and their visitors spend their money in the ROI economy, supporting additional jobs, income, taxes, and sales. Future projects that involve infrastructure improvements and construction and development activity would benefit the regional economy through additional economic activity, jobs, and income in the ROI; however, these benefits would not offset the adverse economic impacts of Alternative 1. Therefore, the loss of approximately 10,800 Soldiers and Army

civilians under Alternative 1 could result in significant impacts to population, employment, income, sales, tax receipts, housing values, and schools in the ROI.

Overall, the potential cumulative impacts of Alternative 1 at Fort Benning are anticipated to be significant, adverse for economics, and generally reduced, ranging from minor and adverse to beneficial, for natural and cultural resources.

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4.4 Fort Bliss, Texas

4.4.1 Introduction

Fort Bliss was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population, is discussed in Section 4.2.1 of the 2013 PEA.

Fort Bliss' 2011 baseline permanent party population was 31,380. In this SPEA, Alternative 1 assesses a potential population loss of 16,000, including approximately 15,044 permanent party Soldiers and 956 Army civilians.

4.4.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Bliss; however, significant socioeconomic impacts are anticipated as a result of the implementation of Alternative 1—Implement Force Reductions. Table 4.4-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.4-1. Fort Bliss Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Minor	Minor
Cultural Resources	Negligible	Minor
Noise	Negligible	Beneficial
Soils	Minor	Beneficial
Biological Resources	Negligible	Beneficial
Wetlands	Negligible	Beneficial
Water Resources	Minor	Beneficial
Facilities	Negligible	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	Minor	Minor
Hazardous Materials and Hazardous Waste	Minor	Minor
Traffic and Transportation	Significant but Mitigable	Beneficial

4.4.3 Air Quality

4.4.3.1 Affected Environment

The air quality affected environment of the Fort Bliss ROI remains the same as described in Section 4.2.2.1 of the 2013 PEA. Fort Bliss, itself, is not within an EPA-designated nonattainment or maintenance area, but the facility is adjacent to the city of El Paso, which is designated a nonattainment area for PM_{10}, and a maintenance area for CO (EPA, 2013).

4.4.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source emissions at current levels, as well as fugitive dust impacts from training activities, would result in minor, adverse impacts to air quality. Air quality impacts under the No Action Alternative for this SPEA would remain the same as for the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Bliss would result in long-term, minor, beneficial impacts to air quality due to reduced operations and maintenance activities, reduced dust-generating training activities, and reduced vehicle miles travelled associated with the facility. The increased force reductions under Alternative 1 would continue to result in beneficial air quality effects assuming a corresponding decrease in operations, training, and vehicle travel to and from Fort Bliss. The size of this beneficial impact under Alternative 1 would be roughly double that anticipated at the time of the 2013 PEA.

Personnel relocating from the area due to the force reductions could result in negligible, short-term effects on air quality associated with mobile sources. As discussed in Chapter 1, the demolition of existing buildings or the placement of them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

The Army is also committed to ensuring that personnel cuts will not result in non-compliance with air quality regulations. Even if the full end-strength reductions were to be realized at Fort Bliss, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.4.4 Airspace

4.4.4.1 Affected Environment

Since 2013, the affected environment for airspace at Fort Bliss has not changed, as described in Section 4.2.3 of the 2013 PEA.

4.4.4.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, impacts to airspace would be similar to those described in the 2013 PEA (Section 4.2.3.2) with minor, adverse impacts as a result of potential airspace conflicts between military and civilian use. There would be no new or adjustments to existing airspace classifications and restrictions.

Alternative 1—Implement Force Reductions

Under Alternative 1, minor, adverse impacts to airspace similar to those described in the 2013 PEA (Section 4.2.3.2) are expected as a result of potential airspace conflicts between military and civilian use. The use of airspace would not change substantially with the loss of ground units under Alternative 1, and both military aviation and UAS would continue to require airspace to support training. Implementation of Alternative 1 would not result in a decreased requirement of airspace restrictions but, rather, would result in a reduced use of aviation assets and a reduction in the frequency of activating existing SUA restrictions.

4.4.5 Cultural Resources

4.4.5.1 Affected Environment

The affected environment for cultural resources at Fort Bliss remains the same as that described in Section 4.2.4 of the 2013 PEA. Cultural resources at Fort Bliss have not changed.

4.4.5.2 Environmental Effects

No Action Alternative

Adverse impacts to cultural resources from the SPEA No Action Alternative would continue to be negligible as described in the No Action analysis Section 4.2.4.2 of the 2013 PEA. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or prevention and minimization measures.

Alternative 1—Implement Force Reductions

Alternative 1 would have minor, adverse effects on cultural resources. As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA. Therefore,

potential impacts to subsurface archaeological sites and historic structures from these activities are not analyzed. Additionally, the Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort Bliss, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented, including the federal laws and Army policy that require management and consideration of cultural resources. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of force reductions, the installation would comply with applicable laws, such as NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects.

4.4.6 Noise

4.4.6.1 Affected Environment

The noise affected environment of the Fort Bliss installation remains the same as described in Section 4.4.5.1 of the 2013 PEA. The primary sources of noise at Fort Bliss are live fire exercises and aircraft activity.

4.4.6.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated negligible noise impacts due to the location of noise-generating activities on the installation and efforts by Fort Bliss to encourage compatible development in areas adjacent to the installation. Impacts under the No Action Alternative on Fort Bliss remain the same as those discussed in Section 4.2.5.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Bliss would result in negligible and slightly beneficial noise impacts due to an anticipated reduction in noise generating training events. The size of this negligible, beneficial impact under Alternative 1 would be similar to that described in the 2013 PEA.

The Army is also committed to ensuring that personnel cuts will not result in non-compliance with noise ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Bliss, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including noise ordinances and regulations.

4.4.7 Soils

4.4.7.1 Affected Environment

The soils affected environment on the installation remains the same as described in Section 4.2.6.1 of the 2013 PEA.

4.4.7.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to soils were anticipated from continued training schedules, to include damage to vegetation, digging activities, ground disturbance from vehicles, and ammunition or explosives used. Impacts under the No Action Alternative on Fort Bliss remain the same as those discussed in Section 4.2.6.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, minor, beneficial impacts to soils were anticipated as a result of less use of tank roads, ranges, and training areas. Less erosion from wind and water and an overall lessening of soil impacts were anticipated. These beneficial impacts would continue under Alternative 1 of the SPEA.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Bliss, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations. Therefore, impacts under Alternative 1 at Fort Bliss would be beneficial and remain the same as those discussed in Section 4.2.6.2 of the 2013 PEA.

4.4.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.4.8.1 Affected Environment

The affected environment for biological resources at Fort Bliss has not had substantive changes since 2013, as described in Section 4.2.7 of the 2013 PEA.

4.4.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts similar to those that are currently occurring to biological resources as described in Section 4.2.7.2 of the 2013 PEA. Fort Bliss would continue to adhere to its existing military land use as described in the *Fort Bliss Army Growth and Force Structure Realignment EIS* (U.S. Army, 2010) and resource management plans to further minimize and monitor any potential effects. Fort Bliss would also continue briefing units regarding sensitive areas prior to each training event, helping to further minimize any adverse impacts.

Alternative 1—Implement Force Reductions

Under Alternative 1, minor, beneficial impacts are anticipated to biological resources at Fort Bliss. Such beneficial impacts include reduced access to sensitive habitats and reduced training, both of which would lessen the damage and disturbance to wildlife and their habitats. Furthermore, proactive conservation management practices would be more easily accomplished with reduced mission throughput. Adverse impacts could conceivably occur if force reductions prevented environmental compliance from being properly implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Bliss, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.4.9 Wetlands

4.4.9.1 Affected Environment

Wetlands are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.2.1.2 because of lack of significant, adverse environmental impacts from implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013.

4.4.9.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in no significant impacts to wetlands, and the affected environment would remain in its present state.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that negligible to minimal impacts to wetlands would occur on Fort Bliss. However, the proposed reduction in forces would change this to beneficial because Alternative 1 would lead to a decrease in the frequency of training

activities. As a result, there would be reduced sedimentation from runoff entering wetland areas, fewer instances of vegetation becoming denuded, and wetland functions and values would remain intact. The installation would continue to manage its wetlands in accordance with the installation INRMP, and ensure that wetland impacts are avoided and/or mitigated for. Impacts to wetlands could conceivably occur if force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Bliss, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory regulations.

4.4.10 Water Resources

4.4.10.1 Affected Environment

The affected environment for water resources on Fort Bliss remains the same as described in Section 4.2.8.1 of the 2013 PEA. Water supply, wastewater, and stormwater resources have not changed.

4.4.10.2 Environmental Effects

No Action Alternative

In the 2013 PEA, minor, adverse impacts to water resources were anticipated from the No Action Alternative due to continued use of water supply. Water supply impacts under the No Action Alternative would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

Beneficial impacts to water resources were anticipated from implementation of force reductions under Alternative 1 in the 2013 PEA because of reduced demand for potable water supply and an increase in available wastewater treatment capacity. Increased force reductions under Alternative 1 of this SPEA would continue to have the same beneficial impacts to water supplies and wastewater capacity.

Adverse impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Fort Bliss, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented.

4.4.11 Facilities

4.4.11.1 Affected Environment

Facilities are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.2.1.2, because of negligible impacts as a result of implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013. As described in the 2013 PEA, the main cantonment area, or the urbanized portion of Fort Bliss is developed into a wide variety of land uses that comprise the elements necessary for a complete community. This includes the installation post exchange, commissary, housing and Family Support Services, medical, and mission-support facilities. Infrastructure within the Fort Bliss Training Complex includes ground transportation, utilities, energy, and communication systems that are located in the installation's base camps and training areas.

4.4.11.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be negligible impacts to facilities at Fort Bliss. For the current analysis, Fort Bliss would continue to use its existing facilities to support its tenants and missions so impacts to facilities would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that negligible impacts to facilities would occur on Fort Bliss. Under Alternative 1, implementation of proposed further force reductions would increase the adverse impact to minor. Adverse impacts would occur from the fact construction or expansion projects that had been programmed in the future may not occur or could be downscoped; occupants of older, underutilized, or excess facilities may be moved to newer facilities, which in some cases could require modification of existing facilities; and a potentially larger number of buildings within the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demands for utilities and reduced demands for the use of the shared training facilities. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.4.12 Socioeconomics

4.4.12.1 Affected Environment

As described in the 2013 PEA, most of the Fort Bliss' training areas and ranges (greater than 80 percent) are located in New Mexico, and the cantonment area is located adjacent to El Paso,

Texas. Residential and commercial development surrounds the southern portion of the installation. Las Cruces, New Mexico, is approximately 30 miles northwest of El Paso and is located to the west of the Fort Bliss Doña Ana gunnery ranges. Las Cruces is separated from Fort Bliss by the Organ Mountains. Other small towns and municipalities adjacent to the installation's borders include Chaparral, New Mexico, south of Doña Ana, and Alamogordo, New Mexico, to the north. The ROI consists of Fort Bliss and Doña Ana and Otero counties in New Mexico and El Paso County in Texas. The ROI includes counties that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, and contractors and their Families reside.

This section provides a summary of demographic and economic characteristics within the ROI. These indicators are described in greater detail in Section 4.2.9 of the 2013 PEA. However, some demographic and economic characteristics have been updated where more current data are available.

Population and Demographics

Using 2011 as a baseline, Fort Bliss has a total working population of 44,036, consisting of active component Soldiers and Army civilians, students and trainees, other military services, civilians and contractors. Of the total working population, 31,380 were permanent party Soldiers and Army civilians. The population that lives on Fort Bliss consists of 10,322 Soldiers with an estimated 15,669 Family members, for a total installation resident population of 25,991. The portion of the Soldiers and Army civilians living off the installation is 53,024 and consists of Soldiers, Army civilians, and their Family members. Additionally, there are 979 students and trainees associated with the installation.

In 2012, the population of the ROI was over 1 million. Between 2010 and 2012, the population increased in Doña Ana, Otero, and El Paso counties between 2 and 4 percent (Table 4.4-2). The racial and ethnic composition of the ROI is presented in Table 4.4-3 below (U.S. Census Bureau, 2012a) and indicates that there are considerably more Hispanic populations in El Paso, Texas, than in the state as a whole.

Table 4.4-2. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Doña Ana County, New Mexico	214,445	+2.5
Otero County, New Mexico	66,041	+3.5
El Paso County, Texas	827,398	+3.3

Table 4.4-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (Percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Non-Hispanic or Latino (percent)
State of New Mexico	83.2	2.4	10.2	1.6	2.4	47.0	39.8
State of Texas	80.6	12.3	1.0	4.2	1.7	38.2	44.5
Doña Ana County, New Mexico	92.5	2.1	2.1	1.3	1.7	66.4	29.4
Otero County, New Mexico	84.4	3.9	7.1	1.4	2.8	35.3	52.2
El Paso County, Texas	92.4	3.9	1.0	1.2	1.3	81.2	38.2

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Income

Employment and income information provided in Table 4.4-4 has been updated from the 2013 PEA. Doña Ana County and El Paso County have populations with a greater proportion of their populations living below the poverty level than populations in their respective states. The median household income in El Paso County is approximately $11,000 less than levels throughout Texas. Doña Ana and Otero counties also report median household incomes lower than the median household income in New Mexico. Total employment increased in Texas and New Mexico and in Doña Ana and El Paso counties between 2000 and 2012 (see Table 4.4-4) (U.S. Census Bureau, 2012b).

Table 4.4-4. Employment and Income, 2012

States and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of New Mexico	891,352	+15	$161,500	$44,886	20
State of Texas	11,546,783	+24	$128,000	$51,563	17
Doña Ana County, New Mexico	86,930	+28	$142,700	$38,462	26
Otero County, New Mexico	25,288	-1	$105,300	$39,054	21
El Paso County, Texas	329,795	+32	$111,000	$39,699	24

Information regarding the workforce by industry for each county within the ROI was obtained from the U.S. Census Bureau (2012b). Information presented below is for the employed labor force.

Doña Ana County, New Mexico

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Doña Ana County (30 percent). Retail trade is the second largest employment sector (10 percent), followed by the arts, entertainment, and recreation and accommodation and food services sector (9 percent). The public administration sector also accounts for a significant share of the total workforce (8 percent). The Armed Forces account for 1 percent of Doña Ana's workforce. The remainder of the sectors account for 42 percent of the workforce.

Otero County, New Mexico

The primary source of employment in Otero County is the educational services, and health care and social assistance sector (21 percent). Public administration is the second largest employment sector (14 percent), followed by retail trade (10 percent). The arts, entertainment, and recreation, and accommodation and food services also account for a significant share of the total workforce in Otero County (9 percent). The Armed Forces account for 9 percent of the Otero County workforce. The remainder of the sectors account for 37 percent of the workforce.

El Paso County, Texas

According to the U.S. Census Bureau, the primary source of employment in El Paso County is the educational services, and health care and social assistance sector (23 percent). Retail trade is the second largest employment sector (11 percent), followed by the arts, entertainment, and recreation, and accommodation; and food services and the professional, scientific, and management, and administrative and waste management services sectors (8 percent each). The Armed Forces account for 4 percent of the El Paso County workforce. The remainder of the sectors account for 46 percent of the workforce.

Housing

Housing resources at Fort Bliss were described in the 2013 PEA in Section 4. 2 and include 2,395 permanent military Family housing units located in the cantonment among several neighborhoods. Family housing on Fort Bliss has been privatized under the RCI, and the contractor responsible for Fort Bliss Military Housing indicates that the construction of 1,708 additional homes is underway. Information on housing is presented in further detail in the 2013 PEA. Unaccompanied housing is primarily located on the cantonment (4,748 units) and some units (2,320) are located in the three range camps for temporary use during training exercises. Fort Bliss also maintains about 1,124 units for temporary use including Temporary Duty (TDY) personnel and active component Soldiers and their Families relocating to Fort Bliss.

Schools

As described in the 2013 PEA, nine school districts surround the installation, but the majority of students from Fort Bliss (70 percent) attend El Paso Independent School District (ISD) public schools. About 15 percent attend Socorro ISD public schools, and about 12 percent attend Ysleta ISD public schools. Current total enrollment for prekindergarten through grade 12 is 64,214 for the El Paso ISD, 43,672 for the Socorro ISD, and 44,376 for Ysleta ISD for a total of about 156,830 students. Attendance in other El Paso County school districts is negligible.

Public Health and Safety

Fort Bliss has exclusive jurisdiction over the cantonment and much of the Doña Ana Range and proprietary jurisdiction in Logan Heights and lands withdrawn from other government entities such as McGregor Range. The Fort Bliss Fire Department responds to fires within the installation. William Beaumont Army Medical Center is an Army regional hospital and serves the needs of over 400,000 beneficiaries. Additional information on public services is provided in the 2013 PEA.

Family Support Services

The Fort Bliss ACS, which is a division of the Directorate of FMWR, assists Soldiers and their Families with programs that include Army Emergency Relief, Army Family Action Plan, Army Volunteer Corps, Employment Readiness, Exceptional Family Member, Family Advocacy, Financial Readiness, Information & Referral, and Relocation Readiness. The Fort Bliss CYSS, also under FMWR, provides recreational and learning programs for children and teens at Fort Bliss.

Recreation Facilities

Fort Bliss FMWR provides its military community, families, and civilians with three aquatics centers (an indoor facility, an outdoor facility, and a children’s splash park), sport and fitness programs (intramurals program, group fitness classes, strength and conditioning/fitness programs, and mission essential fitness programs), leisure activities (a bowling center, two golf courses, tennis club, and group hiking and camping trips) and skills development opportunities (including an auto repair center and framing classes at Framing Fort Bliss).

4.4.12.2 Environmental Effects

No Action Alternative

The operations at Fort Bliss would continue to benefit regional economic activity. To accommodate Army population increases at Fort Bliss from recent stationing decisions, the Army has created additional RCI housing for Families and single Soldiers and modernized on-installation housing and barracks. Other projects to enhance quality of life, such as shoppettes, gas stations, playgrounds, and similar amenities have either been constructed or are pending.

Fort Bliss' continuing operations represent a beneficial source of regional economic activity and any increase from Soldier relocations would beneficially affect socioeconomics in the region. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of up to 16,000[9] Army positions (15,044 Soldiers and 956 Army civilians), each with an average annual income of $46,760 and $56,913 respectively. In addition, this alternative would affect an estimated 24,288 Family members (8,928 spouses and 15,360 children). The total population of Army employees and their Family members projected to be directly affected under Alternative 1 would be 40,288.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative range. Table 4.4-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, changes in population and employment in the ROI under Alternative 1 fall outside the historical range and are categorized a significant impact. However, there would not be significant impacts to sales and income because the estimated percentage change is within the historical range.

Table 4.4-6 summarizes the predicted impacts to income, employment, and population of the reductions against the 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

[9] This number was derived by assuming the loss of two BCTs, the loss of 60 percent of Fort Bliss' non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 16,000. The 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 8,000.

Table 4.4-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+6.1	+3.5	+3.7	+1.0
Economic contraction significance value	-5.8	-5.5	-4.4	-1.8
Forecast value	-2.3	-2.8	-5.1	-3.7

Table 4.4-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impact	-$925,584,000	-17,599 (Direct)	-40,288
		-3,264 (Induced)	
		-20,864 (Total)	
Total 2012 ROI economic estimates	$33,679,147,000	442,013	1,107,884
Percent reduction of 2012 figures	-2.8	-4.7	-3.6

Note: Sales estimates are not consistently available from public sources for all counties in the United States; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from EIFS is described in the paragraphs below.

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period of until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 16,000 active component Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 1,599 direct contract service jobs would be also lost. An additional 3,264 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. The total reduction in employment is estimated to be 20,864, a significant reduction of 4.7 percent from the total employed labor force in the ROI of 442,013. Income is estimated to fall by $925.6 million, a 2.8 percent decrease in income in the ROI from 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $1.2 billion. There would also be a loss in sales tax receipts to local and state governments. The state and average local sales tax for New Mexico is 7.3 and in Texas it is 8.2 percent (Tax Foundation, 2014). To estimate sales tax reductions, information on the proportion of sales that would be subject to sales taxes on average across the country was utilized. According to the U.S. Economic Census, an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rates were applied to the estimated decrease in sales of $1.2 billion resulting in an estimated sales tax receipts decrease ranging from $13.9 million to $15.6 million under Alternative 1.

Of the 1,107,884 people (including those residing on Fort Bliss) who live within the ROI, 40,288 Army employees and their Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 3.6 percent. This number likely overstates potential population impacts because some of the people no longer employed by the military would continue to live and work within the ROI, finding employment in other industry sectors. Some of the displaced personnel may stay in the ROI and seek work, finding work, and others may remain unemployed and possibly affect the unemployment rate in the ROI.

Housing

The population reduction under Alternative 1 would lead to a decreased demand for housing and increased housing availability on the installation and in the region, potentially resulting in a slight reduction in median home values. It is expected that Alternative 1 would have a minor impact on housing throughout the ROI.

Schools

Reduction of 16,000 Soldiers and Army civilian personnel would result in a reduction of 24,288 Family members, of which 15,360 would be children. It is anticipated that school districts that provide education to Army children would be impacted under Alternative 1. Schools on and off the installation are expected to experience a decline in enrollment. School districts with larger portions of military children in proximity to Fort Bliss would be affected more than those with fewer military students.

The reduction of Soldiers on Fort Bliss would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal School Impact Aid a district receives is based on the number of students who are considered “federally connected” and attend district schools. Actual projected dollar amounts cannot be determined at this time due to the variability of appropriated dollars from year to year, and the actual number of affected school-age children for military and civilian families. School districts in the ROI would likely need fewer teachers and materials as enrollment drops, which would partially offset the reduced Federal Impact Aid.

Overall, schools within the ROI, such as El Paso ISD schools, could experience significant, adverse impacts from the decline in military-connected student enrollment that would result under Alternative 1. If enrollment in individual schools were to decline significantly, schools may need to reduce the number of teachers, administrators, and other staff and potentially close or consolidate with other schools within the same school district if enrollment falls below sustainable levels.

Public Services

A reduction in personnel would have minor impacts to emergency services, fire, police, and medical services since the reduction is anticipated to lower the need for these services. Adverse

impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements. The impacts to public services are not expected to be significant because the existing service level for the installation and the ROI would still be available.

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. As a result, minor impacts to Family Support Services and recreation facilities would occur under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, states: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). The racial and ethnic composition of the ROI differs from that of the state as a whole. There are larger Hispanic or Latino populations in Doña Ana and El Paso counties when compared to their respective states' proportions of these populations. In these areas with higher proportions of environmental justice populations, there is a potential that these populations could be adversely impacted under Alternative 1. However, it is not likely that these impacts would fall disproportionally on these environmental justice populations.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of the people associated with the installation, including children. Therefore, it is not anticipated that implementing Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.4.13 Energy Demand and Generation

4.4.13.1 Affected Environment

The energy demand and generation affected environment of the Fort Bliss installation remains essentially the same as described in Section 4.2.10.1 of the 2013 PEA. As noted in the 2013 PEA, Fort Bliss proposes to implement a number of actions with the purpose of achieving Net Zero energy, water and waste goals by 2020. The EIS process for the Fort Bliss Net Zero initiative is nearly complete and a Record of Decision is expected soon.

4.4.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, impacts to energy demand and generation would be the same as discussed in the 2013 PEA and would be negligible. Fort Bliss ranges and cantonment areas would continue to use the same types and amounts of utility consumption the installation currently consumes. Maintenance of existing utility systems would continue.

Alternative 1—Implement Force Reductions

Minor, beneficial impacts to energy demand are anticipated because force reductions would reduce the installation's overall demand for energy. The installation would also be better positioned to meet energy and sustainability goals.

4.4.14 Land Use Conflicts and Compatibility

4.4.14.1 Affected Environment

The land use affected environment of the Fort Bliss installation remains the same as described in Section 4.2.13.1 of the 2013 PEA.

4.4.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated minor impacts to land use due to potential interruption of grazing or other activities on Bureau of Land Management- and U.S. Forest Service (USFS)-managed lands or potential disturbances to adjacent communities resulting from the military mission. Impacts under the No Action Alternative on Fort Bliss remain the same as those discussed in Section 4.2.11.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Bliss would result in minor land use impacts similar to the No Action Alternative. Minor impacts to land use from continued grazing

and recreation compatibility issues under Alternative 1 on Fort Bliss remain the same as those discussed in Section 4.2.11.2 of the 2013 PEA.

The Army is also committed to ensuring that personnel cuts will not result in non-compliance with land use ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Bliss, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including land use ordinances and regulations.

4.4.15 Hazardous Materials and Hazardous Waste

4.4.15.1 Affected Environment

Hazardous chemicals used by the installation include acids, corrosives, caustics, glycols, compressed gases, aerosols, batteries, hydraulic fluids, solvents, paints, cleaning agents, pesticides, herbicides, lubricants, fire retardants, photographic chemicals, alcohols, insecticides, sealants, and ordnance. Fort Bliss is categorized as a large quantity generator of hazardous waste as defined by RCRA and is permitted by the Texas CEQ to operate as a Hazardous Waste Storage Facility. No substantial changes have occurred to the affected environment since 2013.

4.4.15.2 Environmental Effects

No Action Alternative

As stated in the 2013 PEA, minor, adverse impacts are anticipated under the No Action Alternative. Use of hazardous materials and generation of hazardous wastes would continue on Fort Bliss in accordance with all applicable laws, regulations, and plans.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that minor, adverse impacts from hazardous materials and hazardous waste would occur on Fort Bliss. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on Fort Bliss. Waste collection, storage, and disposal processes would remain mostly unchanged, and current waste management programs would continue, including the installation's ongoing efforts to pursue a reduction in its waste streams as part of the Net Zero initiative. Because of the reduced numbers of people, it is likely that the potential for spills would be reduced further during training and maintenance activities.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Fort Bliss, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.4.16 Traffic and Transportation

4.4.16.1 Affected Environment

The traffic and transportation affected environment of the Fort Bliss installation remains the same as described in Section 4.2.13.1 of the 2013 PEA. With recent growth in the military and civilian populations at Fort Bliss, the LOS of access routes has decreased.

4.4.16.2 Environmental Effects

No Action Alternative

Consistent with the 2013 PEA, significant but mitigable impacts are anticipated under the No Action Alternative.

Alternative 1—Implement Force Reductions

A further beneficial impact to regional traffic conditions is expected under Alternative 1. The chronic congestion along Montana Avenue at commute rush hours would be even further reduced compared to the 2013 PEA. Access to the Patriot Highway would also likely improve, and signaled intersection along Dyer Street and other arteries would see improved LOS. A generally safer driving environment is expected (Fort Bliss, 2014).

4.4.17 Cumulative Effects

As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Bliss consist of three counties—El Paso County in Texas and Las Cruces and Alamogordo counties in New Mexico. Section 4.2.14 of the 2013 PEA noted numerous planned or proposed actions within the ROI that have the potential to cumulatively add impacts to Army 2020 alternatives. No additional actions have been identified beyond those noted in the cumulative effects analysis of the 2013 PEA.

Reasonably Foreseeable Future Projects on Fort Bliss

No additional actions have been identified beyond those noted in the cumulative effects analysis of the 2013 PEA.

Reasonably Foreseeable Future Projects outside Fort Bliss

No additional actions have been identified beyond those noted in the cumulative effects analysis of the 2013 PEA. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, larger, diverse

economies with more job opportunities could absorb some of the displaced Army workforce, lessening adverse effects of force reductions.

No Action Alternative

There would be no cumulative effects of the foreseeable future actions with the No Action Alternative. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reductions

As determined in the 2013 PEA, cumulative impacts as a result of the implementation of Alternative 1 range from beneficial to minor and adverse. The following VEC areas are anticipated to experience either no impact or beneficial impact as a result of the implementation of the previous proposed action: air quality, land use, airspace, cultural resources, noise, soil erosion, biological resources, wetlands, water resources, energy demand and generation, and transportation. The additional force reductions under Alternative 1 of the SPEA would result in minor, adverse, and cumulative impacts to airspace, cultural resources, and facilities.

The socioeconomic impact within the ROI under Alternative 1, as described in Section 4.4.12.2 could be significant and adverse on population, employment, and schools. Fort Bliss is located in the El Paso metropolitan area, with more than 1.1 million residents in the ROI. Because of the large employment base and diverse economy in the region, the ROI would be less vulnerable to these force reductions because other industries and considerable economic activity occurs within the ROI.

Stationing changes, such as the stationing of the Air Force security squadron at Fort Bliss (U.S. Army 2013), would also affect regional economic conditions through the jobs and income they bring (or lose) within the region. Military personnel spend their money in the ROI economy, supporting additional jobs, income, taxes, and sales impacts. As a result of BRAC and Grow the Army, planning, construction, and infrastructure development has occurred for an estimated 35,000 to 50,000 Soldiers. Reduction of 16,000 Soldiers and Army civilians would affect this planning and may result in some unused facilities or cancellation of some construction projects.

Other construction, development, transportation, and energy projects on the installation and in the ROI would benefit the regional economy through additional economic activity, jobs, and income in the ROI. Under Alternative 1, the loss of 16,000 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have a minor, adverse impact on socioeconomic conditions in the broader ROI. However, significant impacts for specific schools could potentially occur under Alternative 1.

4.5 Fort Bragg, North Carolina

4.5.1 Introduction

Fort Bragg was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population, is discussed in Section 4.3.1 of the 2013 PEA.

Fort Bragg's 2011 baseline permanent party population was 52,975. In this SPEA, Alternative 1 assesses a potential population loss of 16,000, including approximately 13,623 permanent party Soldiers and 2,377 Army civilians.

4.5.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Bragg; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.5-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.5-1. Fort Bragg Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Minor	Minor
Cultural Resources	Negligible	Minor
Noise	Minor	Beneficial
Soils	Significant, but Mitigable	Beneficial
Biological Resources	Negligible	Beneficial
Wetlands	Minor	Beneficial
Water Resources	Negligible	Beneficial
Facilities	Negligible	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Minor	Beneficial
Land Use Conflict and Compatibility	No Impacts	No Impacts
Hazardous Materials and Hazardous Waste	Negligible	Minor
Traffic and Transportation	Significant, but Mitigable	Beneficial

4.5.3 Air Quality

4.5.3.1 Affected Environment

The air quality affected environment of the Fort Bragg ROI remains the same as described in Section 4.1.2.1 of the 2013 PEA. The Fort Bragg area has not been designated as a nonattainment area for any criteria pollutants (EPA, 2013).

4.5.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source emissions at current levels, as well as controlled burns for vegetation management, would result in minor, adverse impacts to air quality, and this would continue to be the case under this SPEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Bragg would result in minor, beneficial impacts to air quality due to reduced operations and maintenance activities and reduced vehicle miles travelled associated with the facility. The increased size of the force reductions currently proposed under Alternative 1 would continue to result in beneficial air quality impacts assuming a corresponding decrease in operations and vehicle travel to and from Fort Bragg. The size of this beneficial impact under Alternative 1 would be slightly larger than at the time of the 2013 PEA. As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of force reduction is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on air quality are not analyzed.

The Army is also committed to ensuring that personnel cuts will not result in non-compliance with air quality regulations. Even if the full end-strength reductions were to be realized at Fort Bragg, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.5.4 Airspace

4.5.4.1 Affected Environment

The airspace affected environment for Fort Bragg remains the same as described in Section 4.3.3.1 of the 2013 PEA; restricted airspace is sufficient to meet the current airspace requirements.

4.5.4.2 Environmental Effects

No Action Alternative

Impacts to Fort Bragg under the No Action Alternative remain minor, as described in Section 4.3.3.2 of the 2013 PEA. Fort Bragg would maintain existing airspace operations as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

Force reductions under Alternative 1 are expected to slightly alter and decrease Fort Bragg's use of aviation assets or current airspace use. While use of aviation assets and airspace would be reduced, current restrictions on airspace would still be necessary. Restricted airspace (R5311) would continue to be sufficient to meet airspace requirements. Adverse impacts to airspace under Alternative 1 would be minor.

4.5.5 Cultural Resources

4.5.5.1 Affected Environment

The affected environment for cultural resources at Fort Bragg has not changed since 2013, as described in Section 4.3.4 of the 2013 PEA.

4.5.5.2 Environmental Effects

No Action Alternative

Impacts to cultural resources from the No Action Alternative would continue to be negligible as described in Section 4.3.4.2 of the 2013 PEA. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures.

Alternative 1—Implement Force Reductions

Alternative 1 would have a minor, adverse effect on cultural resources as described in Section 4.3.4.2 of the 2013 PEA. As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic structures from these activities are not analyzed. Additionally, the Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of force reductions, the installation would comply with applicable laws, such as the NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects.

This alternative could result in some beneficial effects as a decrease in training activities could reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources.

4.5.6 Noise

4.5.6.1 Affected Environment

The noise affected environment of the Fort Bragg installation remains the same as described in Section 4.3.5.1 of the 2013 PEA. The primary sources of noise at Fort Bragg vehicles, aircraft, artillery fire and explosions, and small arms firing.

4.5.6.2 Environmental Effects

No Action Alternative

In the 2013 PEA, minor, adverse impacts to noise were anticipated under the No Action Alternative from the continued nature of training operations at the installation. Impacts under the No Action Alternative on Fort Bragg remain the same as those described in Section 4.3.5.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Bragg would result in negligible and slightly beneficial noise impacts due to an anticipated reduction in noise generating training events. Under Alternative 1, impacts would be similar to those analyzed in the 2013 PEA with the size of the beneficial impacts similar to that described in the 2013 PEA.

The Army is also committed to ensuring that personnel cuts will not result in non-compliance with noise ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Bragg, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including noise ordinances and regulations.

4.5.7 Soils

4.5.7.1 Affected Environment

The soils affected environment on the installation remains the same as described in Section 4.3.6.1 of the 2013 PEA.

4.5.7.2 Environmental Effects

No Action Alternative

In the 2013 PEA, significant but mitigable impacts to soils were anticipated under the No Action Alternative from continued training schedules. Impacts under the No Action Alternative on Fort Bragg remain the same as those described in Section 4.3.6.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that force reductions would result in minor, beneficial impacts to soils. A force reduction would result in a reduction in training and associated soil compaction and loss of vegetation. This training reduction would result in less sediment discharge to state waters.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Bragg, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations. Therefore, impacts under Alternative 1 at Fort Bragg would be beneficial and remain the same as those discussed in Section 4.3.6.2 of the 2013 PEA.

4.5.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.5.8.1 Affected Environment

The affected environment for biological resources at Fort Bragg has not had substantive changes since 2013, as described in Section 4.3.1.2 of the 2013 PEA.

4.5.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts similar to those that are currently occurring to biological resources as described in Section 4.3.1.2 of the 2013 PEA. The threatened and endangered species recorded on Fort Bragg are managed in accordance with the installation's INRMP and Endangered Species Management Plan (ESMP), terms and conditions identified within Biological Opinion(s) issued by USFWS, and any conservation measures identified in ESA, Section 7 consultation documents. Fort Bragg would also continue briefing units prior to each training event regarding sensitive areas on the installation, such as the protective buffer surrounding individual RCW cavity trees.

Alternative 1—Implement Force Reductions

Under Alternative 1, beneficial impacts are anticipated to biological resources at Fort Bragg. Beneficial impacts would result from reduced scheduling conflicts for training area access to conduct resource monitoring and proactive conservation management practices (e.g., application of prescribed fire and restoration of longleaf pine-wiregrass ecosystems) would be more easily accomplished with reduced mission input. Force reductions would reduce construction pressures that cause forest fragmentation and result in the removal of potential threatened or endangered species habitat, thereby, minimizing the risk of violating conditions of previous Biological Opinions. Also, range capabilities and timber management activities on Fort Bragg would continue under Alternative 1 because most prescribed harvest activities are thinnings carried out to support troop training, endangered species management, and forest health.

Adverse impacts could conceivably occur if force reductions prevented environmental compliance from being properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Bragg, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met.

4.5.9 Wetlands

4.5.9.1 Affected Environment

The wetlands affected environment on the installation remains the same as was discussed in Section 4.3.7.1 of the 2013 PEA.

4.5.9.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to wetlands were anticipated from continued training schedules. Potential wetland impacts would be reviewed and managed to be avoided, to the extent practicable, or mitigated for. Impacts under the No Action Alternative on Fort Bragg remain the same as those discussed in Section 4.3.7.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, beneficial impacts to wetlands were anticipated as a result of less use of tank roads, ranges, and training areas. Less sedimentation and vegetation loss were anticipated, and degraded wetlands were expected to restore towards their reference functions and values. Under Alternative 1 of this SPEA, impacts to wetlands could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented.

The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Bragg, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory regulations. Therefore, impacts under Alternative 1 at Fort Bragg would be beneficial and remain the same as those discussed in Section 4.3.7.2 of the 2013 PEA.

4.5.10 Water Resources

4.5.10.1 Affected Environment

Water resources are among the VECs excluded from detailed analysis as described in Section 4.3.1.2 of the 2013 PEA due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

4.5.10.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to water resources similar to those described in Section 4.3.1.2 of the 2013 PEA. The water supply and wastewater systems on the installation are adequate to support water resources needs.

Alternative 1—Implement Force Reductions

Under Alternative 1 in the 2013 PEA, beneficial impacts to water resources, including reduced demand for potable water supply and an increase in available wastewater treatment capacity, would occur on Fort Bragg. Facilities at Fort Bragg are adequate to support force growth or reductions. Fort Bragg anticipates that further proposed reduction in forces would not change this finding because Alternative 1 does not involve major changes to installation operations or types of activities conducted on Fort Bragg, only a decrease in the frequency of training activities. The installation would continue to manage its water resources in accordance with applicable federal and state water quality criteria, drinking water standards, stormwater and floodplain management requirements, and provide maintenance necessary to keep infrastructure operational.

Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Fort Bragg, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented.

4.5.11 Facilities

4.5.11.1 Affected Environment

Facilities are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.3.1.2 because of negligible impacts from implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013. As described in the 2013 PEA, Fort Bragg encompasses 162,816 acres and currently supports a total population of more than 150,000 people. The bulk of the installation's acreage is dedicated to operational areas for field maneuvers, exercises, firing ranges, impact areas, and parachute drop zones. The primary mission is the training of airborne Soldiers. In broad terms, as described in the 2013 PEA, continuing operations at Fort Bragg include general maintenance and repair, land management, utility systems operation, and commercial activities.

Fort Bragg has about 5,800 buildings, while Camp Mackall has about 59. Nearly all military maintenance and commercial facilities, supply facilities, operation and training facilities, various community facilities, and Family and Soldier housing areas are located in the cantonment area as described in the 2013 PEA. The cantonment area is severely constrained and fully developed. Fort Bragg is currently at a deficit of about 1.5 million square feet for company operations facilities and 1 million square feet for vehicle maintenance shop facilities.

4.5.11.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that there would be negligible impacts to facilities at Fort Bragg under the No Action Alternative. Fort Bragg's current facility shortfalls have been prioritized for programming and funding by the Army; however, impacts would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to facilities would occur on Fort Bragg. Under Alternative 1, implementation of additional proposed force reductions would cause overall minor, adverse impacts to facilities. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped, and moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities. Additionally, Fort Bragg has made substantial investments in facilities since 2005 and the additional force reductions could cause newer facilities to be underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demand for utilities and for the use of the shared training facilities, and more available space for operations and maintenance functions. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as

a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.5.12 Socioeconomics

4.5.12.1 Affected Environment

The ROI for Fort Bragg includes those areas that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, contractor personnel, and their Families reside. Fort Bragg is primarily sited in the city of Fayetteville, North Carolina, with a small portion located in the town of Spring Lake, North Carolina. As described in Section 4.3.8 of the 2013 PEA, those who live and work at Fort Bragg contribute to the demographic and economic composition of Cumberland, Hoke, and Harnett counties. Subsequently, these counties are included in the ROI.

Camp Mackall, the installation's satellite training area, is located in Moore, Scotland, and Richmond counties. Because a considerable number of Camp Mackall's employees live in Moore County, it is also included in the ROI. Therefore, the ROI for Fort Bragg includes Cumberland, Hoke, Harnett, and Moore counties in North Carolina.

There are additional counties, such as Bladen, Lee, Montgomery, Richmond, Robeson, Sampson, and Scotland, in which Soldiers and Army civilians and their Families may also reside. However, the number of residents in these counties is expected to be small and therefore these counties are not included in the ROI.

This section provides a summary of demographic and economic characteristics within the ROI. These indicators are described in greater detail in the 2013 PEA. However, some demographic and economic indicators have been updated where more current data are available.

Population and Demographics

Using 2011 as a baseline, Fort Bragg has a total working population of 72,324, consisting of active component Soldiers, Army civilians, students and trainees, and other military services, civilians, and contractors. Of the total working population, 52,975 were permanent party Soldiers and Army civilians. The population that lives on Fort Bragg consists of 18,858 Soldiers and an estimated 16,657 Family members, for a total on-installation resident population of 35,515 (Carswell, 2014a). The portion of permanent party Soldiers and Army civilians living off the installation in 2011 was estimated to be 85,907 and consists of Soldiers, Army civilians, and their Families.

In 2012, the ROI had a total population of 587,022, a 2.3 percent increase from 2010. Cumberland County represents the greatest share of the population in the ROI while Hoke County has the smallest population of the counties in the ROI (U.S. Census Bureau, 2012a). The

population in the ROI is presented in Table 4.5-2, and the 2012 racial and ethnic composition of the ROI is presented in Table 4.5-3.

Table 4.5-2. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Cumberland County, North Carolina	324,049	+1.4
Hoke County, North Carolina	50,536	+7.6
Harnett County, North Carolina	122,135	+6.5
Moore County, North Carolina	90,302	+2.3

Table 4.5-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
State of North Carolina	71.9	22.0	1.5	2.5	2.0	8.7	64.7
Cumberland County, North Carolina	53.7	37.4	1.7	2.5	4.2	10.2	46.5
Hoke County, North Carolina	50.4	34.2	9.7	1.3	4.0	12.4	41.1
Harnett County, North Carolina	72.5	21.5	1.7	1.1	3.0	11.3	63.5
Moore County, North Carolina	82.8	13.4	0.9	1.0	1.7	6.1	77.5

[a] Includes those who identify themselves as Hispanic and non-Hispanic White.

Employment and Income

Information presented in Table 4.5-4 represents an update from the 2013 PEA, which provided employment and income data from 2009. Between 2000 and 2012, total employment increased significantly in Hoke County, approximately 34.9 percent. Only Cumberland County experienced a slight decline in total employment during this period (Table 4.5-4) (U.S. Census Bureau, 2000 and 2012b).

The median household income in the counties within the ROI is relatively similar to each other and North Carolina as a whole. The percentage of those living below the poverty line is greatest in Hoke County and lowest in Moore County. The percentage of residents in Cumberland and

Harnett counties living below the poverty line is relatively similar to North Carolina as a whole (U.S. Census Bureau, 2000 and 2012b).

At $196,700, the median home value in Moore County is notably higher than other counties within the ROI. The median home value in other counties within the ROI ranges from $126,300 to $137,200, all of which are lower than the North Carolina average (U.S. Census Bureau, 2012b).

Table 4.5-4. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of North Carolina	4,334,829	+10.7	153,600	46,450	16.8
Cumberland County, North Carolina	145,689	-0.8	126,300	45,413	16.8
Hoke County, North Carolina	19,692	+34.9	137,200	46,900	21.9
Harnett County, North Carolina	49,020	+18.1	130,700	44,242	16.4
Moore County, North Carolina	35,455	+8.8	196,700	48,238	14.5

In the Fayetteville area, the Cape Fear Valley Health System is the largest private employer with approximately 5,200 people on staff. The Goodyear Tire Company employs approximately 3,500 people. A Walmart distribution center has an employment base of more than 1,000 people (Visit Fayetteville, n.d.).

Information regarding the workforce by industry for each county within the ROI was obtained from the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for the employed labor force.

Cumberland County, North Carolina

The educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Cumberland County (22 percent). The Armed Forces is the second largest employment sector (20 percent), followed by retail trade (11 percent). Public administration and arts, entertainment, and recreation, and accommodation and food services sectors also account for a notable share of the total workforce in Cumberland County (8 percent each). The 10 remaining sectors account for 31 percent of the total workforce in Cumberland County.

Harnett County, North Carolina

Similar to Cumberland County, the educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Harnett County (20 percent). Manufacturing is the second largest employment sector (13 percent), followed by retail trade (12 percent). The Armed Forces account for 8 percent of the Harnett County workforce. The 10 remaining sectors account for 47 percent of the total workforce in Harnett County.

Hoke County, North Carolina

In Hoke County, educational services, and health care and social assistance is the primary employment sector (22 percent). The Armed Forces is the second largest employment sector (15 percent), followed manufacturing (11 percent). Retail trade and the arts, entertainment, and recreation, and accommodation and food services sector individually account for 10 percent of total workforce in Hoke County. The nine remaining sectors account for 32 percent of the total workforce.

Moore County, North Carolina

Similar to other counties in the ROI, educational services, and health care and social assistance is the primary employment sector in Moore County (26 percent). The retail trade and arts, entertainment, and recreation, and accommodation and food services are the second and third largest employment sectors (11 percent each), followed by the professional, scientific, and management, and administrative and waste management services sector (8 percent). The Armed Forces account for 3 percent of the total workforce in Moore County. The nine remaining sectors account for 41 percent of the total workforce.

Housing

Currently, approximately 12,995 Soldiers live in barracks on Fort Bragg. The installation has 168 barracks reserved for permanent residents. An additional 15 barracks are reserved for students and one for Wounded Warriors. Fort Bragg has a total of 18,803 barrack spaces. Residential unit types range from single-family homes to four-bedroom, multi-family buildings and duplexes. Additional information about the location of these units is provided in the 2013 PEA in Section 4.3.8.1. However, there are no longer leased units in Hoke County (Carswell, 2014b).

Schools

Ten schools serving students pre-school through grade 9 are located on Fort Bragg. Students in grades 10 through 12 with parents residing on Fort Bragg are assigned to attend a public high school in Fayetteville, North Carolina. A summary of enrolled students, including military-connected students, and federal aid and DoD funding for the 2012–2013 and 2013–2014 academic years is presented in Table 4.5-5.

Table 4.5-5. School Enrollment, Federal Impact Aid, and DoD Funding

County	Enrollment (students)		Military Connected (students)		Federal Impact Aid (dollars)		DoD Funding (dollars)	
	2012–2013	2013–2014	2012–2013	2013–2014	2012–2013[a]	2013–2014[a]	2012–2013	2013–2014
Cumberland County, North Carolina	52,691	52,742	11,572	10,526	4,055,969	Not yet received		N/A
Harnett County, North Carolina	20,364	20,290	2,947	2,803	632,337	Not yet received	857,081	N/A
Hoke County, North Carolina	7,491	6,444	1,981	1,465	524,609	Not yet received	N/A	N/A
Moore County, North Carolina	12,707	13,009	1,391	2,453	57,775	Not yet received	75,000	N/A

Source: Carswell (2014c). Information obtained from the respective school systems.

[a] Note that Federal Impact Aid funds are usually 2 years in arrears; therefore, these figures are not reflective of the current year's enrollment. Also, Federal Impact Aid is received for a number of federally associated entities; e.g., active component military, civilians working on federal property, and individuals residing in low rent housing areas.

Public Health and Safety

DES includes the Provost Marshal Office, Fire Department, and Intelligence and Security Office. Medical services are provided by the Womack Army Medical Clinic, one of the largest clinical departments and integrated primary care systems in DoD. Womack and its seven outlying clinics, two of which are located off the installation, provide primary care for active component personnel, retirees, and their Families. Additional information regarding these facilities is provided in the 2013 PEA.

Family Support Services

The Fort Bragg FMWR provides a variety of services for children ranging from 6 weeks to 18 years of age. As of FY 2012, more than 13,000 Families had registered for services. Of this, approximately 7,870 live on the installation and another 5,365 reside off the installation. Additional information regarding these facilities is provided in the 2013 PEA.

Recreation Facilities

The Fort Bragg FMWR oversees a variety of CYSS as well as recreational opportunities for adults. Available facilities and opportunities include physical fitness centers, bowling centers, indoor and outdoor swimming pools, and recreational camp and beach activities area, among others. A complete list of these facilities is provided in the 2013 PEA.

4.5.12.2 Environmental Effects

No Action Alternative

The continuation of operations at Fort Bragg represents a beneficial source of regional economic activity. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of 16,000[10] Army positions (13,623 Soldiers and 2,377 Army civilians) with an average annual income of $46,760 and $63,821, respectively. In addition, this alternative would affect an estimated 24,288 Family members, including 8,928 spouses and 15,360 children. The total number of Army employees and their Family members who may be directly affected under Alternative 1 is projected to 40,288.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative range. Table 4.5-6 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, changes in population and employment under Alternative 1 fall outside the historical range and are categorized as a significant impact. However, there would not be a significant impact to sales and income because the estimated percentages fall within the historical range.

Table 4.5-7 summarizes the predicted impacts to income, employment, and population of force reductions against 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecasted values, these figures show the same significance determinations as the EIFS predictions in the previous table.

[10] This number was derived by assuming the loss of two BCTs, 60 percent of Fort Bragg's non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 16,000. The 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 8,000.

Table 4.5-6. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+7.8	+8.1	+6.2	+2.2
Economic contraction significance value	-8.7	-6.5	-7.5	-0.8
Forecast value	-4.8	-4.2	-9.3	-6.3

Table 4.5-7. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$968,559,200	-18,367 (Direct)	-40,288
		-3,196 (Induced)	
		-21,563 (Total)	
Total 2012 ROI economic estimates	$23,795,397,000	249,856	587,022
Percent reduction of 2012 figures	-4.1	-8.6	-6.9

Note: Sales estimates are not consistently available from public sources for all counties in the United States. Therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales based on the EIFS model is described below.

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 16,000 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 2,367 direct contract service jobs would also be lost. An additional 3,196 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. The total reduction in employment is estimated to be 21,563, a significant reduction of 8.6 percent from the total employed labor force in the ROI of 249,856. The loss of employment (direct, indirect, and induced) may make it difficult for those affected to find new employment because jobs within the ROI are concentrated in a few sectors, which may not be able to absorb those affected by Alternative 1. Income is estimated to reduce by $968.6 million, a 4.1 percent decrease in income from 2012.

Under Alternative 1, the total reduction in sales within the ROI is estimated to be $1 billion. There would also be a loss in sales tax receipts to local and state governments. The average state and local sales tax rate for North Carolina is 6.9 percent (Tax Foundation, 2014). To estimate sales tax reductions, information on the proportion of sales that would be subject to sales taxes on average across the country was utilized. According to the U.S. Economic Census an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $1.0 billion resulting in an estimated sales tax receipts decrease of $11.3 million under Alternative 1.

Of the 587,022 people (including those residing on Fort Bragg) who live within the ROI, 40,288 Army employees and their Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 6.9 percent. This number could overstate potential population impacts because some people no longer employed by the military may continue to live and work within the ROI, finding employment in other industry sectors. However, because Fort Bragg serves as a primary employer and as an economic driver within the ROI, the majority of displaced personnel are likely to move out of the area to seek other opportunities with the Army or elsewhere. There are few employment sectors in the ROI to absorb the number of displaced military employees. A small number of displaced personnel may seek and find work within the ROI; however, others may not be able to find new employment.

Housing

The population reduction that would result under Alternative 1 would decrease housing demand and increase housing availability on the installation and across the larger ROI, potentially resulting in a decrease in median home values. While the housing market would experience a change under Alternative 1, overall impacts would be minor given the large size of the ROI.

Schools

As reported in the 2013 PEA, regional schools have experienced adverse effects from crowding and large class sizes, particularly those in Harnett and Hoke counties because of the substantial growth of military personnel and their Families in the last 5 years at Fort Bragg. Under Alternative 1, the reduction of 16,000 Soldiers and Army civilians would result in a reduction of 40,288, of which 15,360 would be children. Therefore, under Alternative 1, it is anticipated that the reduction of school-aged children would decrease enrollment in some schools that are experiencing overcrowding, resulting in beneficial impacts to those schools with enrollment greater than capacity.

The reduction of Soldiers and Army civilians on Fort Bragg would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal Impact Aid a district receives is based on the number of students who are considered “federally connected” and attend district schools. Actual projected dollar amounts cannot be determined at this time due to the variability of appropriated dollars from year to year and the uncertainty regarding the actual number of affected school-age children for military and civilian Families. School districts in the ROI would likely need fewer teachers and materials as enrollment drops, which would offset the reduced Federal Impact Aid. Overall, adverse impacts to schools associated with Alternative 1 would be minor to significant depending on the number of military-connected students attending schools.

Public Services

The demand for law enforcement, medical care providers, and fire and emergency service providers on the installation may decrease if Soldiers, Army civilians, and their Family members affected under Alternative 1 move to areas outside the ROI. Adverse impacts to public services

could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements. The impacts to public services are not expected to be significant because the existing service level for the installation and the ROI would still be available.

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. Overall, minor impacts to Family Support Services and recreation facilities would occur under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, states: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). As shown in Table 4.5-3, the proportion of minority populations is higher in Cumberland and Hoke counties than the proportion in Harnett and Moore counties and North Carolina as a whole. Because minority populations are more heavily concentrated in Cumberland and Hoke counties, the implementation of Alternative 1 has the potential to result in adverse impacts to minority-owned and/or -staffed businesses if Soldiers and Army civilians directly affected under Alternative 1 move to areas outside the ROI. Of the counties within the ROI, only Hoke County has a higher proportion of populations living below the poverty level when compared to the North Carolina average. Because the proportion of poverty populations is greater than the state average, Alternative 1 could cause adverse impacts to environmental justice populations. Although these populations could be adversely impacted under Alternative 1, the impacts are not likely to be disproportional.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of people associated with the installation, including children. Therefore, it is not anticipated that implementing Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is

beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.5.13 Energy Demand and Generation

4.5.13.1 Affected Environment

The energy demand and generation affected environment of the Fort Bragg installation remains the same as described in Section 4.2.10.1 of the 2013 PEA.

4.5.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, adverse impacts to energy demand and generation would be the same as discussed in the 2013 PEA and would be minor. Fort Bragg ranges and cantonment areas would continue to use similar types and amounts of energy. Maintenance of existing utility systems would continue.

Alternative 1—Implement Force Reductions

Minor, beneficial impacts to energy demand are anticipated because force reductions would reduce the installation's overall demand for energy. The installation would also be better positioned to meet energy and sustainability goals.

4.5.14 Land Use Conflicts and Compatibility

4.5.14.1 Affected Environment

The land use affected environment of the Fort Bragg installation remains the same as described in Section 4.3.13.1 of the 2013 PEA.

4.5.14.2 Environmental Effects

No Action Alternative

In the 2013 PEA, no impacts to land use were anticipated under the No Action Alternative. Impacts under the No Action Alternative on Fort Bragg remain the same as those described in Section 4.3.10.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Bragg would result in land use impacts identical to those anticipated under the No Action Alternative. Under Alternative 1, there would be no impacts to land use at Fort Bragg.

The Army is also committed to ensuring that personnel cuts will not result in non-compliance with land use ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Bragg, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including land use ordinances and regulations.

4.5.15 Hazardous Materials and Hazardous Waste

4.5.15.1 Affected Environment

As described in the 2013 PEA, hazardous materials are used in most facilities at Fort Bragg, ranging from small quantities of cleaners and printing supplies to larger quantities of fuels, oils, and chemicals. Hazardous wastes are generated at Fort Bragg from various operations and facilities. The installation generates more than 2,200 pounds of hazardous waste per month and maintains a large quantity generator status under RCRA. No substantial changes have occurred to the affected environment since 2013.

4.5.15.2 Environmental Effects

No Action Alternative

As stated in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative. Use of hazardous materials and generation of hazardous wastes would continue on Fort Bragg in accordance with all applicable laws, regulations, and plans.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that minor, adverse impacts from hazardous materials and hazardous waste would occur on Fort Bragg. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on Fort Bragg. Because of the reduced numbers of people, it is possible the potential for spills would be reduced further during training and maintenance activities.

The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Fort Bragg, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.5.16 Traffic and Transportation

4.5.16.1 Affected Environment

The traffic and transportation affected environment on the installation remains the same as described in Section 4.3.12.1 of the 2013 PEA.

4.5.16.2 Environmental Effects

No Action Alternative

Significant but mitigable impacts are anticipated, consistent with the findings in Section 4.3.12.2 of the 2013 PEA. Surveys and studies conducted on the existing Fort Bragg's transportation system indicated that the system is insufficient to meet current needs (it is congested), and traffic improvements are needed.

Alternative 1—Implement Force Reductions

Alternative 1 would have limited beneficial traffic impacts resulting from a reduction in force at Fort Bragg. Traffic congestion and travel times on and off the installation would decrease, although not substantially, particularly in peak morning and evening hours. The impact, however, would be to a greater degree than described in the 2013 PEA.

4.5.17 Cumulative Effects

As noted in the 2013 PEA, the Fort Bragg ROI for cumulative impacts analysis encompasses five counties in North Carolina: Cumberland; Harnett; Hoke; Moore; and Scotland counties. Section 4.3.13 of the 2013 PEA notes a number of planned or proposed actions within the ROI that have the potential to cumulatively add to impacts of Army force reductions.

Reasonably Foreseeable Future Projects on Fort Bragg

The installation identified the deactivation of the 440th Air Wing as an additional cumulative action, which could result in additional effects.

Reasonably Foreseeable Future Projects outside Fort Bragg

Beyond those mentioned in the 2013 PEA, the Army is not aware of any reasonably foreseeable future projects outside Fort Bragg which would be appropriate for inclusion in the cumulative impacts analysis.

No Action Alternative

The cumulative effects of the No Action Alternative would be the same as determined in the 2013 PEA.

Alternative 1–Implement Force Reductions

Cumulative impacts from the proposed implementation of Alternative 1 would be essentially the same as determined in the 2013 PEA. The reduction of forces at Fort Bragg would result in less training, and facilitate accelerated accomplishment of conservation management practices due to reduced training conflicts. Cumulative impacts from the proposed implementation of Alternative 1 would be beneficial, negligible or minor in most cases with the exception of socioeconomics, which are anticipated to be significant.

The socioeconomic impact under Alternative 1, as described in Section 4.5.12.2 with a loss of 16,000 Soldiers and Army civilians, could lead to significant impacts to the population, regional economy, schools, and housing. Fort Bragg is an important economic driver in the Fayetteville, North Carolina metropolitan area, with total employment on the installation of almost 53,000. Specifically, in Cumberland, Hoke, and Harnett counties, the Armed Forces account for 20, 15, and 6 percent of the workforce, respectively, demonstrating the importance of the installation to employment opportunities in the region. The considerable reliance on the installation, in combination with 16,000 lost Army jobs, could lead to reduced Fort Bragg and supporting activities in the ROI, additional losses in jobs and income, with fewer job opportunities for displaced Army employees in the ROI.

Stationing and structure changes would also affect regional economic conditions through the jobs and income they bring (or lose) within the region. Military personnel spend their money in the ROI economy, supporting additional jobs, income, taxes, and sales impacts. Recently, the elimination or relocation of the 440th Airlift Wing consisting of approximately 350 active airmen and Air Force civilian employees, and up to 1,000 drilling reservists stationed at Pope Army Airfield, Fort Bragg, North Carolina, is part of the FY 2015 President's Budget. These reductions may benefit facility shortages, school overcrowding, and pressures on public services; however, in combination with force reductions under Alternative 1, there could be further adverse impacts in regional economic activity and minor, adverse impacts to schools, housing, and public services.

Other infrastructure improvements and construction and development activity would also benefit the regional economy through additional economic activity, jobs, and income in the ROI; however, these benefits would not offset the adverse impacts under Alternative 1 and other adverse cumulative actions. Under Alternative 1, the loss of 16,000 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have significant impacts to employment, income, and tax receipts in ROI and minor, adverse impacts to schools, public services, and housing.

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4.6 Fort Campbell, Kentucky

4.6.1 Introduction

Fort Campbell was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population, is discussed in Section 4.4.1 of the 2013 PEA.

Fort Campbell's 2011 baseline permanent party population was 32,281. In this SPEA, Alternative 1 assesses a potential population loss of 16,000, including approximately 15,221 permanent party Soldiers and 779 Army civilians.

4.6.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Campbell; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.6-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.6-1. Fort Campbell Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Negligible	Negligible
Noise	Negligible	Beneficial
Soils	Minor	Beneficial
Biological Resources	Negligible	Negligible
Wetlands	Negligible	Negligible
Water Resources	Minor	Beneficial
Facilities	Negligible	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	Negligible	Negligible
Hazardous Materials and Hazardous Waste	Negligible	Negligible
Traffic and Transportation	Negligible	Beneficial

4.6.3 Air Quality

4.6.3.1 Affected Environment

Air quality is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.4.1.2 due to lack of significant, adverse environmental impacts resulting from implementing the alternatives included in the analysis. No changes have occurred to the affected environment since 2013. Current installation air emissions are well below limits agreed upon between Fort Campbell and the states of Kentucky and Tennessee. Christian County, Kentucky, and Montgomery County, Tennessee, are in attainment with all NAAQS, although the counties are designated maintenance areas (e.g., former nonattainment areas) for the 1997 O_3 standard (EPA, 2013).

4.6.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, continuation of mobile and stationary source emissions at current levels would result in minor, adverse impacts to air quality.

Alternative 1—Implement Force Reductions

Force reductions at Fort Campbell would result in minor, long-term, and beneficial impacts to air quality due to reduced operations and training activities, as well as reduction in vehicle miles traveled associated with the facility.

The relocation of personnel outside of the area due to force reductions could result in negligible, short-term effects on air quality associated with mobile sources. As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on air quality are not analyzed.

The Army is also committed to ensuring that personnel cuts will not result in non-compliance with air quality regulations. Even if the full end-strength reductions were to be realized at Fort Campbell, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.6.4 Airspace

4.6.4.1 Affected Environment

Airspace is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.4.1.2 because of lack of significant, adverse environmental impacts from implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013. Airspace at Fort Campbell is primarily protected to accommodate military testing

and training and includes the Fort Campbell Military Operations Area (MOA) and a number of Military Training Routes, both of which extend beyond the boundaries of the installation to the west. Within the MOA, restricted airspace exists and covers the majority of the installation boundaries and extends from the surface to 27,000 feet msl. The remaining portions of the installation are considered Class D airspace up to 3,100 feet msl (U.S. Army, 2009).

4.6.4.2 Environmental Effects

No Action Alternative

As stated in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative. Fort Campbell would maintain current airspace operations and current airspace classifications and restrictions are sufficient to meet current airspace requirements.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that negligible impacts to airspace would occur at Fort Campbell. Under Alternative 1, implementation of further force reductions is not expected to increase adverse impacts to airspace. There would be no expected changes to installation operations or types of activities conducted on Fort Campbell. Due to reduced numbers of ABCT Soldiers and support activities, it is likely the potential for airspace conflicts would be reduced further during training activities, resulting in potential beneficial impacts. Current airspace regulations and classifications are sufficient to meet future airspace requirements.

4.6.5 Cultural Resources

4.6.5.1 Affected Environment

Cultural resources were dismissed from detailed analysis in Section 4.4.1.2 of the 2013 PEA due to negligible impacts associated with implementing the alternatives included in that analysis. As described in the 2013 PEA, existing protocols and procedures at Fort Campbell make unintentional damage to cultural resources, through demolition or construction, unlikely. Fort Campbell periodically monitors significant archaeological sites and known prehistoric burials for compliance with the Archaeological Resources Protection Act and Native American Graves Protection and Repatriation Act. No changes have occurred to the affected environment since 2013.

4.6.5.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to cultural resources and the affected environment would remain in its current condition.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts to cultural resources would occur at Fort Campbell due to existing protocols and procedures that ensure the protection of cultural resources during undertakings with the potential to affect resources. Fort Campbell anticipates that a further reduction in forces will not change this finding because the protocols and procedures currently in place with continue to be utilized.

As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic structures from these activities are not analyzed. Additionally, the Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of force reductions, the installation would comply with applicable laws, such as the NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects.

4.6.6 Noise

4.6.6.1 Affected Environment

Noise is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.4.1.2, due to negligible impacts as a result of implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013. As described in the 2013 PEA, the NZs impacted from air traffic (general purpose and attack helicopters) are already heavily trafficked and would not see a major increase in use or operations. As described in the 2013 PEA, the installation already has mitigations in place to help reduce current noise.

4.6.6.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, negligible, adverse impacts to noise were anticipated from continued operations. Impacts under the No Action Alternative on Fort Campbell remain the same as those discussed in Section 4.4.1 of the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Campbell would result in no adverse impacts. Under Alternative 1 of this SPEA, noise impacts associated with the proposed force reduction would be considered beneficial to the Fort Campbell region. NZs on Fort Campbell are impacted from air traffic (general purpose and attack helicopters) and munitions explosions. These impacts are mitigated through management practices to reduce noise impacts on the Fort Campbell and local communities. It is assumed that any reduction in Soldier strength would

reduce the firing range throughput and curb the existing noise environment. Although not specifically determined in the reduction scenario, any loss in aviation assets would further reduce the frequency of rotor noise; both on and off the installation.

The Army is also committed to ensuring that personnel cuts will not result in non-compliance with noise ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Campbell, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including noise ordinances and regulations.

4.6.7 Soils

4.6.7.1 Affected Environment

The soils affected environment on the installation remains the same as was discussed in Section 4.4.2.1 of the 2013 PEA.

4.6.7.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to soils were anticipated from continuing training and off-road traffic. Impacts under the No Action Alternative on Fort Campbell remain the same as those discussed in Section 4.4.2.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, beneficial impacts to soils were anticipated as a result of less use of training areas and off-road traffic. This is anticipated to result in less erosion, soil compaction, and loss.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Campbell, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations. Therefore, impacts under Alternative 1 at Fort Campbell would be beneficial and remain the same as those discussed in Section 4.4.2.2 of the 2013 PEA.

4.6.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.6.8.1 Affected Environment

The affected environment for biological resources at Fort Campbell has not had substantive changes since 2013, as described in Section 4.4.1.2 of the 2013 PEA.

4.6.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to those that are currently occurring to biological resources, as described in Section 4.4.1.2 of the 2013 PEA. The installation has developed an Endangered Species Management Component in coordination with USFWS, and it coordinates all activities that may have adverse impacts with USFWS. Management controls are in place to reduce the chance of a violation.

Alternative 1—Implement Force Reductions

Under Alternative 1, negligible impacts are anticipated to biological resources at Fort Campbell. It is anticipated that additional proposed force reductions would not change this finding because Alternative 1 would not involve substantial changes to installation operations or the types of activities conducted on Fort Campbell, only a decrease in the frequency of training activities. The installation would continue to manage its natural resources and potential habitat in accordance with the installation INRMP and any conservation measures identified in any ESA Section 7 consultation documents.

Adverse impacts could conceivably occur if force reductions prevented environmental compliance from being properly implemented. However, the Army is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations., Even if the full end-strength reductions were to be realized at Fort Campbell, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met.

4.6.9 Wetlands

4.6.9.1 Affected Environment

Wetlands are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.4.1.2 because of lack of significant, adverse environmental impacts from implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013.

4.6.9.2 Environmental Effects

No Action Alternative

Wetlands are designated as non-training areas on Fort Campbell, and Soldiers are provided instruction on authorized activities around wetland areas through the Directorate of Plans, Training, Mobilization, and Security, Range Division, Integrated Training Area Management Program. Fort Campbell proactively monitors wetland areas and ensures that required training does not impact wetlands areas. As a result, implementing the No Action Alternative would result in negligible, adverse impacts to wetlands, and the affected environment would remain in its current state.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that beneficial impacts to wetlands would occur on Fort Campbell. Fort Campbell anticipates that further proposed reductions in force will not change this finding because Alternative 1 does not involve major changes to the installation operations or types of activities conducted on Fort Campbell, only a decrease in the frequency of training activities. The installation would continue to manage its wetlands in accordance with the installation INRMP, and ensure that wetland impacts are avoided and/or mitigated for. Adverse impacts to wetlands could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Campbell, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory regulations.

4.6.10 Water Resources

4.6.10.1 Affected Environment

The affected environment for water resources on Fort Campbell remains the same as that described in Section 4.4.3.1 of the 2013 PEA. There are no changes to surface water and watersheds, water supply, wastewater, and stormwater resources.

4.6.10.2 Environmental Effects

No Action Alternative

In the 2013 PEA, minor, adverse impacts to water resources were anticipated from the No Action Alternative due to impaired water quality of surface waters from sedimentation. Surface water impacts under the No Action Alternative would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

Beneficial impacts to water resources were anticipated from implementation of force reductions under Alternative 1 in the 2013 PEA because of reduced water consumption and wastewater treatment requirements. Reduction in off-road training activities from force reductions was also anticipated to potentially reduce sedimentation of surface waters. Increased force reductions under Alternative 1 of this SPEA would continue to have the same beneficial impacts to water supply, wastewater, and surface waters.

Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Fort Campbell, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented.

4.6.11 Facilities

4.6.11.1 Affected Environment

The facilities affected environment of the Fort Campbell installation remains the same as described in Section 4.4.4.1 of the 2013 PEA.

4.6.11.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that there would be negligible impacts to facilities at Fort Campbell under the No Action Alternative. For the current analysis, Fort Campbell would continue to use existing space to support administrative and billeting needs of the installation, and impacts to facilities would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to facilities would occur on Fort Campbell. Under Alternative 1, implementation of the proposed further force reductions would result in overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demands for utilities and reduced demands for training facilities and support services. The force reductions would also provide opportunities to reduce reliance on aging and relocatable facilities. Some units that are currently

in non-standard facilities would have the opportunity to relocate to a more appropriately configured facility. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.6.12 Socioeconomics

4.6.12.1 Affected Environment

Fort Campbell is located on the Kentucky-Tennessee border between Hopkinsville, Kentucky and Clarksville, Tennessee. The ROI includes Christian and Trigg counties in Kentucky and Montgomery and Stewart counties in Tennessee. The ROI for this analysis includes those counties that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, and contractor personnel, and their Families reside.

This section provides a summary of demographic and economic characteristics within the ROI. These characteristics are described in greater detail in the 2013 PEA in Section 4.4.5. However, some demographic and economic indicators have been updated where more current data are available.

Population and Demographics

Using 2011 as a baseline, Fort Campbell has a total working population of 39,427 consisting of active component Soldiers, Army civilians, and other military services, civilians and contractors. Of the total working population, 32,281 were permanent party Soldiers and Army civilians. The population that lives on Fort Campbell consists of 15,087 Soldiers and an estimated 12,069 Family members, for a total on-installation resident population of 27,156 (Fort Campbell, 2013). Army civilians living on the installation would be the spouse of a Soldier. The portion of Soldiers and Army civilians living off the installation in 2011 was estimated to be 43,294 and consists of Soldiers, Army civilians, and their Family members.

In 2012, the population in the ROI was almost 288,000 (U.S. Census Bureau, 2012a). Each county in the ROI experienced an increase in population between 2010 and 2012 with the exception of Stewart County, which experienced a slight decrease of 0.2 percent (Table 4.6-2). Christian and Montgomery counties are more racially diverse than other counties within the ROI and the states in which they are located (U.S. Census Bureau, 2012a). The 2012 racial and ethnic composition of the ROI is presented in Table 4.6-3.

Table 4.6-2. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Christian County, Kentucky	75,427	+2.0
Trigg County, Kentucky	14,447	+0.8
Montgomery County, Tennessee	184,468	+7.0
Stewart County, Tennessee	13,297	-0.2

Table 4.6-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
State of Kentucky	88.6	8.1	0.3	1.3	1.6	3.2	85.9
State of Tennessee	79.3	17.0	0.4	1.6	1.6	4.8	75.1
Christian County, Kentucky	73.1	21.5	0.7	1.4	2.9	6.9	67.6
Trigg County Kentucky	89.4	8.0	0.3	0.4	1.8	1.4	88.2
Montgomery County, Tennessee	73.1	19.5	0.7	2.2	4.0	8.9	66.2
Stewart County, Tennessee	94.5	2.1	0.7	1.1	1.6	2.3	92.4

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Income

Information presented below represents an update from the 2013 PEA, which provided employment and income data from 2009. Between 2000 and 2012, total employment increased in Montgomery County while Christian, Trigg, and Stewart counties all experienced a decrease in overall employment. Median household income was greatest in Montgomery County and lowest in Christian County. Trigg and Stewart counties reported median household incomes similar to that of Kentucky and Tennessee (Table 4.6-4) (U.S. Census Bureau, 2000 and 2012b).

Montgomery County had a median home value greater than that of other counties within the ROI and Kentucky and Tennessee as whole. All other counties within the ROI reported median home values less than the Kentucky and Tennessee averages (U.S. Census Bureau, 2012b).

The percentage of residents living below the poverty line in Christian and Stewart counties is greater than the average for Kentucky and Tennessee while Trigg and Montgomery counties both report fewer residents living below the poverty line than in either state (Table 4.6-4) (U.S. Census Bureau, 2012b).

Table 4.6-4. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Kentucky	1,877,179	+3.3	120,000	42,610	18.6
State of Tennessee	2,832,688	+6.1	138,700	44,140	17.3
Christian County, Kentucky	30,675	-9.5	100,900	37,750	21.3
Trigg County, Kentucky	5,312	-4.7	114,100	44,144	13.5
Montgomery County, Tennessee	79,895	+19.3	139,000	49,459	16.2
Stewart County, Tennessee	4,904	-5.3	110,600	40,200	20.0

Information regarding the workforce by industry for each county within the ROI was obtained from the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for the employed labor force.

Christian County, Kentucky

The primary employment sector in Christian County is the Armed Forces (23 percent). Educational services, and health care and social assistance is second largest employment sector (18 percent), followed by manufacturing (13 percent). Retail trade also accounts for a large share of the total workforce (10 percent). The remaining 10 sectors account for 36 percent of the workforce.

Trigg County, Kentucky

The educational services, and health care and social assistance sector accounts for the largest share of the total workforce in Trigg County (21 percent). Manufacturing is the second largest employment sector (18 percent), followed by retail trade (10 percent). The arts, entertainment, and recreation, and accommodation and food services sector also accounts for a notable share of the total workforce (8 percent). The Armed Forces account for 1 percent of Trigg County's workforce. The nine remaining sectors account for 42 percent of the workforce.

Montgomery County, Tennessee

Similar to Trigg County, Kentucky, the primary employment sector in Montgomery County is the educational services, and health care and social assistance (19 percent). The Armed Forces represents the second largest share of the total workforce (14 percent), followed by retail trade (13 percent). Manufacturing also represents a notable share of the total workforce (10 percent). The arts, entertainment, and recreation, and accommodation and food services sector is the fourth largest sector of the total workforce (9 percent). The 10 remaining sectors account for 35 percent of the workforce.

Stewart County, Tennessee

The educational services, and health care and social assistance sector also accounts for the greatest share of the total workforce in Stewart County (24 percent). Manufacturing is the second largest employment sector (12 percent), followed by construction (9 percent). The retail trade and transportation and warehousing, and utilities sectors each account for 8 percent of the total workforce. The Armed Forces account for 3 percent of the Stewart County workforce. The nine remaining sectors account of 39 percent of the total workforce.

Housing

As described in the 2013 PEA, Fort Campbell has 4,457 Family quarters for officers and 4,010 quarters for enlisted personnel, which are provided by an RCI partnership. In addition, the installation has 9,731 barrack spaces for unaccompanied personnel. Available housing off the installation primarily consists of single-family dwellings and a limited number of multi-family dwellings. Numerous single-family housing developments are under construction in communities surrounding Fort Campbell, although construction of multi-family dwellings is limited.

Schools

As described in the 2013 PEA, children of military personnel attend either the Fort Campbell School System or school districts within ROI communities. There are four public school districts with 35 elementary, 12 middle, 12 high, and 2 alternative schools. There are 4,690 students who attend Fort Campbell Schools, including 3,129 elementary (6 schools), 846 middle (2 schools), and 715 high school (1 school) aged students (Fort Campbell, 2013).

Public Health and Safety

DES oversees police and fire protection at Fort Campbell. A range of medical services for military personnel and retirees, and their Families are provided by the Blanchfield Army Community Hospital. Dental services are also provided at Fort Campbell. Additional information about these services is provided in the 2013 PEA.

Family Support Services

The Fort Campbell FMWR and ACS provide programs, activities, facilities, services and information to support Soldiers and their Families. Services range from child care and youth programs to employment, financial, and relocation readiness, among others. Additional information about these services is provided in the 2013 PEA.

Recreation Facilities

Both fee and non-fee recreational programs are provided at Fort Campbell. Programs include fitness centers, swimming pools, outdoor recreation opportunities, and sports teams, among others. Additional information about these services is provided in the 2013 PEA.

4.6.12.2 Environmental Effects

No Action Alternative

The continuation of operations at Fort Campbell represents a beneficial source of regional economic activity. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of up to 16,000[11] Army positions (15,221 Soldiers and 779 Army civilians), with an average annual income of $46,760 and $57,523, respectively. In addition, this alternative would affect an estimated 24,288 Family members, including 8,928 spouses and 15,360 children. The total number of Army employees and their Family members who may be directly affected under Alternative 1 is projected to be 40,288.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative range. Table 4.6-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, changes in population and employment under

[11] This number was derived by assuming the loss of two BCTs, 60 percent of Fort Campbell's non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 16,000. The 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 8,000.

Alternative 1 fall outside the historical range and are categorized as a significant impact. However, there would not be a significant impact to sales and income because the estimated percentages fall within the historical range.

Table 4.6-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+6.5	+10.4	+11.4	+7.4
Economic contraction significance value	-12.4	-8.8	-5.4	-1.7
Forecast value	-6.8	-7.8	-17.6	-14.7

Table 4.6-6 summarizes the predicted impacts to income, employment, and population of force reductions against 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecasted values, these figures show the same significance determinations as the EIFS predictions in the previous table.

Table 4.6-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$863,318,300	-17,807 (Direct)	-40,288
		-1,798 (Induced)	
		-19,605 (Total)	
Total 2012 ROI economic estimates	$11,140,487,000	120,786	288,000
Percent reduction of 2012 figures	-7.7	-16.2	-14.0

Note: Sales estimates are not consistently available from public sources for all counties in the United States. Therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales based on the EIFS model is described below.

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 16,000 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 1,807 direct contract service jobs would also be lost. An additional 1,798 induced jobs would also be lost because of the reduction in demand for goods and services within the ROI. The total reduction in employment is estimated to be 19,605, a significant reduction of 16.2 percent from the total employed labor force in the ROI of 120,786. Income is estimated to fall by $968.6 million, a 7.7 percent decrease in income from 2012.

Under Alternative 1, the total reduction in sales within the ROI is estimated to be $768.6 million. There would also be a loss in sales tax receipts to local and state governments. The state and average local sales tax for Kentucky is 6.0 percent and 9.45 percent for Tennessee (Tax Foundation, 2014). To estimate sales tax reductions, information on the proportion of sales that would be subject to sales taxes on average across the country was utilized. According to the U.S. Economic Census an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $768.6 million under Alternative 1 resulting in an estimated decrease in sales tax receipts in this region between $7.4 and $11.6 million.

Of the 288,000 people (including those residing on Fort Campbell) who live within the ROI, 16,000 military employees and their estimated 24,288 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 14.0 percent. This number could overstate potential population impacts because some people no longer employed by the military may continue to live and work within the ROI, finding employment in other industry sectors. However, because of the rural nature of the ROI and that Fort Campbell serves as a primary employer and economic driver within the ROI, the majority of displaced personnel are likely to move out of the area to seek other opportunities with the Army or elsewhere. There are few employment sectors in the ROI to absorb the number of displaced military employees. A small number of displaced personnel may seek and find work within the ROI; however, others may not be able to find new employment, with possible implications for the unemployment rate.

Housing

Population reduction that would result under Alternative 1 would decrease housing demand and increase housing availability on the installation and across the larger ROI. The housing market in the ROI is generally showing signs of recovery demonstrated by the increase in construction of new single-family developments and a limited number of multi-family dwellings (Fort Campbell, 2014). Subsequently, the decrease in housing demand has the potential to increase vacancy rates and may lead to a decline in home values. Overall, minor to significant impacts to housing would occur under Alternative 1.

Schools

Under Alternative 1, the reduction of 16,000 Soldiers and Army civilians would decrease the number of children within the ROI by approximately 15,360. Children of military personnel associated with Fort Campbell attend schools both on and off the installation. As a result, it is anticipated that enrollment at schools attended by military-connected students would decline.

As described in the 2013 PEA, there are almost 10,000 military-connected students who attend public schools off the installation. School districts within the ROI receive sizable Federal Impact Aid funds, the allocation of which is based on the number of military-connected students they

support. The actual projected loss of Federal Impact Aid funds cannot be determined at this time due to the variability of appropriated dollars from year to year, and because the extent to which the reduction of Soldiers and Army civilians would affect school enrollment is not known at this time. However, it is anticipated that schools across the ROI would likely require fewer teachers and materials as enrollment declines, which would partially offset the reduction in Federal Impact Aid.

The Clarksville-Montgomery County School System would experience the greatest loss in Federal Impact Aid funds because their share of military-connected students is greater than other school districts. This school system has invested local funds to support the construction of new schools due to a growing student population, particularly those who are military-connected students. These investments in capital improvements or new facilities require bond repayment/debt servicing. With decreased revenue for these school districts, it may place additional burden on school districts with potential implications for operations. These are fixed costs that would not be proportionately reduced such as those operational costs (teachers and supplies) (Fort Campbell, 2014).

Overall, schools within the ROI, particularly those within the Clarksville-Montgomery County School System, would experience significant, adverse impacts from the decline in military-connected student enrollment that would result under Alternative 1. The reduction of military-connected students would likely create excess capacity that would be unsupportable over the long term.

Public Services

A reduction in personnel would have minor impacts to emergency services, fire, police, and medical services because the reduction is anticipated to decrease the need for these services. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements. The impacts to public services are not expected to be significant because the existing service level for the installation and the ROI would still be available.

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. Off-installation demand for these services may also experience a slight decline. Overall, minor impacts to Family Support Services and recreation facilities would occur under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, provides: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). As shown in Table 4.6-3, the proportion of minority populations in Christian and Montgomery counties are greater than in Trigg and Stewart counties and in Kentucky and Tennessee as a whole. Because of the higher percentage of minority populations in Christian and Montgomery counties, Alternative 1 has the potential to result in disproportionate adverse impacts to minority-owned and/or -staffed businesses should Soldiers and Army civilians directly affected under Alternative 1 move to areas outside the ROI. Christian and Stewart counties have a slightly higher percentage of population living below the poverty level than in either state. As a result there could be some impacts to environmental justice populations under Alternative 1; however, these impacts are not expected to be disproportional.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of people associated with the installation, including children. Therefore, it is not anticipated that implementing Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future site-specific NEPA analyses, as appropriate.

4.6.13 Energy Demand and Generation

4.6.13.1 Affected Environment

The energy demand and generation affected environment of the Fort Campbell installation remains the same as was discussed in Section 4.4.6.1 of the 2013 PEA.

4.6.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, adverse impacts to energy demand and generation would be the same as discussed in the 2013 PEA and would be negligible. Fort Campbell would continue

to consume similar types and amounts of energy so impacts to energy demand would remain the same as for the 2013 PEA.

Alternative 1—Implement Force Reductions

Minor, beneficial impacts to energy demand are anticipated because force reductions would reduce the installation's overall demand for energy. The installation would also be better positioned to meet energy and sustainability goals.

4.6.14 Land Use Conflicts and Compatibility

4.6.14.1 Affected Environment

Land use is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.4.1.2, due to negligible impacts as a result of implementing alternatives included in that analysis. As described in the 2013 PEA, Fort Campbell has a training land deficit; however, the installation's Range Division has the capability to schedule multiple activities within the training lands to meet the current requirements.

4.6.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, negligible impacts to land use were anticipated since the installation is capable of meeting mission requirements with the land available. Impacts under the No Action Alternative on Fort Campbell remain the same as those discussed in Section 4.4.1 of the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Campbell would result in negligible land use impacts similar to those anticipated under the No Action Alternative, since a reduction in troop strength would not alter existing land use or cause incompatibilities with adjacent land uses. Under Alternative 1, these impacts would remain the same.

The Army is also committed to ensuring that personnel cuts will not result in non-compliance with land use ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Campbell, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including land use ordinances and regulations.

4.6.15 Hazardous Materials and Hazardous Waste

4.6.15.1 Affected Environment

Hazardous materials and hazardous waste are among the VECs excluded from detailed analysis in the 2013 PEA (Section 4.4.1.2) due to lack of significant, adverse environmental impacts that would result from implementing the analyzed alternatives. No substantial changes have occurred to the affected environment since 2013.

4.6.15.2 Environmental Effects

No Action Alternative

As stated in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative. Use of hazardous materials and generation of hazardous wastes would continue on Fort Campbell in accordance with all applicable laws, regulations, and plans.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts from hazardous materials and hazardous waste would occur on Fort Campbell. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on Fort Campbell. Alternative 1 would not negatively impact the current hazardous waste handling capabilities on Fort Campbell. Due to the reduced numbers of people, it is likely the potential for spills would be reduced further during training and maintenance activities.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Fort Campbell, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.6.16 Traffic and Transportation

4.6.16.1 Affected Environment

The transportation affected environment of the Fort Campbell ROI remains the same as described in Section 4.4.7.1 of the 2013 PEA. The Regional Planning Commission had concluded that a likely increase in traffic levels would exceed the current threshold and warrant further analysis and growth master planning.

4.6.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA identified negligible, adverse impacts. Fort Campbell and its ROI would continue to experience the current LOS on roadways and at ACPs as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Campbell would result in beneficial impacts to traffic and transportation systems. A force reduction of the anticipated magnitude would significantly decrease traffic congestion and improve LOS on the installation and neighboring communities. The size of this beneficial impact under Alternative 1 would be larger than anticipated at the time of the 2013 PEA.

4.6.17 Cumulative Effects

As noted in the 2013 PEA, the ROI for the cumulative impact analysis consist of the four counties within which Fort Campbell is located—Christian and Trigg counties in Kentucky and Montgomery and Stewart counties in Tennessee. As noted in Section 4.4.8 of the 2013 PEA, numerous planned or proposed actions within the ROI have the potential to cumulatively add impacts to Alternative 1.

Reasonably Foreseeable Future Projects on Fort Campbell

Additional actions identified by the installation beyond those noted in the cumulative effects analysis of the 2013 PEA include Training Mission and Mission Support Activities. Currently the Army is preparing a Programmatic Environmental Impact Statement (PEIS) to evaluate the impacts of current and future training and mission-related activities at Fort Campbell.

Reasonably Foreseeable Future Projects outside Fort Campbell

No additional actions have been identified by the installation beyond those noted in the cumulative effects analysis of the 2013 PEA. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, smaller, less diversified economies will be more vulnerable to force reductions and provide fewer opportunities to displaced Army employees.

No Action Alternative

The cumulative effects due to the No Action Alternative are the same as was determined in the 2013 PEA, and will be beneficial through minor and adverse. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1–Implement Force Reductions

The cumulative effects of Alternative 1 would be essentially similar as was determined in the 2013 PEA. Overall, the potential cumulative impacts of Alternative 1 at Fort Campbell are anticipated to be significant and adverse for socioeconomics, with generally reduced environmental impacts, ranging from minor, adverse to beneficial.

The socioeconomic impact under Alternative 1, as described in Section 4.6.12.2 with a reduction of 16,000 Soldiers and Army civilians, could lead to significant impacts to the population, regional economy, schools, and housing in the ROI. Fort Campbell has long been an economic driver in the ROI with a baseline party population of over 25,000 Soldiers, civilians, and other employees and students. The relatively small economy of the ROI depends on the installation's employment and economic activity. With fewer opportunities for employment, the ROI may not be able absorb many of the displaced forces. In Christian County, Kentucky, the Armed Forces account for 23 percent of the workforce, while in Montgomery County, Tennessee, the Armed Forces account for 14 percent of the workforce, demonstrating the importance of installation to employment in the region.

Stationing changes would also affect regional economic conditions through the jobs and income they bring (or lose) within the region. Military personnel spend their money in the ROI economy, supporting additional jobs, income, taxes, and sales impacts. Other infrastructure improvements and construction and development activity would also benefit the regional economy through additional economic activity, jobs, and income in the ROI; however, these benefits would not offset the adverse impacts under Alternative 1 and other adverse cumulative actions. Under Alternative 1, the loss of 16,000 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have significant impacts to employment, income, tax receipts, housing values, and schools in the ROI.

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4.7 Fort Carson, Colorado

4.7.1 Introduction

Fort Carson was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population, is discussed in Section 4.5.1 of the 2013 PEA. Unless otherwise noted, the discussion of Fort Carson's affected environment and environmental effects below includes Piñon Canyon Maneuver Site.

Fort Carson's 2011 baseline permanent party population was 25,702. In this SPEA, Alternative 1 assesses a potential population loss of 16,000, including approximately 15,295 permanent party Soldiers and 705 Army civilians.

4.7.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Carson; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.7-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.7-1. Fort Carson Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Less than Significant	Beneficial
Airspace	Negligible	Beneficial
Cultural Resources	Negligible	Beneficial
Noise	Negligible	Beneficial
Soils	Less than Significant	Beneficial
Biological Resources	Negligible	Beneficial
Wetlands	Minor	Beneficial
Water Resources	Minor	Beneficial
Facilities	Minor	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	Negligible	Negligible
Hazardous Materials and Hazardous Waste	Minor	Beneficial
Traffic and Transportation	Less than Significant	Beneficial

4.7.3 Air Quality

4.7.3.1 Affected Environment

The air quality affected environment of the Fort Carson ROI remains the same as described in Section 4.5.2.1 of the 2013 PEA. The Fort Carson area has not been designated as a nonattainment area for any criteria pollutants. As noted in the 2013 PEA, however, it does include a maintenance area for CO (EPA, 2013). The 2013 PEA stated that the EPA will decide on a more restrictive O_3 standard in 2013. EPA has still not made a determination on the O_3 standard.

4.7.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source emissions at current levels, as well as fugitive dust due to training activities, would result in less than significant to air quality. Air quality impacts of the No Action Alternative for this SPEA remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Carson would result in short-term, negligible, adverse as well as long-term, beneficial impacts to air quality due to reduced operations and maintenance activities, dust-generating training activities, and vehicle miles traveled associated with the facility. Impacts to air quality associated with the increased size of the force reductions proposed under Alternative 1 would continue to be beneficial assuming a corresponding decrease in operations and vehicle travel at Fort Carson. The beneficial impact under Alternative 1 for this SPEA would be roughly double that anticipated at the time of the 2013 PEA.

The relocation of personnel outside of the area due to the force reduction could result in negligible, short-term effects on air quality associated with mobile sources.

4.7.4 Airspace

4.7.4.1 Affected Environment

The airspace affected environment on the installation remains the same as described in Section 4.5.3.1 of the 2013 PEA.

4.7.4.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that there would be negligible impacts to airspace at Fort Carson under the No Action Alternative. Fort Carson would continue to maintain existing airspace operations, and impacts to airspace would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to airspace would occur on Fort Carson. Under Alternative 1, implementation of proposed further force reductions would increase the beneficial impacts. While there would not be a decreased requirement for airspace, a force reduction would result in slightly lower utilization of airspace.

4.7.5 Cultural Resources

4.7.5.1 Affected Environment

The affected environment for cultural resources at Fort Carson has changed since the 2013 analysis, as described in Section 4.5.4 of the 2013 PEA. Since completion of the PEA Fort Carson has executed three Programmatic Agreements for compliance with Section 106 of NHPA. These programmatic agreements address: 1) Construction, Maintenance, and Operations Activities for Areas on Fort Carson, Colorado (March 2013), 2) Military Training and Operational Support Activities Down Range Fort Carson, Colorado (March 2014), and 3) Military Training and Operational Support Activities Piñon Canyon Maneuver Site, Fort Carson, Colorado (April 20, 2014).

4.7.5.2 Environmental Effects

No Action Alternative

Impacts to cultural resources from the No Action Alternative would continue to be negligible as described in Section 4.5.4.2 of the 2013 PEA. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures.

Alternative 1—Implement Force Reductions

Alternative 1 would have a minor, beneficial effect on cultural resources. As discussed in Section 4.5.4.2 of the 2013 PEA, there are two historic districts present at the installation and there is little potential for either to be impacted by force reductions. The potential for inadvertent adverse impacts to archaeological sites as a result of training exercises is expected to be reduced under Alternative 1.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort Carson, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations at both Fort Carson and Piñon Canyon Maneuver Site.

As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic structures from these activities are not analyzed. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of force reductions, the installation would comply with the NHPA and the stipulations and processes outlined in the installation's Programmatic Agreement documents. It would also conduct the necessary analyses and consultations to avoid, minimize, and/or mitigate adverse effects.

4.7.6 Noise

4.7.6.1 Affected Environment

The noise affected environment of the Fort Carson installation remains the same as described in Section 4.3.5.1 of the 2013 PEA. The primary sources of noise at Fort Carson are the firing of weapons, specifically large-caliber weapons, such as artillery and tank main guns, as well as the operations of military aircraft at Butts AAF.

4.7.6.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, negligible impacts to noise were anticipated from continued use of small- and large-caliber weaponry, artillery, and aircraft overflight. Impacts under the No Action Alternative on Fort Carson remain the same as those discussed in Section 4.2.5.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Carson would result in minor, beneficial noise impacts due to an anticipated reduction in weapons qualification and maneuver training events. The minor, beneficial impact under Alternative 1 would continue as described in the 2013 PEA.

The Army is also committed to ensuring that personnel cuts will not result in non-compliance with noise ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Carson, the Army would ensure that adequate staffing remains so that the

installation would comply with all mandatory environmental regulations including noise ordinances and regulations.

4.7.7 Soils

4.7.7.1 Affected Environment

The soils affected environment on the installation remains the same as was discussed in Section 4.5.6.1 of the 2013 PEA.

4.7.7.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, less than significant impacts to soils were anticipated from continued training schedules, to include damage to vegetation, digging activities, ground disturbance from vehicles, and ammunition or explosives used. Impacts under the No Action Alternative on Fort Carson remain the same as those discussed in Section 4.2.6.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, minor, beneficial impacts to soils were anticipated as a result of less use of training areas. Less erosion from wind and water and an overall lessening of soil impacts were anticipated. Beneficial impacts would continue under Alternative 1.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Carson, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations. Therefore, impacts under Alternative 1 at Fort Carson would be beneficial and remain the same as those discussed in Section 4.2.6.2 of the 2013 PEA.

4.7.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.7.8.1 Affected Environment

The affected environment for biological resources at Fort Carson has not had substantive changes since 2013, as described in Section 4.5.7 of the 2013 PEA.

4.7.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts similar to those that are currently occurring to biological resources as described in Section 4.5.7.2 of the 2013 PEA. Fort Carson and Piñon Canyon Maneuver Site will continue to adhere to the current 2013–2017 INRMP (Fort Carson, 2013), which further minimizes and monitors any potential effects (e.g., briefing units regarding sensitive areas prior to each training event).

Alternative 1—Implement Force Reductions

Under Alternative 1, minor, beneficial impacts are anticipated to biological resources at Fort Carson and Piñon Canyon Maneuver Site. Such beneficial impacts are reduced access to sensitive habitats, and less training would lessen damage and disturbances to wildlife and their habitats. Furthermore, proactive conservation management practices would be more easily accomplished with reduced mission throughput. Adverse impacts could conceivably occur if force reductions prevented environmental compliance from being properly implemented. However, the Army is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Carson, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met.

4.7.9 Wetlands

4.7.9.1 Affected Environment

The wetlands affected environment on the installation remains the same as was discussed in Section 4.5.8.1 of the 2013 PEA.

4.7.9.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, negligible to minor, adverse impacts to wetlands were anticipated from continued training schedules. Potential wetland impacts would be reviewed and managed to be avoided, to the extent practicable, or mitigated for. Impacts under the No Action Alternative on Fort Carson remain the same as those discussed in Section 4.5.8.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, minor, beneficial impacts to wetlands were anticipated as a result of less use of tank roads, ranges, and training areas. Less sedimentation and vegetation loss were anticipated, and degraded wetlands were expected to restore towards their reference functions and values. Impacts to wetlands could conceivably occur if force reductions decreased

environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Carson, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at Fort Carson would be beneficial and remain the same as those discussed in Section 4.5.8.2 of the 2013 PEA.

4.7.10 Water Resources

4.7.10.1 Affected Environment

The affected environment for water resources on Fort Carson and the Piñon Canyon Maneuver Site remains the same as that described in Section 4.5.9.1 of the 2013 PEA. There are no changes to potable water, wastewater, stormwater, groundwater, water rights, and floodplain resources.

4.7.10.2 Environmental Effects

No Action Alternative

In the 2013 PEA, minor, adverse impacts to water resources on Fort Carson and negligible impacts to water resources on the Piñon Canyon Maneuver Site were anticipated from the No Action Alternative due to the continued disturbance of surface waters from training activities. Surface water impacts under the No Action Alternative would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

Beneficial impacts to water resources were anticipated from implementation of force reductions under Alternative 1 in the 2013 PEA because of reduced demand for potable water supply and wastewater treatment and an increase in available wastewater treatment capacity on Fort Carson and the Piñon Canyon Maneuver Site. Reduction in training area use from force reductions on Fort Carson was also anticipated to potentially reduce impacts to surface waters. Increased force reductions under Alternative 1 of this SPEA would continue to have the same beneficial impacts to water supplies, wastewater capacity, and surface waters.

Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Fort Carson, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented.

4.7.11 Facilities

4.7.11.1 Affected Environment

The facilities affected environment of the Fort Carson installation remains the same as described in Section 4.5.10.1 of the 2013 PEA.

4.7.11.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that there would be minor, adverse impacts to facilities at Fort Carson under the No Action Alternative. The installation's current facility shortfalls have been prioritized, and Fort Carson is seeking or has received Army funding to address them. Impacts to facilities would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to facilities would occur on Fort Carson. Under Alternative 1, implementation of the proposed further force reductions would result in overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demands for utilities and reduced demands for training facilities and support services. The force reductions would also provide opportunities to reduce reliance on aging facilities nearing the end of their life-cycle. Some facilities could be re-purposed to reduce crowding or support other units. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.7.12 Socioeconomics

4.7.12.1 Affected Environment

Fort Carson is an Army installation located near Colorado Springs, primarily in El Paso County, Colorado, and extending south into Pueblo and Fremont counties. Fort Carson's ROI, therefore, consists of El Paso, Pueblo, and Fremont counties, which is the geographic extent in which the majority of the installation's Soldiers, Army civilians, and contractor personnel and their Families reside. This section provides a summary of demographic and economic characteristics within the ROI. These indicators are described in greater detail in Section 4.5.11 of the 2013 PEA. However, indicators where more current data are available have been updated accordingly.

As in the 2013 PEA, the analysis in this section does not include the region surrounding the Piñon Canyon Maneuver Site, because Soldiers training at the Piñon Canyon Maneuver Site do so only for a short period of time, a matter of a few days or weeks. Dependents do not accompany Soldiers during this training. Therefore, there would be limited impact from the Proposed Action on community services, schools, or the economy in general.

Population and Demographics

Using 2011 as a baseline, Fort Carson has a total working population of 30,724 consisting of active component Soldiers and Army civilians, students and trainees, other military services, civilians and contractors. Of the total working population, 25,702 were permanent party Soldiers and Army civilians. The population that lives on Fort Carson consists of 13,985 Soldiers and their 21,229 Family members, for a total on-installation resident population of 35,214 (Benford, 2014). The portion of the active component Soldiers and Army civilians living off the installation is estimated to be 29,503 and consists of Soldiers, Army civilians, and their Families. Additionally, there are 121 students and trainees associated with the installation.

In 2012, the ROI's population was over 825,000. The population in El Paso and Pueblo counties increased slightly between 2010 and 2012, by 3.6 percent and 1.1 percent, respectively, while the population in Fremont County decreased slightly, by 0.1 percent (Table 4.7-2). The racial and ethnic composition of the ROI is presented in Table 4.7-3.

Table 4.7-2. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
El Paso County, Colorado	644,964	+3.6
Fremont County, Colorado	46,788	-0.1
Pueblo County, Colorado	160,852	+1.1

Table 4.7-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or more races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of Colorado	88.1	4.3	1.6	3.0	2.8	21.0	69.6
El Paso County, Colorado	84.1	6.8	1.3	2.9	4.5	15.6	71.3
Fremont County, Colorado	91.9	3.9	1.9	0.6	1.6	12.6	80.1
Pueblo County, Colorado	91.1	2.4	2.9	1.0	2.4	42.0	53.5

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Income

Employment and income information provided in Table 4.7-4 has been updated from the 2013 PEA. El Paso County's median household income is approximately the same as the state's median household income while Fremont and Pueblo counties' median household income is approximately $17,000 lower than the state's income (U.S. Census Bureau 2012). Total employment increased in the state of Colorado and in El Paso and Pueblo counties between 2000 and 2012 while it decreased in Fremont County during this period (Table 4.7-4). Employment, median housing value, median household income, and the percentage of the population living below the poverty level are presented in Table 4.7-4.

Table 4.7-4. Employment and Income, 2012

States and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Colorado	2,531,138	+13	$236,800	$58,244	13
El Paso County, Colorado	303,857	+13	$217,500	$57,531	13
Fremont County, Colorado	14,757	-10	$161,100	$40,893	15
Pueblo County, Colorado	65,561	+10	$140,500	$41,820	18

Information regarding the workforce by industry for each county within the ROI was obtained from the U.S. Census Bureau (2012). Information presented below is for the employed labor force.

El Paso County, Colorado

The U.S. Census Bureau reported that the educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in El Paso County, Colorado (19 percent). The professional, scientific, and management, and administrative and waste management services is the second largest employment sector (12 percent), followed by the retail trade sector (10 percent). The arts, entertainment, and recreation, and accommodation and food services sector account for 9 percent of the total workforce in El Paso County while the Armed Forces account for 8 percent of the El Paso County workforce. The remainder of employment sectors in El Paso County account for 42 percent of the workforce.

Fremont County, Colorado

The educational services, and health care and social assistance services sector accounts for the largest share of the total workforce in Fremont County (21 percent). The public administration sector is the second largest employment sector (14 percent) in the county, followed by the retail

trade sector (12 percent). Construction also represents a significant share of total employment in the county (10 percent). The Armed Forces account for less than 1 percent of the Fremont County workforce. The remainder of the sectors account for 43 percent of the total workforce.

Pueblo County, Colorado

The educational services, and health care and social assistance services sector is the largest employment sector in Pueblo County (26 percent). Retail trade is the second largest employment sector (14 percent), followed by the arts, entertainment, and recreation, and accommodation and food services sector (10 percent). The construction and the professional, scientific, and management, and administrative and waste management services sectors also account for a significant share of the total workforce in Pueblo County (at 8 percent each). The Armed Forces account for less than 1 percent of the Pueblo County workforce. The remainder of the sectors account for 34 percent of the total workforce.

Housing

Housing resources at Fort Carson were described in Section 4.5 of the 2013 PEA and include 3,260 permanent military Family units, which are managed through an RCI Partnership. Fort Carson Soldiers occupy approximately 91 to 95 percent of the available units in Family housing. As of June 2012, 2,989 accompanied Soldiers resided in Fort Carson Family housing. Information on housing is presented in further detail in the 2013 PEA.

Schools

As described in the 2013 PEA, approximately 10,200 children attended school in seven local school districts during the 2010–2011 school year (not including other districts, private schools, or home schools). The seven districts included Academy D-20, Cheyenne Mountain D-12, Colorado Springs D-11, Falcon D-49, Fountain-Fort Carson D-8, Harrison D-2, and Widefield D-3. The highest percentage of military-connected students attends Fountain-Fort Carson D-8 school district, accounting for 68 percent of the total in attendance (Fountain-Fort Carson, 2011).

Public Health and Safety

Fort Carson's DES enhances safety, security, and increases force protection by providing 24-hour police and fire support to the Fort Carson community. Evans Army Community Hospital on Fort Carson serves all active component personnel, their Family members, and retirees. Additional information on public services is provided in the 2013 PEA.

Family Support Services

Fort Carson ACS is a human service organization with programs and services dedicated to assisting Soldiers and their Families under FMWR. FMWR is a comprehensive network of support and leisure services designed to enhance the lives of Soldiers (active component, U.S. Army Reserve, and ARNG), their Families, civilian employees, military retirees, and other

eligible participants. Services at Fort Carson include Family, child and youth programs, recreation, sports, entertainment, and leisure activities. CYSS is a division within the FMWR that provides child development centers for children ages 6 weeks to 5 years; school age services for ages 6 to 10 years, and middle school and teen programs for ages 11 to 18 years, as well as sports and instructional classes.

Recreation Facilities

Fort Carson offers its military and their Family members and civilians access to many recreation facilities to include, but not limited to, fitness centers, outdoor recreation opportunities, sports teams, bowling, auto crafts shop, a dog park, and a golf course (which is also open to the public).

4.7.12.2 Environmental Effects

No Action Alternative

The operations at Fort Carson would continue to benefit regional economic activity in the ROI. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated. This alternative is anticipated to provide a steady-state contribution of economic and social benefits.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of up to 16,000[12] Army positions (15,295 Soldiers and 705 Army civilians), each with an average annual income of $46,760 and $58,773, respectively. In addition, this alternative would affect an estimated 8,928 spouses and 15,360 children. The total population of Army employees and their Family members directly affected under Alternative 1 is estimated to be 40,288.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative ranges. Table 4.7-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated

[12] This number was derived by assuming the loss of two BCTs, 60 percent of Fort Carson's non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 16,000. The 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 8,000.

by the EIFS model. Based on the EIFS analysis, changes in population and employment in the ROI under Alternative 1 fall outside the historical range and are categorized as a significant impact. However, there would not be a significant impact to income and sales because the estimated percentage change is within the historical range.

Table 4.7-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales Volume (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	7.4	4.5	4.1	3.0
Economic contraction significance value	-6.9	-3.9	-3.8	-1.7
Forecast value	-2.4	-3.1	-5.8	-4.9

Table 4.7-6 summarizes the predicted impacts to income, employment, and population of the reductions against the 2012 economic and demographic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

Table 4.7-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$969,488,000	-17,782 (Direct)	-40,288
		-3,550 (Induced)	
		-21,331 (Total)	
Total 2012 ROI economic estimates	$33,075,843,000	384,175	852,604
Percent reduction of 2012 figures	-2.1	-5.6	-4.7

Note: Sales estimates are not consistently available from public sources for all counties in the United States; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from EIFS is described in the paragraphs below.

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 16,000 Army Soldiers and civilians under Alternative 1, EIFS estimates an additional 1,782 direct contract service jobs would also be lost. An additional 3,550 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. Total reduction in employment is estimated to be 21,331, a significant reduction of 5.6 percent from the total employed labor force in the ROI of

384,175. Income is estimated to reduce by $969.5 million, a 2.1 percent decrease in income from 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $1.1 billion. There would also be a loss in sales tax receipts to local and state governments. The state and average local sales tax for Colorado is 7.4 percent (Tax Foundation, 2014). To estimate sales tax reductions, information was utilized on the proportion of sales that would be subject to sales taxes on average across the country. According to the U.S. Economic Census, an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $1.1 billion resulting in an estimated sales tax receipts decrease of $13.6 million under Alternative 1.

Of the 852,604 people (including those residing on Fort Carson) who live within the ROI, 16,000 Army employees and their estimated 24,288 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 4.7 percent. This number likely overstates potential population impacts because some of the people no longer employed by the Army would continue to live and work within the ROI, finding employment in other industry sectors.

Housing

The population reduction would lead to a decrease in demand for housing and increased housing availability on the installation and in the region. As stated in the 2013 PEA, this alternative would increase availability of single occupancy barracks and single Soldier housing. With Army force reductions, vacancies could occur in installation Family housing. Once there are no Soldiers and Families on the active component military waiting lists for housing, remaining units would be filled according to the “waterfall” priority list, as described in the 2013 PEA, which could lead to a slight reduction in median home values in the ROI. El Paso County would be most affected because current Army tenant populations are highest there. Alternative 1 would have minor impacts to housing throughout the ROI.

Schools

Under Alternative 1, a reduction of 16,000 Soldiers and Army civilians would result in a reduction in the number of children living in the ROI. It is anticipated that school districts that provide education to on-installation Army children would be affected by this action. Schools on the installation and in the ROI are expected to experience a decline in enrollment. The Fountain-Fort Carson School District as well as Academy D-20, Cheyenne Mountain D-12, Colorado Springs D-11, Falcon D-49, D-8, Harrison D-2, and Widefield D-3 would have a decreased number of military-dependent students attending their schools. With 68 percent of the enrollment associated with military-dependent students, Fountain-Fort Carson (D-8) Public School District is likely to experience significant impacts (Fort Carson, 2014). If enrollment in individual schools declines significantly, schools may need to reduce the number of teachers,

administrators, and other staff, and potentially close or consolidate with other schools within the same school district should enrollment fall below sustainable levels.

The reduction of Soldiers on Fort Carson would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal Impact Aid a district receives is based on the number of students who are considered "federally connected" and attend district schools. Actual projected dollar amounts cannot be determined at this time because of the variability of appropriated dollars from year to year, and the actual number of affected school-age children for military and civilian Families. School districts in the ROI would likely need fewer teachers and materials as enrollment drops, which would partially offset some of the reduced Federal Impact Aid. However, Fountain-Fort Carson school district receives significant federal and DoD funding based on the number of military-connected children it supports. The loss of this funding would have a significant impact to this district in the long term.

Public Services

The demand for law enforcement, medical care providers, and fire and emergency service providers on the installation may decrease if Soldiers, Army civilians, and their Family members affected under Alternative 1 move to areas outside the ROI. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements. Overall, minor impacts to public health and safety would occur under Alternative 1. The impacts to public services are not expected to be significant because the existing service level for the installation and the ROI would still be available.

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. As a result, Family Support Services and recreational facilities would experience negligible to minor impacts under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, provides: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). The racial and ethnic composition of Pueblo County in the ROI differs from that of the state as a whole. There are higher populations of minorities in this county compared to the state's proportions as a whole. In these areas with

higher proportions of environmental justice populations, there is a potential that these populations could be adversely impacted under Alternative 1. However, it is not anticipated that Alternative 1 would have disproportionate adverse impacts to minorities, economically disadvantaged populations or children in the ROI. Job losses would be experienced across all income levels and economic sectors and spread geographically throughout the ROI.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of the people associated with the installation, including children. Therefore, it is not anticipated that implementing Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.7.13 Energy Demand and Generation

4.7.13.1 Affected Environment

The energy demand and generation affected environment of the Fort Carson installation remains the same as described in Section 4.5.12.1 of the 2013 PEA.

4.7.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, adverse impacts to energy demand and generation would be the same as described in the 2013 PEA and would be negligible. Fort Carson would continue to consume similar types and amounts of energy, and maintenance of existing utility systems would continue.

Alternative 1—Implement Force Reductions

Minor, beneficial impacts to energy demand are anticipated because force reductions would reduce the installation's overall demand for energy. The installation would also be better positioned to meet energy and sustainability goals.

4.7.14 Land Use Conflicts and Compatibility

4.7.14.1 Affected Environment

The land use affected environment of the Fort Carson installation remains the same as described in Section 4.5.13.1 of the 2013 PEA.

4.7.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, negligible impacts to land use were anticipated from continued training schedules. Impacts under the No Action Alternative on Fort Carson remain the same as those discussed in Section 4.2.13.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Carson would result in negligible land use impacts because a reduction in training land use is anticipated that roughly correlates with the number of Soldiers inactivated or realigned. Under Alternative 1, negligible impacts to land use would be the same as described in the 2013 PEA.

The Army is also committed to ensuring that personnel cuts will not result in non-compliance with land use ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Carson, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including land use ordinances and regulations.

4.7.15 Hazardous Materials and Hazardous Waste

4.7.15.1 Affected Environment

As described in the 2013 PEA, Fort Carson has a comprehensive program to address management, use, and storage of hazardous waste and toxic substances, as well as a systematic program to investigate and remediate, if necessary, known or suspected contaminated sites across the installation. Fort Carson operates under an HWMP that manages hazardous waste to promote the protection of public health and the environment. No substantial changes have occurred to the affected environment since 2013.

4.7.15.2 Environmental Effects

No Action Alternative

As stated in the 2013 PEA, minor, adverse impacts are anticipated under the No Action Alternative. There would be no change in Fort Carson’s management of hazardous materials,

toxic substances, hazardous waste, or contaminated sites. Fort Carson would continue to manage existing sources of hazardous waste in accordance with the installation's HWMP.

Alternative 1—Implement Force Reductions

Minor, beneficial, and long-term impacts are anticipated because the reduction in people in a reduction of hazardous material use and waste generated.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Fort Carson, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.7.16 Traffic and Transportation

4.7.16.1 Affected Environment

The transportation affected environment of the Fort Carson ROI remains the same as described in Section 4.5.15.1 of the 2013 PEA.

4.7.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated less than significant, adverse impacts. Deficiencies in road capacity, access points, parking, and on- and off-installation traffic continue to be addressed. Impacts under the No Action Alternative on Fort Carson remain the same as those discussed in Section 4.2.15.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Carson would result in substantially beneficial impacts to traffic and transportation systems. It was anticipated that decreases in traffic congestion and travel time would result, on the installation and in neighboring communities. The size of this beneficial impact under Alternative 1 would be larger than anticipated at the time of the 2013 PEA.

4.7.17 Cumulative Effects

As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Carson consist of three counties—El Paso, Fremont, and Pueblo counties,

Colorado. Section 4.5.16 of the 2013 PEA noted numerous planned or proposed Army actions, as well as public/private actions, within the ROI that have the potential to cumulatively add impacts to Army 2020 alternatives.

Reasonably Foreseeable Future Projects on Fort Carson

Since the completion of the 2013 PEA, changes that have occurred at Fort Carson include the inactivation of one of Fort Carson's ABCTs and realignment of the remainder of the BCTs, announced in June 2013. On January 13, 2014, another decision was made to convert one of the ABCTs to a Stryker BCT.

Reasonably Foreseeable Future Projects outside Fort Carson

Beyond those mentioned in the 2013 PEA, the Army is not aware of any reasonably foreseeable future projects outside Fort Carson that would be appropriate for inclusion in the cumulative impacts analysis. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities.

No Action Alternative

The cumulative effects of the No Action Alternative would be the same as determined in the 2013 PEA. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1–Implement Force Reduction

Overall, the potential cumulative impacts of Alternative 1 at Fort Carson are anticipated to be significant and adverse for socioeconomics, with generally beneficial impacts for the other resources.

The socioeconomic impact under Alternative 1, as described in Section 4.7.12.2 with a loss of 16,000 Soldiers and Army civilians, could lead to significant impacts to the population, regional economy, and schools. Fort Carson is an important economic driver in the Colorado Springs metropolitan area, with total employment on the installation of over 25,000. Specifically, in El Paso County, the Armed Forces account for 8 percent of the workforce. The reliance on the installation, in combination with 16,000 lost Army jobs, could lead to reduced Fort Carson and supporting activities in the ROI, additional losses in jobs and income, with fewer job opportunities for displaced Army employees in the ROI.

The Army has recently stationed the Combat Aviation Brigade at Fort Carson, but the loss and realignment of the BCTs would offset the population gains of the new Combat Aviation Brigade. These stationing changes would also result in a negligible regional economic effect.

Other infrastructure improvements and construction and development activity would also benefit the regional economy through additional economic activity, jobs, and income in the ROI; however, these benefits would not offset the adverse impacts under Alternative 1 and other adverse cumulative actions. Under Alternative 1, the loss of 16,000 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have significant impacts to employment, income, tax receipts, and schools in the ROI.

4.8 Fort Drum, New York

4.8.1 Introduction

Fort Drum is a Regional Collective Training Center and supports U.S. Army Reserve and ARNG units from throughout the northeast and an annual throughput of 21,000 to 25,000 Soldiers. Since the start of the ACUB Program in 2009, Fort Drum has secured 20 parcels under easement totaling 4,705 acres that create a buffer on land bordering the installation, which will sustain natural habitats and protect the installation's accessibility, capability, and capacity for Soldier training and testing. To date, $7,288,549.75 of funding ($6,788,549 of federal and $500,000 from New York State) have been spent on conservation easements. Fort Drum currently has no incompatible development or use issues. Fort Drum was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population, is discussed in Section 4.6.1 of the 2013 PEA.

Fort Drum's 2011 baseline permanent party population was 19,011. In this SPEA, Alternative 1 assesses a potential population loss of 16,000, including approximately 15,417 permanent party Soldiers and 583 Army civilians.

4.8.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Drum; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.8-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.8-1. Fort Drum Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Minor	Minor
Noise	Negligible	Negligible
Soils	Negligible	Beneficial
Biological Resources	Minor	Minor
Wetlands	Minor	Beneficial
Water Resources	Negligible	Negligible
Facilities	No Impacts	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Minor	Beneficial
Land Use Conflict and Compatibility	Negligible	Negligible
Hazardous Materials and Hazardous Waste	Negligible	Negligible
Traffic and Transportation	Minor	Beneficial

4.8.3 Air Quality

4.8.3.1 Affected Environment

The air quality affected environment of the Fort Drum ROI remains the same as was discussed in Section 4.6.2.1 of the 2013 PEA. Jefferson County, New York, is designated a nonattainment area for 1997 O_3 standard. The Fort Drum area has not been designated as a nonattainment area for any other criteria pollutants (EPA, 2013).

4.8.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source emissions (including training) at current levels would result in minor, adverse impacts to air quality. Air quality impacts of the No Action Alternative for this SPEA remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that, in the long-term, force reductions at Fort Drum would result in beneficial impacts to air quality due to reduced operations and maintenance activities, and reduced vehicle miles travelled associated with the facility. Impacts to air quality from the

increased size of the force reduction proposed under Alternative 1 would continue to be beneficial assuming a corresponding decrease in operations and vehicle travel to and from Fort Drum. The size of this beneficial impact under Alternative 1 would be roughly double the size of the impact anticipated at the time of the 2013 PEA.

The relocation of personnel outside of the area because of force reductions could result in negligible, short-term effects on air quality associated with mobile sources; however, these impacts would be minimal compared with the long-term, beneficial impacts. Overall impacts to air quality would be beneficial.

4.8.4 Airspace

4.8.4.1 Affected Environment

Airspace is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.6.1.2 because of lack of significant, adverse environmental impacts from implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013. As described in the 2013 PEA, the installation's base airspace complex includes generally the airspace within an approximate 40/50 mile-radius of Wheeler-Sack AAF extending from the surface up to and including 10,000 feet msl. Restricted airspace at Fort Drum includes R-5201, R-5202A and R-5202B. R-5201 and R-5202A are 147 square miles of SUA extending from the surface to 23,000 feet msl and 23,000 feet msl to 29,000 feet msl, respectively. R-5202B is a 105 square mile SUA extending from 6,000 feet msl to 29,000 feet msl. The installation has access to this airspace continuously, with minor restrictions based on normal established operation coordination procedures as described in the 2013 PEA.

4.8.4.2 Environmental Effects

No Action Alternative

The 2013 PEA dismissal statement concluded that there would be negligible impacts to airspace at Fort Drum under the No Action Alternative. For the current analysis, Fort Drum would continue to maintain current airspace operations and current airspace classifications and restrictions are sufficient to meet current airspace requirements, so impacts to facilities would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that negligible, adverse impacts to airspace would occur at Fort Drum. Under Alternative 1, implementation of proposed further force reductions is not expected to result in changes to installation air operations or types of activities conducted on Fort Drum. Current airspace regulations and classifications are sufficient to meet potential future airspace requirements and overall impacts to airspace would be negligible.

4.8.5 Cultural Resources

4.8.5.1 Affected Environment

The affected environment for cultural resources at Fort Drum has not changed since 2013, as described in Section 4.6.3 of the 2013 PEA.

4.8.5.2 Environmental Effects

No Action Alternative

Implementation of the SPEA No Action Alternative would result in minor impacts to cultural resources as described in Section 4.6.3.2 of the 2013 PEA. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures.

Alternative 1—Implement Force Reductions

As discussed in Section 4.6.3.2 of the 2013 PEA, Alternative 1 would have a minor, adverse effect on cultural resources. The Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort Drum, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations at Fort Drum.

As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic structures from these activities are not analyzed. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of force reductions, the installation would comply with applicable laws, such as the NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects.

The effects of this alternative are considered to be similar to the No Action Alternative—future activities with the potential to effect cultural resources would continue to be monitored and the impacts reduced through preventative and minimization measures. This alternative could result in some beneficial effects as a decrease in training activities could reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources.

4.8.6 Noise

4.8.6.1 Affected Environment

Noise is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.6.1.2, due to negligible impacts as a result of implementing alternatives included in that analysis. As described in the 2013 PEA, the noise environment on Fort Drum is characterized as aircraft, artillery, and blast such as the sound of a weapon firing or a projectile exploding in the impact area. Artillery weapons tend to generate the highest level of noise heard on and off the installation; however, the highest sound exposure levels are generated from the aircraft maneuvers (fixed- and rotary-winged). Fort Drum is used by the Army, ARNG, and by the U.S. Air Force for aircraft training including air-to-ground weapons training and UAS training.

4.8.6.2 Environmental Effects

No Action Alternative

The 2013 PEA anticipated negligible noise impacts, since installation activities and noise contours at Fort Drum would not change. Negligible impacts to noise are expected to continue under the No Action Alternative.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Drum would result in negligible noise impacts similar to those discussed for the No Action Alternative. Alternative 1 would not involve major changes in noise sources or contours as the types of weapons systems and training conducted on ranges would not change. There would be a projected change in frequency of training; however, this would not be projected to change installation noise contours. Adverse impacts to noise under Alternative 1 would continue to be negligible.

The Army is also committed to ensuring that personnel cuts will not result in non-compliance with noise ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Drum, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including noise ordinances and regulations.

4.8.7 Soils

4.8.7.1 Affected Environment

Soils are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.6.1.2 due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

4.8.7.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible, adverse impacts to soils, and the affected environment would remain in its present state.

Alternative 1—Implement Force Reductions

Per Section 4.6.1.2 of the 2013 PEA, there would be negligible, adverse impacts to soils under Alternative 1. However, a force reduction would result in a reduction in training and associated soil compaction and loss of vegetation. This training reduction would result in less sediment discharge to state waters, thus a beneficial impact is anticipated.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Drum, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.8.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.8.8.1 Affected Environment

The affected environment for biological resources at Fort Drum has not had substantive changes since 2013, as described in Section 4.6.4.1 of the 2013 PEA.

4.8.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in minor impacts similar to those that are currently occurring to biological resources as described in Section 4.6.4.2 of the 2013 PEA. Fort Drum would continue to adhere to its existing military land use as described in the USFWS' Biological Opinion on the effects of activities on Fort Drum on the federally endangered Indiana bat (USFWS, 2012). Fort Drum would continue to manage its natural resources and potential habitat in accordance with the installation INRMP, Biological Opinions, and any conservation measures identified in any ESA, Section 7 consultation documents.

Alternative 1—Implement Force Reductions

Under Alternative 1, minor impacts are anticipated to biological resources at Fort Drum. Minor impacts are anticipated on listed Indiana bat or other species recorded as occurring on the installation as a result of this alternative. There would not be a change in the types of activities conducted on Fort Drum as a result of this alternative, as no major changes are anticipated. Adverse impacts could conceivably occur if force reductions prevented environmental compliance from being implemented. However, the Army is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Drum, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met.

4.8.9 Wetlands

4.8.9.1 Affected Environment

The affected environment for wetlands on Fort Drum remains the same as was discussed in Section 4.6.5.1 of the 2013 PEA.

4.8.9.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to wetlands were anticipated from continued training, personnel operations, and routine maintenance schedules. Potential wetland impacts would be reviewed and managed to be avoided, to the extent practicable, or mitigated for. Impacts under the No Action Alternative on Fort Drum remain the same as those discussed in Section 4.6.5.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, beneficial impacts to wetlands were anticipated as a result of less use of roads, ranges, and training areas. Less sedimentation and vegetation loss were anticipated, and degraded wetlands were expected to restore towards their reference functions and values. Impacts to wetlands could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Drum, the Army would ensure that adequate staffing remains so mandated environmental requirements would continue to be met.

4.8.10 Water Resources

4.8.10.1 Affected Environment

Water resources are among the VECs excluded from detailed analysis as described in Section 4.6.1.2 of the 2013 PEA due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

4.8.10.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to water resources similar to those described in Section 4.6.1.2 of the 2013 PEA. The water supply and wastewater systems on the installation are adequate to support water resources needs.

Alternative 1—Implement Force Reductions

Under Alternative 1 in the 2013 PEA, negligible impacts to water resources, including water supply and wastewater treatment capacity, would occur on Fort Drum. Facilities at Fort Drum are adequate to support force growth or reductions. Fort Drum anticipates that further proposed reduction in forces would not change this finding because Alternative 1 of this SPEA does not involve major changes to installation operations or types of activities conducted on Fort Drum, only a decrease in the frequency of training activities. The installation would continue to manage its water resources in accordance with applicable federal and state water quality criteria, drinking water standards, and stormwater and floodplain management requirements.

Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Fort Drum, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented.

4.8.11 Facilities

4.8.11.1 Affected Environment

The facilities affected environment of the Fort Drum installation remains the same as described in Section 4.6.6.1 of the 2013 PEA.

4.8.11.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded there would be no impacts to facilities at Fort Drum under the No Action Alternative. For the current analysis, because Fort Drum would continue to use its existing facilities to support its tenants and missions, impacts to facilities would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to facilities would occur on Fort Drum. Under Alternative 1, implementation of the proposed further force reductions would result in overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demands for utilities and reduced demands for training facilities and support services. The force reductions would also provide the installation with the opportunity to reduce reliance on aging facilities nearing the end of their life-cycle. Some facilities could be re-purposed to support tenant unit requirements. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.8.12 Socioeconomics

4.8.12.1 Affected Environment

Fort Drum is located in the north central portion of Jefferson County in the state of New York. The ROI for this installation includes Jefferson County, New York and includes those areas that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, and contractor personnel and their Families reside. Fort Drum was also discussed in Section 4.6.7 of the 2013 PEA.

Population and Demographics

Using 2011 as a baseline, Fort Drum has a total working population of 23,012 consisting of active component Soldiers and Army civilians, students and trainees, other military services, civilians and contractors. Of the total working population, 19,011 were permanent party Soldiers and Army civilians. The population that lives on Fort Drum consists of 9,867 Soldiers and estimated 14,978 Family members, for a total on-installation resident population of 24,845 (Schadock, 2014a). Finally, the portion of the Soldiers and civilian population living off the

installation is 23,025 and consists of Soldiers, Army civilians, and their Family members. Additionally, there are 68 students and trainees associated with the installation.

The ROI's population was 120,941 in 2012. Between 2010 and 2012, the population increased in Jefferson County by 4.1 percent (Table 4.8-2). The racial and ethnic composition of the ROI is presented in Table 4.8-3 (U.S. Census Bureau, 2012a).

Table 4.8-2. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (Percent)
Jefferson County, New York	120,941	+4.1

Table 4.8-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of New York	71.2	17.5	1.0	8.0	0.1	18,2	57.6
Jefferson County, New York	88.8	6.1	0.6	1.6	0.3	6.7	83.5

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Income

Employment and income information provided in Table 4.8-4 has been updated from the 2013 PEA (U.S. Census Bureau, 2012b). Jefferson County's proportion of the population living below the poverty level is similar to that of the state overall. Between 2000 and 2012, employment in both the state of New York and Jefferson County has increased by 8 percent (Table 4.8-4).

Table 4.8-4. Employment and Income, 2012

States and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of New York	9,099,857	+8	$295,300	$57,683	15
Jefferson County, New York	54,286	+8	$129,000	$46,549	15

Information regarding the workforce by industry for Jefferson County was obtained from the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for the employed labor force.

Jefferson County, New York

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Jefferson County (21 percent). The Armed Forces is the second largest employment sector (17 percent), followed retail trade (13 percent). Public administration is the fourth largest employment sector in Jefferson County (9 percent). The remainder of the sectors accounted for 40 percent of the workforce.

Housing

Housing resources at Fort Drum were described in Section 4.6 of the 2013 PEA and include 3,900 homes to support housing needs for Families and unaccompanied single Soldiers. Additionally, construction of over 1,200 housing units off the installation ($279 million) is approximately 50 percent complete. To date, 38 housing developments have been constructed in Jefferson County, providing 4,790 apartments for military Families. In total, housing projects off the installation, supported with local and New York state financial assistance (investments of $46.94 million to date), have eliminated past housing deficits (Fort Drum, 2014b). Information on housing is presented in further detail in the 2013 PEA.

Schools

As described in the 2013 PEA, children of military personnel attend public and private schools throughout the Jefferson County. Installation housing falls within two area school districts: Carthage Central and Indian River Central. On Fort Drum, 2,782 of 3,835 Family homes are located within the boundaries of the Indian River School District, with the remainder, 1,053 Family homes, located in the Carthage Central School District. Military students account for 71 and 53 percent, respectively, of the enrollment in the Indian River School District and Carthage Central School District. Watertown City School District has 795 children from military Families account for 20 percent of enrollment, the majority of which are enrolled in kindergarten through grade 6. The percentage of military children enrolled in surrounding area school districts is 22 percent (Fort Drum, 2014b).

Jefferson Community College (JCC), located in the city of Watertown, is the only college campus in the County. JCC offers a Higher Education Center offering thirteen bachelors' and masters' degree programs in addition to numerous associate degrees. JCC has the highest military enrollment of all community colleges in New York State, with approximately 38 percent (1,610 students) of the JCC student body comprised of active component military, military Family members, and veterans. Of these students, 11 percent are veterans, 7 percent are active military, and 20 percent are Family members. During the summer of 2012, JCC created a

classroom annex on Fort Drum with seven classrooms devoted to higher education course work (Fort Drum, 2014b).

JCC has recently constructed a $22 million residence hall (290 beds) in response to the housing needs of the current market. This facility provides a housing option for military Family member students wishing to complete their degree when their parents transfer out of the area. This facility will be completed in 2014 (Fort Drum, 2014b).

Public Health and Safety

As described in the 2013 PEA, the Fort Drum DES includes law enforcement, fire and emergency services, force protection/anti-terrorism, fire prevention and protection, emergency dispatch, physical security, and crime prevention. Ultimately, the Fort Drum DES provides for the protection of all critical assets and personnel and ensuring a safe environment for all who work or live on Fort Drum.

Fort Drum's on-installation medical services are administered by its U.S. Army, Medical Department, at several facilities around the cantonment area. These facilities provide healthcare services for military personnel, military Family members, and to military retirees and their Families.

Healthcare support for Fort Drum is also delivered by an established military-community partnership that joins the Army Medical Treatment Facility with community providers to augment the Medical Treatment Facility's primary care capability with most specialty care and inpatient services provided by community hospitals.

The Fort Drum Regional Health Planning Organization originated out of a DoD 721 pilot program for healthcare delivery. It provides a platform to analyze the existing healthcare delivery options and to seek new opportunities for leveraging non-military healthcare resources to carry out a regional healthcare approach to meet the needs of the expanding military and civilian population in the Fort Drum Health Service Area, strengthening the healthcare system for Soldiers and their Families. This unique healthcare model, with no military hospital on the installation, has created numerous opportunities for innovative partnerships to provide high-quality, flexible healthcare solutions. More than $100 million in master-planned upgrades to the five hospitals in the Fort Drum health service area have occurred to meet the needs of a growing population of Soldiers, their Families, and civilian residents caused by growth of Fort Drum.

Family Support Services

Fort Drum's ACS manages programs such as Mobilization and Deployment and the Family Readiness Center to assist in educating and preparing Soldiers and Families for the rigors of deployments and extensions. Army Family Team Building educates on the Army way of life and personal development. The Outreach Services acts as a liaison between Families and Fort Drum

Command, as well as coordinating and facilitating Army Family Action Plan forums and conferences. The Family Advocacy, Employment Readiness, and Financial Readiness programs deal with personal life issues, working towards the enhancement and betterment of Army Families. ACS also provides Relocation Readiness for those transitioning both in and out of Fort Drum and houses the Army Volunteer Corps.

Recreation Facilities

FMWR is responsible for a variety of quality of life concerns for Soldiers and their Families. FMWR is mostly responsible for recreational activities on the installation exclusive of hunting, fishing, trapping, and wildlife viewing, which is managed by the Directorate of Public Works (DPW) Environmental Division Natural Resources. FMWR's Adventure Training Program promotes periodic hunting and fishing trips to recreational areas off the installation; the Outdoor Adventure Program directs and/or promotes other recreational activities on and off the installation and maintains shooting ranges; and Parks and Recreation manages Remington Park, which offers beach swimming and boating, pavilions, lodges, tent, cabin, and recreational vehicle (RV) sites, trails and outdoor equipment rental.

4.8.12.2 Environmental Effects

No Action Alternative

The operations at Fort Drum would continue to benefit regional economic activity. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of 16,000[13] Army positions (15,417 Soldiers and 583 Army civilians) positions, each with an average annual income of $46,760 and $56,314, respectively. In addition, this alternative would affect an estimated 8,928 spouses and 15,360 children for a total estimated potential impact to 24,288 Family members. The total population of Army employees and their Families directly affected under Alternative 1 would be projected to be 40,288.

[13] This number was derived by assuming the loss of two BCTs, 60 percent of Fort Drum's non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 16,000. The 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 8,000.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative range. Table 4.8-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, changes in population, employment, income, and sales in the ROI under Alternative 1 fall outside the historical range and are categorized a significant impact.

Table 4.8-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	12.3	8.7	10.8	6.5
Economic contraction significance value	-6.7	-4.7	-3.0	-1.0
Forecast value	-12.5	-16.4	-34.4	-34.4

Table 4.8-6 summarizes the predicted impacts to income, employment, and population of the reductions against the 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

Table 4.8-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$877,512,000	-17,544 (Direct)	-40,288
		-1,558 (Induced)	
		-19,102 (Total)	
Total 2012 ROI economic estimates	$5,327,673,000	54,286	120,941
Percent reduction of 2012 figures	-16.5	-35.2	-33.3

Note: Sales estimates are not consistently available from public sources for all counties in the United States; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from EIFS is described in the paragraphs below.

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. The EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 16,000 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 1,544 direct contract service jobs would also be lost. An additional 1,558 induced jobs would be lost because of the reduction

in demand for goods and services within the ROI. The total reduction in employment is estimated to be 19,102, a significant reduction of 35.2 percent from the total employed labor force in the ROI of 54,286. Income is estimated to be reduced by $877.5 million, a 16.5 percent decrease in income from 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $763.5 million. There would also be a loss in sales tax receipts to local and state governments. The state and average local sales tax for New York is 8.47 percent (Tax Foundation, 2014). To estimate sales tax reductions, information was utilized on the proportion of sales that would be subject to sales taxes on average across the country. According to the U.S. Economic Census an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $763.5 million resulting in an estimated sales tax receipts decrease of $10.3 million under Alternative 1.

Of the 120,941 people (including those residing on Fort Drum) who live within the ROI, 16,000 Army employees and their estimated 24,288 Family members would potentially no longer reside in the area under Alternative 1, resulting in a significant population reduction of 33.3 percent. Although some people no longer employed by the military could continue to live and work within the ROI, due to the rural nature of the area and Fort Drum as a dominant employer and economic driver of the ROI, most displaced forces would likely move out of the area to seek other opportunities with the Army or elsewhere. In addition, Jefferson County currently has the third highest unemployment rate of the 62 counties in the state of New York (New York Department of Labor, 2014), resulting in few employing sectors in the ROI to absorb displaced military employees. A small number of displaced forces may stay in the ROI and seek work, finding work, and others may remain unemployed and affect the unemployment rate in the ROI.

Housing

The population reduction would lead to a considerable decrease in demand for housing and vacant housing units on Fort Drum and in the ROI, resulting in a reduction in median home values with impacts on the real estate market and foreclosures in the ROI.

In addition to depressing rental rates and lowering home values, there would not be residents to fill the over-30 housing complexes (approximately 5,000 units) constructed in the ROI to support Soldier’s housing needs. The loss of residents would not be filled by the local population. Alternative 1 would lead to a loss of revenue and income necessary to maintain housing units, potentially cause a raise in property taxes, and likely drive investors to default on loans in the ROI (Fort Drum, 2014b). Overall, Alternative 1 would have significant, adverse impact on housing throughout the ROI.

Schools

Under Alternative 1, a reduction of 16,000 Soldiers and Army civilians would result in a reduction in the number of children living in the ROI. Carthage Central, Indian River Central, and Watertown City school districts are expected to experience a decline in enrollment. It is likely that the majority of remaining military Families would choose to locate to the on-installation Family housing, and the bulk of the students would be enrolled at Indian River and Carthage Central. Watertown City School District would, therefore, experience a considerable decrease in student enrollment related to the loss of military Families to the installation.

The three aforementioned school districts would experience significant, adverse impacts under Alternative 1. Student population would decrease by more than 2,000 at the Indian River School District; approximately 1,900 at the Carthage Central School District; and 800 at the Watertown City School District. Current enrollment at these school districts is 4,343; 3,545; and 3,973, respectively (Fort Drum, 2014b). This decline is estimated to result in the termination of teachers, professional staff, and support staff and an associated loss of salary and benefits. Schools may need to close or consolidate with other schools within the same school district.

The reduction of Soldiers on Fort Drum would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal School Impact Aid a district receives is based on the number of students who are considered “federally connected” and attend district schools. The three school districts currently receive up to $32,000,000 in Federal Impact Aid (Fort Drum, 2014b). The loss of most of the Federal Impact Aid as well as the loss of state financial support would reduce or eliminate important educational support programs. The loss of approximately 16,000 active component Soldiers, Army civilians, and their Family members will decrease the amount of Federal Impact Aid dollars being provided to these schools. Overall, significant, adverse impacts to schools under Alternative 1 would occur to the Carthage Central, Indian River Central, and Watertown City school districts.

A decrease of 16,000 Soldiers would reduce the JCC’s enrollment (Fort Drum, 2014b) with implications for the college’s revenue, operating budget, staffing, and degree programs. Decreases in Soldier population will adversely impact the viability of the college’s residence hall project because of the impact on enrollment and corresponding softening of the housing market.

Public Services

The demand for law enforcement, medical care providers, and fire and emergency service providers on the installation would decrease if Soldiers, Army civilians, and their Families affected under Alternative 1 move to areas outside the ROI. Adverse impacts to public services could occur if personnel cuts were to substantially affect military police and fire and rescue crews on the installation. Recently, a for-profit provider of emergency medical services invested in a large capital expansion to meet the needs of the Fort Drum growth. Volunteer fire and

ambulance services as well as private emergency service providers would be adversely affected under Alternative 1.

Additionally, community hospitals and medical service providers rely on Army funding for their operations. Medical personnel cuts would adversely affect local hospitals and the services they provide for the remaining Soldiers and Families and the civilian rural population surrounding Fort Drum. Combined military spending on healthcare in the community healthcare system outside the installation is approximately $57.7 million (Fort Drum, 2014b). Under Alternative 1, the loss of military revenue would result in hospital and other clinic closures and loss of access to specialty services. Five hospitals in the Fort Drum health service area have recently been upgraded. Additional financial burden would be placed on companies, communities, and institutions, with implications for the provision of services and viability of operations. Impacts to healthcare services are anticipated because funding, support, time, donations, and tax revenue are directly related to the number of military authorizations and the number of Family members.

Overall, adverse impacts to public health and safety would occur under Alternative 1. Although the level and number of services may decrease at medical facilities on the installation and in the ROI, the Army, regardless of any drawdown in military or civilian personnel, is committed to meeting health and safety requirements.

Family Support Services and Recreation Facilities

Family Support Service and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. As a result, Family Support Services and recreation facilities would experience minor impacts under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, provides: “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations” (EPA, 1994). In general, Alternative 1 would not have a disproportionate adverse impact to minorities, economically disadvantaged populations or children in the ROI. Job losses would be experienced across all income levels and economic sectors and spread geographically throughout the ROI. Minority populations in the ROI are proportionally much smaller than in the state as a whole, so there would be no disproportionate effect on environmental justice populations.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that

may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed implementing required environmental compliance and meeting the health and safety needs of the people associated with the installation, including children. Therefore, it is not anticipated that implementing Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.8.13 Energy Demand and Generation

4.8.13.1 Affected Environment

The energy demand and generation affected environment of the Fort Drum installation remains the same as described in Section 4.6.8.1 of the 2013 PEA.

4.8.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, impacts to energy demand and generation would be the same as described in the 2013 PEA and would be minor. Fort Drum would continue to consume similar types and amounts of energy, and maintenance of existing utility systems would continue.

Alternative 1—Implement Force Reductions

Minor, beneficial impacts to energy demand are anticipated because force reductions would reduce the installation's overall demand for energy. The installation would also be better positioned to meet energy and sustainability goals.

4.8.14 Land Use Conflicts and Compatibility

4.8.14.1 Affected Environment

The land use affected environment of the Fort Drum installation remains generally the same as described in Section 4.6.9.1 of the 2013 PEA; since completion of the 2013 PEA, the installation boundary has been surveyed and the total acreage updated to 108,733 acres.

4.8.14.2 Environmental Effects

No Action Alternative

The 2013 PEA anticipated negligible land use impacts, since installation activities at Fort Drum would not change. Negligible impacts to land use are expected to continue under the No Action Alternative.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that force realignments at Fort Drum would result in negligible land use impacts, since additional units would use existing lands and facilities and stationing would not cause changes to existing or regional land use. Under Alternative 1, impacts from force reductions would be continue to be negligible, as described in the 2013 PEA.

The Army is also committed to ensuring that personnel cuts will not result in non-compliance with land use ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Drum, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including land use ordinances and regulations.

4.8.15 Hazardous Materials and Hazardous Waste

4.8.15.1 Affected Environment

Hazardous materials and hazardous waste are among the VECs excluded from detailed analysis in the 2013 PEA (Section 4.6.1.2) due to lack of significant, adverse environmental impacts resulting from implementing the analyzed alternatives. No substantial changes have occurred to the affected environment since 2013.

4.8.15.2 Environmental Effects

No Action Alternative

As stated in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative. Use of hazardous materials and generation of hazardous wastes would continue on Fort Drum in accordance with all applicable laws, regulations, and plans.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts from hazardous materials and hazardous waste would occur on Fort Drum. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on Fort Drum. Alternative 1 would not negatively impact the current hazardous waste handling capabilities on Fort Drum. Because of the reduced numbers of people, it is expected that the

potential for spills would be reduced further during training and maintenance activities under Alternative 1.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Fort Drum, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.8.16 Traffic and Transportation

4.8.16.1 Affected Environment

The transportation affected environment of the Fort Drum ROI remains the same as described in Section 4.6.10.1 of the 2013 PEA.

4.8.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated minor, adverse impacts. Significant transportation improvements have been undertaken as described in the 2013 PEA, including new highway connectors leading directly to the installation and new traffic signals on the installation to provide needed capacity for current and future conditions.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Drum would result in minor, adverse impacts to traffic and transportation systems. That assessment has been changed to a beneficial impact for the additional force reductions (Fort Drum, 2014a).

4.8.17 Cumulative Effects

As noted in the 2013 PEA, the ROI consists of Jefferson County, New York. Section 4.6.11 of the 2013 PEA noted a number of on and off installation actions that may present further effects to the installation and surrounding community when the effects of these actions are considered cumulatively.

Reasonably Foreseeable Future Projects on Fort Drum

Additional actions identified by the installation beyond those noted in the cumulative effects analysis of the 2013 PEA include the following:

- An additional UAS hangar at the Air National Guard MQ-9 LRE facility
- A new Army MQ-1 UAS facility
- An addition to the Network Enterprise Command building
- Two Army and Air Force Exchange Service restaurant/shoppette/fuel station improvement projects
- Several MILCON and infrastructure projects

Reasonably Foreseeable Future Projects outside Fort Drum

Reasonably foreseeable future projects outside Fort Drum which would be appropriate for inclusion in the cumulative impacts analysis include the following:

- Several housing projects (1,201 units) with an estimated total cost of $279 million
- Clayton Harbor Hotel
- Mixed use/retail projects—A three-story development on Clayton waterfront (mixed use), Western Blvd commercial development in Watertown, a Family Dollar in West Carthage
- Downtown Watertown development projects
- Restaurants—Sonic in Watertown and Captain's House in Clayton
- Other construction projects—JCC Dorms, RV Park/Campsite in Alexandria Bay, Mobile Home Park in Cape Vincent, Mobile Home Park in Brownville
- Corporate parks—Two buildings in the Jefferson County Corporate Park, Watertown Airport Corporate Park development, Purcell Corporate Park developments on Bradley Street in the city of Watertown and off Washington Street in the town of Watertown
- COR Mercy Hospital redevelopment project
- Lincoln Building revitalization project
- Brighton Building project
- Empsall's Building restoration project

In addition, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, smaller, less diversified economies will be more vulnerable to the force reductions and provide fewer opportunities to displaced Army employees.

No Action Alternative

The cumulative effects due to the No Action Alternative are essentially the same as was determined in the 2013 PEA, and will be beneficial through minor and adverse. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1–Implement Force Reductions

Overall, the potential cumulative impacts of Alternative 1 at Fort Drum is anticipated to be significant and adverse for socioeconomics, with generally reduced impacts for the other resources, ranging from minor, adverse to beneficial.

The socioeconomic impact under Alternative 1, as described in Section 4.8.12.2, with a reduction of 16,000 Soldiers and Army civilians could lead to significant impacts to the population, regional economy, schools, and housing in the ROI. Fort Drum has long been an economic driver in the ROI employing over 22,000 people on the installation. The small, rural economy of the ROI depends on the installation's employment and economic activity. With fewer opportunities for employment, the ROI would not be able absorb many of the displaced military employees. In Jefferson County, the Armed Forces accounted for 32 percent of the workforce, demonstrating the importance of installation to employment in the region.

Additionally, non-federal investments have been made by private companies and local communities and governments to support Army installations. With decreased population, employment, spending, and economic activity within the ROI, additional financial burden may be placed on companies, communities, and institutions, with implications for the provision of services and viability of operations. Impacts to multiple regional community services and schools are anticipated because they receive funding, support, time, donations, and tax revenue directly related to the number of military authorizations and the number of Family members. These cumulative, adverse impacts to the regional economy would contribute to more significant, adverse impacts under Alternative 1.

Stationing changes would also affect regional economic conditions through the jobs and income they bring (or lose) within the region. Military personnel spend their money in the ROI economy, supporting additional jobs, income, taxes, and sales impacts. Other infrastructure improvements and construction and development activity would also benefit the regional economy through additional economic activity, jobs, and income in the ROI; however, these benefits would not offset the adverse impacts under Alternative 1 and other adverse cumulative actions. Under Alternative 1, the loss of 16,000 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have significant impacts to employment, income, tax receipts, housing values, and schools in the ROI.

4.9 Fort Gordon, Georgia

4.9.1 Introduction

Fort Gordon was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population, is discussed in Section 4.7.1 of the 2013 PEA.

Fort Gordon's 2011 baseline permanent party population was 8,142. In this SPEA, Alternative 1 assesses a potential population loss of 4,600, including approximately 3,922 permanent party Soldiers and 761 Army civilians.

4.9.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Gordon; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.9-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.9-1. Fort Gordon Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Negligible	Negligible
Noise	Negligible	Beneficial
Soils	Negligible	Negligible
Biological Resources	Negligible	Negligible
Wetlands	Negligible	Negligible
Water Resources	Negligible	Negligible
Facilities	Less than Significant	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	Significant, but Mitigable	Beneficial
Hazardous Materials and Hazardous Waste	Negligible	Negligible
Traffic and Transportation	Negligible	Beneficial

4.9.3 Air Quality

4.9.3.1 Affected Environment

Air quality is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.7.1.2 due to lack of significant, adverse environmental impacts resulting from implementing alternatives included in the analysis. No changes have occurred to the affected environment since 2013. The Fort Gordon area has not been designated as a nonattainment area for any criteria pollutants (EPA, 2013).

4.9.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, continuation of mobile and stationary source emissions at current levels would result in minor, adverse impacts to air quality.

Alternative 1—Implement Force Reductions

Force reductions at Fort Gordon would result in minor, long-term beneficial impacts to air quality due to reduced operations and training activities and reduced vehicle miles travelled associated with the facility.

The relocation of personnel outside of the area due to force reductions could result in negligible, short-term effects on air quality associated with mobile sources. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with air quality regulations. Even if the full end-strength reductions were to be realized at Fort Gordon, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.9.4 Airspace

4.9.4.1 Affected Environment

Airspace is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.7.1.2 because of lack of significant, adverse environmental impacts from implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013. As described in the 2013 PEA, Fort Gordon has restricted airspace over its artillery firing points and artillery impact area. The FAA designator for the airspace is R-3004A and R-3004B and go up to 8,000 feet and 20,000 feet above ground level, respectively.

4.9.4.2 Environmental Effects

No Action Alternative

For the current analysis, Fort Gordon would continue to maintain current airspace operations and current airspace classifications and restrictions are sufficient to meet current airspace requirements, and negligible impacts to airspace would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that negligible impacts to airspace would occur at Fort Gordon. Under Alternative 1, implementation of proposed further force reductions would continue negligible, adverse impacts to airspace. Reductions at Fort Gordon would not result in changes to airspace classifications nor would it change the frequency or intensity of activities at Fort Gordon that require the use of airspace.

4.9.5 Cultural Resources

4.9.5.1 Affected Environment

Cultural resources were dismissed from detailed analysis in Section 4.7.1.2 of the 2013 PEA because of negligible impacts associated with implementing the alternatives included in that analysis. In addition to an ICRMP, For Gordon has a Programmatic Agreement between the U.S. Army and the Georgia SHPO to facilitate daily management of its cultural resources (Fort Gordon, 2006). As described in the 2013 PEA, existing protocols and procedures outlined in the Fort Gordon ICRMP (2011) and other agreements describe the standard operating procedures for managing and protecting resources on the installation would continue to be followed. There have been no changes in the affected environment since 2013.

Fort Gordon has completed Phase 1 archaeological surveys of approximately 95 percent of the installation. The 2013 PEA documented 1,150 archaeological sites; 41 have been determined eligible for listing in the NRHP and 114 are potentially eligible. These include both prehistoric and historic sites. There are 43 known historic cemeteries that date to before the establishment of the installation and two World War II Prisoner of War cemeteries.

Additionally, as noted in the 2013 PEA, an installation-wide architectural survey has been completed. Through consultation with the SHPO the installation has determined that a single architectural resource, the Woodworth Library, is eligible for listing in the NRHP, and 43 have been recommended for re-evaluation upon reaching 50 years of age. They will likely be determined eligible for listing in the NRHP as a district.

4.9.5.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to cultural resources and the affected environment would remain in its current condition.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts to cultural resources would occur at Fort Gordon due to continued use of existing protocols and procedures that ensure the consideration of cultural resources during undertakings with the potential to affect resources. Fort Gordon anticipates that a further reduction in forces would not change this finding because the protocols and procedures currently in place would continue to be used.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort Gordon, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations at Fort Gordon.

As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic structures from these activities are not analyzed. If future analysis indicates that it is necessary to vacate or demolish structures as a result of force reductions, the installation would comply with applicable laws, such as NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects.

4.9.6 Noise

4.9.6.1 Affected Environment

Noise is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.7.1.2, due to negligible impacts as a result of implementing alternatives included in that analysis. The primary source of noise at Fort Gordon is military training activities. Other sources of noise include operation of civilian and military vehicles, lawn and landscape equipment, construction activities, and vehicle maintenance operations.

4.9.6.2 Environmental Effects

No Action Alternative

The 2013 PEA anticipated negligible noise impacts, since noise from construction and military training activities at project and range training sites would remain contained within the installation boundary and noise generating activities carried out on the installation would not

change. Negligible impacts to noise at Fort Gordon would continue under the No Action Alternative.

Alternative 1—Implement Force Reductions

Alternative 1 would result in beneficial noise impacts, with a slight decrease in the amount of training related noise.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with noise ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Gordon, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including noise ordinances and regulations.

4.9.7 Soils

4.9.7.1 Affected Environment

Soils are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.7.1.2 due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

4.9.7.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible, adverse impacts to soils and the affected environment would remain in its present state.

Alternative 1—Implement Force Reductions

Per Section 4.7.1.2 of the 2013 PEA, there would be negligible impacts to soils under Alternative 1. Decreases in military training would reduce erosion levels and the amount of soil displaced.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Gordon, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations. Therefore, impacts under Alternative 1 at Fort Gordon would be beneficial and remain the same as those discussed in Section 4.7.1.2 of the 2013 PEA.

4.9.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.9.8.1 Affected Environment

The affected environment for biological resources at Fort Gordon has not had substantive changes since 2013, as described in Section 4.7.1.2 of the 2013 PEA. Biological resources are among the VECs excluded from detailed analysis in the 2013 PEA due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis.

4.9.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts similar to those that are currently occurring to biological resources, as described in Section 4.7.1.2 of the 2013 PEA. Fort Gordon would continue to adhere to its existing military land use as described in accordance with the installation's INRMP (Fort Gordon, 2008) and ESMP, terms and conditions identified within Biological Opinion(s) issued by USFWS and any conservation measures identified in the ESA Section 7 consultation documents.

Alternative 1—Implement Force Reductions

Under Alternative 1, negligible impacts are anticipated to biological resources at Fort Gordon. The threatened and endangered species recorded on the installation would continue to be managed in accordance with the installation's INRMP and ESMP, terms and conditions identified within Biological Opinion(s) issued by USFWS and any conservation measures identified in ESA, Section 7 consultation documents. No change in impacts or management is anticipated to occur as a result of the implementation of this alternative. Minor, beneficial impacts of reduced wildlife disturbance and vegetative disturbance are anticipated as a result of this alternative.

Additional adverse impacts could conceivably occur if force reductions prevented environmental compliance from being implemented., the Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Gordon, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met.

4.9.9 Wetlands

4.9.9.1 Affected Environment

Wetlands are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.7.1.2 due to lack of significant, adverse environmental impacts as a result of implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013.

4.9.9.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible, adverse impacts to wetlands and the affected environment would remain in its present state.

Alternative 1—Implement Force Reductions

Per Section 4.7.1.2 of the 2013 PEA, there would be negligible changes to wetlands under Alternative 1. The Army is also committed to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Impacts to wetlands could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Gordon, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at Fort Gordon would remain the same as those discussed in Section 4.7.1.2 of the 2013 PEA.

4.9.10 Water Resources

4.9.10.1 Affected Environment

Water resources are among the VECs excluded from detailed analysis as described in Section 4.7.1.2 of the 2013 PEA due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

4.9.10.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would continue to result in negligible impacts to water resources similar to those described in Section 4.7.1.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 in the 2013 PEA, negligible impacts to water resources in general would occur on Fort Gordon, as well as beneficial impacts including reduction in water consumption and wastewater treatment generated. Fort Gordon anticipates that further proposed reduction in forces would not change this finding because Alternative 1 of this SPEA does not involve major changes to installation operations or types of activities conducted on Fort Gordon, only a decrease in the frequency of training activities. The installation would continue to manage water resources in accordance with applicable federal and state water quality criteria, drinking water standards, and stormwater and floodplain management requirements.

Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Fort Gordon, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented.

4.9.11 Facilities

4.9.11.1 Affected Environment

The facilities affected environment of the Fort Gordon installation remains the same as described in Section 4.7.2.1 of the 2013 PEA.

4.9.11.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that there would be less than significant, adverse impacts under the No Action Alternative to facilities at Fort Gordon. The installation currently has a shortage of facilities such as dining facilities, housing, warehouses, and ranges. The No Action Alternative and known future stationing actions would increase the facility shortage issues. Temporary facilities and building renovations are planned to correct the deficiencies; however, adverse impacts would continue as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that less than significant, adverse impacts to facilities would occur on Fort Gordon. Under Alternative 1, implementation of the proposed further force reductions would result in overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities,

which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demands for utilities and reduced demands for training facilities and support services. Force reductions would also provide opportunities to reduce reliance on select outdated facilities. Some facilities could be re-purposed to reduce crowding or support other units. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.9.12 Socioeconomics

4.9.12.1 Affected Environment

Fort Gordon is located southwest of Augusta, Georgia, approximately halfway between Atlanta, Georgia and Columbia, South Carolina. The ROI includes Richmond, Jefferson, McDuffie, and Columbia counties in Georgia. The ROI for Fort Gordon includes those areas that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, and contractor personnel and their Families reside. Fort Gordon was also discussed in Section 4.7.3 of the 2013 PEA.

Population and Demographics

Using 2011 as a baseline, Fort Gordon has a total working population of 22,020 consisting of full-time Army Soldiers and Army civilians, students and trainees, other military services, civilians and contractors. Of the total working population, 8,142 are permanent party Soldiers and Army civilians. The population that lives on Fort Gordon consists of 1,004 Soldiers and civilians and an estimated 2,566 Family members, for a total on-installation resident population of 3,570. The portion of the Soldiers and Army civilians living off the installation is estimated to be 17,973 and consists of Soldiers, Army civilians, and their Families (Drumm, 2014).

Fort Gordon is home to the Cyber Center of Excellence and provides Communications and Information Technology training for Soldiers. Students are based at Fort Gordon for the expected length of their assigned curriculum, which may range from 4 days to 8 months. Fort Gordon averages approximately 5,700 students assigned for training and can accommodate up to 4,434 students in on-installation housing (Drumm, 2014). Any remaining students would be accommodated in local lodging facilities or rental units.

In 2012, the population of the ROI was more than 360,000. Between 2010 and 2012, population increased in Columbia and Richmond counties and decreased in Jefferson and McDuffie counties (Table 4.9-2). The racial and ethnic composition of the ROI is presented in Table 4.9-3 (U.S. Census Bureau 2012a).

Table 4.9-2. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Columbia County, Georgia	131,563	+9.2
Jefferson County, Georgia	16,460	-2.8
McDuffie County, Georgia	21,650	-1.0
Richmond County, Georgia	202,672	+1.1

Table 4.9-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of Georgia	62.8	31.2	0.5	3.5	1.8	9.2	55.1
Columbia County, Georgia	76.7	16.0	0.4	4.1	2.7	5.6	72.2
Jefferson County, Georgia	44.4	53.9	0.2	0.5	0.9	3.4	41.6
McDuffie County, Georgia	57.1	40.6	0.4	0.4	1.4	2.5	55.3
Richmond County, Georgia	40.3	54.9	0.4	1.7	2.4	4.5	37.3

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Income

Employment increased in the state of Georgia and in Columbia County between 2000 and 2012, while it decreased in the remaining counties in the ROI (Table 4.9-4). The percentage of population living below the poverty level in Jefferson County was 13 percent higher than the same measure of poverty at the state level. Additionally, this county had a median household income that was almost half that of the state level in 2012. Employment, median home value and household income, and poverty levels are presented in Table 4.9-4.

Table 4.9-4. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Georgia	4,333,284	+11	$156,400	$49,604	17
Columbia County, Georgia	59,502	+35	$171,400	$67,295	8
Jefferson County, Georgia	5,846	-2	$69,700	$27,612	30
McDuffie County, Georgia	8,539	-5	$105,000	$38,855	21
Richmond County, Georgia	85,072	-2	$102,500	$38,952	24

Information regarding the workforce by industry for each county within the ROI was obtained from the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for the employed labor force.

Columbia County, Georgia

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of the workforce in Columbia County at 33 percent of the total workforce. The professional, scientific, and management, and administrative and waste management services sector; retail trade sector; and manufacturing sector each account for 10 percent of the of the workforce. The Armed Forces account for 3 percent of the workforce in Columbia County. The remainder of employment sectors account for 44 percent of the total workforce.

Jefferson County, Georgia

The primary source of employment in Jefferson County is the educational services, and health care and social assistance sector (23 percent). Manufacturing is the second largest employment sector (18 percent), followed by retail trade (11 percent). The Armed Forces account for less than 1 percent of the Jefferson County workforce. The remaining sectors employ 48 percent of the workforce.

Richmond County, Georgia

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Richmond County (24 percent). Retail trade is the second largest employment sector (11 percent), followed the arts, entertainment, and recreation, and accommodation and food services sector (9 percent). The

Armed Forces account for 6 percent of the Richmond County workforce. The remaining sectors account for 50 percent of the total workforce.

McDuffie County, Georgia

The educational services and health care and social assistance sector accounts for the greatest share of the total workforce in McDuffie County (20 percent). Manufacturing is the second largest sector (17 percent), followed by construction (12 percent). Retail trade also accounts for a significant share of the total workforce in McDuffie County (11 percent). The Armed Forces account for less than 1 percent of the McDuffie County workforce. The remaining sectors account for 40 percent of the total workforce.

Housing

There are currently 1,080 Family housing units on Fort Gordon. Additionally, there are 1,932 permanent party bed spaces within 31 Barracks units on the installation (Helmlinger, 2014).

Schools

Children of military personnel attend school in many different counties in the ROI, but predominantly attend schools in Richmond and Columbia counties. Currently, 56 public schools are located in Richmond County, 41 of these schools are Title I schools (73 percent). Title I schools receive extra federal money because they have high concentrations of low-income families and students who qualify for free or reduced price lunch. The Richmond County School System is participating in a Federal Program entitled: The Community Eligibility. This program falls under the 2010 Healthy, Hunger-Free Kids Act. Schools in Richmond County received $1.2 million and Columbia County received $480,000 in Federal Impact Aid from the U.S. Department of Education in FY 2011. The Georgia Department of Education collects enrollment counts from all school districts several times throughout any given school year. These are referred to as Full-Time Equivalency counts (Drinnen, 2014). There has been a steady trend in enrollment growth for both counties recently. The 2013 PEA contains further details on schools within the ROI.

Public Health and Safety

Police Services

The Fort Gordon Police Department, a part of DES, provides law enforcement and property protection at Fort Gordon. Police functions include protecting life and property, enforcing criminal law, conducting investigations, regulating traffic, providing crowd control, and performing other public safety duties. City, county, and state police departments provide law enforcement in the ROI.

Fire and Emergency Services

The Fort Gordon Fire Department, a part of DES, provides emergency firefighting and rescue services at Fort Gordon. Fire prevention is another service provided by the Fort Gordon Fire Department. Fire prevention activities include providing fire safety inspections, ensuring that structures meet all applicable codes and regulations, and also providing awareness and safety training to the installation.

Medical Facilities

The Dwight D. Eisenhower Army Medical Center at Fort Gordon provides healthcare services for military personnel, Family members, and to military retirees and their Family members. The medical center currently has a contract for birthing services for Army Families with Trinity Hospital in Augusta. Fort Gordon also provides dental services and supports a Warrior Transition Battalion. In addition to the services at the Dwight D. Eisenhower Army Medical Center, there are plans for a Blood Donor Center and a Consolidated Troop Medical Clinic.

Family Support Services

The Fort Gordon FMWR and ACS provide programs, activities, facilities, services, and information to support Soldiers and Families. Services provided at Fort Gordon include child care, youth programs, and deployment readiness for Families, employment readiness, financial readiness, relocation readiness, exceptional Family member support, Warrior in Transition support, and survivor outreach.

Recreation Facilities

The Fort Gordon FMWR provides facilities and programs for recreation including fitness centers, swimming pools, athletic fields, a golf course, bowling center, outdoor recreation opportunities, and sports teams.

4.9.12.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, regional economic activity would continue to benefit from operations at Fort Gordon. No changes in employment, support contracts, goods and services purchased or changes in military operations at Fort Gordon are anticipated.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of up to 4,683[14] Army positions (3,922 Soldiers and 761 Army civilians), each with an average annual income of $46,760 and $56,723, respectively. In addition, this alternative would affect an estimated 2,613 spouses and 4,496 dependent children for a total estimated potential impact to 7,109 Family members. The total population of military employees and their Family members potentially affected under Alternative 1 would be projected to be 11,792.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative range. Table 4.9-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, changes in population in the ROI under Alternative 1 fall outside the historical range and are categorized as a significant impact. However, there would not be a significant impact to sales, employment, or income because the estimated percentage change is within the historical range.

Table 4.9-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	8.9	5.6	4.0	2.2
Economic contraction significance value	-7.0	-5.1	-9.4	-1.5
Forecast value	-1.5	-2.2	-3.8	-2.8

Table 4.9-6 shows the predicted impacts to income, employment, and population of the reductions against the 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

[14] This number was derived by assuming the loss of 70 percent of Fort Gordon's Soldiers and 30 percent of the Army civilians to arrive at 4,683. The 2013 PEA assumed the loss of 35 percent of Fort Gordon's Soldiers and 15 percent of the Army civilians to arrive at 4,300.

Table 4.9-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$282,631,700	-5,243 (direct)	-11,792
		-1,000 (induced)	
		-6,243 (total)	
Total 2012 ROI economic estimates	$13,609,467,000	158,959	372,345
Percent reduction of 2012 figures	-2.1	-3.9	-3.1

Note: Sales estimates are not consistently available from public sources for all counties in the United States; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from EIFS is described in the paragraphs below.

With a potential reduction in the population in the ROI, losses in income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Due to the loss of 4,683 Army Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 560 direct contract service jobs would be also lost. An additional 1,000 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. Total reduction in employment is estimated to be 6,243, a 3.9 percent reduction of the total employed labor force in the ROI of 158,959. Income is estimated to reduce by $282.6 million, a 2.1 percent decrease in income from 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $348.3 million. There would also be a loss in sales tax receipts to local and state governments. The average state and local sales tax rate for Georgia is 7.0 percent (Tax Foundation, 2014). To estimate sales tax reductions, information was utilized on the proportion of sales that would be subject to sales tax on average across the country. According to the U.S. Economic Census an estimated 16 percent of sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $348.4 million resulting in an estimated sales tax receipts decrease of $3.9 million under Alternative 1.

Of the approximately 372,345 people (including those residing on Fort Gordon) who live within the ROI, 11,792 Army employees and their Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 3.1 percent. This number could overstate potential population impacts because some of the people no longer employed by the military could continue to live and work within the ROI, finding employment in other industry sectors. However, due to the rural nature of the area and Fort Gordon as a dominant employer and economic driver of the ROI, most displaced employees would likely move out of the area to seek other opportunities with the Army or other employers. There are few employing sectors in the ROI to absorb displaced military employees. A small number of displaced personnel may seek and find work in the ROI; however, others may not be able to find new employment, with possible implications for the unemployment rate.

Students and trainees and their visitors at Fort Gordon may have a substantial impact on the local economy through lodging, eating, and shopping expenditures. Additionally, formal graduation ceremonies generate demand for lodging and dining facilities when Family members attend. The impact to Fort Gordon's training missions cannot be determined until after the Army completes its force structure decisions; therefore, analyzing the impact to those missions is beyond the scope of this document.

Housing

The population reduction would lead to a decreased demand for housing and increased housing availability on the installation and in the region, potentially resulting in a reduction in median home values. It is expected that Alternative 1 would have a minor, adverse impact to housing throughout the ROI.

Schools

Under Alternative 1, the reduction of 4,683 Army personnel would potentially decrease the number of children by 4,496 in the ROI. It is anticipated that school districts that provide education to children on Fort Gordon as well as schools in Richmond and Columbia counties would be impacted by this action, resulting in a decline in enrollment. School districts with larger portions of military children in proximity to Fort Gordon would be more affected than those with fewer military students. If enrollment in individual schools declines substantially, schools may need to reduce the number of teachers, administrators, and other staff, and potentially close or consolidate with other schools within the same school district should enrollment fall below sustainable levels.

The reduction of Soldiers on Fort Gordon would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal Impact Aid a district receives is based on the number of students who are considered "federally connected" and attend district schools. Actual projected dollar amounts cannot be determined at this time due to the variability of appropriated dollars from year to year, and the uncertainty of actual number of affected school-age children for military and civilian Families. School districts in the ROI would likely need fewer teachers and materials as enrollment drops, which would partially offset the reduced Federal Impact Aid. Overall, adverse impacts to schools associated with Alternative 1 would be minor to significant depending on the reduction in the number of military-connected students attending specific schools.

Public Services

The demand for law enforcement, medical care providers, and fire and emergency service providers on the installation may decrease if Soldiers, Army civilians, and their Families affected under Alternative 1 move to areas outside the ROI. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable, however,

and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements.

However, as described under the 2013 PEA, there is a potential for adverse impacts to public health under Alternative 1. In FY 2010, Fort Gordon paid local hospitals and health care providers $148.5 million for care of active component Soldiers and maintained a $3.7 million contract with Trinity Hospital for all obstetrics care. These contracts provided a total of 152.2 million to local health care facilities. Reduction in Army personnel assigned to Fort Gordon would likely reduce the amount of local medical contracts. Additional financial burden would be placed on companies, communities, and institutions, with implications for the provision of services and viability of operations. Impacts to healthcare services are anticipated because they receive funding, support, time, donations, and tax revenue directly related to the number of military authorizations and the number of Family members. Therefore, it is possible that adverse impacts to public services could conceivably occur if personnel cuts were to affect hospitals off the installation. However, the impacts to public services are not expected to be significant because the service level for the installation and the ROI would still be provided.

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. As a result, minor impacts to Family Support Services and recreation facilities would occur under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, provides: “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations” (EPA, 1994). The racial and ethnic composition of the ROI differs from that of the state as a whole. There are larger African American populations in all ROI counties, with the exception of Columbia County, when compared to the state’s proportions of these populations. Additionally, Jefferson County has a higher portion of people living in poverty when compared to the state of Georgia as a whole. Alternative 1 would impact the minority populations in the ROI. Because minority populations are more heavily concentrated in the ROI, Alternative 1 has the potential to result in adverse impacts to minority-owned and/or -staffed businesses if Soldiers and Army civilians directly affected under Alternative 1 move to areas outside the ROI. With the reduction in the Army economic influence both in Augusta-Richmond County and on the installation, minority and low income Families would be affected. However, these populations would not be disproportionately affected under Alternative 1.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of the people associated with the installation, including children. Therefore, it is not anticipated that implementing Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.9.13 Energy Demand and Generation

4.9.13.1 Affected Environment

Energy demand and generation is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.7.1.2 because there were no significant, adverse environmental impacts from implementing alternatives included in the analysis. As described in the 2013 PEA, Fort Gordon's electric and natural gas systems are both privatized. The Georgia Power Company provides 115-kV primary power to two substations at Fort Gordon (main and hospital), which in turn provide power to the entire installation. The Army Energy Initiatives Task Force is working with the Georgia Power Company to possibly establish a 30 megawatt solar field at Fort Gordon. Natural gas is provided by the Atlanta Gas Light Company. Natural gas is supplied to heating and cooling plants, housing, barracks, medical facilities, academic facilities, and other facilities.

4.9.13.2 Environmental Effects

No Action Alternative

Negligible impacts to energy demand are anticipated under the No Action Alternative. No changes to utility systems would be necessary. As noted in the 2013 PEA, the abundance of energy sources, and adequate supplies from each source, provide Fort Gordon with ample excess energy capacity, allowing it to accommodate a variety of future mission expansion scenarios.

Alternative 1—Implement Force Reductions

The analysis of force reductions included in the 2013 PEA concluded that there would be minor, beneficial impacts to energy demand. Fort Gordon anticipates that further proposed reduction in forces would also have minor, beneficial impacts to energy demand because there would be a decrease in the amount of energy consumed with reduced levels of military personnel and Family members. In addition, the installation would continue to look for opportunities to conserve

energy and consume less energy while becoming more efficient in its usage of its existing energy supply.

4.9.14 Land Use Conflicts and Compatibility

4.9.14.1 Affected Environment

The land use affected environment of Fort Gordon remains the same as described in Section 4.5.13.1 of the 2013 PEA.

4.9.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated that significant but mitigable impacts to land use are anticipated under the No Action Alternative. Urban growth and incompatible development around the installations borders would continue to encroach on the training mission, but implementation of the approved Fort Gordon ACUB proposal would mitigate incompatible growth and reduce potential future training restrictions.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Gordon would slow or halt regional growth around the installation. Impacts would remain significant but mitigable through implementation of the ACUB program. Under Alternative 1, impacts would be similar to those described in the 2013 PEA.

The Army is also committed to ensuring that personnel cuts will not result in non-compliance with land use ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Gordon, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including land use ordinances and regulations.

4.9.15 Hazardous Materials and Hazardous Waste

4.9.15.1 Affected Environment

Hazardous materials and hazardous waste are among the VECs excluded from detailed analysis in the 2013 PEA (Section 4.7.1.2) due to lack of significant, adverse environmental impacts resulting from the implementation of the analyzed alternatives. No substantial changes have occurred to the affected environment since 2013.

4.9.15.2 Environmental Effects

No Action Alternative

As stated in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative. Use of hazardous materials and generation of hazardous wastes would continue on Fort Gordon in accordance with all applicable laws, regulations, and plans.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts from hazardous materials and hazardous waste would occur on Fort Gordon. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on Fort Gordon. Alternative 1 in this SPEA would not negatively impact the current hazardous waste handling capabilities on Fort Gordon. There may be a slight decrease in the amount of hazardous materials and hazardous waste used and disposed of as a result of the implementation of Alternative 1 with reduced levels of military personnel.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste.

As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.9.16 Traffic and Transportation

4.9.16.1 Affected Environment

Transportation resources are among the VECs excluded from detailed analysis in the 2013 PEA for Fort Gordon as described in Section 4.7.1.2, due to negligible impacts as a result of implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013. As described in the 2013 PEA, the basic roadway is adequate for installation traffic, except at major intersections during peak traffic flow.

4.9.16.2 Environmental Effects

No Action Alternative

Negligible impacts to traffic or transportation are anticipated under the No Action Alternative. Traffic LOS would remain the same under the No Action Alternative as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

There would be beneficial overall impacts to traffic and transportation networks as a result of the implementation of Alternative 1. There would be less congestion on and off the installation attributable to the reduction in Soldier and Family member personnel. Less traffic would accumulate at access and entry points around peak working hours.

4.9.17 Cumulative Effects

As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Gordon encompasses four counties in the state of Georgia: Columbia, Jefferson, McDuffie, and Richmond. Section 4.7.5 of the 2013 PEA noted numerous planned or proposed actions within the ROI that reasonably could be initiated within the next 5 years and would have the potential to cumulatively add impacts to Alternative 1. A number of the Army's proposed projects have been previously identified in the installation's Real Property Master Planning Board and are programmed for future execution. Additional actions have been identified beyond those noted in the cumulative effects analysis of the 2013 PEA and are noted below.

Reasonably Foreseeable Future Projects on Fort Gordon

The "Road to Growth" EA is being prepared to analyze potential growth of up to 6,000 personnel associated with various proposed force structure actions.

Reasonably Foreseeable Future Projects outside Fort Gordon

The Army is not aware of any reasonably foreseeable future projects outside Fort Gordon that would be appropriate for inclusion in the cumulative impacts analysis. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, larger economies with more job opportunities could absorb some of the displaced Army workforce, lessening adverse effects for force reductions.

No Action Alternative

Implementation of the No Action Alternative would not result in cumulative impacts. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reduction

Cumulative effects from Alternative 1 would be essentially the same as was determined in the 2013 PEA. Cumulative impacts as a result of the implementation of Alternative 1 could range from beneficial to minor and adverse.

The socioeconomic impact within the ROI described in Section 4.9.12 with a reduction of 4,683 Soldiers and Army civilians would be minor and adverse on the regional economy, schools, and housing with significant impacts to population. Fort Gordon is located in the Augusta, Georgia metropolitan area with over 380,000 residents in the ROI. Because of the large employment base and diverse economy in the region, the ROI would be less vulnerable to these force reductions because other industries and considerable economic activity occurs within the ROI.

Other current and future stationing and realignment activities on the installation, such as the Army Cyber Command and Road to Growth stationing actions, would or have the potential to increase military personnel at Fort Gordon. These changes would likely offset most of the force reductions under Alternative 1, resulting in minimal adverse impacts to population, the regional economy, public services, schools, and housing.

Fort Gordon is home to the Cyber Center of Excellence and provides Communications and Information Technology training for Soldiers. Fort Gordon averages approximately 5,700 students assigned for training at any one time. Reduced training opportunities could result from force reductions on Fort Gordon. This could lead to further adverse impacts to socioeconomic conditions because of reduced temporary population and visitors and the attendant economic activity, spending, and jobs and income they support.

Other construction and development activities on the installation and in the ROI would benefit the regional economy through additional economic activity, jobs, and income in the ROI. Under Alternative 1, the loss of approximately 4,600 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have a minor, adverse impact on socioeconomic conditions in the broader ROI.

4.10 Fort Hood, Texas

4.10.1 Introduction

Fort Hood was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population, is discussed in Section 4.8.1 of the 2013 PEA.

Fort Hood's 2011 baseline permanent party population was 47,190. In this SPEA, Alternative 1 assesses a potential population loss of 16,000, including approximately 14,606 permanent party Soldiers and 1,394 Army civilians.

4.10.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Hood; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.10-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.10-1. Fort Hood Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Beneficial
Cultural Resources	Negligible	Minor
Noise	Negligible	Beneficial
Soils	Minor	Beneficial
Biological Resources	Minor	Beneficial
Wetlands	Negligible	Negligible
Water Resources	Minor	Beneficial
Facilities	Negligible	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	Negligible	Negligible
Hazardous Materials and Hazardous Waste	Negligible	Negligible
Traffic and Transportation	Negligible	Beneficial

4.10.3 Air Quality

4.10.3.1 Affected Environment

The air quality affected environment of the Fort Hood ROI remains the same as described in Section 4.8.2.1 of the 2013 PEA. The Fort Hood area has not been designated as a nonattainment area for any criteria pollutants (EPA, 2013).

4.10.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source emissions at current levels, as well as fugitive dust impacts from training activities, would result in minor, adverse impacts to air quality. Air quality impacts of the No Action Alternative for this SPEA remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Hood would result in long-term, minor, beneficial impacts to air quality due to reduced operations and maintenance activities and reduced vehicle miles travelled associated with the facility. Impacts to air quality from the increased size of the force reductions proposed under Alternative 1 would continue to be beneficial assuming a corresponding decrease in operations and vehicle travel to and from Fort Hood. The size of this beneficial impact under Alternative 1 would be roughly double that anticipated at the time of the 2013 PEA.

The relocation of personnel outside of the area due to force reductions could result in negligible, short-term effects on air quality associated with mobile sources. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with air quality regulations. Even if the full end-strength reductions were to be realized at Fort Hood, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.10.4 Airspace

4.10.4.1 Affected Environment

Airspace is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.8.1.2 because of lack of significant, adverse environmental impacts from implementing alternatives included in that analysis. No changes have occurred to the affected environment

since 2013. As described in the 2013 PEA, Fort Hood has four Army-operated airfields on site with SUA around these airfields being divided into airspace subdivisions that includes R-6302A-E, all based on different geographies and ranging from the surface up to 45,000 feet msl in certain portions. As noted in the 2013 PEA, Fort Hood is currently in the process of expanding its SUA, MOA to include 10,000 feet msl to 17,000 feet msl, which will greatly improve the capacity to train fixed-wing aircraft as well as UAS.

4.10.4.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that there would be negligible impacts to airspace at Fort Hood under the No Action Alternative. For the current analysis, Fort Hood would continue to maintain current airspace operations and current airspace classifications and restrictions are sufficient to meet current airspace requirements and no airspace conflicts are anticipated. Impacts to airspace would be the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA VEC dismissal statement concluded that negligible, beneficial impacts to airspace would occur at Fort Hood. Under Alternative 1, implementation of further force reductions is not expected to change installation operations or the types of activities conducted on Fort Hood. There could potentially be a lower utilization rate of existing SUA as some units where UAS may be inactivated and no longer require the use of the existing SUA. Overall, these reductions would result in a negligible, beneficial impact to airspace.

4.10.5 Cultural Resources

4.10.5.1 Affected Environment

The affected environment for cultural resources at Fort Hood has not changed since 2013, as described in Section 4.8.3 of the 2013 PEA.

4.10.5.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to cultural resources as described in Section 4.8.3.2 of the 2013 PEA. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures.

Alternative 1—Implement Force Reductions

As described in Section 4.8.3.2 of the 2013 PEA, Alternative 1 would have a minor impact on cultural resources. The Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort Hood, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations at Fort Hood.

As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic structures from these activities are not analyzed. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of force reductions, the installation would comply with applicable laws, such as NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects.

This alternative could result in some beneficial effects as a decrease in training activities could reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources.

4.10.6 Noise

4.10.6.1 Affected Environment

The noise affected environment of the Fort Hood installation remains the same as described in Section 4.3.5.1 of the 2013 PEA. The primary sources of noise at Fort Hood include weapons fire and ground maneuver training.

4.10.6.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, negligible impacts to noise were anticipated from the continuing nature, levels, and intensity of noise generating training operations at the installation. Impacts under the No Action Alternative on Fort Hood remain the same as those discussed in Section 4.8.4.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Hood would result in negligible and slightly beneficial noise impacts due to an anticipated reduction in the frequency of noise generating training events. The negligible, beneficial impact under Alternative 1 would be similar to that anticipated at the time of the 2013 PEA.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with noise ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Hood, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including noise ordinances and regulations.

4.10.7 Soils

4.10.7.1 Affected Environment

The soils affected environment on the installation remains the same as was discussed in Section 4.8.5.1 of the 2013 PEA.

4.10.7.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to soils were anticipated from continuing training, to include impacts to soils from removal of or damage to vegetation, digging activities, ground disturbance from vehicles, and ammunition or explosives used in training events. Impacts under the No Action Alternative on Fort Hood remain the same as those discussed in Section 4.8.5.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, negligible, beneficial impacts to soils were anticipated as a result of less use of training areas. A force reduction would result in less erosion, soil compaction, and loss of vegetation.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Hood, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory regulations. Therefore, impacts under Alternative 1 at Fort Hood would be beneficial and remain the same as those discussed in Section 4.8.5.2 of the 2013 PEA.

4.10.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.10.8.1 Affected Environment

The affected environment for biological resources at Fort Hood has not had substantive changes since 2013, as described in Section 4.8.6.1 of the 2013 PEA.

4.10.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in minor impacts similar to those that are currently occurring to biological resources as described in Section 4.8.6.2 of the 2013 PEA. In accordance with Army Regulation 200-1, Fort Hood has prepared an ESMP (Fort Hood, 2007) and an INRMP, which provide comprehensive guidelines for maintaining and enhancing populations and habitats of federally listed and candidate species on Fort Hood while maintaining mission readiness consistent with Army and federal environmental regulations. Fort Hood would also continue briefing units regarding sensitive areas prior to each training event, helping to further minimize any adverse impacts.

Alternative 1—Implement Force Reductions

Under Alternative 1, minor, beneficial impacts are anticipated to biological resources at Fort Hood. Scheduling conflicts for training area access to conduct natural resource monitoring and management activities would be reduced with a projected decrease in the amount of training being conducted. Proactive conservation management practices, such as those outlined in the INRMP, would be more easily accomplished with reduced mission input. The frequency of disturbance of wildlife from training would decrease as a result of this alternative.

Adverse impacts could conceivably occur if force reductions prevented environmental compliance from being implemented. The Army, however, is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Hood, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met.

4.10.9 Wetlands

4.10.9.1 Affected Environment

Wetlands are among the VECs excluded from detailed analysis in the 2013 PEA, as described in Section 4.8.1.2, because of the lack of significant, adverse environmental impacts as a result of implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013.

4.10.9.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to installation wetlands and the affected environment would remain in its present state.

Alternative 1—Implement Force Reductions

Per Section 4.7.1.2 of the 2013 PEA, there would be negligible impacts to wetlands under Alternative 1. The installation would continue to manage its wetlands in accordance with the installation INRMP, and ensure that wetland impacts are avoided and/or mitigated for. Impacts to wetlands could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Hood, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at Fort Hood would remain the same as those discussed in Section 4.7.1.2 of the 2013 PEA.

4.10.10 Water Resources

4.10.10.1 Affected Environment

The affected environment for water resources on Fort Hood remains the same as that described in Section 4.8.7.1 of the 2013 PEA. There are no changes to surface water, waters of the United States, water supply, wastewater, and stormwater resources.

4.10.10.2 Environmental Effects

No Action Alternative

In the 2013 PEA, minor, adverse impacts to water resources were anticipated from the No Action Alternative due to the disturbance and pollution of surface waters from training activities. Surface water impacts under the No Action Alternative would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

Beneficial impacts to water resources were anticipated from implementation of force reductions under Alternative 1 in the 2013 PEA because of reduced demand for potable water supply and wastewater treatment and an increase in available wastewater treatment capacity. Reduction in training area use from force reductions on Fort Hood was also anticipated to potentially reduce impacts to surface waters from disturbance and spills. Increased force reductions under Alternative 1 of this SPEA would continue to have the same beneficial impacts to water supplies, wastewater capacity, and surface waters.

Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Fort Hood, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented.

4.10.11 Facilities

4.10.11.1 Affected Environment

The facilities affected environment of the Fort Hood installation remains the same as described in Section 4.8.8.1 of the 2013 PEA.

4.10.11.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that there would be negligible impacts to facilities under the No Action Alternative at Fort Hood. The Army has prioritized the installation's current facility shortfalls for programming and funding. The installation would continue to use its existing facilities and cantonment areas as they are currently being used; therefore, the impacts would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that minor, adverse impacts to facilities would occur on Fort Hood. Under Alternative 1, implementation of proposed further force reductions would continue to have overall minor, adverse impacts. Impacts would occur from the fact that construction or expansion projects that had been programmed in the future may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities to newer facilities may require modification to existing facilities; and more buildings within the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demands for utilities and reduced demands for training facilities and support services. The force reductions would also reduce reliance on temporary and relocatable structures currently supporting installation administrative functions. Some facilities could be re-purposed to reduce crowding or support other units. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.10.12 Socioeconomics

4.10.12.1 Affected Environment

Fort Hood is located outside Killeen, Texas, in Bell and Coryell counties halfway between Austin and Waco, Texas. The ROI includes Bell, Coryell, and Lampasas counties. The ROI includes counties that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, and contractor personnel and their Families reside. The population and workforce at Fort Hood have long been an essential element of the regional economy.

There are additional counties, such as McLennan and Falls, in which Soldiers and Army civilians and their Families may also reside. However, the number of residents in these counties is expected to be small, and therefore these counties are not included in the ROI. The vast majority of the population and economic impacts would be experienced within the ROI. Fort Hood was also discussed in Section 4.8.9 of the 2013 PEA.

Population and Demographics

Using 2011 as a baseline, Fort Hood has a total working population of 66,385 consisting of active component Soldiers and Army civilians, students and trainees, other military services, civilians and contractors. Of the total working population, 47,190 were permanent party Soldiers and Army civilians. The population that lives on Fort Hood consists of 6,286 Soldiers and their 9,542 Family members for a total resident population of 15,828 (Baldwin, 2014). The portion of Soldiers and Army civilians living off the installation is estimated to be 102,996 and consists of Soldiers, Army civilians, and Family members. Additionally, there are 247 students and trainees associated with the installation.

In 2012, the population of the ROI was 417,992 (U.S. Census Bureau 2012a). Between 2010 and 2012, the population in Bell and Coryell counties increased between 2 and 4 percent while it decreased slightly in Lampasas County (Table 4.10-2). The racial and ethnic composition of the ROI is presented in Table 4.10-3.

Table 4.10-2. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Bell County, Texas	323,536	+4.3
Coryell County, Texas	76,850	+1.9
Lampasas County, Texas	17,606	-1.5

Table 4.10-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of Texas	80.6	12.3	1.0	4.2	1.7	38.2	44.5
Bell County, Texas	68.4	22.4	1.1	3.1	4.2	22.7	49.6
Coryell County, Texas	75	16.8	1.2	2.1	4.1	17.0	60.9
Lampasas County, Texas	90.9	3.7	1.1	1.3	2.7	18.1	74.4

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Income

Between 2000 and 2012, employment increased in the state of Texas, as well as Bell and Lampasas counties, but fell in Coryell County (U.S. Census Bureau, 2000 and 2012b). None of the counties in the ROI have a percentage of their residents living below the poverty level that is substantially greater than the same measure at the state level. Lampasas County had the lowest median household income at $47,968, approximately 7 percent lower than median household income at the state level. Employment, median home value and household income, and poverty levels are presented in Table 4.10-4 (U.S. Census Bureau, 2012b).

Table 4.10-4. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Texas	11,546,783	+24	$128,000	$51,563	17
Bell County, Texas	143,389	+25	$119,800	$50,085	15
Coryell County, Texas	31,606	-9	$98,300	$50,104	13
Lampasas County, Texas	8,669	+7	$122,500	$47,968	17

Information regarding the workforce by industry for each county within the ROI was obtained from the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for the employed labor force.

Bell County, Texas

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the largest share of the total workforce in Bell County (22 percent). The Armed Forces is the second largest employer (16 percent), followed by retail trade (11 percent). The arts, entertainment, and recreation, and accommodation and food services and the public administration sectors also account for a significant share of the total workforce in Bell County (8 percent each). The remaining sectors account for 35 percent of the total workforce.

Coryell County, Texas

The primary source of employment in Coryell County is the Armed Forces (26 percent). The educational services, and health care and social assistance is the second largest employment sector (17 percent), followed by the public administration sector (13 percent). Retail trade also represents a significant share of the total workforce in Coryell County (8 percent). The remaining sectors account for 36 percent of the total workforce.

Lampasas County, Texas

The educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Lampasas County (20 percent). Retail trade is the second largest employment sector (13 percent), followed by construction (12 percent). The professional, scientific, and management, and administrative and waste management services sector also accounts for a significant share of the total workforce (11 percent). The Armed Forces account for 2 percent of the Lampasas County workforce. The remaining sectors account for 42 percent of the workforce.

Housing

As described in the 2013 PEA, Fort Hood has extensive housing on the installation for Families and single Soldiers. Fort Hood has more than 6,000 homes in 13 housing areas, many of which have recently been renovated as part of privatization. In addition to these homes, Fort Hood provides single Soldiers with space in the barracks for accommodations. Existing homes on the installation include single-family and multi-family homes, from two to five bedrooms. A large percentage of Soldiers also opt to live in private rental housing or own homes in the communities surrounding Fort Hood.

Schools

As described in the 2013 PEA, Killeen ISD serves the communities of Killeen, Fort Hood, Harker Heights, and Nolanville. The student enrollment for the 2011–2012 school year was 41,172. Approximately 50 percent of students enrolled were military Family members. The district employs about 6,100 staff members, making it the second largest employer in the ROI. The Copperas Cove ISD serves the community of Copperas Cove. The student population for the 2010-2011 school year was 8,324 students. Exact population by school is unknown; however, it is estimated that approximately 40 percent of the student population are military Family members. Further information on schools serving Fort Hood is available in the 2013 PEA.

Public Health and Safety

Police Services

The Fort Hood DES handles the day to day police operations on the installation. They do this with a combination of active component military police and civilian contractors. In January 2011, the ratio per day was 1 officer for every 33 Soldiers and 28 civilians on patrol across the installation.

Fire and Emergency Services

The Fort Hood Fire Department responds to emergencies involving structures, facilities, transportation equipment, hazardous materials (along with DPW Environmental Spill Response Team), and directs fire prevention activities. However, partnerships with the surrounding cities and counties are in place to provide assistance should either party need it to respond to an emergency.

Medical Facilities

Medical services on Fort Hood are administered by the Carl R. Darnall Army Medical Center, as well as several on-installation clinics. The clinics serve active component Soldiers, Family members, and retirees throughout the community. Fort Hood also has a Warrior in Transition Brigade, and new support facilities to accommodate the unit. Further, the community supported medical centers include Metroplex Hospital, Scott and White Hospital and clinics, Kings Daughters Hospital and supporting clinics, and a 123-bed hospital owned by Seton Enterprises.

Family Support Services

Fort Hood’s CYSS is a division of FMWR. It provides facilities and child care, as well as sports, apprenticeships, and instructional classes for children of active component military, DoD civilian, DoD contractor personnel, and retirees. In FY 2011, Parent Central Services registered 11,458 households and enrolled 17,593 child or youth programs.

Recreation Facilities

Fort Hood offers its community of Soldiers, Airmen, retirees, DoD employees, and Families several different avenues for recreational entertainment. The military community is encouraged to become active in an arts and crafts facility, bingo, two skate parks, an auto crafts shop, outdoor swimming pools, an indoor swimming pool, a 48-lane bowling center with automatic scoring displayed on 42-inch flat screen monitors, a 27-hole golf course, an RV travel camp, an outdoor recreation equipment checkout center, physical fitness centers spread throughout the installation, an all-terrain vehicle course, a paintball course, archery and skeet shooting ranges, swimming, camping, horseback riding, mountain biking and fishing opportunities at Belton Lake Outdoor Recreation Area, intramural and youth sports teams, and a Sportsmen's Center, which is where patrons may purchase hunting and fishing licenses.

4.10.12.2 Environmental Effects

No Action Alternative

The No Action Alternative is anticipated to provide a steady-state contribution of economic and social benefits and costs. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of 16,000[15] Army positions (14,606 Soldiers and 1,394 Army civilians), each with an average annual income of $46,760 and $56,913, respectively. In addition, this alternative would affect an estimated 8,928 spouses and 15,360 children for a total estimated potential impact to 24,288 Family members. The total population of Army employees and their Families directly affected under Alternative 1 would be projected to be 40,288.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative ranges. Table 4.10-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated

[15] This number was derived by assuming the loss of two BCTs, 60 percent of Fort Hood's non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 16,000. The 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 8,000.

by the EIFS model. Based on the EIFS analysis, changes in population and employment in the ROI under Alternative 1 fall outside the historical range and are categorized as a significant impact. However, there would not be a significant impact to income or sales because the estimated percentage change is within the historical range.

Table 4.10-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	5.7	7.5	5.8	7.9
Economic contraction significance value	-6.4	-8.6	-7.0	-2.3
Forecast value	-4.1	-5.3	-10.7	-9.5

Table 4.10-6 summarizes the predicted impacts to income, employment, and population of the reductions against the 2012 demographic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. The EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 16,000 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 1,416 direct contract service jobs would also be lost. An additional 1,499 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. Total reduction in employment is estimated to be 18,915, a significant 10.3 percent reduction of the total employed labor force in the ROI of 183,664. Income is estimated to fall by $870.2 million, a 5.2 percent decrease in income from 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $821.7 million. There would also be a loss in sales tax receipts to local and state governments. The average state and local sales tax rate for Texas is 8.2 percent (Tax Foundation, 2014). To estimate sales tax reductions, information on the proportion of sales that would be subject to sales tax on average across the country was used. According to the U.S. Economic Census, an estimated 16 percent of sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $821.7 million, resulting in an estimated sales tax receipts decrease of $10.7 million under Alternative 1.

Table 4.10-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$870,201,600	-17,416 (Direct)	-40,288
		-1,499 (Induced)	
		-18,915 (Total)	
Total 2012 ROI economic estimates	$16,592,415,000	183,664	417,992
Percent reduction of 2012 figures	-5.2	-10.3	-9.6

Note: Sales estimates are not consistently available from public sources for all counties in the United States; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from EIFS is described in the paragraphs below.

Of the 417,992 people (including those residing on Fort Hood) who live within the ROI, 40,288 military employees and their Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 9.6 percent. This number could overstate potential population impacts because some of the people no longer employed by the military could continue to live and work within the ROI, finding employment in other industry sectors. However, since Fort Hood is a dominant employer and economic driver in the ROI, most displaced employees would likely move out of the area to seek other opportunities. There are few employing sectors in the ROI to absorb this large a number of displaced military employees. A small number of displaced personnel may seek and find work within the ROI; however, others may not be able to find new employment, with possible implications for the unemployment rate.

Housing

The population reduction would lead to a decrease in demand for housing and increase housing availability on the installation and in the region. This could potentially lead to a reduction in housing values.

Schools

Under Alternative 1, the potential reduction of 16,000 Soldiers and Army civilian personnel would result in a reduction of 24,288 Family members, of which 15,360 would be children. It is anticipated that school districts that provide education to Army children would be impacted by this action. Schools on and off the installation are expected to experience a decline in enrollment. School districts with larger portions of military children in proximity to Fort Hood would be more severely affected than those with fewer military students.

The reduction of Soldiers on Fort Hood would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal Impact Aid a district receives is based on the number of students who are considered “federally connected” and attend district schools. Actual projected dollar amounts cannot be determined at this time due to the variability of appropriated dollars from

year to year, and the actual number of affected school-age children for military and civilian Families. School districts in the ROI would likely need fewer teachers and materials as enrollment drops, which would offset the reduced Federal Impact Aid. There is the potential for significant, adverse impacts to the Kileen ISD and the Copperas Cove ISD that support Army Family members under Alternative 1. There would be fewer resources available for the remaining students as a result of the loss of tax revenue and the federal funds associated with the reduction of students under this alternative. These school districts may, therefore, lose their ability to employ the current number of staff and faculty within the ROI resulting in some secondary job losses. Impacts would be greater than those described in the 2013 PEA and could range from minor to significant.

Public Services

A reduction in personnel would have minor impacts to emergency services, fire, police, and medical services because the reduction is anticipated to decrease the need for these services. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements. The impacts to public services are not expected to be significant because the existing service level for the installation and the ROI would still be available.

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. As a result, minor impacts to Family Support Services and recreation facilities would occur under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, provides: “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations” (EPA, 1994). The racial and ethnic composition of the ROI differs from that of the state as a whole. There are larger minority populations in Coryell and Bell Counties in the ROI relative to those same populations at the state level. In these areas with higher proportions of environmental justice populations, there is a potential that these populations could be adversely impacted by the Proposed Action. However it is not likely that these impacts would fall disproportionally on these environmental justice populations.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of the people associated with the installation, including children. Therefore, it is not anticipated that any environmental health and safety risks to children within the ROI would occur under Alternative 1. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.10.13 Energy Demand and Generation

4.10.13.1 Affected Environment

The energy demand and generation affected environment of the Fort Hood installation remains the same as described in Section 4.8.10.1 of the 2013 PEA.

4.10.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, adverse impacts to energy demand and generation would be the same as discussed in the 2013 PEA and would be negligible. Fort Hood's ranges and cantonment area would continue to consume similar types of energy, and maintenance of existing utility systems would continue.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy demand and generation would occur on Fort Hood. Under Alternative 1, a further reduction in energy consumption is anticipated with the additional force reductions. The increased force reductions would also provide additional beneficial impacts because the installation would be better positioned to meet energy and sustainability goals through decreased demand.

4.10.14 Land Use Conflicts and Compatibility

4.10.14.1 Affected Environment

Land Use is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.8.1.2, due to negligible impacts as a result of implementing alternatives included in that analysis. Land use at Fort Hood is designated as cantonment, maneuver, live fire, and

airfields. The cantonment areas are like small cities with industrial, administrative, retail, and housing. Maneuver and live-fire training areas support combat training activities. Additionally, cattle-grazing is permitted (through 5-year leases) throughout the training areas. Airfields are located adjacent to the cantonment areas and house both fixed and rotary-wing assets and support facilities. Fort Hood also has Belton Lake Outdoor Recreation Area. More than 88 percent of the land (more than 191,000 acres) is used for maneuver and live-fire training.

4.10.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, negligible impacts to land use were anticipated because no changes in land use or compatibility are anticipated. Impacts under the No Action Alternative on Fort Hood remain the same as those discussed in Section 4.8.1 of the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Hood would result in negligible land use impacts similar to those anticipated under the No Action Alternative. Under Alternative 1, impacts would be similar to those described in the 2013 PEA.

The Army is also committed to ensuring that personnel cuts will not result in non-compliance with land use ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Hood, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including land use ordinances and regulations.

4.10.15 Hazardous Materials and Hazardous Waste

4.10.15.1 Affected Environment

Hazardous materials and hazardous waste are among the VECs excluded from detailed analysis in the 2013 PEA (Section 4.8.1.2) due to lack of significant, adverse environmental impacts resulting from the implementation of the analyzed alternatives. No substantial changes have occurred to the affected environment since 2013.

4.10.15.2 Environmental Effects

No Action Alternative

As stated in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative. Use of hazardous materials and generation of hazardous wastes would continue on Fort Hood in accordance with all applicable laws, regulations and plans.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts from hazardous materials and hazardous waste would occur on Fort Hood. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on Fort Hood. Alternative 1 in this SPEA would not negatively impact the current hazardous waste handling capabilities on Fort Hood. There may be a minor decrease in the amount of hazardous materials and hazardous waste used and disposed of as a result of the implementation of Alternative 1 with reduced levels of military personnel and other people on the installation.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Fort Hood, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.10.16 Traffic and Transportation

4.10.16.1 Affected Environment

The transportation affected environment of the Fort Hood ROI remains the same as described in Section 4.8.11.1 of the 2013 PEA.

4.10.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated negligible impacts. Currently, the Fort Hood transportation system adequately supports the needs of the Fort Hood community and impacts negligible impacts would continue under the No Action Alternative in this analysis.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Hood would result in minor, beneficial impacts to traffic and transportation systems because it was anticipated that traffic congestion would be diminished slightly with a reduction in the number of personnel on the installation. The same would occur under Alternative 1, with the size of the beneficial impact slightly larger than anticipated at the time of the 2013 PEA due to the greater reduction in personnel on the installation.

4.10.17 Cumulative Effects

As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Hood consists Bell, Coryell, and Lampasas counties in Texas. Section 4.8.12 of the 2013 PEA noted several major projects that are planned for the near future.

Reasonably Foreseeable Future Projects on Fort Hood

No additional actions have been identified by the installation beyond those noted in the cumulative effects analysis of the 2013 PEA.

Reasonably Foreseeable Future Projects outside Fort Hood

The Army is not aware of any reasonably foreseeable future projects outside Fort Hood which would be appropriate for inclusion in the cumulative impacts analysis. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, smaller, less diversified economies will be more vulnerable to the force reductions and provide fewer opportunities to displaced Army employees, while larger economies with more job opportunities could absorb some of the displaced Army workforce, lessening adverse effects from force reductions.

No Action Alternative

The cumulative effects of the No Action Alternative would be the same as determined in the 2013 PEA. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reduction

As determined in the 2013 PEA, with the exception of socioeconomics, cumulative impacts under Alternative 1 would range from beneficial to minor and adverse. The additional force reductions with Alternative 1 of the SPEA would not result in any changes from that determination. The potential cumulative impacts of Alternative 1 at Fort Hood are anticipated to be significant and adverse for socioeconomics.

The socioeconomic impact under Alternative 1, as described in Section 4.10.12.2 with a loss of 16,000 Soldiers and Army civilians, could lead to significant impacts to the population, regional economy, schools, and housing. Fort Hood is an important economic driver in the Kileen-Temple-Fort Hood metropolitan area, with total employment on the installation of over 47,000. Specifically, in Bell and Coryell counties, the Armed Forces account for 16 and 26 percent of the workforce, respectively, demonstrating the importance of installation to employment opportunities in the region. The considerable reliance on the installation, in combination with 16,000 lost Army jobs, could lead to reduced Fort Hood and supporting activities in the ROI,

additional losses in jobs and income, with fewer job opportunities for displaced Army employees in the ROI.

Stationing changes would also affect regional economic conditions through the jobs and income they bring (or lose) within the region. Military personnel spend their money in the ROI economy, supporting additional jobs, income, taxes, and sales impacts. Other infrastructure improvements and construction and development activity would also benefit the regional economy through additional economic activity, jobs, and income in the ROI; however, these benefits would not offset the adverse impacts under Alternative 1 and other adverse cumulative actions. Under Alternative 1, the loss of 16,000 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have significant impacts to population, employment, income, tax receipts, housing values, and schools in the ROI.

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4.11 Fort Huachuca, Arizona

4.11.1 Introduction

Fort Huachuca is a military installation encompassing 73,142 acres of land located in the city of Sierra Vista, Cochise County, Arizona (Figure 4.11-1). The installation is located approximately 75 miles southeast of Tucson and 63 miles northeast of Nogales, Arizona. The southernmost boundary of the installation is approximately 8 miles from the international border with Mexico. Fort Huachuca is divided into an East Reservation (28,544 acres) and West Reservation (44,598 acres) by Arizona State Highway 90. The East Reservation includes the East Range, which consists almost entirely of open/operational areas. The West Reservation includes the West Range, South Range, Cantonment Area, and Libby AAF (U.S. Army, 2012a).

In 1967, the installation became the headquarters for the U.S. Army Strategic Communications Command, which later was renamed the U.S. Army Communications Command. In 1973, the U.S. Army Communications Management Information Systems Activity was assigned to Fort Huachuca. This and the Communications Command were combined into the U.S. Army Information Systems Command. In 1971 the U.S. Army Intelligence Center and School moved to Fort Huachuca from Fort Holabird, Maryland. In 1988, the U.S. Army Intelligence School mission of Fort Devens, Massachusetts, was relocated to Fort Huachuca (U.S. Army, 2010a).

BRAC brought several activities to Fort Huachuca along with over 2,000 attendant personnel. In 1996, the U.S. Army Information Systems Command was deactivated, and portions of the staff were re-allocated to other commands at the installation. The remaining U.S. Army Information Systems Command mission was re-designated as the U.S. Army Signal Command and now the Network Technology Command, which remains at Fort Huachuca. Other significant units currently based at Fort Huachuca include the 11th Signal Brigade, the Joint Interoperability Test Command, Raymond W. Bliss Army Clinic, the 111th Military Intelligence Brigade, the Test and Experimentation Intelligence Electronics Warfare Test Directorate, the Unmanned Aircraft Systems Training Battalion, and the Battle Command Battle Lab (U.S. Army, 2010a).

Figure 4.11-1. Fort Huachuca, Arizona

The majority of operational testing and training at Fort Huachuca is related to intelligence, electronic warfare, and communications systems. Units are engaged in the development and testing of various types of electronics. These units are also involved in training Soldiers in the use of this equipment in classrooms and during field training exercises. Fort Huachuca is also used for field training exercises by various operational units and other DoD and non-DoD agencies and currently provides military intelligence training to over 14,000 students annually. According to U.S. Army (2010a), major missions assigned to the installation exist to:

- Research, develop, test, and evaluate concepts, doctrine, materials, and equipment in the areas of intelligence, electronic warfare, and information systems
- Develop, conduct, and evaluate training in intelligence, electronic warfare, and information systems

- Provide trained operational forces in the areas of intelligence and communications
- Operate, manage, and defend the Army's information operations and infrastructure
- Perform aviation operations
- Provide training opportunities for active component Soldiers, U.S. Army Reserve forces, and ARNG forces

Fort Huachuca's 2013 baseline permanent party population was 5,841. In this SPEA, Alternative 1 assesses a potential population loss of 2,700, including approximately 1,726 permanent party Soldiers and 1,013 Army civilians.

4.11.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated at Fort Huachuca; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.11-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.11-1. Fort Huachuca Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	No Impacts	Beneficial
Cultural Resources	Minor	Minor
Noise	Minor	Beneficial
Soils	Minor	Beneficial
Biological Resources	Minor	Beneficial
Wetlands	Minor	Beneficial
Water Resources	Minor	Minor
Facilities	No Impacts	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Minor	Beneficial
Land Use Conflict and Compatibility	Minor	Minor
Hazardous Materials and Hazardous Waste	Minor	Minor
Traffic and Transportation	No Impacts	Beneficial

4.11.3 Air Quality

4.11.3.1 Affected Environment

Fort Huachuca is located in an area in attainment for all criteria pollutants (EPA, 2013). A portion of Cochise County is within the Paul Spur/Douglas coarse particulate matter (PM_{10}) nonattainment area; however, Fort Huachuca is not located proximate to this nonattainment area (Arizona DOT, 2013).

Emission sources at Fort Huachuca include boilers, heaters, emergency back-up generators, paint booths, blast booths, and degreasers. The majority of the boilers are powered by natural gas. The facility emissions fall below the thresholds that would trigger the need for a Title V Permit. Fort Huachuca currently has a Class II synthetic minor air permit (number 53503, expiring April 11, 2017). The permit conditions include various monitoring, recordkeeping, reporting, maintenance and other practices to control emissions, including dust control measures (Arizona DEQ, 2012). The potential to emit under this minor source permit is summarized in Table 4.11-2. As of the latest available annual emissions inventory (2012), total facility emissions were well below the maximum potential to emit under the permit (U.S. Army, 2013), see Table 4.11-2.

Table 4.11-2. Fort Huachuca Potential to Emit and 2012 Annual Emissions Inventory

Pollutant	2013 Permit "Potential to Emit"	2012 Annual Emissions Inventory
	(tons per year)	
PM_{10}	7.16	1.56
$PM_{2.5}$	7.06	N/A
SO_2	1.90	0.12
CO	92.25	6.54
VOC	40.74	3.18
NO_x	74.95	7.67
Hazardous air pollutants	2.56	0.61
GHGs	1.59	0.38
NO_2	0.01	0.01
TSP	8.04	1.58
Lead	0.08	0.05

Sources: Arizona DEQ (2012); U.S. Army (2013)

4.11.3.2 Environmental Effects

No Action Alternative

Continuation of existing levels of emissions under the No Action Alternative would result in minor, adverse impacts to air quality. Emissions would remain at levels well below the maximum allowed under existing permits.

Alternative 1—Implement Force Reductions

A force reduction of 2,700 at Fort Huachuca would result in minor, long-term, and beneficial air quality impacts because of reduced demand for heating/hot water and for operation of mobile sources to and from the facility.

The relocation of personnel outside of the area due to the force reduction could result in negligible, short-term effects on air quality associated with mobile sources. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with air quality regulations. Even if the full end-strength reductions were to be realized at Fort Huachuca, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.11.4 Airspace

4.11.4.1 Affected Environment

The majority of airspace at and surrounding Fort Huachuca is considered restricted SUA (R-2303 A-C), with flight restrictions ranging from the surface to 30,000 feet msl. These restrictions encompass Fort Huachuca in its entirety with the exception of a Class D airspace centered on Sierra Vista Municipal Airport, a joint-use civil-military airport that shares facilities with Libby AAF. The Class D airspace extends about 6 miles in all directions from the surface to 7,200 msl. The restricted airspace surrounding Fort Huachuca is a vital resource for military missions at Fort Huachuca, other military installations in Arizona, and for the aviation needs of other organizations and agencies. The restricted airspace extends well beyond installation boundaries and supports aviation missions associated with Fort Huachuca's Libby AAF, approaches to the Hubbard Assault Strip, and UAS training. The combination of restricted airspace and the electromagnetic environment are essential to Libby AAF operations and UAS training on the installation (U.S. Army, 2010b).

An Aerostat Drug Surveillance Balloon (Aerostat balloon) became operational in the southern portion of the South Range in 1987. The blimp-type balloon is ground-tethered and is an aerial

platform for radar equipment used to detect low-flying aircraft illegally entering the U.S. The radar data are for U.S. Customs, DoD, and FAA. This system is in year-round operation, 24-hours per day within about 23 acres of the South Range. Airspace within certain portions of the South Range is restricted for Aerostat activities only up to 15,000 msl (U.S. Army, 2010b).

4.11.4.2 Environmental Effects

No Action Alternative

Fort Huachuca would maintain existing airspace operations under the No Action Alternative. All current airspace restrictions are sufficient to meet current airspace requirements, and no airspace conflicts are anticipated, resulting in no overall impacts to airspace.

Alternative 1—Implement Force Reductions

Airspace restrictions and classifications on and around Fort Huachuca are sufficient to meet current airspace requirements, and force reductions would not substantially alter the current airspace use and would not be projected to require additional SUA, resulting in negligible impacts from proposed force changes. If force reductions are applied to those units using Libby AAF, the use of SUA could potentially be reduced because of reduced airfield activity resulting in beneficial impacts to airspace.

4.11.5 Cultural Resources

4.11.5.1 Affected Environment

The affected environment for cultural resources at Fort Huachuca is the installation footprint. Approximately 67 percent of Fort Huachuca has been surveyed for archaeological sites, resulting in the identification of 468 prehistoric and historic resources (U.S. Army, 2009b). To date, 288 sites have been recommended eligible to the NRHP and 88 have not been evaluated. Two archaeological sites are listed in the NRHP–the Garden Canyon Site and the Garden Canyon Pictographs Site (U.S. Army, 2009b). Prehistoric sites at Fort Huachuca provide evidence for use of the area by nomadic hunter gatherers (8000 B.C.–200 A.D.) as well as early village life (200 A.D.–1450 A.D.). The Garden Canyon site is considered to be one of the largest village sites in southeastern Arizona and the largest site at Fort Huachuca.

Fort Huachuca, originally Camp Huachuca, was established in 1877 (U.S. Army, 2009b). The installation was integral in the Apache Wars, border control and later training of troops, including Buffalo Soldiers and African-American Soldiers during the early to mid-20th century. The history of the installation is represented in the presence of architectural resources that date from the 19th century to Cold War Era. Many of the earliest operations were conducted from Old Post of Fort Huachuca, which is now listed in the NRHP and is a National Historic Landmark (NHL) District. The NHL District covers 57 acres and consists of 67 contributing and 26 non-contributing resources (U.S. Army, 2009b). Additionally, more than 300 historic buildings are

located within and outside the NHL District; 47 contribute to 2 historic districts and 62 have been determined individually eligible for listing in the NRHP (U.S. Army, 2009b).

The installation consults with 11 federally recognized tribes that are culturally affiliated with resources within Fort Huachuca (U.S. Army, 2009b). These tribes have identified five locations on the installation that are considered TCPs or sacred areas.

Fort Huachuca currently has approximately 407 cubic feet of archaeological collections and 8 linear feet of associated records. With the exception of artifacts at Environment and Natural Resources Division being prepared for curation, all collections are curated at the Arizona State Museum in Tucson.

Fort Huachuca has an ICRMP that is currently outdated (U.S. Army, 2009b). In addition, the installation has a historic properties policy memorandum from the commander titled "Policy–Mission Impact to Historic Properties." Cultural resource management at Fort Huachuca is conducted in compliance the implementing regulations for the NHPA, Section 106 (36 CFR 800). Fort Huachuca does have a programmatic agreement signed by DoD and Advisory Council on Historic Preservation that allows for the demolition of temporary wooden World War II buildings, although they have used it in the past, they have not used it recently. However, the Arizona SHPO and installation both recognize that some of these buildings at Fort Huachuca are important and therefore they are reviewed prior to demolition and sometimes preserved (U.S. Army, 2009b).

4.11.5.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, cultural resources would continue to be managed in adherence with all applicable federal laws and the ICRMP. The cultural resource management staff at the installation would continue to consult with the SHPO and applicable tribes on the effects of undertakings that may affect cultural resources. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures. The adverse impacts under the No Action Alternative would be minor and would come from the continuation of undertakings that have the potential to affect archaeological and architectural resources (e.g., training, maintenance of historic buildings, new construction).

Alternative 1—Implement Force Reductions

Alternative 1 would have a minor, adverse impact to cultural resources. The Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort Huachuca, the

Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations at Fort Huachuca.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to from these activities are not analyzed. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of force reductions, the installation would comply with applicable laws, such as NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects.

The effects of this alternative are considered to be similar to the No Action Alternative–future activities with the potential to affect cultural resources would continue to be monitored and the impacts reduced through preventative and minimization measures. This alternative could result in some beneficial effects as a decrease in training activities could reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources.

4.11.6 Noise

4.11.6.1 Affected Environment

Activities that have the potential to produce noise at Fort Huachuca include military and private vehicle use, aircraft and UAS operations, weapons discharge and other activities associated with dismounted training, and occasional construction. The overall impacts from existing noise-generating activities at the installation are generally considered to be less than significant due to the types of activity present and the proximity to noise sensitive receptors. Buffer easements surrounding the installation further reduce the potential for noise impacts beyond the installation boundaries.

Private vehicle traffic tends to be concentrated on public off-installation roads as well as on-installation roads. Military vehicles use a mixture of public roads, on-installation roads, and military vehicle trails. Vehicle type and speed influence noise levels produced. Vehicle speeds are relatively low on unpaved roads during vehicle maneuvers. Noise levels generated by High Mobility Multipurpose Wheeled Vehicle and two-axle military trucks are comparable to noise from medium trucks (about 65 to 70 dBA at 50 feet). Multi-axle heavy trucks generate noise levels comparable to other heavy duty trucks (about 78 to 80 dBA at 50 feet).

Noise impacts related to airfield operations at Libby AAF are addressed by the Air ICUZ program. Fixed-wing, manned flight operations produce the most prominent noises, while UAS generate relatively little noise. UAS support equipment and increased traffic to and from training and testing locations are also sources of noise relating to aviation activities. Activities associated

with operating UAS tend to occur in and over sparsely populated areas, which reduces the number of receptors exposed to any level of noise caused by the events.

Noise impacts from weapons discharge at live fire ranges associated with dismounted training activities are minimal because of the remote location of the ranges away from any noise-sensitive land uses. Dismounted training and testing activities include the use of portable generators, which can result in short-term and localized noise; however, by nature, these activities take place in remote areas of the installation located away from sensitive noise receptors.

4.11.6.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, existing personnel levels and installation operations would continue. Associated activities with the potential to create noise impacts would also continue at current levels. Given the existing impacts associated with noise at the installation as described under the affected environment, it is expected that the No Action Alternative would continue to generate negligible to minor noise impacts.

Alternative 1—Implement Force Reductions

Noise generating activities and impacts associated with force reductions under Alternative 1 would continue as described under the affected environment but would be decreased due to fewer training activities. Alternative 1 would therefore result in beneficial impacts to noise at Fort Huachuca.

4.11.7 Soils

4.11.7.1 Affected Environment

Fort Huachuca is located within the Basin and Range physiographic province which is characterized by long, narrow mountain chains with expansive basins at their foot slopes. The majority of soils on the installation are upland soils; only three soils on the installation are mapped as hydric and they tend to follow along intermountain drainages and streams, and along the basins at the base of the mountains. Hydric soils on the installation are characterized as deep, somewhat level, poorly to somewhat poorly drained, and comprised of sandy loam underlain by mixed alluvium (NRCS, 1997). Upland soils on the installation are shallow to deep, flat to moderately steep, well drained sands underlain by mixed alluvium derived from igneous and sedimentary rock (NRCS, 1997).

Soils on the installation are highly prone to erosion due to high contents of salt and gypsum which cause the soil particles to deflocculate. As a result, soils on the installation have been subjected to gully erosion and top soil has eroded away (U.S. Army, 2009a; U.S. Army, 2010a).

4.11.7.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, minor, adverse impacts to soils are anticipated. Fort Huachuca would continue to conduct training practices under their current schedule, resulting in minor impacts to soils from ground disturbance and removal of vegetation. Soil erosion from wind and water would proceed at current rates. Soil restoration plans and BMPs would be maintained under current conditions and requirements in accordance with the INRMP (U.S. Army, 2010a).

Alternative 1—Implement Force Reductions

Under Alternative 1, beneficial impacts to soils are anticipated. Personnel reduction at Fort Huachuca would likely result in decreased utilization of the training ranges which could have beneficial impacts to soils because there would be an anticipated decrease in soil compaction and vegetation loss.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Huachuca, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory regulations.

4.11.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.11.8.1 Affected Environment

Vegetation

The vegetation of Fort Huachuca is representative of the basin and range region of southeastern Arizona. Plant species composition and vegetation productivity is largely determined by rainfall distribution (as influenced by topography) and soil type (as derived from bedrock). At lower elevations within the San Pedro River Valley, xerophytic (adapted to living in dry environments) shrubs and grasses provide sparse vegetative cover. On the moister slopes of the Huachuca Mountains, stands of trees and shrubs dominate. Fort Huachuca includes vegetation types ranging from shrublands, open grasslands, and mesquite-grass savannas of the lowlands, the oak-grass savannas and oak woodlands of the foothills, to the pinyon-juniper and pine woodlands of upper elevations, which are the dominant of the 13 vegetation types that have been mapped on Fort Huachuca (U.S. Army, 2010a).

Wildlife

The significant wildlife diversity found in the Fort Huachuca area is directly related to the habitat diversity in this region. The isolation of the Huachuca Mountains from the other mountain ranges in the area results in "mountain islands." These areas are known for their diversity of vegetation types, usually along an elevational gradient, and typically exhibit high degrees of species endemism. In addition, proximity to Mexico results in some wildlife species here that are not known to occur elsewhere in the U.S., or that are more commonly associated with the tropics. As a result, southeastern Arizona possesses one of the greatest diversities of bird species of any similarly sized region in North America. More than 400 avian species regularly occur at Fort Huachuca annually, with 500 species that have been recorded. Another example of the diversity of the region is the 75 species of amphibians and reptiles that occur in the Huachuca Mountains and Upper San Pedro River. Also, more than 180 species of butterfly have the potential to occur in various habitats throughout Fort Huachuca (U.S. Army, 2010a).

Threatened and Endangered Species

The Fort Huachuca Programmatic Biological Assessment provides an in-depth analysis of threatened, endangered, proposed, and candidate species known to occur or have occurred in Cochise County and is summarized in Fort Huachuca's INRMP (U.S. Army. 2010a). Although Fort Huachuca is not required by ESA to consider candidate species, management/conservation consideration for candidate species can help preclude the need to list the species and avoid potential mission impacts and funding requirements for compliance (U.S. Army, 2010a).

A list of species that are considered threatened, endangered, proposed, or candidate is maintained by USFWS. More details regarding these species can be found in the Programmatic Biological Assessment except the Arizona tree frog (*Hyla wrightorum*), which was identified as a candidate species in 2007 (U.S. Army, 2010a). The Arizona Department of Agriculture administers the Arizona Native Plant Law, which designates species with diminishing populations or populations at risk. The Fort Huachuca's INRMP guides the installation's natural resources management program.

4.11.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in minor impacts to biological resources, and the affected environment would remain in its current state. There would not be any significant effects because Fort Huachuca would continue to abide by federal and state regulations governing the management of biological resources.

Alternative 1—Implement Force Reductions

Implementing force reductions under Alternative 1 would result in beneficial impacts to biological resources and habitats within Fort Huachuca. With a force reduction, there would be

reduced levels of training, firing, maneuvering, and testing activities to disturb sensitive individuals and habitats. Habitat would have more time to recover between events that create disturbances. Additionally, conservation management practices would be easier to accomplish with a reduction in mission throughput. Also, reduced personnel would result in reduced effluent flows from the installation's wastewater treatment facility (a positive impact); however, reduced flows would result in less water to recharge the aquifer (a negative impact). The proposed population reduction will not affect/change requirements of the Sikes Act or the installation's INRMP. The installation will still be required to manage wildlife and wildlife habitat, and to identify and obtain conservation easements, and preserve key native grasslands (Fort Huachuca, 2014).

The Army is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Huachuca, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.11.9 Wetlands

4.11.9.1 Affected Environment

A review of NWI maps identified approximately 98 acres of palustrine, freshwater pond, and riverine wetlands within the Fort Huachuca boundary (USFWS, 2010). NWI mapping is an educated interpretation based upon interpreting USGS topographic data, the USGS National Hydrography Dataset, NRCS soil data, and aerial imagery. No formal wetland delineation of the installation was performed.

The majority of the wetlands surveyed were palustrine freshwater ponds; however, palustrine forested, palustrine emergent, and riverine wetlands were also identified (USFWS, 2010; U.S. Army, 2010a). Table 4.11-3 identifies the acres of each wetland class on the installation.

Table 4.11-3. Acres of Wetland Types on Fort Huachuca

Wetland Type	Acres
Palustrine forested	7.4
Palustrine emergent	12.0
Palustrine open water	42.6
Riverine intermittent	36.0
Total acres	**98.0**

Source: USFWS (2010)

4.11.9.2 Environmental Effects

No Action Alternative

Minor, adverse impacts are anticipated under the No Action Alternative on Fort Huachuca. Impacts to wetlands from any current projects under construction would have already been assessed and, if required, been properly permitted and mitigated for. Additionally, activities that occur in training areas and target areas would continue at current schedules, resulting in minimal impacts to wetlands. For example, wetlands within the range fans of firing ranges would continue to be impacted at the same rate.

Alternative 1—Implement Force Reductions

Beneficial impacts to wetlands as a result of the implementation of Alternative 1 are anticipated. A force reduction at Fort Huachuca would mean that training areas and ranges would be less utilized than under the current schedule. Soil would be less disturbed from installation activities and training exercises and vegetation would suffer less denuding which would further minimize the potential for sediment to run off into wetlands. Wetlands that are currently degraded would have time to regenerate, and their functions and values would begin to restore.

Adverse impacts to wetlands could conceivably occur if force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Huachuca, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met.

4.11.10 Water Resources

4.11.10.1 Affected Environment

Surface Water/Watersheds

Fort Huachuca and its surface waters are within the San Pedro River basin and the Sierra Vista subwatershed. Outside the installation, the San Pedro River runs along the northeastern border and one of its tributaries, the Babocomari River, runs along the northern border. The San Pedro River is characterized by intermittent flow influenced by climate and regional/local water use as well as an evolving river channel and floodplain (Arizona DWR, 1991, as cited by U.S. Army, 2010a). The Babocomari River is mostly ephemeral except for two reaches with perennial flow (Arizona DWR, 1988, as cited by U.S. Army, 2010a).

Streams on the installation are either tributaries to the San Pedro or Babocomari rivers and are within the smaller Babocomari River or Garden Canyon subwatersheds. Surface waters originating in the Huachuca Mountains to the west are Huachuca Creek, Garden Creek, Ramsey

Creek, and Miller Creek (U.S. Army, 2009b). Other surface waters include Soldier Creek and tributaries and the streams flowing out of Blacktail Canyon (U.S. Army, 2011). In addition, to the 4.5 miles of perennial streams on Fort Huachuca there are numerous ephemeral dry washes, gulches, and arroyos crossing the installation in northerly or northeasterly directions. These ephemeral waters are seasonal in nature; dry throughout most of the year except when snowmelt or rainfall events produce enough volume for runoff. These streams are characterized by narrow, sometimes entrenched channels with sand and gravel beds. The installation also has 15 ponds with a combined surface area of 32 acres as well as 39 springs (U.S. Army, 2008, as cited by U.S. Army, 2010a; U.S. Army, 2010a). A few ponds are perennial with depths up to 15 feet although most only contain water during heavy rain events (U.S. Army, 2011). Flows of surface waters are affected not only by seasonal precipitation patterns and water use by vegetation but also by local groundwater pumping (U.S. Army, 2009c).

Groundwater

A regional aquifer and a floodplain aquifer are the major groundwater sources under Fort Huachuca (U.S. Army, 2009c, 2010a). These aquifers are located in the upper and lower basin fills and the Pantano Formation. Together the upper and lower basin fill units are approximately 800 to 1,200 feet thick (Gettings and Houser, 2000, as cited by U.S. Army, 2010a; Pool and Coes, 1999, as cited by U.S. Army, 2010a). The deeper regional aquifer is recharged by stormwater runoff within permeable recharge areas at the base of the mountains and ephemeral streams (U.S. Army, 2013). The groundwater within this aquifer is 650 to 1,300 feet thick (Pool and Dickinson, 2007, as cited by U.S. Army, 2013). A shallow alluvial aquifer is associated with the San Pedro River and Babocomari River floodplain areas and is recharged by stormwater runoff, the regional aquifer, or the San Pedro River (U.S. Army, 2010a, 2012a). This aquifer is located within the lower basin fill.

In general, the regional aquifer is deeper close to the mountains in the south and west and is shallower near the San Pedro River. Overall groundwater flow is in the direction of the San Pedro River except where cones of depression occur at well pumping sites (U.S. Army, 2006, as cited by U.S. Army, 2012a). At these cones of depression, the aquifer elevations have dropped causing groundwater to flow towards them instead of towards discharge areas at surface waters (U.S. Army, 2006, as cited by U.S. Army, 2012a; U.S. Army, 2013). Along with other factors, groundwater pumping can influence surface water levels which in turn can affect riparian habitats and associated species (U.S. Army, 2010a, 2013).

Well pumping throughout the watershed has resulted in depletion of groundwater resources, specifically changes in the water storage. Between 1990 and 2001, water levels within the aquifers declined from 0.1 to 0.6 feet per year (USPP, 2008, as cited by U.S. Army, 2012a). According to the Upper San Pedro Partnership (2013), although the rate of groundwater depletion in the aquifer under the Sierra Vista subwatershed has decreased since 2002, groundwater removal is still 4,600 acre-feet more than groundwater recharge. Although well

pumping for the installation has contributed to this problem, the installation is not the only contributor (U.S. Army, 2010a). Withdrawal of water from wells on the installation is estimated to be 5 percent of all withdrawals within the San Pedro River basin and these withdrawals are responsible for approximately 31 percent of total baseflow removal and 4 percent of the total depletion of groundwater (U.S. Army, 2006, as cited by U.S. Army, 2012a).

Water Supply

The water wells, treatment, storage, and distribution system on Fort Huachuca is owned and operated by the installation (U.S. Army, 2012c). The entire Fort Huachuca water supply is derived from 13 groundwater wells pumping from the regional and floodplain aquifers. Of these, eight are municipal water supply wells pumping 500 to 800 gallons of water per minute from wells ranging from 710 to 1,230 feet below the surface (U.S. Army, 2010a). In 2008, the installation pumped 1,127 acre-feet of water from these wells. Five additional wells supply minimal amounts of water for various testing and research activities. Groundwater is treated with chlorine prior to entering the drinking water supply (U.S. Army, 2012c).

Water usage issues in the San Pedro River basin have led Fort Huachuca and other users to implement water conservation practices (U.S. Army, 2010a). As part of the Upper San Pedro Partnership, Fort Huachuca cooperates with other regional stakeholders through policies and projects that address water management and conservation. Other water conservation programs include the Fort Huachuca-Huachuca City Effluent Transfer Program where the installation accepts wastewater from Huachuca City, treats it at the WWTP on the installation, and either reuses the treated effluent or recharges it to the aquifer (U.S. Army, 2010a). The water conservation program at Fort Huachuca has resulted in declines in water usage rates and water pumping over the past several years (U.S. Army, 2013). Measures implemented include water reuse, water recycling, stormwater detention basins, and artificial recharge of the aquifer (U.S. Army, 2010a, 2013). Other water efficiency practices include conservation easements, upgrades to low water use plumbing fixtures, removal of old facilities, repair of water leaks, xeriscaping and landscaping policies, and education and outreach. The installation uses treated wastewater effluent for irrigation including on the installation golf course under a permit from Arizona DEQ.

Wastewater

The wastewater collection and treatment system is owned by the federal government and operated by contracted staff and includes force mains, lift stations, a WWTP, and aquifer recharge basins. Movement of wastewater to the WWTP is mainly due to natural gravity flow however some areas of the cantonment require lift stations for movement (U.S. Army, 2008, as cited by U.S. Army, 2010a). The Fort Huachuca WWTP is permitted to treat and reclaim 3.1 mgd of wastewater (U.S. Army, 2013). The WWTP process uses denitrification, filtration, and ultraviolet disinfection as well as equalization basins and waste activated sludge holding basins. The WWTP facility also includes underground storage.

For protection of groundwater, Fort Huachuca has an aquifer protection permit from the Arizona DEQ that requires the installation and the WWTP and recharge facility comply with the Aquifer Water Quality Standards at effluent and groundwater monitoring sites and use Best Available Demonstrated Control Technology. The Best Available Demonstrated Control Technology includes the uses of denitrification and ultraviolet disinfection processes and the partial reuse of the treated effluent. The effluent as well as groundwater is monitored for nitrogen, bacteria, metals, and VOCs several times a year.

Stormwater

The stormwater management system on Fort Huachuca consists of channelized drainages and culverts in addition to natural drainage channels (U.S. Army, 2009c). Several buildings on the installation have systems to capture rooftop stormwater runoff. In compliance with the Arizona Pollutant Discharge Elimination System, Fort Huachuca has SWPPPs and has implemented stormwater control measures (U.S. Army, 2011). The installation has constructed five stormwater detention basin intended to capture stormwater runoff and recharge the aquifer (U.S. Army, 2013).

Floodplains

A FEMA floodplain determination has never been conducted on Fort Huachuca. The developed cantonment area does have some areas with a low risk of flooding as do less developed areas such as land designated as open space, training and recreation areas (U.S. Army, 2008, as cited by U.S. Army, 2010a).

4.11.10.2 Environmental Effects

No Action Alternative

Minor, adverse impacts to water resources would continue under the No Action Alternative. Training and test activities would continue to occur at Fort Huachuca ranges as would potential disturbance to and sedimentation of surface water resources. Water demand may decrease as water conservation activities and use of reclaimed water increase although these impacts would likely be negligible. Stormwater management would continue as would adherence to state stormwater requirements and BMP guidelines. Fort Huachuca would continue to strive to meet federal and state water quality criteria, drinking water standards, and aquifer pollution protection requirements. Current water resources management and compliance activities would continue to occur under this alternative.

Alternative 1—Implement Force Reductions

Minor impacts to water resources are anticipated as a result of implementing Alternative 1. The force reductions would reduce potable water demand allowing additional capacity for other users. The decrease in water usage is anticipated to have a beneficial impact on surface waters and groundwater resources due to reduced pumping. However, the increased force reductions are

expected to cause a proportionate reduction in wastewater flows to the WWTP resulting in inadequate discharges for operation. This may lead to potential future water quality violations due to the increased need to use effluent recycle. The Army is committed to the health and safety of its tenants and the environment and would make any operational or other changes necessary to ensure the proper operation of the wastewater system at the new flow levels, including adequate staff to ensure all testing and permit requirements continue to be met. Increased use of effluent recycle may impact current effluent recharge and reuse rates resulting in adverse impacts.

Adverse water resources impacts could also conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Fort Huachuca, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented. Increased force reduction at Fort Huachuca under Alternative 1 is not anticipated to cause violations of federal and state water quality regulations.

4.11.11 Facilities

4.11.11.1 Affected Environment

Fort Huachuca is divided into an East Reservation (28,544 acres) and West Reservation (44,598 acres). The East Reservation includes the East Range, which consists almost entirely of open/operational areas. The West Reservation includes the West Range, South Range, cantonment area, and Libby AAF. The majority of the buildings and facilities located on Fort Huachuca are within the cantonment area. These facilities and associated personnel provide the functions required to operate and maintain the installation, including wastewater treatment, solid waste management, transportation networks and infrastructure, installation access points, power distribution, fuel distribution, and hazardous waste management. Military barracks, bachelor/guest quarters, transient billeting, and Family housing as well as associated support facilities, including dining, health care, and other services, are also located within the cantonment area (U.S. Army, 2010).

Libby AAF is located in the northernmost corner of the cantonment area and is used for aviation-related training. Support facilities include a flight control tower, navigational aids building, airfield operations building, and an airfield fire and rescue station. Maintenance facilities and the city of Sierra Vista Municipal Airport air terminals are located on the north side of the airfield. Storage buildings are located along the southern side of the main runway and within the operational land use zone (U.S. Army, 2010).

4.11.11.2 Environmental Effects

No Action Alternative

No impacts to facilities are anticipated under the No Action Alternative. Fort Huachuca would continue to use its existing facilities to support its tenants and missions.

Alternative 1—Implement Force Reductions

Minor impacts to facilities are anticipated as a result of implementation of force reductions under Alternative 1. Personnel reductions associated with Alternative 1 would reduce requirements for facilities and affect space utilization across the installation. Construction or expansion projects that had been programmed in the future may not occur or could be downscoped. Occupants of older, underutilized, or excess facilities may be moved to newer facilities; in some cases, this could require modification of existing facilities. Some beneficial impacts are also expected as a result of force reductions such as a reduction in the frequency of training exercises would be beneficial for maintaining ranges and training areas and thereby improving sustainability of those facilities. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.11.12 Socioeconomics

4.11.12.1 Affected Environment

Fort Huachuca is part of the city of Sierra Vista, located in Cochise County in southeastern Arizona. Sierra Vista is the major population center of the region with a population of 46,351 in 2012. An additional estimated 14,348 live in the unincorporated area just to the east and south of the City. Sierra Vista occupies an area of 139 square miles, including the 119 square miles within the boundaries of Fort Huachuca. Huachuca City, a town of 1,751, is located immediately north of Fort Huachuca. The ROI includes Cochise County, Arizona, which includes Fort Huachuca and is where the majority of Fort Huachuca's Soldiers, Army civilians, and contractor personnel and their Families reside.

The major units assigned to Fort Huachuca include the Army Network Enterprise Technology Command, the 111th Military Intelligence Brigade, the U.S. Army Intelligence Center of Excellence, and the headquarters for the Army Military Affiliate Radio System. Other tenant units include the Electronic Proving Ground and the Joint Interoperability Test Command as well as the Army Network Enterprise Technology Command. There are currently 17 units stationed at Fort Huachuca.

Population and Demographics

Using 2013 as a baseline, Fort Huachuca has a total working population of 17,739 consisting of active component Soldiers and Army civilians, students and trainees, other military services,

civilians and contractors. Of the total working population, 5,841 were permanent party Soldiers and Army civilians. The population that lives on Fort Huachuca consists of 1,110 Soldiers and their 1,685 Family members, for a total on-installation resident population of 2,795 (Loucks-Spivey, 2014). The portion of the Soldiers and Army civilian population living off the installation is estimated to be 11,913 and consist of Soldiers, Army civilians, and their Families.

Fort Huachuca is home to the U.S. Army Intelligence Center of Excellence and provides Intelligence and Unmanned Aircraft Systems Operation training for Soldiers and others. Students are based at Fort Huachuca for the expected length of their assigned curriculum which may range from 1 to 33 weeks, depending on the course the student is taking. The shortest course is the Unit Commanders course for 1 week, and the longest is the Gray Eagle Operator Course for a duration of 33 weeks. Fort Huachuca averages approximately 4,100 students assigned for training. The average daily student load for 2013 was 2,339, which comprised approximately 90 to 95 percent of students living on the installation in barracks or billeting. The remaining students would be accommodated in local lodging facilities or rental units.

In 2012, the population of the ROI was 131,735. Compared to 2010, the 2012 population in Cochise County increased slightly, by 0.3 percent (Table 4.11-4). The racial and ethnic composition of the ROI is presented in Table 4.11-5 (U.S. Census Bureau, 2012a).

Table 4.11-4. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Cochise County, Arizona	131,735	+0.30

Table 4.11-5. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of Arizona	84.3	4.5	5.3	3.1	2.5	30.2	57.1
Cochise County, Arizona	88.0	4.8	1.7	2.1	3.1	33.1	57.5

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Income

Compared to 2000, the 2012 total employed labor force (including civilian and military) increased in the state of Arizona and slightly decreased in Cochise County (U.S. Census Bureau 2000 and 2012b). In 2012, the total employed labor force in the ROI was 47,333 (U.S. Census

Bureau, 2012b). Employment, median home value, and household income, and poverty levels are presented in Table 4.11-6.

Table 4.11-6. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment 2000-2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Arizona	2,753,287	+22.2	175,900	50,256	17.2
Cochise County, Arizona	47,333	-1.2	151,800	45,505	16.6

Information regarding the workforce by industry for Cochise County was obtained from the U.S. Census Bureau. Information presented below is for the employed labor force.

Cochise County

According to the U.S. Census Bureau, the educational services, health care and social assistance sector accounts for the greatest share of total workforce in Cochise County (20 percent). Public administration is the second largest employment sector (16 percent), followed by professional, scientific, management, administrative, and waste management services (13 percent). The Armed Forces account for 4 percent of the county's workforce. The remaining 10 industries employ 51 of the total workforce.

Major employers in Cochise County include Fort Huachuca, Cochise County, and General Dynamics Information Technology (SEAGO, 2014).

Housing

There are several housing options for residents of Fort Huachuca. Subject to availability, personnel may live on the installation, or either they may rent or purchase housing off the installation. Fort Huachuca currently has 3,991 permanent party and student residents in housing and 1,132 homes on the installation (Loucks-Spivey, 2014).

Schools

Two school systems accommodate students from Fort Huachuca: Fort Huachuca Accommodation School and the Unified School District located in Sierra Vista. Students in kindergarten through grade 8 attend school in the Fort Huachuca District through the Fort Huachuca Accommodation School District. The Fort Huachuca Accommodation School District is an Arizona Public School, but it lies within Fort Huachuca and has coterminous boundaries with Fort Huachuca. There is no tax base or voting public, and the school district relies on Federal Impact Aid funding and State Equalization funding. Three elementary schools and a middle school are in the district (Nieto, 2014).

In the Fort Huachuca Accommodation School District, a special needs preschool serves students; one school serves students through grade 2; one school serves students in grade 3 through grade 5; and a middle school serves students in grade 6 through grade 8. High school students from the installation attend Buena High School, which is a part of the Sierra Vista Public School District (Nieto, 2014).

Fort Huachuca Accommodation School District enrollment for students attending school that live on the installation is around 960 students, and the district has total enrollment of 1,063 students. Children of active component Soldiers who live off the installation are allowed to attend Fort Huachuca Accommodation School District, dependent on availability, through the enrollment process in Arizona. The Buena High School enrollment of students living on the installation is 144. There are typically about 65 students living on the installation that are homeschooled. In total, there are 1,104 students living on the installation, 87 percent attend Fort Huachuca Accommodation School District, and 13 percent attend Sierra Vista Public School District (Nieto, 2014).

Public Health and Safety

Police Services

The Physical Security Branch of the DES supports the Fort Huachuca community by providing the following services, physical security (assures high standards are being maintained for securing and maintaining the well-being of Army materials and other property), vehicle registration (maintains high level of security to ensure only authorized personnel gain access), and work order processing (U.S. Army, 2014a).

Fire and Emergency Services

The Sierra Vista Fire Department has three stations and responds to emergency medical service calls in and around the city of Sierra Vista. The department is composed of 100 percent certified emergency medical technicians and paramedics that are also cross trained in firefighting. The Fire Department responds to fire, medical, technical rescue, metropolitan medical, and hazardous materials emergencies (Sierra Vista, 2014).

Medical Facilities

There are three medical facilities at Fort Huachuca. The main facility is Raymond W. Bliss Health Center, which operates as a clinic and does not allow overnight patients. The services provided include pharmacy, optometry, and x-ray technicians and services. There are two smaller clinics on the base, the Soldier Care Clinic and the Military Intelligence Student Clinic. The Soldier Care Clinic is for permanent party Soldiers only and the Military Intelligence Student Clinic serves the initial entry Soldiers enrolled in military intelligence training. Military personnel who require overnight medical care must go to nearby hospitals located off the installation (Lopez, 2014).

There is one dental clinic on the base under Raymond W. Bliss Health Center called Runion Dental Clinic. This is an army dental clinic that operates separately under its own command.

Family Support Services

Fort Huachuca assists Soldiers and their Families with programs that include Information, Referral, and Follow-up (providing information regarding military and civilian community resources), Army Emergency Relief, Army Family Action Plan, Army Family Team Building, a Soldier and Family Assistance Center, Financial Readiness Program, Employment Readiness Program, Exceptional Family Member Program (a mandatory enrollment program assisting families with special needs), Family Advocacy Program (new parents support program, parent-tot play group, and victim advocate group), Mobilization and Deployment Readiness, and a Relocation Readiness Program (Fort Huachuca FMWR, 2014).

Recreation Facilities

Fort Huachuca provides its military community, families, and civilians with an arts and crafts center (offering classes for all ages), a bowling center (with summer and winter leagues), riding stables, an activity center (can be rented out by the hour and has a capacity of up to 500 people), an 18-hole golf course, a car center, a sportsman center (offering ranges for skeet, trap, and paintball Wednesdays through Sundays), and a sports facility (fitness and aquatics facilities and fitness classes and programs) (Fort Huachuca FMWR, 2014).

4.11.12.2 Environmental Effects

No Action Alternative

Fort Huachuca's continuing operations represent a beneficial source of regional economic activity. No additional impacts to population, housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of 2,739[16] Army positions (1,726 Soldiers and 1,013 Army civilians), each with an average annual income of $46,760 and $72,341, respectively. In addition, this alternative would affect an estimated 4,158 Family members (1,529 spouses and 2,629

[16] This number was derived by assuming the loss of 70 percent of Fort Huachuca's Soldiers and 30 percent of the Army civilians.

children). The total number of military employees and their Family members who may be directly affected by the Alternative 1 is projected to be 6,897.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative ranges. Table 4.11-7 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, changes in population and employment in the ROI fall outside the historical range and are categorized as a significant impact. However, there would not be a significant impact to income or sales because the estimated percentage change is within the historical range.

Table 4.11-7. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	9.9	6.7	4.8	3.9
Economic contraction significance value	-12.5	-5.3	-4.4	-1.1
Forecast value	-5.1	-4.1	-7.3	-3.4

Table 4.11-8 summarizes the predicted impacts to income, employment, and population of the reductions against the 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 2,739 Army Soldiers and civilians under Alternative 1, EIFS estimates an additional 513 direct contract service jobs would also be lost. An additional 568 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. Total reduction in employment is estimated to be 3,820, a significant reduction of 8.1 percent of the total employed labor force in the ROI of 47,333. Income is estimated to reduce by $193.5 million, a 4.1 percent decrease in income in 2012.

Table 4.11-8. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$193,491,500	-3,252 (Direct)	-6,897
		-568 (Induced)	
		-3,820 (Total)	
Total 2012 ROI economic estimates	$4,837,759,000	47,333	131,735
Percent reduction of 2012 figures	-4.1	-8.1	-5.2

Note: Sales estimates are not consistently available from public sources for all counties in the United States; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from EIFS is described in the paragraphs below.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $209 million. There would also be a loss in sales tax receipts to local and state governments. The average state and local sales tax rate for Arizona is 8.2 percent (Tax Foundation, 2014). To estimate sales tax reductions, information was utilized on the proportion of sales that would be subject to sales taxes on average across the country. According to the U.S. Economic Census an estimated 16 percent of sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $208.9 million resulting in an estimated sales tax receipts decrease of $2.7 million under Alternative 1.

Of the approximately 131,735 people (including those residing on Fort Huachuca) who live within the ROI, 6,897 Army employees and their Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 5.2 percent. This number could overstate potential population impacts because some of the people no longer employed by the military could continue to live and work within the ROI, finding employment in other industry sectors. However, due to the rural nature of the area and Fort Huachuca as a dominant employer and economic driver of the ROI, most displaced employees would likely move out of the area to seek other opportunities. There are few employing sectors in the ROI to absorb displaced military employees. A small number of displaced forces may stay in the ROI and seek work; finding work and others may remain unemployed and possibly affect the unemployment rate in the ROI.

Additionally, students and trainees on Fort Huachuca may have a substantial impact on the local economy through lodging, eating, and shopping expenditures. Additionally, formal graduation ceremonies generate demand for lodging and dining facilities when Family members attend. The impact to Fort Huachuca's training missions cannot be determined until after the Army completes its force structure decisions; therefore, analyzing the impact to those missions is beyond the scope of this document.

Housing

The population reduction under Alternative 1 would lead to a decreased demand for housing and increase housing availability on the installation and in the region, potentially leading to a reduction in median home values. With an expected decrease in population within the ROI of 5 percent along with the vast majority of the Army personnel and Family members living off the installation, housing impacts under Alternative 1 would be adverse and could range from minor to significant.

Schools

Reduction of 2,700 Army personnel would decrease the number of children by 2,629 in the ROI. It is anticipated that school districts that provide education to Army children on the installation would be impacted by this action. Fort Huachuca Accommodation School District, located on the installation, would be most affected by these decreases in enrollment as it provides education for Army children on and off the installation. The Sierra Vista Public School District would also have a decreased number of military-dependent students attending their schools. If enrollment in individual schools declines significantly, schools may need to reduce the number of teachers, administrators, and other staff, and potentially close or consolidate with other schools within the same school district should enrollment fall below sustainable levels.

The reduction of Soldiers on Fort Huachuca would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal Impact Aid a district receives is based on the number of students who are considered “federally connected” and attend district schools. Actual projected dollar amounts cannot be determined at this time due to the variability of appropriated dollars from year to year, and the uncertainty regarding the actual number of affected school-age children. School districts in the ROI would likely need fewer teachers and materials as enrollment drops, which would offset some of the reduced Federal Impact Aid. Overall, adverse impacts to schools associated with Alternative 1 would be minor to significant, depending on the number of military-connected students attending schools.

Public Services

The demand for law enforcement, medical care providers, and fire and emergency service providers on the installation would experience a decrease in demand should Army military and civilians, and their Family members, affected by Alternative 1 move to areas outside the ROI. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements. Overall, there would be minor, adverse impacts to public health and safety as a result of Alternative 1. The impacts to public services are not expected to be significant because the existing service level for the installation and the ROI would still be available.

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. As a result, minor impacts to Family Support Services and recreation facilities would occur as a result of Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, provides: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). In general, Alternative 1 would not have disproportionate adverse impacts to minorities, economically disadvantaged populations or children in the ROI. Job losses would be experienced across all income levels and economic sectors and spread geographically throughout the ROI. Minority and poverty populations in the ROI are proportionally very similar to those in the state as a whole, so there would not be disproportionate impacts to environmental justice populations.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of the people associated with the installation, including children. Therefore, it is not anticipated that implementing Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.11.13 Energy Demand and Generation

4.11.13.1 Affected Environment

Fort Huachuca's energy needs are currently met by a combination of electric power and natural gas. Fort Huachuca strives to minimize environmental impacts and total ownership costs by reducing consumption of energy from outside sources through the integration of the principles and practices of sustainability. Fort Huachuca addresses energy security, federal mandates, and

mitigation of rising energy costs through the expanded use of renewable energy resources. Existing renewable energy systems located on Fort Huachuca include solar hot water heaters, photovoltaic flat panels and combined integrated systems, daylighting, photovoltaic parking lot lighting, solar walls, a methane digester processer, a biofuel burner, geothermal heat pumps at new barracks, a 10-kilowatt wind tower, and a 1-megawatt wind turbine (U.S. Army, 2014b). The Army has also recently initiated the development of a 20-megawatt solar array at Fort Huachuca.

Electricity

Tucson Electric Power and Sulphur Springs Valley Electric Cooperative supply electrical power to Sierra Vista, Fort Huachuca, and the surrounding area. The installation is served by six underground distribution circuits, which transfer to overhead poles. The existing distribution system adequately supports the current and future needs of the installation (U.S. Army, 2010b).

Natural Gas

Southwest Gas provides natural gas to the installation via two 400 pounds-per-square-inch supply lines. The system capacity is reported to be adequate to support current and future demands (U.S. Army, 2010b).

4.11.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, there would be minor, adverse impacts to energy demand. The continued use of outdated, energy-inefficient facilities could hinder Fort Huachuca's requirement to reduce energy consumption. Some older facilities may require renovations to improve energy efficiency to achieve Fort Huachuca's sustainability and energy goals.

Alternative 1—Implement Force Reductions

Minor, beneficial impacts to energy demand are anticipated because force reductions would reduce the installation's overall demand for energy. The installation would also be better positioned to meet energy and sustainability goals. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on energy demand are not analyzed.

4.11.14 Land Use Conflicts and Compatibility

4.11.14.1 Affected Environment

Regional Setting

Fort Huachuca encompasses 73,142 acres of land located in the city of Sierra Vista, Cochise County, Arizona. The installation is located in the San Pedro River Valley, approximately 75 miles southeast of Tucson and 63 miles northeast of Nogales, Arizona. Other communities in the region include Benson (31 miles north), Tombstone (18 miles east), Bisbee (28 miles southeast), and Douglas (60 miles southeast). The southernmost boundary of the installation is approximately 8 miles from the international border with Mexico. Fort Huachuca is divided into an East Reservation (28,544 acres) and West Reservation (44,598 acres) by Arizona State Highway 90. The East Reservation includes the East Range, which consists almost entirely of open/operational areas. The West Reservation includes the West Range, South Range, Cantonment Area, and Libby AAF (U.S. Army, 2010a). The electromagnetic environment that surrounds Fort Huachuca is an unparalleled asset for the testing and training operations carried out under a wide variety of missions. This area is one of the only U.S. locations where regional electronic equipment testing can be effectively conducted, and is the only test range with a frequency coordination zone protected by federal mandate (Arizona Department of Commerce, 2007). The 2008 law providing protection for the test range and range activity also designated the area as the Buffalo Soldier Electronic Test Range. The name "Buffalo Soldier" honors African American cavalry and infantry regiments that were stationed at Fort Huachuca beginning in 1892 (Pima County, 2010).

The receiving and transmitting points involved in operations within the Buffalo Soldier Electronic range extend well beyond the boundaries of Fort Huachuca and the range encompasses the entire city of Sierra Vista as well as the communities of Huachuca City, Tombstone, and Benson. While most points are located within 50 kilometers of the installation boundary, some operations extend to the Tucson area and beyond (Arizona Department of Commerce, 2007).

The installation primarily supports the U.S. Army Training and Doctrine Command and is home to many tenants, including the Network Enterprise Technology Command, National Unmanned Aerial Vehicle Training Center, U.S. Army Intelligence Center and School of Excellence, U.S. Army Electronic Proving Ground, Joint Interoperability Test Command, Intelligence Electronic Warfare Test Directorate, U.S. Army Communications Electronic Command, and many other smaller tenant organizations. The majority of operational testing and training at Fort Huachuca is related to intelligence, electronic warfare, and communications systems. Units are engaged in the development and testing of various types of electronics. These units are also involved in training Soldiers in the use of this equipment in classrooms and during field training exercises. Fort

Huachuca is also used for field training exercises by various operational units and other DoD and non-DoD agencies (U.S. Army, 2010a).

Land Use on Fort Huachuca

Fort Huachuca is divided into an East Reservation (28,544 acres) and West Reservation (44,598 acres) by Highway 90. Land uses are generally classified as either open/operational or developed areas. The East Reservation includes the East Range, which consists almost entirely of open/operational areas. The West Reservation includes the West Range, South Range, cantonment area, and Libby AAF. The open/operational areas on the West and East Reservations are used as training and test ranges and are comprised of 67,422 acres or approximately 92 percent of the installation. The developed areas on the installation include the cantonment area and Libby AAF. These areas occupy 5,720 acres, or approximately 8 percent of the installation. Both are located on the eastern edge of the West Reservation (U.S. Army, 2010a).

The West Range is located on the West Reservation, west of the cantonment area, and covers approximately 16,000 acres of land. There are no live-fire training areas on this range, and at specified times, the range is used for training, research, development, and testing. Training Area Juliet, in the northwest corner of the West Range, is used by the Intelligence School for training related to UAS. U.S. Army Electronic Proving Ground also performs research and development testing in this area. The takeoff and landing of UAS from a supporting facility is one of the activities conducted on the West Range. Site Maverick, located in Training Area Lima, and the land navigation course, located in Training Area Mike are permanent training areas on the West Range. The South Range is located on the West Reservation, south of the cantonment area. It covers approximately 23,000 acres, including most of the installation's portion of the Huachuca Mountains. The eastern slopes of the mountains on the southern portion of the installation are used, in part, as impact areas for the small arms firing positions located in the flat terrain of the eastern portion of the range. Training and some testing occur in the northern portion of the mountains. The range is divided into 12 training areas, 9 firing ranges, and several impact areas. Permanent training areas on the South Range include Sites Papa and Uniform and two land navigation courses located in Training Area Uniform (U.S. Army, 2010a).

Surrounding Land Use

Lands surrounding Fort Huachuca are directly affected by Cochise County, Santa Cruz County, and the city of Sierra Vista's land use restrictions. The Cochise County Comprehensive Plan (Cochise County, 2011) and zoning districts direct the land use throughout the unincorporated areas of Cochise County. The Cochise County land adjacent to the installation consists primarily of privately owned and State Trust lands (Arizona Department of Commerce, 2007). Growth areas are identified southeast of the installation; south of Sierra Vista; north of the East Range. Land uses within Sierra Vista adjacent to Fort Huachuca are predominantly residential, with higher densities occurring in the northern part of the city and lower densities along the south and

northeast edges of the city where it occurs south of the East Range of Fort Huachuca (U.S. Army, 2010a).

A large portion of land adjacent to the installation falls under the jurisdiction of the Bureau of Land Management Tucson Field Office and the USFS Coronado National Forest (U.S. Army, 2010a). USFS lands comprise the majority of lands within Santa Cruz County that lie adjacent to the installation (Santa Cruz County, 2013). These lands are undeveloped and could be expected to remain so for the foreseeable future. Management of these lands is directed under those agencies' resource management plans.

A JLUS was developed through a collaborative effort between Fort Huachuca, local municipalities, community groups and other stakeholders and was finalized in June 2007. The purpose of the JLUS is to facilitate the implementation of compatible land uses in the areas critical to the mission and operation of the installation. The JLUS identified operations occurring at the installation that extend beyond the boundaries of the fort and into the surrounding communities, including uses of the restricted airspace and the electromagnetic environment that surrounds the installation (Arizona Department of Commerce, 2007).

The limited amount of developed land that surrounds Fort Huachuca provides an electromagnetic environment that is an unparalleled asset for testing and training operations carried out on the installation. It is the only U.S. location where aggressive, offensive electronic warfare testing can be conducted and that has a frequency coordination zone protected by federal mandate (Arizona Department of Commerce, 2007). Increasing local growth throughout the region creates the potential for conflicts between installation operations and adjacent uses, and threatens to affect installation military training and deployment capabilities. Fort Huachuca works through the ACUB program to reduce the potential for incompatible land use adjacent to the installation by aggressively pursuing conservation easement opportunities on agricultural and undeveloped lands adjacent to the installation. By establishing easements, the installation is able to limit its impacts to surrounding uses and minimize the incompatible development of electromagnetic background noise that could adversely impact electromagnetic training and testing activities (U.S. Army, 2010a; Arizona Department of Commerce, 2007).

4.11.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, existing uses and mission activities would not change from existing conditions. Land uses at Fort Huachuca would remain generally compatible with one another and with ongoing testing and training activities. Regional growth is expected to continue, and related incompatible development and uses would potentially compromise mission activities. Fort Huachuca would continue to be required to identify and abate potential incompatible development and use threats through the acquisition of conservation easement buffers, which

would constrain development adjacent to the installation. Impacts to land use from the No Action Alternative would, therefore, be minor.

Alternative 1—Implement Force Reductions

Alternative 1 would entail force reductions and associated decreased levels of existing mission activities. Compatibility among land uses and mission activities would not change. Potential incompatibilities associated with regional growth and development would continue to exist under Alternative 1. The proposed force reductions would not affect or change the requirement to identify potential incompatible development or use threats and provide mitigation through the acquisition of buffer easements. All acquired conservation easements would restrict or eliminate future development to protect the integrity of installation mission activities. Similar to the No Action Alternative, impacts to land use from Alternative 1 would be minor.

4.11.15 Hazardous Materials and Hazardous Waste

4.11.15.1 Affected Environment

Hazardous Materials

Fort Huachuca manages hazardous substances and hazardous materials in compliance with state and federal regulatory programs. These include fuels, antifreeze, paints, cleaners, petroleum, oil and lubricants. Fort Huachuca has an active environmental program that maintains compliance specific to each of these hazardous materials.

Hazardous Waste Treatment, Storage and Disposal

Fort Huachuca is a RCRA, large-quantity generator of hazardous waste. Downgraded hazardous material and vehicle/aircraft maintenance produce the majority of hazardous wastes generated by the installation, and facility maintenance may also contribute. Hazardous substances typically associated with these operations, such as fuels, antifreeze, paints, cleaners, petroleum products and lubricants, are stored, transported, and disposed of in accordance with applicable federal and state of Arizona laws and regulations. The HWMP at Fort Huachuca complies with Occupational Safety and Health Administration hazardous communications standards and USACE Safety and Health requirements Manual EM 385-1-1; the ISC Plan; the installation HWMP; and U.S. Department of Transportation regulations (U.S. Army, 2010b).

Fort Huachuca operates one 90-day accumulation center, approximately 200 satellite accumulation centers, regulated waste satellite accumulation sites (petroleum, oil, lubricants and hazardous, universal, toxic, and industrial waste), and a Hazardous Material Control Center, which allows for collection and withdrawal of usable hazardous materials on the installation. Frequent inspections of hazardous waste storage and disposal sites are conducted by the DPW Environmental Office and state and federal regulatory agencies. The Defense Logistics Agency -

Disposal provides contract service to transport and dispose of regulated waste off the installation (U.S. Army, 2010b).

Hazardous Waste Investigation and Remediation Sites

Historically, there have been 58 IRP sites at Fort Huachuca. The 2009 Fort Huachuca IAP identifies two remaining IRP sites in long-term management and two sites pending a No Further Action determination from Arizona DEQ (U.S. Army, 2010b).

Other Hazards

Other hazards present at Fort Huachuca are controlled, managed, and removed through specific programs and plans and include UXO, LBP, asbestos, and pesticides.

4.11.15.2 Environmental Effects

No Action Alternative

Minor, adverse impacts are anticipated under the No Action Alternative because there would be continued use and generation of hazardous materials and wastes on Fort Huachuca. The existing types and quantities of hazardous wastes generated on the installation have been accommodated by the existing hazardous waste management system, and all materials and waste would continue to be handled in accordance with all applicable laws, regulations, and plans minimizing potential impacts.

Alternative 1—Implement Force Reductions

Minor, adverse impacts are anticipated under Alternative 1. Remediation activities are not expected to be affected under Alternative 1. Because of the reduced numbers of people, the potential for spills would be somewhat reduced during training and maintenance activities. Waste collection, storage, and disposal processes would remain mostly unchanged, although the quantities may be reduced.

No violation of hazardous waste regulations is anticipated as a result of active forces reduction. Volumes of generated waste are expected to decline depending on the specific units affected.

Adverse impacts could conceivably occur if force reductions prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Fort Huachuca, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

Hazardous materials and wastes would continue to be handled per BMPs that are implemented in compliance with appropriate regulations and as per Fort Huachuca's HWMP. It is expected that the volume of regulated waste generated would experience an initial increase; followed with a possible decline dependent on the specific units affected. The installation would minimize any adverse impacts related to hazardous materials and waste resulting under Alternative 1.

As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.11.16 Traffic and Transportation

4.11.16.1 Affected Environment

The main highway access to Fort Huachuca is Arizona State Highway 90, which divides the installation into the East and West Reservations. The Main Gate is located immediately west of Highway 90, at the end of Fry Boulevard, which is a commercial roadway that runs through the city of Sierra Vista. The Main Gate is the most heavily used access gate on the installation (U.S. Army, 2010b; U.S. Army, 2008). The 2005 Northwest Cochise County Transportation Planning Study states that Highway 90 is operating at the highest LOS, essentially free-flow traffic throughout the day, designated (LOS A). Further, this report states that Highway 90 will reach LOS C, indicating occasional congestion and delays, when traffic counts reach a daily capacity of 24,400 vehicles. Traffic is expected to reach LOS D, with recurrent congestion and delays during peak hours exacerbated by traffic incidents at 30,600 vehicles (U.S. Army 2010b; Cochise County, 2005). More vehicles than 30,600 under current configurations will result in traffic that exceeds acceptable standards or is failing. This plan is in the process of being updated. Preliminary materials from the planning process state that Highway 90 is continuing to operate at a high level. Traffic counts along Highway 90 in the vicinity of the Main Gate have shown an increase in vehicles between 2006 and 2008, with an annual average daily traffic count of 14,988 vehicles in 2006, 16,175 vehicles in 2007, and 16,369 vehicles in 2008. These counts are well below the LOS D threshold (U.S. Army, 2010b). The counts for 2012 at the same location (count station 101084, Milepost 322) were 20,509, continuing the upward trend but still lower than the LOS D threshold (Arizona DOT, 2014).

There are two other gates providing access to the installation, the East and West Gates. The East Gate and its control point are currently located east of the intersection of Brainard Road and Carter Street, resulting in the closure of both Brainard Road and Carter Street. The West Gate is located near the Blacktower area of the installation's West Range. The West Gate provides access to individuals who live west of the installation, so they need not drive approximately 30 minutes around the installation to use the Main or East gates. A North Gate also exists on the installation but is not functional and is not currently in use (U.S. Army, 2010b).

The existing road network on Fort Huachuca provides access to all operational and residential areas on the installation. There is approximately 200 miles of paved roadways, 130 miles of gravel roads, and 150 miles of firebreak roads and trails located on the installation. The overall condition of the roadway system is good and adequately serves approximately 15,405 people currently living and/or working on the installation. Traffic studies have shown that traffic volumes are greatest during two, hour-long periods in the morning and evening as people report to and from work, with peak hours occurring between 6:45 a.m. and 7:45 a.m. and 4:00 p.m. and 5:00 p.m. A third peak travel time occurs around 12:00 p.m. as a result of lunch hour traffic. Overall, the installation has little to no congestion and minimal delays (U.S. Army, 2010b; U.S. Army, 2008).

Primary roads are the main routes that connect the cantonment area with the off-installation transportation network and provide access between different land uses on the installation. The primary roads carry the highest traffic volumes and often allow for higher travel speeds. Primary roads within the installation include Allison Road, Hatfield Street, Lawton Road, Smith Avenue, Squire Avenue and Winrow Avenue. Winrow Avenue provides the main access to and from the Main Gate. Installation traffic is controlled at intersections using a variety of means, including traffic circles, stop signs, and traffic signals (U.S. Army, 2010b; U.S. Army, 2008).

Roads serving the training areas within the three ranges are mostly unpaved, and in some cases are severely eroded.

Airfield activities primarily occur at Libby AAF, which includes a 12,000-foot-long runway, providing service to Fort Huachuca and the city of Sierra Vista Municipal Airport. Other airfield activities occur on the range and training lands outside the cantonment area and include operations at Hubbard landing strip on the East Range, Rugge-Hamilton and Pioneer landing strips on the West Range, and more than a dozen helipads throughout the installation (U.S. Army, 2010b; U.S. Army, 2008).

No rail service to Fort Huachuca is available. The closest rail service is located in Benson, Arizona, which is approximately 30 miles north of the installation. The city of Sierra Vista Public Transit System provides daily bus transportation to the public, with stops located throughout Fort Huachuca and the city of Sierra Vista (U.S. Army, 2010b; U.S. Army, 2008).

Military vehicles use a combination of public roads, installation roads, and military vehicle trails. Vehicle convoys using public roads typically are limited to no more than 24 vehicles in a group. Vehicles within a convoy group (also called convoy serials) usually are spaced about 165 to 330 feet and at least 15 to 30 minutes apart. These convoy procedures reduce noise levels and prevent the convoy vehicles from dominating local traffic flow for long periods of time (U.S. Army, 2010b; U.S. Army, 2008).

4.11.16.2 Environmental Effects

No Action Alternative

The No Action Alternative would result in traffic and transportation congestion continuing at current levels on and off the installation. Traffic congestion on and off the installation has not been cited as a concern in the documents reviewed and referenced for this analysis. There would be no impacts to transportation.

Alternative 1—Implement Force Reductions

Reduction in personnel would provide a slightly beneficial impact to traffic both on and off the installation. Traffic congestion has not been cited as a problem at Fort Huachuca. If the full population reduction scenario of 2,700 personnel were to be implemented, the 46 percent reduction in personnel would present a noticeable decline in traffic both on and off the installation.

4.11.17 Cumulative Effects

The ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Huachuca consists of Cochise County in Arizona. No planned or proposed actions within the ROI that would have the potential to cumulatively add impacts to Army 2020 alternatives were identified by the installation.

Reasonably Foreseeable Future Projects on Fort Huachuca

No additional actions were identified by the installation that could have cumulative impacts.

Reasonably Foreseeable Future Projects outside Fort Huachuca

The Army is not aware of any reasonably foreseeable future projects outside Fort Huachuca which would be appropriate for inclusion in the cumulative impacts analysis. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, smaller, less diversified economies will be more vulnerable to the force reductions and provide fewer opportunities to displaced Army employees.

No Action Alternative

There would be no cumulative effects of the foreseeable future actions with the No Action Alternative. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reductions

With the exception of socioeconomics, there would not likely be a significant, adverse cumulative impact under Alternative 1. The socioeconomic impact within the ROI, as described in Section 4.15.12.2 with a reduction of 2,739 Soldiers and civilians, could lead to significant impacts to the population and employment, with minor, adverse impacts to income, schools, and housing. Current and foreseeable actions include construction and development activities on and off the installation, which would have beneficial impacts to the regional economy through additional economic activity, jobs, and income in the ROI. Additionally, stationing changes would also affect regional economic conditions through the jobs and income they bring (or lose) within the region. Military personnel spend their money in the ROI economy, supporting additional jobs, income, taxes, and sales impacts.

Fort Huachuca is located near the city of Sierra Vista; the ROI population is over 130,000. It is possible that the ROI could absorb some of the displaced workers, depending on the economy and labor market in the region. If the majority of the displaced forces are not absorbed into the local labor force, there would be additional adverse impacts.

Fort Huachuca is home to the U.S. Army Intelligence Center of Excellence and provides Intelligence and Unmanned Aircraft Systems Operation training for Soldiers and others. Fort Huachuca averages approximately 4,100 students assigned for training. Cumulative actions could include reduced training opportunities because of the force reductions on Fort Huachuca. This could lead to further adverse impacts to socioeconomic conditions because of reduced temporary population and visitors and the attendant economic activity, spending, and jobs and income they support. Alternative 1 and the loss of approximately 2,700 Soldiers and Army civilians, in combination with current and foreseeable future actions, could have significant impacts to population employment, tax receipts, housing values, and schools in the ROI.

4.12 Fort Irwin, California

4.12.1 Introduction

Fort Irwin was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population, is discussed in Section 4.9.1 of the 2013 PEA.

Fort Irwin's 2011 baseline permanent party population was 5,539. In this SPEA, Alternative 1 assesses a potential population loss of 3,600, including approximately 3,260 permanent party Soldiers and 264 Army civilians.

4.12.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental or socioeconomic impacts are anticipated for Fort Irwin. Table 4.12-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.12-1. Fort Irwin Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Beneficial
Cultural Resources	Minor	Beneficial
Noise	Negligible	Beneficial
Soils	Minor	Beneficial
Biological Resources	Minor	Beneficial
Wetlands	Negligible	Negligible
Water Resources	Less than Significant	Beneficial
Facilities	Minor	Minor
Socioeconomics	Beneficial	Less than Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	Minor	Minor
Hazardous Materials and Hazardous Waste	Minor	Minor
Traffic and Transportation	Minor	Minor

4.12.3 Air Quality

4.12.3.1 Affected Environment

The air quality affected environment of the Fort Irwin ROI remains the same as described in Section 4.9.2.1 of the 2013 PEA. The Fort Irwin area is part of a nonattainment area for O_3 (1997

and 2008 standards) and coarse particulate matter (PM_{10}). The area is in attainment with NAAQS for the remaining criteria pollutants (EPA, 2013).

4.12.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source emissions at current levels, as well as fugitive dust from training in a desert environment, would result in minor, adverse impacts to air quality. Air quality impacts from the No Action Alternative for this SPEA would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that, in the long term, force reductions at Fort Irwin would result in minor, beneficial impacts to air quality because of reduced operations and maintenance activities and reduced vehicle miles traveled associated with the facility. Impacts to air quality from the increased force reductions proposed under Alternative 1 would continue to be beneficial assuming a corresponding decrease in operations and vehicle travel to and from Fort Irwin. The size of this beneficial impact under Alternative 1 would be slightly larger than assumed in the 2013 PEA.

The relocation of personnel outside of the area because of force reductions could result in negligible, short-term effects on air quality associated with mobile sources. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on air quality are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with air quality regulations. Even if the full end-strength reductions were to be realized at Fort Irwin, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.12.4 Airspace

4.12.4.1 Affected Environment

The airspace affected environment on the Fort Irwin remains the same as was discussed in Section 4.9.3.1 of the 2013 PEA.

4.12.4.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, impacts to airspace would be similar to those described in the 2013 PEA (Section 4.9.3.2) with negligible impacts as a result of potential airspace conflicts

between military and civilian use. There would be no new or adjustments to existing airspace classifications and restrictions.

Alternative 1—Implement Force Reductions

Under Alternative 1, impacts to airspace would be similar to those described in the 2013 PEA (Section 4.9.3.2) with minor, beneficial impacts from a reduction in live-fire operations and subsequently reduced potential airspace conflicts. The proposed further force reductions would increase the beneficial impacts.

4.12.5 Cultural Resources

4.12.5.1 Affected Environment

The affected environment for cultural resources at Fort Irwin has not changed since 2013, as described in Section 4.9.4 of the 2013 PEA.

4.12.5.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, long-term minor impacts to cultural resources are anticipated as described in Section 4.9.4.2 of the 2013 PEA. Ongoing management and monitoring occurs to ensure cultural resource compliance and to minimize the potential for inadvertent damage to resources during training with heavy vehicles.

Alternative 1—Implement Force Reductions

Alternative 1 would have a minor, beneficial effect on cultural resources. As discussed in Section 4.9.4.2 of the 2013 PEA, there is only one historic structure located on the installation and there is little potential for it to be impacted by troop reductions. The potential for inadvertent adverse impacts to archaeological sites as a result of training exercises is expected to be reduced under this alternative.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort Irwin, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.12.6 Noise

4.12.6.1 Affected Environment

Noise is among the VECs excluded from detailed analysis in the 2013 PEA, as described in Section 4.9.1.2, because of negligible impacts as a result of implementing alternatives included in that analysis. Fort Irwin is home to the National Training Center, where brigade-size units are

able to train in simulated rigorous combat conditions using weapons simulators and live fire. The range areas support air-to-ground gunnery and firing, artillery, air maneuver, and ground maneuver, including armored vehicle training. Sensitive noise receptors, such as off-installation civilian populations and communities, are relatively far removed from main engagement areas where noise impacts are generated as described in the 2013 PEA.

4.12.6.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated negligible noise impacts, since the area surrounding Fort Irwin is generally characterized as desert and mountainous terrain with few human noise receptors nearby, and impacts to wildlife would be short term and not significant. Impacts under the No Action Alternative on Fort Irwin remain the same as those discussed in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Irwin would result in slightly beneficial noise impacts due to a decrease in usage of small arms ranges and maneuver areas. The size of this negligible, beneficial impact under Alternative 1 would be similar to that described in the 2013 PEA.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with noise ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Irwin, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including noise ordinances and regulations.

4.12.7 Soils

4.12.7.1 Affected Environment

The soils affected environment on the installation remains the same as was discussed in Section 4.9.5.1 of the 2013 PEA.

4.12.7.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, long-term, minor, adverse impacts to soils were anticipated from continuing training, to include impacts to soils from off-road movement of wheeled and tracked vehicles. Impacts under the No Action Alternative on Fort Irwin remain the same as those discussed in Section 4.9.5.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, minor, beneficial impacts to soils were anticipated as a result of less use of training areas. A force reduction would result in less erosion, soil compaction, and loss of vegetation from a decrease in use of wheeled and tracked vehicles.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Irwin, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory regulations. Therefore, impacts under Alternative 1 at Fort Irwin would be beneficial and remain the same as those discussed in Section 4.9.5.2 of the 2013 PEA.

4.12.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.12.8.1 Affected Environment

The affected environment for biological resources at Fort Irwin has not had substantive changes since 2013, as described in Section 4.9.6.1 of the 2013 PEA.

4.12.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in minor, adverse impacts similar to those that are currently occurring to biological resources as described in Section 4.9.6.2 of the 2013 PEA. Fort Irwin would continue to adhere to its existing military land use as described in the installation's INRMP and ESMP. Listed species and species at risk recorded on the installation would also continue to be managed in accordance with the terms and conditions identified within biological opinion(s) issued by USFWS and any conservation measures identified in ESA, Section 7 consultation documents.

Alternative 1—Implement Force Reductions

Under Alternative 1, minor, beneficial impacts are anticipated to biological resources at Fort Irwin. Such beneficial impacts include a reduction in scheduling conflicts for training area access to conduct resource monitoring, an increase in the ease of implementing more proactive conservation management practices, and a minor reduction in maneuvers and live-fire activities. These likely beneficial effects would lessen the damage and disturbances to biological resources. Although a majority of maneuvers at Fort Irwin would continue to occur in support of National

Training Center training rotations and to support the training of non-resident units from across the Army, minor, beneficial impacts are anticipated to biological resources under Alternative 1.

Adverse impacts to biological resources could conceivably occur if force reductions prevented environmental compliance from being properly implemented. However, the Army is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Irwin, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met.

4.12.9 Wetlands

4.12.9.1 Affected Environment

Wetlands are among the VECs excluded from detailed analysis in the 2013 PEA, as described in Section 4.9.1.2, because of lack of significant, adverse environmental impacts as a result of implementing alternatives included in that analysis. Wetlands on Fort Irwin are fenced as off-limits to vehicle or foot traffic. No changes have occurred to the affected environment since 2013.

4.12.9.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible, adverse impacts to wetlands and the affected environment would remain in its present state.

Alternative 1—Implement Force Reductions

Per Section 4.9.1.2 of the 2013 PEA, there would be negligible impacts to wetlands under Alternative 1. The installation would continue to manage its wetlands in accordance with the installation INRMP, and ensure that wetland impacts are avoided and/or mitigated for. Impacts to wetlands could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Irwin, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at Fort Irwin would remain the same as those discussed in Section 4.7.1.2 of the 2013 PEA.

4.12.10 Water Resources

4.12.10.1 Affected Environment

The affected environment for water resources on Fort Irwin remains the same as that described in Section 4.9.7.1 of the 2013 PEA. There are no changes to surface water, groundwater, water rights, water supply and demand, wastewater, and stormwater resources.

4.12.10.2 Environmental Effects

No Action Alternative

In the 2013 PEA, less than significant impacts to water resources were anticipated from the No Action Alternative due to continued demand for and treatment of water for potable water uses and consumption for numerous installation operations and activities. The water supply would not be significantly impacted due to continued investment in water resources management infrastructure by Fort Irwin. Water supply and wastewater impacts under the No Action Alternative would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

Minor, beneficial impacts to water resources were anticipated from implementation of force reductions under Alternative 1 in the 2013 PEA because of the reduced demand for potable water supply and treatment, reduced generation of wastewater, and an increase in groundwater supply capacity. Increased force reductions under Alternative 1 of this SPEA would continue to have the same beneficial impacts to water supplies, groundwater, and wastewater.

Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Fort Irwin, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented.

4.12.11 Facilities

4.12.11.1 Affected Environment

The facilities affected environment of the Fort Irwin installation remains the same as described in Section 4.9.8.1 of the 2013 PEA.

4.12.11.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that there would be minor, adverse impacts to facilities under the No Action Alternative at Fort Irwin. Fort Irwin has sufficient cantonment area as well as the training space to support its operations, but because the installation landfill is near capacity, long-term minor, adverse impacts to the landfill are anticipated as a result of continued operations. Impacts to facilities would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that minor, adverse impacts to facilities would occur on Fort Irwin. Under Alternative 1, implementation of proposed further force reductions would continue to have overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demands for utilities and reduced demands for training facilities and support services. Some units and Soldiers currently in undersized or inadequate facilities would have the opportunity to move to more appropriately sized or better-equipped facilities. The available capacity of Fort Irwin's landfill would support the installation for a greater length of time as a result of the additional force reductions. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.12.12 Socioeconomics

4.12.12.1 Affected Environment

Fort Irwin is a major training area for the U.S. military and is a census-designated place located in the Mojave Desert in northern San Bernardino County, California. The ROI for Fort Irwin used in this analysis is San Bernardino County, California. It includes those areas that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, and contractor personnel, and their Families reside.

This section provides a summary of demographic and economic characteristics within the ROI. These indicators are described in greater detail in Section 4.11.7 of the 2013 PEA. However, some demographic and economic indicators have been updated where more current data are available.

Population and Demographics

Using 2011 as a baseline, Fort Irwin has a total working population of 16,691 consisting of active component Soldiers and Army civilians, students and trainees, other military services, civilians and contractors. Of the total working population, 5,539 were permanent party Soldiers and Army civilians. The population that lives on Fort Irwin consists of 3,733 Soldiers and their 5,667 Family members, for a total on-installation resident population of 9,400. There are also 14 Army civilians with an estimated 22 Family members living on the installation (Volb, 2014). The portion of Soldiers and Army civilians living off the installation is estimated to be 4,512 and consists of Soldiers, Army civilians, and their Family members.

Compared to 2010, the 2012 population in San Bernardino County increased by 2.1 percent to over 2,077,000 (Table 4.12-2). The racial and ethnic composition of the ROI is presented in Table 4.12-3.

Table 4.12-2. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
San Bernardino County, California	2,077,453	+2.1

Table 4.12-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
State of California	73.7	6.6	1.7	13.9	3.6	38.2	39.4
San Bernardino County, California	77.6	9.6	2.0	7.0	3.3	50.5	32.0

[a] Includes those who identify themselves as Hispanic and non-Hispanic White.

Employment and Income

Employment and income information provided in Table 4.12-4 has been updated from the 2013 PEA. Between 2000 and 2012, total employment in San Bernardino County grew at a faster rate than California (U.S. Census Bureau, 2000 and 2012b). In San Bernardino County, the median household income and median home value was lower than the California average. The percentage of San Bernardino County residents below the poverty line was greater than California as a whole (Table 4.12-4) (U.S. Census Bureau, 2012b).

Table 4.12-4. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of California	16,761,982	+12.7	383,900	61,400	15.3
San Bernardino County, California	820,437	+21.4	241,500	54,750	17.6

Information regarding the workforce by industry for San Bernardino County was obtained from the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for the employed labor force.

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in San Bernardino County (22 percent). Retail trade is the second largest employment sector (13 percent), followed by manufacturing (10 percent). The arts, entertainment, and recreation, and accommodation and food services and professional, scientific, and management, and administrative and waste management services sectors individually represent slightly less than 9 percent of the workforce.

The Armed Forces account for 2 percent of the San Bernardino County workforce. The remaining eight sectors employ 36 percent of the workforce.

Housing

As reported in the 2013 PEA, Fort Irwin has approximately 2,030 military Family housing units on the installation. Of this, approximately 380 are allocated to officers and another 1,650 are designated for enlisted personnel. It is anticipated that an additional 585 military Family housing units would be constructed as part of the Community Development and Management Plan negotiated between the Army and a private housing developer. An additional 92 units are currently being completed on the installation.

Soldiers and Army civilians who live off the installation primarily reside in Barstow and small municipalities within proximity to Fort Irwin. There generally is an equal split between owner- and renter-occupied units; however, the vacancy rate is higher in renter-occupied units. Additional housing information is provided in the 2013 PEA.

Schools

Three elementary, two middle, and two high schools within the Silver Valley Unified School District provide educational services for military-connected students at Fort Irwin. Three of these schools, one elementary and two middle schools, are located on the installation. During the 2009–2010 academic year, enrollment in the elementary school was over capacity while

enrollment in the middle schools was below capacity. Additional schools information is provided in the 2013 PEA.

Public Health and Safety

Law enforcement at Fort Irwin is provided by 60 personnel. A cooperative agreement between Fort Irwin and the San Bernardino County Sheriff is also in place to ensure the safety of area residents. Additionally, Fort Irwin has a mutual assistance agreement with the Barstow Fire Protection District. On-installation medical services are provided by the Medical Department Activity, Dental Activity, Weed Army Community Hospital, and Mary E. Walker Clinic. The primary off-installation healthcare provider is Barstow Community Hospital. Additional information regarding these facilities is provided in the 2013 PEA.

Family Support Services

Family Support Services include Family, career, and financial counseling. Fort Irwin's CYSS provides a variety of child care programs in addition to team sports and outreach sports programs designed to encourage healthy physical and mental development. Additional information regarding these facilities is provided in the 2013 PEA.

Recreation Facilities

Fort Irwin provides a variety of recreational opportunities for Soldiers and Army civilians. Resources include a pool, multiple fitness centers, scheduled group exercise activities, and arts and crafts, among others.

4.12.12.2 Environmental Effects

No Action Alternative

The continuation of operations at Fort Irwin represents a beneficial source of regional economic activity. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a less than significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of 3,524[17] Army positions (3,260 Soldiers and 264 Army civilians), with an average annual income of $46,760 and $65,615, respectively. In addition, this alternative would affect an estimated 5,349 Family members, including 1,966 spouses and 3,383 children. The total population of Army employees and their Family members who may be directly affected under Alternative 1 is projected to be 8,873.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted value falls outside the historical positive and negative range. Table 4.12-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, there would not be significant impacts to sales, income, employment, and population because the estimated percentage change is within the historical range.

Table 4.12-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+8.0	+4.3	+3.7	+3.6
Economic contraction significance value	-7.3	-3.5	-4.1	-2.2
Forecast value	-0.3	-0.3	-0.6	-0.4

Table 4.12-6 summarizes the predicted impacts to income, employment, and population of force reductions against 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecasted values, these figures show the same significance determinations as the EIFS predictions in the previous table.

[17] This number was derived by assuming the loss of 70 percent of Fort Irwin's Soldiers and 30 percent of the Army civilians to arrive at 3,524. The 2013 PEA assumed the loss of 35 percent of Fort Irwin's Soldiers and 15 percent of the Army civilians to arrive at 2,375.

Table 4.12-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$210,744,200	-3,845 (Direct)	-8,873
		-700 (Induced)	
		-4,545 (Total)	
Total 2012 ROI economic estimates	$66,751,565,000	820,437	2,077,453
Percent reduction of 2012 figures	-0.3	-0.6	-0.4

Note: Sales estimates are not consistently available from public sources for all counties in the United States; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from EIFS is described in the paragraphs below.

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period of until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 3,524 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 321 direct contract service jobs would also be lost. An additional 700 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. The total reduction in employment is estimated to be 4,545, a reduction of 0.55 percent from the total employed labor force in the ROI of 820,437. Income is estimated to fall by $210.7 million, a 0.32 percent decrease in the ROI from 2012. Although impacts across the ROI are not expected to be significant, Fort Irwin is located in a more remote part of the ROI and employment impacts could be experienced more significantly in communities within proximity to the installation.

The total reduction in sales within the ROI under Alternative 1 is estimated to be $282.4 million. There would also be a loss in sales tax receipts to local and state governments. The average state and local sales tax rate for California is 8.4 percent (Tax Foundation, 2014). To estimate sales tax reductions, information on the proportion of sales that would be subject to sales taxes on average across the country was utilized. According to the U.S. Economic Census an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $282.4 million resulting in an estimated sales tax receipts decrease of $3.8 million under Alternative 1.

Of the 2,077,453 people (including those residing on Fort Irwin) who live within the ROI, 8,873 Army employees and their Family members are predicted to no longer reside in the area under Alternative 1, resulting in a minor population reduction of 0.4 percent. This number likely overstates potential population impacts, because some of the people no longer employed by the military would continue to live and work within the ROI, finding employment in other industry sectors.

Housing

The population reduction under Alternative 1 would lead to a decreased demand for housing and increased housing availability on the installation and to a small degree across the larger ROI. Because the installation represents a relatively small share of the total ROI population and subsequently occupied housing, negligible impacts to housing would result under Alternative 1.

Schools

Under Alternative 1, the reduction of 3,524 Soldiers and Army civilians would decrease the number of children within the ROI by approximately 3,383. As reported in the 2013 PEA, the elementary school on Fort Irwin was operating above capacity during the 2009-2010 academic year. A decline in enrollment by military-connected students under Alternative 1 has the potential to reduce overcrowding and bring enrollment closer to capacity estimates. This would result in a minor, beneficial impact.

Both middle schools on Fort Irwin were operating below capacity during the 2009–2010 academic year. The further reduction of enrollment that would occur under Alternative 1 has the potential to result in minor impacts to Federal Impact Aid funds. The amount of Federal School Impact Aid a district receives is based on the number of students who are considered “federally connected” and attend district schools. Actual projected dollar amounts cannot be determined at this time due to the variability of appropriated dollars from year to year, and the uncertainty regarding the actual number of affected school-age children for Army Families. Middle schools on Fort Irwin would likely need fewer teachers and materials as enrollment drops, which would partially offset the reduced Federal Impact Aid. In addition, these schools may consolidate should enrollment fall below sustainable levels.

Public Services

The demand for law enforcement, medical care providers, and fire and emergency service providers on the installation would decrease if Soldiers, Army civilians, and their Family members affected under Alternative 1 move to areas outside the ROI. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed meeting to health and safety requirements. The impacts to public services are not expected to be significant because the existing service level for the installation and the ROI would still be available.

Family Support Services and Recreation Facilities

Family Support Services and recreational facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. Demand for

these services off the installation may also experience a slight decline. Overall, minor impacts to Family Support Services and recreation facilities would occur under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, states: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). As shown in Table 4.12-3, the proportion of minority and low-income populations in San Bernardino County is greater than in California on average. Because of the higher percentage of minority and low-income populations in San Bernardino County, Alternative 1 has the potential to affect minority- and/or low-income owned and/or -staffed businesses. Because the installation is located in a more remote part of the ROI, those minority and/or low-income owned and/or staffed businesses within proximity to the installation may experience more significant effects than other areas across the ROI.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of the people associated with the installation, including children. Therefore, it is not anticipated that implementing Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.12.13 Energy Demand and Generation

4.12.13.1 Affected Environment

Energy demand and generation is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.9.1.2 because there were no significant, adverse environmental impacts from implementing alternatives included in the analysis. No changes have occurred to the affected environment since 2013. As described in the 2013 PEA, electric power is provided by Southern California Edison and is distributed via overhead lines to Fort Irwin and the surrounding communities. While there is a transcontinental natural gas transmission pipeline that runs along its boundary, Fort Irwin itself does not use natural gas as a source of energy.

4.12.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, adverse impacts to energy demand and generation would be the same as discussed in the 2013 PEA and would be negligible. Fort Irwin would continue to consume similar types and amounts of energy, and maintenance of existing utility systems would continue.

Alternative 1—Implement Force Reductions

Minor, beneficial impacts to energy demand are anticipated because force reductions would reduce the installation's overall demand for energy. The installation would also be better positioned to meet energy and sustainability goals.

4.12.14 Land Use Conflicts and Compatibility

4.12.14.1 Affected Environment

The land use affected environment of the Fort Irwin installation remains effectively the same as described in Section 4.9.10.1 of the 2013 PEA.

4.12.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated there would be minor environmental impacts to installation land use but changes in land use would not be anticipated to occur. Impacts under the No Action Alternative on Fort Irwin remain the same as those discussed in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Irwin would result in land use impacts similar to those anticipated under the No Action Alternative. Under Alternative 1, impacts would be similar to those described in the 2013 PEA.

The Army is also committed to ensuring that personnel cuts will not result in non-compliance with land use ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Irwin, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including land use ordinances and regulations.

4.12.15 Hazardous Materials and Hazardous Waste

4.12.15.1 Affected Environment

As described in the 2013 PEA (Section 4.9.11.1), hazardous materials are used in most facilities at Fort Irwin. These hazardous materials include fuels, oils, and other chemicals. Fort Irwin's HWMP is used to manage hazardous waste in a manner that promotes the protection of public health and the environment. The HWMP covers all of the hazardous waste generated by Fort Irwin to ensure proper disposal, storage, and recovery of hazardous materials. Hazardous waste is managed in accordance with applicable federal and state regulations. No substantial changes have occurred to the affected environment since 2013.

4.12.15.2 Environmental Effects

No Action Alternative

As stated in the 2013 PEA, short- and long-term, minor, and adverse impacts are anticipated under the No Action Alternative. Use of hazardous materials and generation of hazardous wastes would continue on Fort Irwin in accordance with all applicable laws, regulations, and plans.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that minor impacts from hazardous materials and hazardous waste would occur on Fort Irwin. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on Fort Irwin. Because of the reduced numbers of people, it is expected that the potential for spills would be reduced further during training and maintenance activities. There would be a minor decrease in the use of pesticides because of lower occupancy rates in Family housing and other facilities. In general, Fort Irwin would continue to implement its hazardous waste management in accordance with its HWMP and applicable regulations under Alternative 1.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Fort Irwin, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.12.16 Traffic and Transportation

4.12.16.1 Affected Environment

The transportation affected environment of the Fort Irwin ROI remains the same as described in Section 4.9.12.1 of the 2013 PEA.

4.12.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated minor, adverse impacts in that the traffic conditions at Fort Irwin would remain unchanged. Overall, as described in the 2013 PEA, the transportation system does not experience significant congestion.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Irwin would result in minor, beneficial impacts to traffic and transportation systems. There would be a reduction in the time of delays at the main gate ACP during morning and evening commutes. The size of this beneficial impact under Alternative 1 would be slightly larger than anticipated at the time of the 2013 PEA.

4.12.17 Cumulative Effects

As noted in Section 4.9.13 of the 2013 PEA, Fort Irwin did not identify any foreseeable off-installation projects, or on-installation military operations or activities that would, in conjunction with Army strength reduction, result in adverse cumulative effects to the environment. The ROI includes San Bernardino County in California.

Reasonably Foreseeable Future Projects on Fort Irwin

No reasonably foreseeable future projects on Fort Irwin were identified by the installation.

Reasonably Foreseeable Future Projects outside Fort Irwin

The Army is not aware of any reasonably foreseeable future projects outside Fort Irwin which would be appropriate for inclusion in the cumulative impacts analysis. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, smaller, less diversified economies will be more vulnerable to the force reductions and provide fewer opportunities to displaced Army employees, while larger economies with more job opportunities could absorb some of the displaced Army workforce, lessening these adverse effects.

No Action Alternative

There would be no cumulative effects of the foreseeable future actions with the No Action Alternative. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reductions

With the exception of socioeconomics, there would be no cumulative effects of the foreseeable future actions with Alternative 1. The socioeconomic impact within the ROI, as described in

Section 4.12.12.2 with a reduction of 3,524 Soldiers and Army civilians, would be minor and adverse on population, the regional economy, schools, and housing. Fort Irwin is located in a fairly remote area in San Bernardino County 135 miles from the large urban city of San Bernardino with over 2 million residents. Because of the large employment base and diverse economy in the region, the ROI would be less vulnerable to these force reductions because other industries and considerable economic activity occurs within the ROI. However, in proximity to the installation, there would be fewer employment opportunities, and displaced personnel would likely move away from these proximate communities, possibly to San Bernardino.

Other construction and development activities on the installation and in the ROI would benefit the regional economy through additional economic activity, jobs, and income in the ROI. Under Alternative 1, the loss of approximately 3,600 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have a minor, adverse impact on socioeconomic conditions in the broader ROI.

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4.13 Fort Jackson, South Carolina

4.13.1 Introduction

Fort Jackson is located in Richland County, South Carolina, within the city limits of Columbia and consists of 52,313 acres (Figure 4.13.1). Training activities and exercises, such as general use training, range/impact area, and noise buffers, are the predominant land uses on Fort Jackson. Approximately 46,500 acres are designated as training areas, including more than 100 ranges and field training sites.

Fort Jackson, as the U.S. Army's main production center for Basic Combat Training, trains 50 percent of the Army's Basic Combat Training load and 60 percent of the women entering the Army each year. Fort Jackson is home to the U.S. Army Soldier Support Institute, the Armed Forces Army Chaplaincy Center and School, and the National Center for Credibility Assessment (formerly the DoD Polygraph Institute). It is also home to the Army's Drill Sergeant School, which trains all active and Reserve instructors.

Fort Jackson has 147 alphanumeric training areas, which encompass approximately 40,639 acres. This includes a 13,836-acre area licensed to the South Carolina ARNG in the southeastern portion of the installation.

Fort Jackson's 2013 baseline permanent party population was 5,735. In this SPEA, Alternative 1 assesses a potential population loss of 3,100, including approximately 2,363 permanent party Soldiers and 708 Army civilians.

Figure 4.13-1. Fort Jackson, South Carolina

4.13.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated at Fort Jackson; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.13-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.13-1. Fort Jackson Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	No Impacts	Beneficial
Cultural Resources	Negligible	Negligible
Noise	Negligible	Beneficial
Soils	Minor	Beneficial
Biological Resources	Minor	Beneficial
Wetlands	Minor	Beneficial
Water Resources	Minor	Beneficial
Facilities	No Impacts	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Minor	Beneficial
Land Use Conflict and Compatibility	Minor	Beneficial
Hazardous Materials and Hazardous Waste	Minor	Minor
Traffic and Transportation	No Impacts	Beneficial

4.13.3 Air Quality

4.13.3.1 Affected Environment

Fort Jackson is located in an attainment area for all criteria pollutants (EPA, 2013). Fort Jackson operates in compliance with State Permit No. 1900-0016, issued by the South Carolina Department of Health and Environmental Control. Although this permit expired in 2005, there is a permit shield in place, which means that a new permit has been applied for, and that Fort Jackson is considered to be permitted during this time. Fort Jackson has submitted several permit renewal applications; the latest was submitted on March 26, 2010, requesting that the permit be converted from a Title V permit (major source) to a synthetic minor/conditional major permit. The permit requirements include annual inventory for all significant stationary sources of air emissions and covers monitoring, recordkeeping, and reporting requirements. Activities that produce air emissions at Fort Jackson include boilers, generators, ordnance detonation, fueling operations, storage tanks, and paint booths (Fort Jackson, 2013). The largest sources of allowable emissions on the installation are the central energy plants, which burn natural gas and fuel oil (USACE, 2006). Fugitive dust is generated from unpaved roads, construction projects, and troop training operations (U.S. Army, 2008). Fort Jackson's 2011 installation-wide air emissions for all significant stationary sources are provided in Table 4.13-2.

Table 4.13-2. Installation-wide Air Emissions (2011)

Pollutant	Emissions (tons per year)
NOx	28.6
CO	34.2
VOC	17.0
$PM_{10}/PM_{2.5}$	4.9
SO_2	2.2

Source: Fort Jackson (2013)

4.13.3.2 Environmental Effects

No Action Alternative

Continuation of existing levels of emissions under the No Action Alternative would result in minor, adverse impacts to air quality. Emissions would remain at levels below the maximum allowed under existing permits.

Alternative 1—Implement Force Reductions

The potential force reduction at Fort Jackson under Alternative 1 would result in minor, long-term, beneficial air quality impacts due to reduced demand for heating/hot water, and operation of mobile sources to and from the facility. Fugitive dust emissions from training activities would also be reduced assuming training-generated dust is roughly proportional to force levels.

The relocation of personnel outside of the area because of force reductions could result in negligible, short-term effects on air quality associated with mobile sources. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with air quality regulations. Even if the full end-strength reductions were to be realized at Fort Jackson, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.13.4 Airspace

4.13.4.1 Affected Environment

Primary aviation assets and use at Fort Jackson are centered on helicopters. FAA controls airspace use in Columbia, South Carolina, and airspace at Fort Jackson is an SUA-restricted airspace R-6001. This restricted airspace operates almost continuously from the surface to 3,200

feet msl and sporadically from the surface to 5,500 feet msl, or as high as 23,000 feet msl. Other airspace classifications surrounding Fort Jackson include a Class C airspace to the south ranging from the surface to 4,200 feet msl, and regulated Class D airspace to 2,800 feet msl (U.S. Department of the Air Force, 2012). There are major flight activities surrounding Fort Jackson from Columbia Metropolitan Airport, Shaw AFB, and McEntire Joint National Guard Base.

4.13.4.2 Environmental Effects

No Action Alternative

Fort Jackson would maintain existing airspace operations under the No Action Alternative. All current airspace restrictions are sufficient to meet current airspace requirements, and no airspace conflicts are anticipated. No impacts to airspace are expected.

Alternative 1—Implement Force Reductions

Airspace restrictions and classifications around Fort Jackson are sufficient to meet current airspace requirements, and force reductions would not alter the current airspace use. Alternative 1 would not be projected to require additional airspace restrictions or the establishment of SUA. Force reductions may slightly reduce helicopter use at Fort Jackson, but these impacts would be minimal. A slight, beneficial impact would occur as a result of Alternative 1.

4.13.5 Cultural Resources

4.13.5.1 Affected Environment

The affected environment for cultural resources at Fort Jackson is the installation footprint. Archaeological surveys at Fort Jackson have been completed in all areas where survey is permitted (excludes impact areas where there is UXO). A total of 663 archaeological sites have been identified within the installation; 55 of these sites have been determined eligible for listing in the NRHP and 18 require further investigation before eligibility can be determined (U.S. Army, 2008). These resources provide information on the prehistory and history of the area from 10,000 B.C. to the mid-1900s.

Fort Jackson has completed numerous architectural surveys of the approximately 1,674 resources present on the installation (U.S. Army, 2008). Most of these resources have been constructed in the past 35 years. The results of the architectural surveys indicate that only three structures on the installation are eligible for listing in the NRHP. These three structures were fully documented and have since been demolished.

Although not eligible for listing in the NRHP, there are 27 historic cemeteries located at Fort Jackson (U.S. Army, 2008). These cemeteries are protected and are managed in the same manner as NRHP eligible cultural resources.

Fort Jackson consults with 12 federally recognized tribes that are culturally affiliated with the resources managed by the installation. The installation has signed an MOU with the tribes. To date, no TCPs or sacred areas have been identified during consultation with these tribes.

The Fort Jackson ICRMP was finalized in 2009. In addition to this document, the installation is in the process of drafting a programmatic agreement for streamlining compliance with Section 106 of the NHPA with the South Carolina SHPO (U.S. Army, 2008).

4.13.5.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, cultural resources would continue to be managed in adherence with all applicable federal laws and the ICRMP. The cultural resource management staff at the installation would continue to consult with the SHPO and applicable tribes on the effects of undertakings that may affect cultural resources. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures. The effects of the No Action Alternative would be negligible as there are few archaeological sites and no historic architectural resources present on the installation and existing protocols and procedures should prevent adverse impacts to these resources.

Alternative 1—Implement Force Reductions

Alternative 1 would have a negligible impact on cultural resources. Currently, there are no historic architectural resources present on the installation that could be impacted in the future by the force reductions proposed under this alternative. As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from demolition activities are not analyzed.

The effects of this alternative are considered to be similar to the No Action Alternative –future activities with the potential to effect cultural resources would continue to be monitored and the impacts reduced through preventative and minimization measures. This alternative could result in some beneficial effects as a decrease in training activities could reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort Jackson, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.13.6 Noise

4.13.6.1 Affected Environment

Individuals on and off the installation at Fort Jackson could be subjected to multiple sources of noise during the day, including normal operation of heating, ventilating, and air conditioning systems; military unit physical training activities; lawn maintenance; and general maintenance of streets and sidewalks. Other minor noise sources include traffic, aircraft over flights, and construction activities (Fort Jackson, 2013). The primary noise generators at Fort Jackson are small arms, demolition, and artillery (USACE, 2006). In addition, the South Carolina RNG Army Aviation Support Facilities (AASF) conducts low-level helicopter training at Fort Jackson, creating some noise impacts. Helicopter training takes place typically 3 nights per week with additional operations conducted 2 days per week and 2 weekends per month. Activity levels usually do not exceed 8 to 10 operations per day (CMCOG, 2009).

Fort Jackson Environmental Regulation 200-8, June 2005, outlines policy, establishes procedures, and assigns responsibilities for environmental regulatory compliance at Fort Jackson, including noise abatement. Regulation 200-8 established an ICUZ program, which is required to ensure that adjacent land uses are compatible with a proposed action or project. Updates to Fort Jackson's ICUZ study must be prepared no less than every 5 years. The ICUZ program has resulted in the mapping of areas on the installation which are within the contour lines of NZ II and NZ III (USACE, 2006).

All NZ III areas generated by the small arms range, demolition, and artillery fire are contained within the installation. The areas primarily affected by this level of noise include the following sites: the small arms ranges adjacent to Dixie Road and Hartsville Guard Road; Training Area 7A; the East Impact Area; 1LT Joe V. Abernathy and LTC Terry D. Allen Jr. ranges; and the South Carolina ARNG artillery firing points (USACE, 2006). Current large caliber operations are not frequent enough to generate NZ II or NZ III levels (Fort Jackson, 2013).

Zone II boundaries generated by range operations extend over training areas adjacent to the firing ranges and impact areas. No Zone II noise contours enter the cantonment area; however, a small section of the South Carolina ARNG Multiple Launch Rocket System noise footprint extends beyond the boundaries of the installation. This portion of the firing footprint is considered Zone II (USACE, 2006).

Fort Jackson has established sound buffer areas adjacent to portions of the installation perimeter to mitigate any potential for disturbance of noise-sensitive uses located outside the installation boundaries. These zones, which are approximately 900 meters wide, are located adjacent to Leesburg Road and Highway 601 along the southern and eastern borders of the installation, flanking the South Carolina ARNG cantonment (Fort Jackson, 2013). Within these areas,

artillery and mortar fire does not occur, helping reduce the exposure of off-installation residents to unwanted sound (U.S. Army, 2008).

While noise complaints are not frequent at Fort Jackson, the installation maintains a Noise Complaint Management Program and implements an IONMP that provides guidelines for noise management pertaining to installation functions. The goal of the IONMP, last updated in May 2009, is to achieve compatibility between the Army and the surrounding communities so that Soldier training on the installation will not be interrupted or restricted due to public concern over associated noise levels (Fort Jackson, 2013).

4.13.6.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, existing force levels at Fort Jackson would remain the same and existing operations would continue unchanged. Primary noise generators and sources of background noise would remain similar in character to those described above. All NZ II and III contours would remain confined to the installation, with the exception of a small section of NZ II associated with the South Carolina ARNG Multiple Launch Rocket System noise footprint. Noise complaints are expected to continue with a low degree of frequency, and the installation would continue to implement ongoing noise management measures to ensure compatibility between Army activities and surrounding communities. Negligible impacts are expected under the No Action Alternative.

Alternative 1—Implement Force Reductions

Force reductions under Alternative 1 are expected to have beneficial impacts because of decreased personnel and training activities. Primary noise generators and sources of background noise would remain similar in character to those described above. NZ II and III contours are expected to remain confined to the installation. Noise complaints would likely decrease in frequency. The Army is also committed to ensuring that personnel cuts will not result in non-compliance with noise ordinances and regulations.

4.13.7 Soils

4.13.7.1 Affected Environment

Fort Jackson is located within the Atlantic Coastal Plain physiographic province, which is characterized by gently rolling hills, but a mostly flat, moderate relief. The western and eastern portions of the installation are dominated by alluvial plains of Gills and Mill Creeks, and Colonels Creek, respectively. Each of these creeks has a 100-year floodplain associated with it; however, the majority of the installation is not located within the floodplain (FEMA, 2010a). Elevations range from 160 feet and 540 feet above msl, but most of the installation is on gentle slopes generally less than 3 percent (U.S. Army, 2008).

The predominant upland soils on Fort Jackson are from the Ailey, Lakeland, Pelion, and Vaucluse soil series and are characterized as very deep, gently rolling, and well drained to excessively drained. Floodplain and wetland soils are dominated by soils from the Johnston series which is characterized as very deep, flat, and very poorly drained. Most of the predominant soils on the installation are underlain by marine deposits of varying texture (NRCS, 2013).

The erodibility of most of the soils on Fort Jackson is low; soils from the Johnston series are moderately erodible. Removal of vegetation to support training activities, or locating training activities on steep slopes has accelerated soil erosion on Fort Jackson; however, programs are in place to ensure that soil resources are properly managed, and BMPs are used to minimize soil erosion on the installation (U.S. Army, 2008).

4.13.7.2 Environmental Effects

No Action Alternative

Minor, adverse impacts to soils are anticipated under the No Action Alternative. Impacts to soils from any current projects under construction would have already been assessed and, if required, been properly permitted and mitigated for. Additionally, activities that occur in range impact areas and landing zones would continue at current schedules, resulting in minor impacts to soil. Under the No Action Alternative, Fort Jackson would maintain its current management plan for soils (U.S. Army, 2008)

Alternative 1—Implement Force Reductions

Under Alternative 1, minor, beneficial impacts to soils are anticipated. Force reductions would likely result in decreased use of the training ranges and air fields which could have beneficial impacts to soils because there would be an anticipated decrease in soil compaction and vegetation loss. Over time, less sediment would discharge into state and federal waters.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Jackson, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory regulations.

4.13.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.13.8.1 Affected Environment

Vegetation

Vegetation on Fort Jackson is diverse and abundant, as field investigations and surveys have identified over 750 species of flora on the installation. The area of Fort Jackson encompasses a wide variety of vegetative site conditions ranging from bottomland hardwood communities to xeric longleaf pine communities. In general, Fort Jackson can be classified into five primary terrestrial, non-urban vegetative types: pine, pine/upland hardwood, upland hardwood, bottomland hardwood, and open field. There are also landscaped areas that have ornamental trees and Bermuda grass (*Cynodon dactylon*). Fort Jackson's vegetation types are discussed in further detail in the INRMP (U.S. Army, 2008).

Wildlife

Fort Jackson provides a diversity of habitats for a variety of plants, fish, and other wildlife species within its 52,313 acres. Through systematic surveys, some rare, threatened, and endangered species have been identified on the installation. Common terrestrial and aquatic wildlife species include representatives of mammals, fishes, amphibians, reptiles, birds, and invertebrates typically found in association with the Sandhills physiographic region of the Southeast. Detailed species lists are found in Fort Jackson's INRMP (Fort Jackson-DLE-ENRD, 2004).

Threatened and Endangered Species

To date, Fort Jackson provides habitat for one federally listed endangered animal species: the RCW (*Picoides borealis*) and two federally listed endangered plant species: the rough-leaved loosestrife (*Lysimachia asperulaefolia*) and the smooth coneflower (*Echinacea laevigata*) (U.S. Army, 2008). No land within Fort Jackson has been identified as critical habitat for any federally listed threatened or endangered species (U.S. Army, 2008).

Although not currently listed as federally threatened or endangered, Fort Jackson provides habitat for four state sensitive animal species: southeastern myotis (*Myotis austroriparius*) (state species of concern), Rafinesque's big-eared bat (*Plecotus rafinesquii*) (state endangered), loggerhead shrike (*Lanius ludovicianus*) (state species of concern), and Bachman's sparrow (*Aimphila aestivalis*) (state species of concern) (South Carolina Department of Natural Resources, 2006; U.S. Army, 2008). These species may be federally listed in the future if their population numbers continue to decline (U.S. Army, 2008).

The recently de-listed bald eagle is a transient visitor to Fort Jackson. According to the INRMP, no bald eagle nests or permanent roost sites are known to occur on the installation, and it is

unlikely that the species will nest at Fort Jackson because the habitat is not suitable (Fort Jackson-DLE-ENRD, 2004).

4.13.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in minor impacts to biological resources, and the affected environment would remain in its current state. There would not be any significant effects, because Fort Jackson would continue to abide by federal and state regulations governing the management of biological resources. Since military missions and resource management programs at Fort Jackson affect fish and wildlife habitat, current fish and wildlife management activities are focused upon programs designed to create and enhance habitats that are consistent with the military missions of the installation (Fort Jackson-DLE-ENRD, 2004). Given the presence of three federally listed endangered species, Fort Jackson has prepared ESMPs for each species while providing for training readiness and other mission requirements of Fort Jackson.

Alternative 1—Implement Force Reductions

Implementing force reductions under Alternative 1 would result in beneficial impacts to biological resources and habitats within Fort Jackson. The force reductions are not expected to have a negative impact, unless the personnel that currently manage and control these crucial programs are part of the reduction (Fort Jackson, 2014a). The Army, however, is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Jackson, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.13.9 Wetlands

4.13.9.1 Affected Environment

Fort Jackson contains numerous wetlands and waters. Several references within the INRMP state there are approximately 5,250 acres of wetlands on Fort Jackson (Fort Jackson, 2013; U.S. Army, 2008). Using data from the NWI (USFWS, 2010) and U.S. Army documents (U.S. Army, 2008), Fort Jackson contains palustrine forested wetlands, palustrine scrub-shrub wetlands, palustrine emergent wetlands, freshwater ponds and lakes, and riverine systems. The majority of wetlands on Fort Jackson are classified as palustrine forested wetlands and are likely bottomland hardwood and softwood forests adjacent to streams and creeks (U.S. Army, 2008).

4.13.9.2 Environmental Effects

No Action Alternative

Minor, adverse impacts are anticipated under the No Action Alternative on Fort Jackson. Impacts to wetlands from any current projects under construction would have already been assessed and, if required, been properly permitted and mitigated. Additionally, activities that occur in range impact areas and landing zones would continue at current levels, resulting in minimal impacts to wetlands. Under the No Action Alternative, Fort Jackson would maintain its current management plan for wetlands which includes disallowing wheeled or tracked vehicles from operating in wetlands, cutting vegetation during dry periods and, to the extent practicable, not authorizing fill material in wetlands (U.S. Army, 2007).

Alternative 1—Implement Force Reductions

Beneficial impacts to wetlands as a result of the implementation of Alternative 1 are anticipated. A force reduction at Fort Jackson would mean that range impact areas and landing zones would be less utilized. Soil would be less disturbed from base activities and training exercises and vegetation would suffer less denuding which would further minimize the potential for sediment to run off into wetlands. Wetlands that are currently degraded would have time to regenerate, and their functions and values would begin to restore.

Adverse impacts to wetlands could conceivably occur if force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Jackson, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met.

4.13.10 Water Resources

4.13.10.1 Affected Environment

Surface Water/Watersheds

The creeks, streams, lakes, and ponds within the Fort Jackson boundaries are part of the Coastal Plain Province. Typical of this region the waters gently flow in a south-southeasterly direction towards the Atlantic Ocean and show linear branching patterns within wide valleys. The four main systems on the installation are Colonels Creek, Gills Creek, Wildcat Creek, and Cedar Creek and Mill Creek drainages (U.S. Army, 2008). Several tributaries on the east side of the installation, including Buffalo Creek and Bee Branch, drain to Colonels Creek which flows southeast eventually joining the Wateree River outside the installation boundaries. Within the northwest portion of the installation, Gills Creek flows in a southwesterly direction collecting drainage from Bynum Creek, Rose Creek, Rowell Creek, and Mack Creek before its confluence

with the Congaree River. Wildcat Creek drains the southwestern portion of the installation, meeting Gills Creek outside the installation. Mill Creek and Cedar Creek are the major surface waters in the southern area of the installation.

Fort Jackson contains 25 lakes and ponds covering approximately 427 acres (U.S. Army, 2008). Sizes range from 0.5 to 173 acres however most are smaller than 35 acres. At 173 acres, Weston Lake is the largest on the installation and supports recreational pursuits. Fisheries management uses are in place for Big Twin Lake, Lower Barstow Pond, Odom Pond, Old Heises Pond, South Pond, Upper Barstow Pond, and Upper Legion Lake (U.S. Army, 2008). Uses for the other waterbodies include aesthetics, recreation, waterfowl habitat, and golf course irrigation.

Groundwater

The Tuscaloosa Formation is the main aquifer providing groundwater within the Fort Jackson boundaries in addition to several streamside alluvial deposits (U.S. Army, 2008). This formation occurs mainly at the surface under both confined and unconfined conditions due to the unconsolidated clay and sand substrates. At deeper layers of the unconfined aquifer it occurs under water table conditions. Artesian conditions also exist at depths of 100 to 250 feet due to impermeable layers of clay over more permeable sand zones (U.S. Army, 2008, 2009).

Although groundwater concentrations of iron and manganese may sometimes exceed groundwater quality standards, overall the groundwater quality at the installation is thought to be excellent and can be used as potable water (U.S. Army, 2008, 2009). The concentration of total dissolved solids within the groundwater usually falls below 50 milligrams per liter which does not exceed drinking water contaminant levels (South Carolina DHEC, 2009; U.S. Army, 2008).

Water Supply

The Broad River and Lake Murray supply potable water for the cities of Columbia and Fort Jackson. The Columbia Canal Water Treatment Plant and the Lake Murray Water Treatment Plant treat raw surface water from the Broad River and Lake Murray, respectively. The treatment plants have a combined capacity of 125 mgd. Fort Jackson receives its water from the city of Columbia and in the late-2000s had a maximum daily volume allotment of approximately 6.5 mgd while only using approximately an average of 1.88 mgd (U.S. Army, 2008, 2009).

Over 380,000 linear feet of water mains and laterals constitute the potable water distribution system serving the cantonment area (USACE, 2006). Following treatment at one of the treatment plants, water is held in a 2.1 million gallon elevated storage tank within the cantonment area (U.S. Army, 2008). Other areas, such as the training ranges and the Weston Lake Recreation Area, receive potable water from six wells fitted with pressurization and disinfection systems.

Wastewater

Wastewater collection and distribution is provided by approximately 324,270 linear feet of lines and seven lift stations (USACE, 2006). The wastewater collection system on Fort Jackson was contracted to Palmetto States Utility Service for 50 years in 2008 (U.S. Army, 2008). Vitreous clay pipes and polyvinyl-chloride pipes of 2 to 16 inches in diameter collect wastewater within the cantonment area of the installation and transfer it to the city-owned Columbia Metropolitan WWTP outside the installation. The treated wastewater is eventually released into the Congaree River. With a 60 mgd capacity this WWTP used approximately 3.2 mgd (USACE, 2006) during normal usage and two-thirds during peak usage during the mid-2000s (U.S. Army, 2008). Therefore the current system is capable of handling the existing and future wastewater treatment needs of the Fort Jackson service area (U.S. Army, 2008). Other wastewater systems include a septic tank and tile field to replace the old Weston Lake WWTP east of the cantonment area, chemical toilets for the training ranges, and a replacement wastewater collection system for the recreation area. The sanitary sewer system for the installation is separate from the stormwater system (U.S. Army, 2008; USACE, 2006).

Stormwater

The stormwater collection and distribution infrastructure within developed areas of Fort Jackson includes storm sewers, inlets, manholes, and culverts. Undeveloped areas make use of the numerous natural drainage ways present as well as man-made drainage swales. Wildcat Creek receives most of the stormwater runoff from the developed cantonment area, however. the tributaries throughout the installation also receive stormwater. Collected stormwater is held in lakes and floodplain areas. The stormwater system for the installation is separate from the sanitary sewer system (U.S. Army, 2008). The installation has two general permits for stormwater discharges—Small MS4 and Industrial—under the South Carolina NPDES (Fort Jackson, 2014c).

Floodplains

E.O. 11988, *Floodplain Management*, requires federal agencies to avoid floodplain development and any adverse impacts from the use or modification of floodplains when there is a feasible alternative. Specifically, Section 1 of E.O. 11988, *Floodplain Management*, states that an agency is required to “reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities.” FEMA Flood Insurance Rate Maps indicate that shoreline and land adjacent to the all major creeks on the installation are within Zone A, or special flood hazard areas within the 100-year flood zone (FEMA, 2010b). These areas are subject the 100-year flood, or the flood that has a 1 percent chance of being equaled or exceeded in any given year.

4.13.10.2 Environmental Effects

No Action Alternative

Minor, adverse impacts to water resources would continue under the No Action Alternative. Training activities would continue to occur at Fort Jackson ranges and courses as would potential disturbance to and sedimentation of surface water resources. Fort Jackson would continue to strive to meet federal and state water quality criteria, drinking water standards, and floodplain management requirements. Stormwater management would continue under the existing NPDES permits as would adherence to state stormwater requirements and BMP guidelines. Current water resources management and compliance activities would continue to occur under this alternative.

Alternative 1—Implement Force Reductions

Beneficial impacts to water resources are anticipated as a result of implementing Alternative 1. A force reduction would result in fewer training exercises thereby decreasing the potential for surface water disturbance and sedimentation. The force reduction would reduce potable water demand and wastewater treatment allowing additional capacity for other users. Implementation of Alternative 1 would reduce the amount of treated wastewater discharged to the receiving surface water source. Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Fort Jackson, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented. Force reduction at Fort Jackson is not anticipated to cause violations of federal and state water quality regulations and discharge permits. Current water resources management and compliance activities would continue to occur under this alternative.

4.13.11 Facilities

4.13.11.1 Affected Environment

Of the 52,313 acres at Fort Jackson, slightly more than 5,800 acres are classified as improved grounds. The remaining 46,500 acres are Army-owned training areas, including more than 100 ranges and field training sites. Fort Jackson contains about 1,674 structures, a majority of which have been built in the last 35 years (U.S. Army, 2008).

Fort Jackson is the Army's primary location for basic combat training. In addition, Fort Jackson is home to the U.S. Army Soldier Support Institute, the Armed Forces Army Chaplaincy Center and School, and the National Center for Credibility Assessment (formerly the DoD Polygraph Institute). It also is home to the Army's Drill Sergeant School, which trains all active and Reserve instructors.

Soldiers, civilians, retirees, and Family members make up the Fort Jackson community. More than 3,500 active component Soldiers and their 12,000 Family members are assigned to the installation. About one-third of those Soldiers and Families live in housing on the installation (Fort Jackson, 2014b). The cantonment includes a wide variety of facilities that provide the elements necessary for a complete community including: Family housing, elementary schools, troop housing, a variety of community and commercial services including the post exchange, commissary, bank and credit union, Class VI stores, Officers Club, Army Community Hospital, and various indoor recreational facilities. Industrial activities, such as public works, logistics, and maintenance, are also located within the cantonment (U.S. Army, 2008).

4.13.11.2 Environmental Effects

No Action Alternative

No impacts are anticipated under the No Action Alternative. Fort Jackson would continue to use its existing facilities to support its tenants and missions.

Alternative 1—Implement Force Reductions

Minor impacts to Fort Jackson's facilities are anticipated as a result of implementing force reductions under Alternative 1. Force reductions under Alternative 1 would reduce requirements for facilities and affect space utilization across the installation. Construction or expansion projects that had been programmed in the future may not occur or could be downscoped. Occupants of older, underutilized, or excess facilities may be moved to newer facilities; in some cases, this could require modification of existing facilities. Some beneficial impacts are also expected as a reduction in the frequency of training exercises would be beneficial for maintaining ranges and training areas and thereby improving sustainability of those facilities. A decrease in training operational tempo and related heavy equipment use would be beneficial for the maintenance and sustainability of roadways and off-road maneuver areas. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.13.12 Socioeconomics

4.13.12.1 Affected Environment

Fort Jackson is located on the northwestern edge of the Coastal Plain Province in Richland County, South Carolina. The ROI for Fort Jackson includes those areas that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, and contractor personnel and their Families reside. The ROI includes Calhoun, Fairfield, Kershaw, Lee, Lexington, Richland, and Sumter counties. This section provides a summary of demographic and economic characteristics within the ROI.

Population and Demographics

Using 2013 as a baseline, Fort Jackson has a total working population of 32,391 consisting of active component Soldiers, Army civilians, students and trainees, other military services, and civilians and contractors. Of the total working population, 5,735 were permanent party Soldiers and Army civilians. The population that lives on Fort Jackson consists of 1,044 Soldiers and their 3,074 Family members, for a total on-installation resident population of 4,118 (Fort Jackson, 2014c). The portion of the active component Soldiers, Army civilians, and Family members living off the installation is estimated to be 11,812.

Fort Jackson is the home to Basic Combat Training for Soldiers. Students are based at Fort Jackson for the expected length of their assigned curriculum, which may range from 1 week to 16 weeks or more. Fort Jackson averages approximately 21,800 students assigned for training and can accommodate up to 62,000 students in on-installation housing (Motosicky, 2014). Any remaining students would be accommodated in local lodging facilities or rental units.

In 2012, the ROI had a total population of 892,000, a 2 percent decrease from 2010. Richland County represents the greatest share of the population in the ROI while Calhoun County has the smallest population of the counties in the ROI (U.S. Census Bureau, 2012a). Between 2010 and 2012, the population increased in Kershaw, Richland, Lexington, and Sumter counties, while population decreased in Calhoun, Fairfield, and Lee counties during this period (Table 4.13-3). The 2012 racial and ethnic composition of the ROI is presented in Table 4.13-4.

Table 4.13-3. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Calhoun County, South Carolina	14,928	-1.7
Fairfield County, South Carolina	23,338	-2.6
Kershaw County, South Carolina	62,200	+1.0
Lee County, South Carolina	18,632	-3.1
Lexington County, South Carolina	270,272	+3.0
Richland County, South Carolina	393,853	+2.4
Sumter County, South Carolina	108,127	+0.6

Table 4.13-4. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of South Carolina	68.4	28.0	0.5	1.4	1.6	5.3	64.0
Calhoun County, South Carolina	55.2	42.8	0.6	0.3	1.0	3.2	52.9
Fairfield County, South Carolina	39.6	58.6	0.3	0.3	1.2	1.9	38.3
Kershaw County, South Carolina	72.4	25.1	0.4	0.6	1.4	4.1	69.0
Lee County, South Carolina	34.6	63.9	0.3	0.4	0.8	2.1	33.2
Lexington County, South Carolina	81.3	14.9	0.5	1.6	1.6	5.7	76.4
Richland County, South Carolina	48.3	46.8	0.4	2.4	2.0	5.0	44.6
Sumter County, South Carolina	49.4	47.0	0.4	1.2	1.8	3.6	46.7

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Income

In 2012, the total employed labor force in the ROI was 409,242 (U.S. Census, 2012b). Between 2000 and 2012, total employed labor force (including Soldiers and Army civilians) increased in all of the counties in the ROI, except Fairfield, Kershaw, and Lexington counties (U.S. Census, 2000 and 2012b). Employment, median home value, household income, and poverty levels are presented in Table 4.13-5.

Table 4.13-5. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment 2000-2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of South Carolina	2,031,724	+9.2	$137,400	$44,623	13.2
Calhoun County, South Carolina	6,452	+18.1	$98,400	$39,843	11.6
Fairfield County, South Carolina	9,577	-1.8	$92,500	$35,452	14.0
Kershaw County, South Carolina	26,457	-5.0	$113,600	$44,068	17.3
Lee County, South Carolina	6,359	+5.4	$66,800	$27,755	12.6
Lexington County, South Carolina	127,789	-15.3	$138,900	$53,644	23.4
Richland County, South Carolina	188,855	+15.3	$150,800	$48,420	9.2
Sumter County, South Carolina	43,753	-3.4	$105,400	$40,726	14.6

Information regarding the workforce by industry for each county within the ROI was obtained from the U.S. Census Bureau. Information presented below is for the employed labor force.

Calhoun County

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of total workforce in Calhoun County (21 percent). Manufacturing is the second largest employment sector (15 percent), followed by retail trade (10 percent). The Armed Forces account for less than 1 percent of the county's workforce. The remaining 10 industries employ 54 percent of the workforce (U.S. Census Bureau, 2010).

Major employers in Calhoun County include DAK Americas, Devro Inc., and Zeus Industrial Products, Inc. (Central SC Alliance, 2013).

Fairfield County

According to the U.S. Census Bureau, the educational services, health care and social assistance sector accounts for the greatest share of total workforce in Fairfield County (19 percent). Manufacturing is the second largest employment sector (18 percent), followed by public administration (10 percent). There is a negligible population of employed Armed Forces in

Fairfield County. The remaining 10 industries employ 53 percent of the county's workforce (U.S. Census Bureau, 2010).

Major employers in Fairfield County include V.C. Summer Nuclear station, Ben Arnold Beverage Co., and Lang Mekra North America (Central SC Alliance, 2013).

Kershaw County

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of total workforce in Kershaw County (20 percent). Manufacturing is the second largest employment sector (16 percent), followed by retail trade (12 percent). The Armed Forces account for less than 1 percent of the county's workforce. The remaining 10 industries employ 52 percent of the workforce (U.S. Census Bureau, 2010).

Major employers include Kershaw County School District, Kershaw Health, and Invista (Central SC Alliance, 2013).

Lee County

According to the U.S. Census Bureau, the educational services, health care and social assistance sector accounts for the greatest share of total workforce in Lee County (24 percent). Manufacturing is the second largest employment sector (17 percent), followed by retail trade (12 percent). The Armed Forces account for less than 1 percent of the county's workforce. The remaining 10 industries employ 47 percent of the county's workforce (U.S. Census Bureau, 2010).

Major employers in Lee County include McCoy Memorial Nursing Home, South Atlantic Canners Coca Cola, and Rexam (Central SC Alliance, 2013).

Lexington County

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of total workforce in Lexington County (21 percent). Retail trade is the second largest employment sector (11 percent), followed by manufacturing (11 percent). The Armed Forces account for less than 1 percent of the county's workforce. The remaining 10 industries employ 57 percent of the workforce (Census Bureau, 2010).

Major employers in Lexington County include Lexington Medical Center, Lexington County schools, and SCANA (Lexington County Department of Finance, 2012).

Richland County

According to the U.S. Census Bureau, the educational services, health care and social assistance sector accounts for the greatest share of total workforce in Richland County (25 percent). Retail

trade is the second largest employment sector (11 percent), followed by arts, entertainment, and recreation, and accommodation and food services sector (9 percent). The Armed Forces account for 5 percent of the county's workforce. The remaining 10 industries employ 55 percent of the workforce (U.S. Census Bureau, 2010).

Major employers in Richland County include Fort Jackson, McEntire Joint National Guard Airbase, and Palmetto Health Alliance (Richland County Finance Department, 2013).

Sumter County

According to the U.S. Census Bureau, the educational services, health care and social assistance sector accounts for the greatest share of total workforce in Sumter County (22 percent). Manufacturing is the second largest employment sector (17 percent), followed by Retail trade is the second largest employment sector (12 percent). The Armed Forces account for 4 percent of the county's workforce. The remaining 10 industries employ 49 percent of the workforce (U.S. Census Bureau, 2010).

Major employers in Sumter County include Shaw AFB, Coleman Federal Prison, and Sumter District schools (Sumter County Chamber of Commerce, 2010).

Housing

In August 2008, Family housing on Fort Jackson was privatized and is managed by Balfour Beatty Communities. Currently, 850 Family housing units are available for officers and enlisted personnel on the installation. Included in the limited inventory are 779 enlisted homes and 71 for officers (Motosicky, 2014). Some units are reserved for use by officer Families and some units are for the Families of junior and senior enlisted personnel. The large majority of the installation's Family housing is located in the eastern portion of the cantonment. The Family housing units consists of 610 newly constructed three- and four-bedroom homes and 240 enlisted legacy homes, which include two, three, and four bedrooms. These homes are situated within eight neighborhoods and a Community Center. Family quarters are assigned to occupants on the basis of Family structure.

Unaccompanied officer housing is located adjacent to the Soldier Support Institute (Building 10-300), Kennedy Hall (Building 2785), the Palmetto Lodge (Building 6000), and at Legion Landing, a complex of six small cottages located adjacent to Legion Lake. This housing includes guest housing, transient quarters, and bachelor officers' quarters/visiting officers' quarters housing. Barracks at Fort Jackson include spaces for both assigned and visiting personnel. Most of the installation's older barracks are located in the "rolling pin" barracks in the western portion of the cantonment. There are currently 248 Soldiers living in the barracks, the majority of which are Army (Motosicky, 2014).

Fort Jackson has six “starship” barracks and three “starbases” used to house basic trainees. Four of the six starships have recently been refurbished. The other two are currently under renovation. Two of the three starbases are new (one completely finished and the final phase of one scheduled for completion in FY 2015). These nine barracks are located in the northwestern portion of the cantonment. Each starship/starbase has the capacity to house approximately one battalion of trainees. In addition, one battalion of trainees is housed in rolling pin barracks adjacent to Magruder Avenue. One battalion of the installation's Advanced Individual Training (AIT) students are temporarily billeted in rolling pin barracks awaiting completion of new facilities in the summer of FY 2014. Fifteen companies of basic training Soldiers are housed in relocatable facilities.

The Freddie Stowers Complex, FSBP 2020, constructed in 1999 in the southern portion of the cantonment is for bona fide single Soldiers in the ranks of E1–E5. The construction of this complex created 576 new enlisted spaces. The complex consists of 8 sleeping buildings consisting of the 576 spaces and 2 community buildings and includes offices for the First Sergeants Barracks Program (FSBP) 2020 NCOs (administrative spaces), dayrooms, game rooms and laundry facilities.

A Basic Combat Trainee Complex is located on the northwestern end of Hampton Parkway. Basic Combat Trainee relocatables are adjacent to the Basic Combat Trainee Complex and also house basic trainees. Basic Combat Trainee Complex II and Basic Combat Trainee Complex III are located along Golden Arrow Road. Construction on Basic Combat Trainee Complex II and Basic Combat Trainee Complex III Phase 1 is complete. Construction on Basic Combat Trainee Complex III Phase 2 is currently underway.

Schools

Fort Jackson has two on-installation elementary schools: Pierce Terrace Elementary School, located in the southern portion of the Family housing area; and C.C. Pinckney Elementary School, located on Chestnut Road east of the Family housing area. The current average daily attendance at the two elementary schools combined is 545 students. Middle and high school students attend off-installation schools. All of Fort Jackson’s schools are authorized under Section 2164 of Title 10, U.S. Code as part of DoD School System, commonly referred to as the Domestic Dependent Elementary and Secondary Schools. In 1996, Fort Jackson’s schools became part of a consolidated school district for the state of South Carolina.

There are seven public school districts serving the Columbia metropolitan area and the surrounding counties. In addition, there are five Christian-affiliated schools located within the vicinity of Fort Jackson and the city of Columbia.

Richland County School District One encompasses 482 square miles of Richland County, including the city of Columbia, the city of Forest Acres, the town of Eastover, and rural areas of

Richland County. The district is divided geographically into seven school clusters, each containing one high school, one or more middle schools, and several elementary schools. In total, the district operates 52 schools. Most Army students attend school in Richland School District Two.

The Richland County School District One provides educational instruction to approximately 23,000 students in pre-kindergarten through grade 12. The Richland Two School District has approximately 26,000 students in pre-kindergarten through grade 12. The district receives Federal Impact Aid to help offset the cost of educating the dependent children of military personnel assigned to Fort Jackson.

Public Health and Safety

Police Services

General law enforcement on Fort Jackson is the responsibility of the Fort Jackson DES. The military authorities have off-installation jurisdiction over offenses committed by military personnel under the Uniform Code of Military Justice. DES also performs fish and wildlife law enforcement by means of the Game Warden Section. The military law enforcement authorities coordinate their off-installation activities with local law enforcement authorities on a case-by-case basis.

The city of Columbia Police Office, the Richland County Sheriff's Department, and the Lexington County Sheriff's Department provide law enforcement for their respective jurisdictions in the areas surrounding Fort Jackson. Off-installation police have no jurisdiction on the installation and the Army police have no jurisdiction off-installation, with the exception of offenses committed by Army personnel.

Fire and Emergency Services

The Fort Jackson Fire Department provides fire protection services to Fort Jackson that include structural firefighting, fire prevention services, technical rescue, emergency medical support and a Hazardous Material Response Team in the event of an accidental hazardous material spill. Wildland fire suppression is performed by the DPW, ENV, and Forestry Branch. The installation has mutual aid agreements with many of the surrounding fire departments, who provide critical back-up should the need arise.

Medical Facilities

Moncrief Army Community Hospital is Fort Jackson's primary medical service facility. The acute care facility offers a wide range of medical and dental services to active component personnel, Family members, and Army retirees. Emergency room services, while not available at Moncrief Army Community Hospital, are provided by off-installation hospitals. McWethy Clinic, located adjacent to the hospital, provides health care for Soldiers in-training, Soldiers on

TDY, and reserve component personnel on drill or annual training status. The Moncrief Medical Home is Army Medicine's new approach to providing care in Northeast Columbia.

Off-installation medical facilities provide a comprehensive range of primary and secondary health care within the area. In addition to the Moncrief Army Community Hospital, there are several other hospitals within the surrounding seven-county area. The largest of these include the 649-bed Palmetto Richland Memorial Hospital in Columbia, and the 489-bed Palmetto Baptist Medical Center Columbia (U.S. Army, 2008). Also within the city of Columbia are 13 additional hospitals.

Tertiary medical care is available in Columbia less than 2 minutes from Fort Jackson. Professional health care services are becoming more concentrated in Lexington County, with the number of physicians and dentists within the area increasing substantially during the 1990s.

Family Support Services

ACS is a Soldier and Family service center that offers a comprehensive array of programs and services dedicated to maintaining the readiness of Soldiers, Families and communities by fostering self-reliance, resiliency, and stability. It is the commander's principal Family readiness agency, providing comprehensive, coordinated, and responsive services that support readiness of Soldiers, civilian employees and their Families during peace and war. ACS programs cover mission areas in money matters; home and Family life; making a move; work and careers; learning for life; Army basics; managing deployment and separations; and getting involved in the community. The ACS programs offered are the following: Employment Readiness Program; Exceptional Family Member Program; Family Advocacy Program; Financial Readiness Program; Mobilization and Deployment, designed to guide and educate Soldiers and Families on how to manage the complex processes of deployment and reunion; Relocation Readiness Program; and Survivor Outreach Program.

Recreation Facilities

A wide variety of on-installation recreational facilities are available to Army personnel and their Families, and to civilian employees on a space-available basis. The installation has a four-field softball complex, two 18-hole golf courses, a driving range, and numerous running tracks. In addition, there are numerous playgrounds and multiple-use courts associated with the schools and Family housing areas within the cantonment. Other outdoor recreational facilities include 8 multi-court facilities, including basketball, volleyball, and tennis courts; 3 little league baseball fields and youth soccer fields; Lee Road Soccer Complex; Semmes Road Tennis Courts; 18 basketball courts; 2 outdoor pools; 10 handball courts; and 10 baseball/softball fields.

Additionally, Fort Jackson uses Heise Pond, Twin Lakes, and Weston Lake for various active and passive water sports. The Marion Street Station is the site of the Hunting and Fishing Center and offers recreational equipment rental and hunting and fishing licenses. Twin Lakes has picnic

shelters and playgrounds. Weston Lake has facilities available for boating, canoeing, camping, and numerous other outdoor activities.

Indoor recreational facilities include Knight Indoor Pool, Century Lanes bowling alley, Perez Physical Fitness Center, Thomas Lee Hall Library, Fort Jackson Museum, a community activities center, two theaters, an arts and crafts center, auto crafts shop, youth activities center, and four gymnasiums.

4.13.12.2 Environmental Effects

No Action Alternative

The operations at Fort Jackson would continue to benefit regional economic activity. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of 3,071[18] Army positions (2,363 Soldiers and 708 Army civilians), each with an average annual income of $46,760 and $56,859, respectively. In addition, this alternative would affect an estimated 4,662 Family members (1,714 spouses and 2,948 dependent children). The total population of Army employees and their Families directly affected under Alternative 1 is projected to be 7,733.

In accordance with the EIFS analysis, significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative ranges. Table 4.13-6 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, changes in population in the ROI under Alternative 1 fall outside the historical range and are categorized as a significant impact. However, there would not be a significant impact to sales, employment, and income because the estimated percentage change is within the historical range.

[18] This number was derived by assuming the loss of 70 percent of Fort Jackson's Soldiers and 30 percent of the Army civilians.

Table 4.13-6. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+5.6	+4.3	+2.4	+1.5
Economic contraction significance value	-5.8	-3.8	-3.2	-0.5
Forecast value	-0.5	-0.6	-1.0	-0.7

Table 4.13-7 summarizes the predicted impacts to income, employment, and population of the reductions against the 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

Table 4.13-7. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated impact estimates	-$189,425,600	-3,427 (Direct)	-7,733
		-815 (Induced)	
		-4,242 (Total)	
Total 2012 ROI economics estimates	$32,647,157,000	409,242	892,000
Percent reduction of 2012 figures	-0.6	-1.0	-0.9

Note: Sales estimates are not consistently available from public sources for all counties in the United States; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from EIFS is described in the paragraphs below.

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 3,071 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 356 direct contract service jobs would also be lost. An additional 815 induced jobs would be lost due to the reduction in demand for goods and services within the ROI. The total reduction in employment is estimated to be 4,242, a reduction of 1 percent from the total employed labor force in the ROI of 409,242. Income is estimated to reduce by $189.4 million, a 0.6 percent decrease in income in 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $286 million. Sales tax receipts to local and state governments would also decrease. The state and average local sales tax for South Carolina is 7.2 percent (Tax Foundation, 2014). To estimate sales tax reductions, information was utilized on the proportion of sales that would be subject to sales taxes on average across the county. According to the U.S. Economic Census, an estimated 16

percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). Therefore, with an estimated reduction of $286 million in sales, there would be an estimated decrease in sales tax receipts of $3.3 million.

Of the approximately 892,000 people (including those residing on Fort Jackson) who live within the ROI, 3,071 Army employees and their estimated 4,662 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a population reduction of 0.87 percent. This number likely overstates potential population impacts because some of the people no longer employed by the Army would continue to live and work within the ROI, finding employment in other industry sectors.

Students and trainees may have a substantial impact on the local economy through lodging, eating, and shopping expenditures. Additionally, formal graduation ceremonies generate demand for lodging and dining facilities when Family members attend. BCT graduations are a weekly event, graduating 600-1,200 Soldiers per week; and 4,000–5,000 Family members attend these weekly graduations. The impact to Fort Jackson's training missions cannot be determined until after the Army completes its force structure decisions; therefore, analyzing the impact to those missions is beyond the scope of this document.

Housing

The population reduction that would result under Alternative 1 would result in decreased demand and increased housing availability on the installation and across the larger ROI, potentially resulting in a slight decrease in median home values. While the housing market would experience a change under Alternative 1, overall impacts would be minor given the large size of the ROI.

Schools

Local school districts in the Fort Jackson ROI have constructed new schools and modernized existing school facilities due to substantial population growth over the past decade. Under Alternative 1, there would be decreased enrollment in schools on and off the installation. The elementary schools on Fort Jackson and the Richland County School District Two are likely to be most affected under Alternative 1.

The reduction of Soldiers on Fort Jackson would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal Impact Aid a district receives is based on the number of students who are considered “federally connected” and attend district schools. Actual projected dollar amounts cannot be determined at this time due to the variability of appropriated dollars from year to year, and the uncertainty of the actual number of affected school-age children for Army and civilian Families. Under Alternative 1, significant, adverse impacts to local schools districts could potentially occur due to reduced enrollment and Federal Impact Aid, particularly to Richland County School District Two, where students of Families living on Fort Jackson attend

school. School districts in the ROI would likely need fewer teachers and materials as enrollment drops, which would partially offset the reduced Federal Impact Aid. Overall, adverse impacts to schools associated with Alternative 1 would be minor to significant depending on the reduction in the number of military-connected students enrolled.

Public Services

The demand for law enforcement, medical care providers, and fire and emergency service providers on the installation may decrease if Army Soldiers, Army civilians, and their Family members affected under Alternative 1 move to areas outside the ROI. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements. Overall, minor impacts to public health and safety would occur under Alternative 1. The impacts to public services are not expected to be significant because the existing service level for the installation and the ROI would still be available.

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. As a result, minor impacts to Family Support Services and recreation facilities would occur under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, states “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations” (EPA, 1994). As shown in Table 4.13–4, the proportion of minority populations is higher in Fairfield and Lee counties than the proportion in Kershaw and Lexington counties and South Carolina as a whole. Because minority populations are more heavily concentrated in Fairfield and Lee counties, the implementation of Alternative 1 has the potential to result in adverse impacts to minority-owned and/or -staffed businesses if Soldiers and Army civilians directly affected under Alternative 1 move to areas outside the ROI. Of the counties within the ROI, only Lexington County has a higher proportion of populations living below the poverty level when compared to the South Carolina average. Overall, although adverse impacts to environmental justice populations might occur under Alternative 1, they would not disproportionately affect these populations.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of the people associated with the installation, including children. Therefore, it is not anticipated that implementing Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.13.13 Energy Demand and Generation

4.13.13.1 Affected Environment

Fort Jackson's energy needs are currently met by a combination of electric power and natural gas. During the past decade, Congress has enacted major energy bills, and the President has issued Executive Orders that direct federal agencies to address energy efficiency and environmental sustainability. The federal requirements for energy conservation that are most relevant to Fort Jackson include the following: the Energy Policy Act of 2005; E.O. 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, issued January 2007; Energy Independence and Security Act of 2007; and E.O. 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, issued October 2009. Fort Jackson is striving to comply with these requirements.

Electricity

South Carolina Electric & Gas Company supplies electricity to Fort Jackson. Electricity is supplied to the installation's substation, and from the substation electricity is distributed through a network of underground and above-ground lines (U.S. Army, 2008).

Natural Gas

South Carolina Electric & Gas Company supplies natural gas to Fort Jackson. The supply line is a 10-inch, high-pressure main that enters the installation and extends to a meter. From the meter, gas is fed into an on-installation, Fort Jackson-owned regulator and into the distribution system which comprises a network of Fort Jackson-owned lines and regulator stations. South Carolina Electric & Gas bills Fort Jackson for interruptible/low sulfur services. In the event of a service interruption, the installation switches to No. 6 fuel oil at the central energy plants. A number of other facilities have individual natural gas-powered boilers with a liquid petroleum gas backup system at Central Energy Plant No. 2 (U.S. Army, 2008).

4.13.13.2 Environmental Effects

No Action Alternative

Minor, adverse impacts are anticipated on energy demand. The continued use of outdated, energy-inefficient facilities could hinder Fort Jackson's requirement to reduce energy consumption. Some older facilities may require renovations to improve energy efficiency to achieve federal mandate requirements.

Alternative 1—Implement Force Reductions

Minor, beneficial impacts to energy demand are anticipated because force reductions would reduce the installation's overall demand for energy. The installation would also be better positioned to meet energy and sustainability goals. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on energy demand are not analyzed.

4.13.14 Land Use Conflicts and Compatibility

4.13.14.1 Affected Environment

Regional Setting

Fort Jackson consists of 52,313 acres located in Richland County, South Carolina, within the city limits of Columbia, the state's capital (U.S. Army, 2008). Columbia is located near the geographic center of South Carolina, in an area known as the Central Midlands. With a population of 320,677, Richland County is the largest county in the Central Midlands region both in terms of area and population, and is the second most populated county in the state. The city of Columbia has a population of 116,278, and serves as a large urban and commercial center for the surrounding region (CMCOG, 2014).

Fort Jackson's mission is to conduct Basic Combat Training and AIT; train Drill Sergeants and Cadre Leaders; and effectively transform civilians, train Soldiers and develop leaders. The installation is the largest and most active IET Center in the U.S. Army, training 50 percent of the Army's Basic Combat Training load and 60 percent of the women entering the Army each year (Fort Jackson 2014). Fort Jackson is home to the U.S. Army Soldier Support Institute, the Armed Forces Army Chaplaincy Center and School, and the National Center for Credibility Assessment (formerly the DoD Polygraph Institute). It is also home to the Army's Drill Sergeant School, which trains all active and Reserve instructors (U.S. Army, 2008).

Land Use at Fort Jackson

Of the 52,313 acres at Fort Jackson, slightly more than 5,800 acres are classified as improved grounds, with the remaining 46,500 acres comprised of Army-owned training areas, including

more than 100 ranges and field training sites. The installation is surrounded by 3,000-foot sound buffer areas adjacent to portions of the installation perimeter to mitigate any potential for disturbance of noise-sensitive uses (Fort Jackson, 2013) Training activities and exercises, such as general use training, range/impact area, and noise buffers, are the predominant land uses on Fort Jackson (U.S. Army, 2008). Supporting uses are housed within the cantonment area.

Fort Jackson's cantonment area occupies approximately 5,500 acres in the southwestern corner of the installation. Family housing and associated elementary schools are located in separate adjacent areas on the eastern perimeter of the cantonment, while troop housing is located to the north and west. A variety of community and commercial services are concentrated to the south and west of the Family housing area, including the post exchange, commissary, bank and credit union, Class VI stores, Officers Club, and various indoor recreational facilities. The Moncrief Army Community Hospital is located to the west of the community center and north of Semmes Lake. The Post Headquarters is centrally located on Jackson Boulevard. Industrial activities in the form of public works, logistics, and maintenance are concentrated in the southern, central portion of the installation east of Marion Avenue. The cantonment is surrounded on the north and east by reserved land and buffer areas, which provide a transitional use to the installation’s range and training areas (Fort Jackson, 2013).

Training areas for general tactical and administrative training use are located throughout the installation and consist of numbered individual sites ranging in size from a few to several hundred acres. Training range and impact areas comprise a total of approximately 10,355 acres of actual firing areas, attendant range fans and impact areas. Fort Jackson has a total of 20 ranges which are used for Basic Rifle Marksmanship (BRM) training. Weapons fired on these ranges are limited to M16 rifles, 9 millimeter and .45 caliber pistols and 12 gauge shotguns. Range 14 is licensed to the South Carolina ARNG. The BRM ranges are arrayed around the perimeter of the West Impact Area, which is roughly bounded by Dixie Road, Wildcat Road, Hartsville Guard Road, and Golden Arrow Road. Despite the size of the impact area, approximately 90 percent of the rounds fired are trapped by berms located approximately 300 meters from firing lines (U.S. Army, 2008).

All live fire courses, with the exception of the Remagen hand grenade training range, are located around the perimeter of the East Impact Area. The East Impact Area contains artillery and mortar target zones and the range fans for the following ranges: Bastogne, Main Tank, Casablanca, Cowpens, Anzio, Omaha, 1LT Joe V. Abernathy (RST-3), Kasserine Pass, and the Combat Pistol Qualification Course, Camden Convoy Live Fire, and Argentan. Also associated with the East Impact Area are 27 designated artillery and mortar firing points. Weapons fired into the East Impact Area include small arms, machine guns, grenade launchers, light anti-armor weapons, tank main gun, artillery, multiple launch rocket system, and mortars (U.S. Army, 2008).

Surrounding Land Use and Planning

Fort Jackson is bordered by the city of Columbia to the northwest, west and southwest; the balance of the installation is adjacent to unincorporated portions of Richland County. Urbanized development is located to the southwest of the installation between Leesburg and Garners Ferry roads; to the west along Jackson Boulevard; and to the northwest within the Forest Acres and Arcadia Lakes communities and in the vicinity of interstate highways I-20 and I-77. Dense commercial development, such as the Columbia Mall, occurs in the vicinity of Two Notch Road (U.S. Highway 1) and I-20, and strip commercial development characterizes land use along Decker Boulevard, Two Notch Road, the intersection of Percival Road and I-77, and the intersection of Forest Drive and I-77 outside Gate 2 (Fort Jackson, 2013).

Sesquicentennial State Park, a day-use facility with lake, hiking and biking trails, picnic and camping facilities, is located northeast of the junction of I-20 and I-77 and is the largest public land use adjacent to Fort Jackson. Most of the unincorporated areas adjacent to Fort Jackson are characterized by low density or rural residential, agricultural, or open space uses. The 585-acre Columbia-Greenville National Veteran's Cemetery is on land formerly held by Fort Jackson at the northern end of the installation (Fort Jackson, 2013).

Several plans and studies have been conducted to guide growth and development in the city of Columbia and Richland County. The Columbia Plan: 2018 has been prepared by the city of Columbia to serve as a guidance document to envision and guide the growth and development of the city of Columbia through 2018 (City of Columbia, 2008). The Land Use Element section of the 2009 Richland County Comprehensive Plan provides informed recommendations for guiding future growth and development and addresses existing land use patterns and identifies projected future land use development within the county through 2019 (Richland County, 2009). The Fort Jackson-McEntire JLUS is a cooperative planning effort between Fort Jackson and surrounding communities to examine the way the installation operates and the development patterns of nearby communities. The study's purpose is to ensure military missions continue without degrading the safety and quality of life in surrounding communities, while also accommodating local economic development. The plan attempts to balance growth opportunities with the military's need to conduct critical training and readiness activities. The primary concern identified within the JLUS is incompatible development and use around Fort Jackson. Compatibility issues relate mainly to housing and manufactured housing units in noise areas east and north-east of Fort Jackson (CMCOG, 2009).

4.13.14.2 Environmental Effects

No Action Alternative

Routine training and readiness activities at Fort Jackson produce various impacts, including noise and the risk of aircraft accidents that can impact land uses surrounding the installation. Under the No Action Alternative, existing operations at Fort Jackson as well as land use patterns

both within and surrounding the installation would continue unchanged. Fort Jackson would continue to address potential land use incompatibilities through physical means such as noise buffers; cooperative implementation of the goals outlined in the JLUS; and continued implementation the 2009 IONMP that provides guidelines for noise management pertaining to installation functions (Fort Jackson, 2013). The No Action Alternative is therefore not expected to have a significant, adverse impact on existing land use within the installation or on immediately surrounding or regional land use patterns. Land use compatibility impacts under the No Action Alternative would be minor.

Alternative 1—Implement Force Reductions

Land use impacts associated with Alternative 1 would likely be beneficial due to reduced live fire training and aircraft activity associated with force reductions. Potential force reductions under Alternative 1 are not expected to have a negative impact on existing land use within the installation or on immediately surrounding or regional land use patterns.

4.13.15 Hazardous Materials and Hazardous Waste

4.13.15.1 Affected Environment

Hazardous Materials

The management of hazardous materials and waste at Fort Jackson is conducted in accordance with a Hazardous Substance Management Plan. The plan establishes procedures and policies and assigns responsibilities associated with the generation, handling, management, and disposition of hazardous material and hazardous waste at Fort Jackson. The policies and procedures outlined in the plan are consistent with the requirements of RCRA; the South Carolina Hazardous Waste Management Act; and other applicable federal, state, and local regulations (Fort Jackson DPW, 2007). Commonly used hazardous materials at Fort Jackson include paints, adhesives, sealants, fuels, antifreeze, oil, greases, other lubricants, and solvents (USACE, 2006).

Fort Jackson owns eight active regulated USTs under RCRA. These include seven at the service stations (Buildings 4522 and 4120) and one at Moncrief Army Community Hospital (Building 4500) to serve the emergency generator. The service-station USTs are constructed of double-walled fiberglass with double-walled underground piping. These tanks are equipped with electronic inventory monitoring and spill and overflow protection. The hospital tank is cathodically protected and exempt from leak protection requirements because it contains fuel for an emergency generator. Waste oil generated on the installation is stored in several facilities near generation points and is removed by an approved contractor. The ISC Plan details spill prevention and procedures for responding to accidental releases of petroleum-based products, hazardous materials, and hazardous wastes (U.S. Army, 2008). If abandoned USTs are discovered at Fort Jackson, the tanks are removed and the subsurface soil is tested. If there is no

contamination, the removal documentation is archived. If the subsurface is contaminated, the incident is referred to the IRP manager for site assessment.

Hazardous Waste Treatment, Storage, and Disposal

The Hazardous Substance Management Plan provides proper characterization and disposal methods for potential hazardous waste.

Fort Jackson has received a RCRA Part B permit from the South Carolina Department of Health and Environmental Control for identification and corrective action for (SWMUs) and Areas of Concern. The former waste storage facility at Building 1916 has been demolished. Facility inspections are conducted each year by South Carolina Department of Health and Environmental Control and every 4 to 5 years by EPA.

Activities that generate hazardous waste must store the waste at a satellite accumulation area. The waste in these satellite areas must be moved to a 90-day container storage area within 3 days (72 hours) after the 55-gallon limit (or 1 quart of acute hazardous waste) is accumulated. Once the limit for the satellite accumulation area has been reached hazardous waste is turned in to the Environment Department and stored in the <90-day container storage area in the waste storage building (Building 2568) for pick up for disposal at a permitted off-installation facility. Hazardous waste is turned into the Defense Logistics Agency Disposition Services Jackson for storage prior to disposal by a contractor at a permitted off-installation facility (U.S. Army, 2008).

Prior to disposal, hazardous material/waste is screened for reutilization, transfer, donation, or sale. Hazardous material that fails this screening and is determined to be hazardous waste is taken to Building 2568 for management and storage prior to removal from the installation. Fort Jackson uses contractors for the off-installation treatment, storage, and/or disposal of hazardous waste at permitted facilities. Fort Jackson has implemented hazardous waste minimization measures that have succeeded in continual reductions in the quantity of hazardous waste shipped off the installation.

Hazardous Waste Investigation and Remediation Sites

Military operations have been ongoing at Fort Jackson for more than 80 years. During that time, the industrial operations have grown in support of the training programs. Former industrial activities generated wastes that were stored, treated, or disposed of at the installation according to standard practices at that time. A greater environmental awareness has called for the evaluation of former disposal sites (SWMUs) to determine if there is contamination of concern to human health or the environment. IRP began the process of identifying and evaluating these past sites in 1988.

The RCRA Part B permit requires the identification, evaluation, and corrective action (as needed) of SWMUs at Fort Jackson. A total of 53 SWMUs, 28 Areas of Concern, and 50 USTs

have been identified within the Fort Jackson boundaries. Fort Jackson has reviewed the known sites of concern and developed an IAP to evaluate potential contamination and remediate where required (Fort Jackson DPW, 2007). The plan is updated annually. Fort Jackson does not have any sites listed on the NPL under CERCLA.

The primary contaminants of concern include petroleum/oil/lubricants, ordnance components, metals, and solvents in soil and/or groundwater. The IAP reflects the current status of the ongoing clean-up of the sites of concern.

Other Hazards

Other hazards present at Fort Jackson are controlled, managed, and removed through specific programs and plans and include UXO, LBP, asbestos, PCBs, radioactive materials, and pesticides.

4.13.15.2 Environmental Effects

No Action Alternative

Minor, adverse impacts are anticipated under the No Action Alternative. Use and generation of hazardous materials and wastes would continue on Fort Jackson, and the handling and storage of these materials would comply with all applicable laws, regulations, and plans.

Alternative 1—Implement Force Reductions

Hazardous materials and wastes would continue to be handled per BMPs that are implemented in compliance with appropriate regulations and as per Fort Jackson's hazardous material and waste programs; therefore, minor, adverse impacts are anticipated.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Fort Jackson, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

No violation of hazardous waste regulations or the Fort Jackson hazardous waste permit is anticipated as a result of active forces reduction. Volumes of generated waste are expected to decline depending on the specific units affected.

Remediation activities are not expected to be affected under Alternative 1. Because of the reduced numbers of people, the potential for spills would be somewhat reduced during training and maintenance activities. Waste collection, storage, and disposal processes would remain mostly unchanged, although the quantities may be reduced. This potential decrease is not expected to affect Fort Jackson's RCRA generator status.

As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.13.16 Traffic and Transportation

4.13.16.1 Affected Environment

Highways and Roads

Fort Jackson is located in Columbia, South Carolina, and was incorporated into the city in 1968. Primary access to the installation is provided by Forest Drive, Jackson Boulevard, and I-77.

Strom Thurmond Boulevard, formerly known as Imboden Street, and Fort Jackson Boulevard provide access to Fort Jackson's main cantonment via interchanges with I-77. Fort Jackson Boulevard and Gate 1 connect the southern portion of the cantonment to I-77, while Strom Thurmond Boulevard and Gate 2 provide access to the western and northern portion of the cantonment. Since the completion of I-77, most personnel residing off the installation use Gate 2 for daily ingress to and egress from the installation. Various secondary roads provide access to the installation from the north, south, east, and west (U.S. Army, 2008).

Fort Jackson has over 207 miles of roads open to the public, of which approximately 133 miles are paved and 74 miles are unpaved. The paved roads have a bituminous surface and are in generally fair condition. The loose surface and dirt roads are located in the training and range areas outside the cantonment area. All roadways within the cantonment are paved and two lanes wide except Strom Thurmond Boulevard and Hampton Parkway, which are four lanes wide and have a dividing median, and Marion and Lee roads, which are four lanes for most of their length (U.S. Army, 2008).

Traffic flow within the cantonment is predominantly north to south along the primary roadways of Jackson Boulevard, Lee Road, and Marion Avenue. Major east to west primary roadways include Strom Thurmond Boulevard, Washington Road/Anderson Street, Hill Street, Hampton Parkway, and Semmes Road (U.S. Army, 2008).

Railroads

Although Fort Jackson historically used railroads to transport equipment and troops, rail transport has not been used for many years. All rail spurs were removed from the installation in March 1992 (U.S. Army, 2008).

Airports

Columbia Metropolitan Airport, operated by the Richland-Lexington Airport Commission, is situated 6 miles southwest of Columbia's central business district. The primary airlines offering air passenger service to and from Columbia as of May 2008 are American Eagle, Continental,

Delta, Northwest, Spirit Airlines, United, and U.S. Airways. Cargo service is provided by Airborne Express, Emery Worldwide, Federal Express, and United Parcel Service. A $50 million terminal upgrade and improvement project was completed in 1997 (U.S. Army, 2008).

Fort Jackson does not have an active airfield. Hilton Field, which historically was used for this purpose, was removed from service following World War II and is currently used as a parade ground (U.S. Army, 2008).

4.13.16.2 Environmental Effects

No Action Alternative

The No Action Alternative would continue current levels of traffic and congestion. Traffic congestion has not historically been identified as a concern at Fort Jackson. There would be no impacts to transportation.

Alternative 1—Implement Force Reductions

Implementation of Alternative 1 would result in a minimal to beneficial impact on transportation, due to less traffic and attendant congestion. If the maximum force reduction of 3,100 personnel were implemented, a 54 percent reduction, the beneficial impact on traffic on and off the installation would be most noticeable close to the installation. Because a major focus of the installation is training and training is not addressed in this SPEA, it is not possible to assess any additional impacts that might occur due to a potential change in the number of trainees.

4.13.17 Cumulative Effects

The ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Jackson consists of Calhoun, Fairfield, Kershaw, Lee, Lexington, Richland, and Sumter counties in South Carolina. Several planned or proposed actions within the ROI have the potential to cumulatively add impacts to Army 2020 alternatives. These actions are identified below.

Reasonably Foreseeable Future Projects on Fort Jackson

The Army recently approved of the re-stationing of the Recruiting and Retention School (RRS) to Fort Knox, Kentucky.

Reasonably Foreseeable Future Projects outside Fort Jackson

The Army is not aware of any reasonably foreseeable future projects outside Fort Jackson that would be appropriate for inclusion in the cumulative impacts analysis. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, larger economies with more job opportunities could absorb some of the displaced Army workforce, lessening adverse effects from force reductions.

No Action Alternative

There would be no cumulative effects of the foreseeable future actions with the No Action Alternative. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reduction

With the exception of socioeconomics, the cumulative impacts to all other resource areas would range from beneficial to minor and adverse.

The socioeconomic impact within the ROI, as described in Section 4.13.12.2 with a reduction of 3,071 Soldiers and Army civilians, would be minor and adverse on population, the regional economy, schools, and housing. Fort Jackson is located in the Columbia, South Carolina metropolitan area with a population of almost 900,000 residents. Because of the large employment base and diverse economy in the region, the ROI would be less vulnerable to these force reductions because other industries and considerable economic activity occurs within the ROI. As a result, the region may be able to absorb some of the displaced Army employees, mitigating some of the adverse effects.

The relocation of the Recruiting and Retention School, which would affect 62 military, 24 government civilians, and 6 contract positions, would have adverse regional economic impacts through the loss of jobs and income within the region. Fort Jackson is also home to Basic Combat Training for Soldiers and others, averaging approximately 21,800 students assigned at a time for training. Cumulative actions could include reduced training opportunities because of the force reductions on Fort Jackson, which would result in adverse impacts to socioeconomic conditions because of reduced temporary population and visitors and the attendant economic activity, spending, and jobs and income it supports.

Other construction and development activities on the installation and in the ROI would benefit the regional economy through additional economic activity, jobs, and income in the ROI. Under Alternative 1, the loss of approximately 3,100 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have a minor, adverse impact on socioeconomic conditions in the ROI. However, cumulative impacts could be significant for specific schools on the installation and in the ROI.

4.14 Fort Knox, Kentucky

4.14.1 Introduction

Fort Knox was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population, is discussed in Section 4.13.1 of the 2013 PEA.

Fort Knox's 2011 baseline permanent party population was 13,127. In this SPEA, Alternative 1 assesses a potential population loss of 7,600, including approximately 5,954 permanent party Soldiers and 1,651 Army civilians.

4.14.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Knox; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.14-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.14-1. Fort Knox Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Negligible	Minor
Noise	Negligible	Beneficial
Soils	Minor	Beneficial
Biological Resources	Negligible	Negligible
Wetlands	Negligible	Negligible
Water Resources	Minor	Beneficial
Facilities	Negligible	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	No Impacts	No Impacts
Hazardous Materials and Hazardous Waste	Negligible	Minor
Traffic and Transportation	Negligible	Beneficial

4.14.3 Air Quality

4.14.3.1 Affected Environment

The air quality affected environment of the Fort Knox ROI remains generally the same as described in Section 4.13.2.1 of the 2013 PEA with one exception. Bullitt County is a maintenance area for the 1997 O_3 standard (it was incorrectly stated in the 2013 PEA that there were no maintenance areas). The Fort Knox area has not been designated as a nonattainment area for any criteria pollutants (EPA, 2013).

4.14.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source emissions at current levels, as well as fugitive dust from training activities, would result in minor, adverse impacts to air quality. Air quality impacts under the No Action Alternative for this SPEA remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Knox would result in long-term, minor, beneficial impacts to air quality due to reduced operations and maintenance activities and reduced vehicle miles travelled associated with the facility. Impacts to air quality from the increased force reductions proposed under Alternative 1 would continue to be beneficial, assuming a corresponding decrease in operations and vehicle travel to and from Fort Knox. The size of this beneficial impact under Alternative 1 would be roughly double the size of the impact anticipated at the time of the 2013 PEA.

The relocation of personnel outside of the area because of force reductions could result in negligible, short-term effects on air quality associated with mobile sources. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with air quality regulations. Even if the full end-strength reductions were to be realized at Fort Knox, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.14.4 Airspace

4.14.4.1 Affected Environment

Airspace is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.13.1.2 because of lack of significant, adverse environmental impacts from implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013. Restricted airspace R-3704 A and B at Fort Knox covers the range complex and extends from the surface to 10,000 feet msl. Airspace surrounding Godman AAF is classified as Class D airspace extending from the surface to 3,300 feet msl (U.S. Army, 2011).

4.14.4.2 Environmental Effects

No Action Alternative

The 2013 PEA VEC dismissal statement concluded that there would be negligible impacts to airspace at Fort Knox under the No Action Alternative. For the current analysis, Fort Knox would continue to maintain current airspace operations and current airspace classifications. Restrictions are sufficient to meet current airspace requirements and no airspace conflicts are anticipated. Continuation of negligible impacts to airspace from continued airspace operations and activities would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that negligible impacts to airspace would occur at Fort Knox. Under Alternative 1, implementation of proposed further force reductions are not expected to affect the installation airspace operations or types of activities conducted on Fort Knox. The force reductions could potentially lower the utilization rate of existing SUA as some units where UAS may be inactivated and no longer require the use of the existing SUA. This reduction would result in a minor, beneficial impact to airspace at Fort Knox.

4.14.5 Cultural Resources

4.14.5.1 Affected Environment

The affected environment for cultural resources at Fort Knox has not had substantive changes since 2013, as described in Section 4.13.3 of the 2013 PEA.

4.14.5.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to cultural resources as described in Section 4.13.3.2 of the 2013 PEA. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures.

Alternative 1—Implement Force Reductions

As described in Section 4.13.3.2 of the 2013 PEA, Alternative 1 would have a minor impact on cultural resources. The Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort Knox, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic structures from these activities are not analyzed. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of force reductions, the installation would comply with applicable laws, such as the NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects.

This alternative could result in some beneficial effects as a decrease in training activities could reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources.

4.14.6 Noise

4.14.6.1 Affected Environment

The noise affected environment of the Fort Knox installation remains the same as described in Section 4.13.5.1 of the 2013 PEA. The primary sources of noise at Fort Knox include aircraft, weapons fire and maneuver training.

4.14.6.2 Environmental Effects

No Action Alternative

The 2013 PEA anticipated negligible noise impacts because noise generating activities at the installation would continue at the same levels and intensity as historically experienced. Negligible impacts to noise would continue under the No Action Alternative.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Knox would result in slightly beneficial noise impacts. Noise impacts would likely remain comparable to current conditions, though noise generating events would be less frequent leading to a reduced risk of noise complaints. The beneficial impact under Alternative 1 would be similar to that described under the 2013 PEA.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with noise ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Knox, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including noise ordinances and regulations.

4.14.7 Soils

4.14.7.1 Affected Environment

The soils affected environment on the installation remains the same as was discussed in Section 4.13.5.1 of the 2013 PEA.

4.14.7.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to soils were anticipated from continuing training, to include impacts to soils from removal of or damage to vegetation, digging activities, ground disturbance from vehicles, and ammunition or explosives used in training events. Impacts under the No Action Alternative on Fort Knox remain the same as those discussed in Section 4.13.5.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, negligible, beneficial impacts to soils were anticipated as a result of less use of training areas. A force reduction would result in less erosion, soil compaction, and loss of vegetation.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Knox, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations. Therefore, impacts under Alternative 1 at Fort Knox would be beneficial and remain the same as those discussed in Section 4.13.5.2 of the 2013 PEA.

4.14.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.14.8.1 Affected Environment

The affected environment for biological resources at Fort Knox has not changed since 2013, as described in Section 4.13.1.2 of the 2013 PEA. Biological Resources are among the VECs excluded from detailed analysis in the 2013 PEA, due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis.

4.14.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts similar to those that are currently occurring to biological resources as described in Section 4.13.1.2 of the 2013 PEA. Fort Knox would also continue briefing units regarding sensitive areas prior to each training event, to limit disturbance in sensitive areas and sensitive breeding times for the Indiana and gray bats.

Alternative 1—Implement Force Reductions

Under Alternative 1, negligible impacts are anticipated to biological resources at Fort Knox. Fort Knox anticipates that the proposed force reduction will not change this finding, since Alternative 1 does not involve major changes to the installation operations or types of activities conducted on Fort Knox, only a decrease in the frequency of training activities. The beneficial impacts include a reduction in scheduling conflicts for training area access to conduct resource monitoring, and an increase in the ease of implementing more proactive conservation management practices. The installation would continue to manage its natural resources and potential habitat in accordance with the installation INRMP (Fort Knox, 2008), and any conservation measures identified in any ESA, Section 7, consultation documents.

Adverse impacts to biological resources could conceivably occur if force reductions prevented environmental compliance from being properly implemented. However, the Army is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Knox, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met.

4.14.9 Wetlands

4.14.9.1 Affected Environment

Wetlands are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.13.1.2 due to lack of significant, adverse environmental impacts as a result of implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013.

4.14.9.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible, adverse impacts to wetlands and the affected environment would remain in its present state.

Alternative 1—Implement Force Reductions

Per Section 4.13.1.2 of the 2013 PEA, there would be negligible impacts to wetlands under Alternative 1. The installation would continue to manage its wetlands in accordance with the installation INRMP. Impacts to wetlands could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Knox, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at Fort Knox would remain the same as those discussed in Section 4.13.1.2 of the 2013 PEA.

4.14.10 Water Resources

4.14.10.1 Affected Environment

The affected environment for water resources on Fort Knox remains the same as that described in Section 4.13.6.1 of the 2013 PEA. There are no changes to surface water, water supply, wastewater, and stormwater resources.

4.14.10.2 Environmental Effects

No Action Alternative

In the 2013 PEA, minor, adverse impacts to water resources were anticipated from the No Action Alternative due to the continued disturbance and pollution of surface waters from training activities. Surface water impacts to water resources under the No Action Alternative would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

Minor, beneficial impacts to water resources were anticipated from implementation of force reductions under Alternative 1 in the 2013 PEA because of reduced demand for potable water supply and an increase in available wastewater treatment capacity. Reduction in training area use from force reductions on Fort Knox was also anticipated to potentially reduce impacts to surface waters from disturbance and spills. Increased force reductions under Alternative 1 of this SPEA would continue to have the same beneficial impacts to water supplies, wastewater capacity, and surface waters.

Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Fort Knox, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented.

4.14.11 Facilities

4.14.11.1 Affected Environment

The facilities affected environment of the Fort Knox installation remains the same as described in Section 4.13.7.1 of the 2013 PEA.

4.14.11.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be negligible impacts to facilities at Fort Knox. Fort Knox currently has an excess of facilities available to support its Soldiers, Families, and missions. Because facilities are available as a result of the departure of the Armor school to Fort Benning, impacts to facilities would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that minor, adverse impacts to facilities would occur on Fort Knox. Under Alternative 1, implementation of proposed further force reductions would also continue to have overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demands for utilities and reduced

demands for training facilities and support services. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.14.12 Socioeconomics

4.14.12.1 Affected Environment

Fort Knox is located south of Louisville and north of Elizabethtown in Kentucky. The ROI for Fort Knox includes those areas that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, and contractor personnel, and their Families reside. The ROI includes Hardin and Meade counties in Kentucky.

This section provides a summary of demographic and economic characteristics within the ROI. These indicators are described in greater detail in Section 4.13.8 of the 2013 PEA. However, demographic and economic indicators have been updated where more current data are available.

Population and Demographics

Using 2011 as a baseline, Fort Knox has a total working population of 21,017 consisting of active component Soldiers and Army civilians, and other military services, civilians and contractors. Of the total working population, 13,127 were permanent party Soldiers and Army civilians. The population that lives on Fort Knox consists of 3,608 Soldiers, 58 Army civilians, and an estimated 3,438 Family members, for a total on-installation resident population of 7,104 (Cardin, 2014). Finally, the portion of the active component Soldiers, Army civilians, and Family members living off the installation in 2011 was estimated to be 23,823.

In 2012, the ROI had a population of 136,000, an increase of 1.7 percent since 2010. As shown in Table 4.14-2, compared to 2010, the 2012 population in both Hardin and Meade counties increased. Table 4.14-3 shows that the racial and ethnic composition of Hardin County is slightly more diverse than either Meade County or Kentucky. This is largely attributable to the higher concentration of those who identify themselves as African American (U.S. Census Bureau, 2012a).

Table 4.14-2. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Hardin County, Kentucky	107,153	+1.5
Meade County, Kentucky	29,220	+2.2

Table 4.14-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
State of Kentucky	88.6	8.1	0.3	1.3	1.6	3.2	85.9
Hardin County, Kentucky	81.0	12.6	0.5	2.1	3.4	5.3	76.9
Meade County, Kentucky	92.1	3.9	0.6	0.8	2.4	3.5	89.2

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Income

Information presented below represents an update from the 2013 PEA, which provided employment and income data from 2009. Between 2000 and 2012, total employment in Hardin and Meade counties grew at a slightly faster rate than in Kentucky (Table 4.14-4) (U.S. Census Bureau, 2000 and 2012b).

The median household income and median home value in Hardin County was greater than that of Meade County or Kentucky as a whole. While Meade County reported a median household income greater than Kentucky, the median home value was lower than the state average. The poverty rate in Hardin and Meade counties is lower than in Kentucky as a whole (Table 4.14-4) (U.S. Census Bureau, 2012b).

Table 4.14-4. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Kentucky	1,877,179	+3.3	120,000	42,610	18.6
Hardin County, Kentucky	48,088	+5.1	140,600	49,257	14.8
Meade County, Kentucky	12,179	+4.1	111,100	45,629	15.7

Information regarding the workforce by industry for Hardin and Meade counties was obtained from the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for the employed labor force.

Hardin County, Kentucky

The educational services, and health care and social assistance is the largest employment sector in Hardin County (20 percent). The Armed Forces is the second largest employment sector (13 percent), followed by retail trade (11 percent). Manufacturing is the next largest sector in Harding County (10 percent), followed by the public administration sector (9 percent). The 10 remaining sectors employ 37 percent of the workforce.

Meade County, Kentucky

Similar to Hardin County, the educational services, and health care and social assistance accounts as the largest employment sector in Meade County (18 percent). Retail trade and manufacturing both account for 11 percent of the employment sector, followed by construction (10 percent). The transportation and warehousing, and utilities sector also account for a notable share of the total workforce in Meade County (9 percent). The Armed Forces account for 7 percent of Meade County's workforce. The eight remaining sectors account for 41 percent of the total workforce.

Housing

Family housing at Fort Knox consists of 2,563 units that can accommodate Soldiers and their Families. Of this, approximately 2,216 units are occupied. The installation has space for 11,016 unaccompanied personnel. Of this, 2,282 spaces are reserved for permanent party Soldiers; remaining spaces are held for students, trainees, support cadre, Wounded Warriors, and geographic bachelors. Off-installation housing primarily consists of single-family dwellings. Currently, the 3rd BCT, 1st Infantry Division (ID) is being inactivated and a sizable number of homes occupied by these personnel will become vacant within the next 6 months. The inactivation includes approximately 3,500 Soldiers who live both on and off installation (Avey, 2014).

Schools

Approximately 2,200 students are enrolled in DoD Education Activity schools on the installation. An additional 3,500 military-connected students attend schools off the installation. School enrollment in the school districts within the ROI is 14,394 in Hardin County; 5,181 in Mead County; and 2,509 in Elizabethtown Independent Schools. Additional information on schools is provided in the 2013 PEA.

Public Health and Safety

At Fort Knox, police and fire protection services are provided by the Fort Knox Police and Fort Knox Fire departments. On installation medical services are administered at Ireland Army Community Hospital. This facility provides services to all permanent party, active component military, retirees, and Family members. Additional public health and safety information is provided in the 2013 PEA.

Family Support Services

The Fort Knox ACS, a human service organization, provides services and programs designed to assist Soldiers and Families under FMWR. Fort Knox's CYSS, a division of FMWR, provides facilities and care for children ranging from 6 weeks to 18 years of age. It also provides sports and instructional classes for children of active component military and DoD civilian and contractor personnel. Children of retired military personnel are eligible to participate in the middle school and teen, youth sports, and Schools of Knowledge, Inspiration, and Exploration & Skills (SKIES) programs. Additional information about Family Support Services is provided in the 2013 PEA.

Recreation Facilities

Fort Knox offers a variety of recreation and leisure programs to military personnel, Army civilians, and their Families. Facilities include but are not limited to a golf course, bowling center, auto crafts shop, fitness centers, and outdoor recreation opportunities. Additional information about recreation facilities is provided in the 2013 PEA.

4.14.12.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, operations at Fort Knox would continue to benefit regional economic activity. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Force Reduction

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of up to 7,605[19] Army positions (5,954 Soldiers and 1,651 Army civilians), with an average annual income of $46,760 and $57,523, respectively. In addition, this alternative would affect an estimated 11,544 Family members, including 4,244 spouses and 7,301 children. The total number of Army employees and their Family members who may be directly affected under Alternative 1 is projected to be 19,149.

[19] This number was derived by assuming the loss of one BCT, 60 percent of Fort Knox's non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 7,605. The 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 3,840.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative range. Table 4.14-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, changes in income, employment, and population in the ROI under Alternative 1 fall outside the historical range and are categorized a significant impact. However, there would not be significant impacts to sales because the estimated percentage change is within the historical range.

Table 4.14-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	7.8	6.8	6.8	6.4
Economic contraction significance value	-7.1	-5.1	-7.2	-4.6
Forecast value	-6.8	-8.1	-16.4	-11.7

Table 4.14-6 summarizes the predicted impacts to income, employment, and population of force reductions against 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecasted values, these figures show the same significance determinations as the EIFS predictions in the previous table.

Table 4.14-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated impact estimates	-$431,208,500	-8,634 (Direct)	-19,149
		-1,017 (Induced)	
		-9,650 (Total)	
Total 2012 ROI economics estimates	$5,339,264,000	60,267	136,480
Percent reduction of 2012 figures	-8.1	-16.0	-14.0

Note: Sales estimates are not consistently available from public sources for all counties in the United States; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from EIFS is described in the paragraphs below.

With a potential reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 7,605 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 1,029 direct contract service jobs

would also be lost. An additional 1,017 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. The total reduction in employment is estimated to be 9,650, a significant reduction of 16.0 percent from the total employed labor force in the ROI of 60,267. Income is estimated to fall by $431.2 million, an 8.1 percent decrease in income from 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $424.8 million. There would also be a loss in sales tax receipts to local and state governments. The state and local sales tax rate for Kentucky is 6.0 percent (Tax Foundation, 2014). To estimate sales tax reductions, information was utilized on the proportion of sales that would be subject to sales taxes on average across the country. According to the U.S. Economic Census an estimated 16 percent of economic output or sales would be subject to sales taxes (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $424.8 million resulting in an estimated sales tax receipts decrease of $4.1 million under Alternative 1 if all sales occurred in Kentucky.

Of the 136,480 people (including those residing on Fort Knox) who live within the ROI, 7,605 Army employees and their estimated 11,544 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 14.0 percent. To ensure the potential impacts were captured to the greatest extent possible this population loss was assessed against the EIFS threshold of -4.6 percent and determined to be a significant impact. This number could overstate potential population impacts, because some of the people no longer employed by the military could continue to live and work within the ROI, finding employment in other industry sectors. However, due to the rural nature of the area and Fort Knox as a dominant employer and economic driver of the ROI, the majority of displaced personnel would likely move out of the area to seek other opportunities with the Army or elsewhere. There are few employing sectors in the ROI to absorb displaced military employees. A small number of displaced personnel may stay in the ROI and seek and find work while others may remain unemployed and possibly affect the unemployment rate in the ROI.

Housing

The population reduction that would result under Alternative 1 would decrease housing demand and increase housing availability on the installation and in areas across the ROI. Increased vacancy across the region, which would likely be experienced in the cities of Elizabethtown and Radcliff has the potential to result in a decrease in median home values. Because of the relatively small population of the ROI, the reduced demand for housing and increased availability of housing associated with the force reductions that would occur under Alternative 1 has the potential to result in significant impacts to the housing market. Due to the current inactivation of Fort Knox’s 3rd BCT, 1st ID, the housing market is currently saturated with almost 6,000 vacant housing units in Hardin County (U.S. Census Bureau, 2014c); these impacts are anticipated to become more adverse under Alternative 1.

Schools

Under Alternative 1, the potential reduction of 7,605 Soldiers and Army civilians would decrease the number of children by 7,301. It is anticipated that school districts that provide education to children living on the installation would be impacted by this action. Schools on the installation and off the installation are expected to experience a decline in enrollment. As described in the 2013 PEA, 3,500 military-connected students are enrolled at schools across the ROI. The current inactivation of Fort Knox's 3rd BCT, 1st ID, has currently resulted in the loss of approximately 1,000 students and 100 teachers and administrative staff as well as the closing of four of eight education facilities (Avey, 2014). With additional force reductions, there would be additional losses in enrollment, teachers, and administrative staff. Overall, schools within the ROI could experience significant, adverse impacts from the decline in military-connected student enrollment that would result under Alternative 1.

The reduction of Soldiers and Army civilians on Fort Knox would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal Impact Aid a district receives is based on the number of students who are considered "federally connected" and attend district schools. Actual projected dollar amounts cannot be determined at this time due to the variability of appropriated dollars from year to year, and the uncertainty of the actual number of affected school-age children for Army and civilian Families. School districts in the ROI would likely need fewer teachers and materials as enrollment drops, which would partially offset the reduced Federal Impact Aid. However, schools may also have invested in capital improvements or new facilities, which require bond repayment/debt servicing. With decreased revenue for these school districts, it may place additional burden on school districts with potential implications for operations. These are fixed costs that would not be proportionately reduced such as those operational costs (teachers and supplies). Overall, adverse impacts to schools associated with Alternative 1 could be significant depending on the number of military-connected students attending schools.

Public Services

The demand for law enforcement, medical care providers, and fire and emergency service providers on the installation would decrease should Soldiers and Army civilians, and their Families, affected under Alternative 1, move to areas outside the ROI. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the installation.

Under Alternative 1, the loss of military revenue could result in hospital and other clinic closures and the loss of access to medical services. Although the level and number of services may decrease at medical facilities on the installation and in the ROI, the Army, regardless of any drawdown in military or civilian personnel, is committed to meeting health and safety requirements.

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities on the installation would experience a decrease in demand when Soldiers and Army civilians, and their Family members, affected under Alternative 1, move out of the ROI. Under the current inactivation of Fort Knox's 3rd BCT, 1st ID, the Directorate of FMWR has already closed and Family Support Services have been consolidated. Additional facility closures and decreases in services would continue under Alternative 1. The Army, however, is committed to meeting the needs of the remaining population on the installation. Overall, minor to significant impacts to Family Support Services and recreational facilities under Alternative 1 would result.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, states: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). As shown in Table 4.14-4, the proportion of minority populations in Hardin County is greater than the proportion in Kentucky as a whole. Because of the higher percentage of minority populations in Hardin County, the implementation of Alternative 1 has the potential to result in adverse impacts to minority-owned and/or -staffed businesses if Soldiers and Army civilians directly affected under Alternative 1 move to areas outside the ROI. Both Hardin and Meade counties report fewer people living below the poverty line than in Kentucky overall. Overall, environmental justice populations could be adversely impacted under Alternative 1, although the impacts are not likely to be disproportional.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of the people associated with the installation, including children. Therefore, it is not anticipated that implementing Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.14.13 Energy Demand and Generation

4.14.13.1 Affected Environment

Energy demand and generation is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.13.1.2 because there were no significant, adverse environmental impacts from implementing alternatives included in the analysis. No changes have occurred to the affected environment since 2013.

4.14.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, adverse impacts to energy demand and generation would be the same as discussed in the VEC dismissal statement in the 2013 PEA and would be negligible. Fort Knox would continue to consume similar types and amounts of energy, and maintenance of existing utility systems would continue.

Alternative 1—Implement Force Reductions

The VEC dismissal statement analysis of force reductions in the 2013 PEA concluded that negligible impacts to energy demand and generation would occur on Fort Knox. Under Alternative 1, minor, beneficial impacts to energy are anticipated due to a further reduction in energy consumption associated with the additional force reductions. The installation would also be better positioned to meet energy and sustainability goals.

4.14.14 Land Use Conflicts and Compatibility

4.14.14.1 Affected Environment

The land use affected environment of the Fort Knox installation remains the same as described in Section 4.13.9.1 of the 2013 PEA.

4.14.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that no changes to land use conditions would occur and no impacts are anticipated. Impacts under the No Action Alternative on Fort Knox remain the same as those discussed in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Knox would result in land use impacts similar to those anticipated under the No Action Alternative. Under Alternative 1, impacts would be similar to those described in the 2013 PEA.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with land use ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Knox, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including land use ordinances and regulations.

4.14.15 Hazardous Materials and Hazardous Waste

4.14.15.1 Affected Environment

As described in the 2013 PEA, hazardous materials are used on Fort Knox. These hazardous materials include hazardous materials and waste from USTs and ASTs, pesticides, LBP, asbestos, PCBs, radon, and UXO. Fort Knox was a large-quantity hazardous waste generator and had a RCRA, Part B, permit for a Treatment, Storage, and Disposal Facility until it was closed in November 2012. Fort Knox currently maintains RCRA 90 day collection site for hazardous waste. The types of wastes generated and stored at the installation include those found in maintenance activities, printing and painting operations, and electrical and mechanical shops. Approximately 90 percent of the waste solvents at Fort Knox are generated from vehicle and aircraft maintenance facilities. Many of the wastes received for disposal are expired commercial chemical products. No substantial changes have occurred to the affected environment since 2013.

4.14.15.2 Environmental Effects

No Action Alternative

As described in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative. Use of hazardous materials and generation of hazardous wastes would continue on Fort Knox in accordance with all applicable laws, regulations, and plans.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that minor impacts from hazardous materials and hazardous waste would occur on Fort Knox. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on Fort Knox. Because of the reduced numbers of people, it is expected that the potential for spills would be reduced further during training and maintenance activities. Fort Knox would continue to implement its hazardous waste management.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Fort Knox, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

At Fort Knox due to previous inactivations and downsizing of military living on the installation, housing units and several DoD Education Activity schools are planned for demolition. As discussed in Chapter 1, the demolition and/or renovation of existing buildings is not part of the scope of this SPEA.

4.14.16 Traffic and Transportation

4.14.16.1 Affected Environment

The transportation affected environment of the Fort Knox ROI remains the same as described in Section 4.13.11.1 of the 2013 PEA. In conjunction with 2005 BRAC, the surrounding communities invested heavily in traffic improvements and a mass transit system, and Fort Knox completely redesigned its ingress and egress capabilities to increase capacity and improve security.

4.14.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated negligible impacts. The existing transportation system on and off the installation has sufficient capacity to support the current traffic load and impacts would continue to be negligible.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Knox would result in minor, beneficial impacts to traffic and transportation systems. It is anticipated that traffic congestion would decrease around key ACPs and entrance gates, although the current system is providing sufficient LOS to meet the needs of its supported Soldiers, their Families, and civilians. These same beneficial impacts are expected under Alternative 1, although the size of the beneficial impact would be larger than anticipated at the time of the 2013 PEA because of the larger proposed reduction in forces.

4.14.17 Cumulative Effects

As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Knox includes Hardin and Meade counties in Kentucky. Section 4.13.12 of the 2013 PEA noted numerous planned or proposed actions within the ROI that reasonably could be initiated within the next 5 years and would have the potential to cumulatively add impacts to Alternative 1. A number of the Army's proposed projects have been previously identified in the installation's Real Property Master Planning Board and are programmed for future execution.

Reasonably Foreseeable Future Projects on Fort Knox

The DoD Education Activity recently awarded a school project on Fort Knox in the amount of $34 million (Fort Knox, 2014a). No additional actions have been identified by the installation beyond those noted in the cumulative effects analysis of the 2013 PEA.

Reasonably Foreseeable Future Projects outside Fort Knox

The Army is not aware of any reasonably foreseeable future projects outside Fort Knox which would be appropriate for inclusion in the cumulative impacts analysis. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, smaller, less diversified economies will be more vulnerable to force reductions and provide fewer opportunities to displaced Army employees.

No Action Alternative

There would be no cumulative effects due to the No Action Alternative, essentially the same as was determined in the 2013 PEA. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reductions

The cumulative effects of Alternative 1 would be essentially the same as was determined in the 2013 PEA. Overall, the potential cumulative impacts of Alternative 1 at Fort Knox are anticipated to be significant and adverse for socioeconomics, with generally beneficial impacts for the other resources.

The socioeconomic impact under Alternative 1, as described in Section 4.14.12.2 with a reduction of 7,605 Soldiers and Army civilians, could lead to significant impacts to the population, regional economy, schools, and housing in the ROI. Fort Knox has long been an economic driver in the ROI employing thousands of Soldiers and civilian employees. The relatively smaller, rural economy of the ROI depends on the installation's employment and economic activity. With fewer opportunities for employment, the ROI would likely not be able absorb many of the displaced forces. In Hardin and Meade counties, the Armed Forces account for 13 and 7 percent of the workforce, respectively, demonstrating the importance of the installation to employment in the region.

Additionally, non-federal investments have been made by private companies and local communities and governments to support Army installations. With decreased population, employment, spending, and economic activity within the ROI, additional financial burden may be placed on companies, communities, and institutions, with implications for the provision of services and viability of operations. Impacts to multiple regional community services and schools are anticipated because they receive funding, support, time, donations, and tax revenue directly related to the number of military authorizations and the number of Family members.

Additionally, the DoD Education Activity recently awarded a school project on Fort Knox in the amount of $34 million (Fort Knox, 2014a), which may not come to fruition if a sufficient number of Soldiers and Family members are no longer on the installation. Additional adverse impacts to schools could occur if this school project does not occur.

Stationing changes, such as realignment away from Fort Knox and inactivation of the BCT, would also affect regional economic conditions through the loss of jobs and income within the region. Other infrastructure improvements and construction and development activity would benefit the regional economy through additional economic activity, jobs, and income in the ROI; however, these benefits would not offset the adverse impacts to socioeconomics under Alternative 1. Under Alternative 1, the loss of approximately 7,600 Soldiers, in conjunction with other reasonably foreseeable actions, would have significant impacts to employment, income, tax receipts, housing values, and schools in the ROI.

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4.15 Fort Leavenworth, Kansas

4.15.1 Introduction

Fort Leavenworth, Kansas, is located approximately 38 miles northwest of downtown Kansas City, Missouri, and 20 miles from Kansas City International Airport. Fort Leavenworth is located on the west bluff of the Missouri River just north of the town of Leavenworth, Kansas (Figure 4.15-1). Fort Leavenworth, established as a frontier outpost in 1827, provided protection to the northwest fur trade and developing trade with Santa Fe. Throughout the 20th century, officer education became the installation's primary mission and it is now the Army's center for advanced tactical education plus combat development and training. Fort Leavenworth's military mission also includes the confinement and rehabilitation of military criminals (U.S. Army, 2004).

Fort Leavenworth's 2013 baseline permanent party population was 5,004. In this SPEA, Alternative 1 assesses a potential population loss of 2,500, including approximately 1,789 permanent party Soldiers and 735 Army civilians.

Figure 4.15-1. Fort Leavenworth, Kansas

4.15.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Leavenworth; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.15-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.15-1. Fort Leavenworth Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Minor	Minor
Noise	Negligible	Beneficial
Soils	Minor	Beneficial
Biological Resources	Minor	Beneficial
Wetlands	Negligible	Beneficial
Water Resources	Minor	Beneficial
Facilities	No Impacts	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Minor	Beneficial
Land Use Conflict and Compatibility	Negligible	Negligible
Hazardous Materials and Hazardous Waste	Minor	Minor
Traffic and Transportation	Minor	Beneficial

4.15.3 Air Quality

4.15.3.1 Affected Environment

Fort Leavenworth is located in an area in attainment for all criteria pollutants (EPA, 2013). Fort Leavenworth currently has one Class II Air Emission Source Operating Permit issued by the state of Kansas. This permit was issued on February 15, 2002, and it is an open-ended permit that does not expire. Fort Leavenworth has not had any air quality violations and is in attainment for this permit (U.S. Army, 2008).

4.15.3.2 Environmental Effects

No Action Alternative

Continuation of existing levels of emissions under the No Action Alternative would result in minor, adverse impacts to air quality. Emissions would remain in compliance with existing permits.

Alternative 1—Implement Force Reductions

Impacts to air quality from the force reductions proposed under Alternative 1 would result in minor, long-term, and beneficial air quality impacts because of reduced demand for heating/hot water and reduced operation of mobile sources to and from the facility.

The relocation of personnel outside of the area because of force reductions could result in negligible, short-term effects on air quality associated with mobile sources. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with air quality regulations. Even if the full end-strength reductions were to be realized at Fort Leavenworth, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.15.4 Airspace

4.15.4.1 Affected Environment

Airspace at Fort Leavenworth is classified as Class B airspace ranging from 2,400 to 8,000 msl based on its proximity to Kansas City International Airport. No SUA or other restrictions exist at Fort Leavenworth. Sherman AAF on Fort Leavenworth was established in 1923 and is an approved joint use military airfield. In addition to military flight operations, Sherman AAF hosts the Fort Leavenworth Army Flying Activity, a Moral, Welfare, and Recreation flying club, as well as a civilian Fixed Base Operator, located approximately 1,500 feet south of the military facility (U.S. Army, 2008).

4.15.4.2 Environmental Effects

No Action Alternative

Fort Leavenworth would maintain existing airspace operations under the No Action Alternative. All current airspace restrictions are sufficient to meet current airspace requirements and no airspace conflicts are anticipated. There would be negligible impacts to airspace under the No Action Alternative.

Alternative 1—Implement Force Reductions

Airspace restrictions and classifications on and around Fort Leavenworth are sufficient to meet current airspace requirements and a force reduction would not alter the current airspace use. Force reductions would not be projected to require the establishment of an SUA and as a result negligible impacts to airspace would occur under Alternative 1.

4.15.5 Cultural Resources

4.15.5.1 Affected Environment

The affected environment for Fort Leavenworth is the installation footprint. The majority of Fort Leavenworth has been surveyed for archaeological resources. There are a total of 19 prehistoric

archaeological sites, 3 historic sites, and 157 historic building sites present within the installation. Historic building sites represent known or presumed locations of demolished 19th and 20th century structures within Fort Leavenworth. Quarry Creek is the largest prehistoric site present at the installation and has been dated to the Middle Woodland Period (1 A.D. to 750 A.D.). Historic archaeological sites include the Main Parade Ground, Santa Fe Trail Ruts, and Fort Sully—a large, earthen Civil War fortification constructed in 1864. The Quarry Creek site, Main Parade Ground and Santa Fe Trail Ruts are individually listed in the NRHP. Other archaeological sites are included in the Fort Leavenworth NHL District discussed below.

Fort Leavenworth is the oldest active army post west of the Mississippi (Fort Leavenworth, 2010). The Army has completed surveys of the entire installation to identify and evaluate architectural resources. These surveys have documented resources that date from 1832 to the 1940s (Fort Leavenworth, 2010). The Fort Leavenworth NHL District encompasses 213 acres and consists of 264 contributing elements: 237 buildings, 3 historic structures, 2 historic objects, and 22 archaeological sites. There are six resources located outside the NHL District that are individually eligible for listing in the NRHP.

Fourteen federally recognized Indian tribes are considered culturally affiliated with the resources present within the installation (Fort Leavenworth, 2010). Many of these tribes were relocated to the area after the establishment of Fort Leavenworth and are primarily interested in resources located off-installation (Fort Leavenworth, 2010). Consultation with these groups has not resulted in the identification of TCPs or sacred areas.

The ICRMP for Fort Leavenworth was completed in 2010. The document outlines the policies and procedures for managing cultural resources at the installation. In addition to this document, Fort Leavenworth has developed alternative procedures for compliance with Section 106, of the NHPA through a programmatic agreement with the Kansas SHPO (Fort Leavenworth, 2010).

4.15.5.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, cultural resources would continue to be managed in adherence with all applicable federal laws and the ICRMP. The cultural resource management staff at the installation would continue to consult with the SHPO and applicable tribes on the effects of undertakings that may affect cultural resources. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures. The effects of the No Action Alternative would be minor and would come from the continuation of undertakings that have the potential to affect archaeological and architectural resources (e.g., training, maintenance of historic buildings, and new construction).

Alternative 1—Implement Force Reductions

Alternative 1 would have a minor, adverse impact on cultural resources. The Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort Leavenworth, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from demolition activities are not analyzed. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of force reductions, the installation would comply with applicable laws, such as the NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects.

The effects of this alternative are considered to be similar to the No Action Alternative –future activities with the potential to effect cultural resources would continue to be monitored and the impacts reduced through preventative and minimization measures. This alternative could result in some beneficial effects as a decrease in training activities could reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources.

4.15.6 Noise

4.15.6.1 Affected Environment

The main sources of noise at Fort Leavenworth and within the surrounding area include vehicular traffic; normal operation for heating, ventilation, and air conditioning systems; lawn maintenance equipment; and general maintenance of streets and sidewalks (Kansas ARNG, 2013). Fort Leavenworth currently does not have any assigned military aircraft. A limited number of flights arrive and depart at Sherman AAF; most are small privately owned planes. Takeoffs and landings are conducted only during daylight hours. As such, aircraft are not a significant source of noise at Fort Leavenworth or in nearby communities. The only weapons firing ranges on Fort Leavenworth are Kinder Range, a small arms firing range, and Brunner Range, a trap and skeet recreation area. Noise from the ranges occurs sporadically during daylight hours. No artillery, explosives, or other weapons that generate loud noise or vibrations are used on Fort Leavenworth (USACE, 2009). The weapons firing ranges do not have adverse noise impacts to land uses on the installation or within the surrounding community because they are located in relatively isolated areas of the installation (U.S. Army, 2009).

Fort Leavenworth has established an ICUZ program, designed to monitor existing noise levels and protect the general public from noise impacts. Currently, monitoring has determined that

there are no significant noise levels present on the installation (U.S. Army, 2004). Due to the limited sources of noise at Fort Leavenworth, the installation is not required to have an Environmental Noise Management Plan (U.S. Army, 2009).

Sensitive land uses outside the installation include residential development, schools, and churches. These receptors are buffered in many places by densely wooded vegetation (Kansas ARNG, 2013). The area outside the northwest portion of the installation is a planned growth area for additional residential development by the city of Leavenworth. There is currently no conflict between Fort Leavenworth and its neighbors regarding noise on the installation (USACE, 2009).

4.15.6.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, existing force levels, operations, and activities at Fort Leavenworth would continue unchanged. Currently, none of the ongoing mission activities have potential to cause adverse impacts to noise-sensitive uses on the installation or in surrounding areas. Occasional aircraft activity and intermittent construction and maintenance projects would be the only sources of elevated noise levels, and these would occur on an infrequent and temporary basis. The No Action Alternative would therefore have negligible noise impacts.

Alternative 1—Implement Force Reductions

Under Alternative 1, existing force levels at Fort Leavenworth would be reduced and mission activities would be decreased. Noise levels, and related impacts to noise-sensitive uses on and surrounding the installation, would be reduced from those associated with the No Action Alternative. Alternative 1 would therefore have beneficial impacts to noise.

4.15.7 Soils

4.15.7.1 Affected Environment

Fort Leavenworth is located within the Dissected Till Plains section of the Central Lowland physiographic province. This region is characterized by rolling hills and fertile soils formed from glacial till and wind borne loess (USACE, 2009). A large portion of the region is underlain by shalestone. The eastern portion of the installation is within the 100 year floodplain of the Missouri River (FEMA, 2010).

The predominant upland soils on Fort Leavenworth are generally moderately deep to deep, flat to gently rolling, and moderately well drained to well drained. The slope is mostly under 2 percent; however, the western portion of the installation, west of the Missouri River floodplain, is dominated by soils on slopes up to 30 percent. The floodplain soils are generally deep, flat, with slopes less than 2 percent, and somewhat poorly drained. Floodplain soils are generally derived

from alluvial material; whereas, the upland soils are derived primarily from alluvial material and wind borne loess (NRCS, 2013).

The dominant soil map units on the installation, which include soils from the Gosport, Haynie, Knox, Ladoga, Marshall, and Onawa soil series, are moderately erodible due to their being comprised primarily of silt. Silty soils are easily detached and undergo high rates of runoff exposed to wind and water.

4.15.7.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, minor, adverse impacts to soil are anticipated at Fort Leavenworth. The installation would continue to conduct training activities which could have continuing adverse effects on the erodible silty soils. Fort Leavenworth would continue to incorporate BMPs to minimize soil erosion and reduce sedimentation into waters and wetlands (USACE, 2009).

Alternative 1—Implement Force Reductions

Under Alternative 1, beneficial impacts to soils are anticipated. Force reductions would likely result in decreased use of the training ranges which could have beneficial impacts to soils because there would be an anticipated decrease in soil compaction and vegetation loss. Over time, less sediment would discharge in to state and federal waters and wetlands.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Leavenworth, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory regulations.

4.15.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.15.8.1 Affected Environment

Vegetation

Vegetation on Fort Leavenworth is diverse and includes upland forest, bottomland forest, bluff ecosystem, grassland, and urban or maintained grounds. An oak-hickory forest associated with walnut (*Juglans* spp.), elm (*Ulmus* spp.), hackberry (*Celtis* spp.), ash (*Fraxinus* spp.), maple (*Acer* spp.), locust (*Robinia* spp.), and cherry (*Prunus* spp.) characterizes the upland forest. The

bottomland forest is cottonwood-sycamore with the associated species of boxelder (*Acer negundo*), willow (*Salix* spp.), pecan (*Carya illinoinensis*), hackberry, ash, and walnut. The bluff ecosystem is similar to the upland forest but with greater wildflower diversity. Grasslands range from native prairie grasses to planted non-native bromes and fescues. Some grasslands are interspersed with locust, cherry, and elm trees. Urban or maintained grounds within the cantonment area are planted with ornamental and shade trees, evergreens, shrubs, and groundcovers. Turf has been established and maintained around buildings (U.S. Army, 2008).

The state of Kansas classifies 13 plant species as being noxious in the state. The primary noxious plants on Fort Leavenworth are bull (*Cirsium vulgare*) and Canada (*Cirsium arvense*) thistles. These plants are treated with herbicide on an as-needed basis. Field bindweed (*Convolvulus arvensis*), which grows along roadsides, is also occasionally sprayed. Most weed spraying is in response to complaints or when the weed has become a problem (U.S. Army, 2008).

Wildlife

Fort Leavenworth supports many species of mammals, birds, amphibians, reptiles, and fish, which reside, breed, or visit in the less active, less disturbed, areas of the installation. These species include quail (*Odontophoridae*), wild turkey (*Meleagris gallopavo*), white-tailed deer, and a variety of non-game species. Fish species found in aquatic areas of the installation include channel catfish, bluegill, black bass (*Micropterus* spp.) and several non-game fish species. When funding is available, trout are stocked in Merritt and Smith Lakes to enhance the fishery (U.S. Army, 2008).

Threatened and Endangered Species

The USFWS list of federally threatened or endangered for Leavenworth County includes six species, not including the recently de-listed bald eagle: American burying beetle (*Necrophorus americanus*), Eskimo curlew (*Numenius borealis*), least tern (*Sterna antillarum*), pallid sturgeon (*Scaphirhynchus albus*), piping plover (*Charadrius melodus*), western prairie fringed orchid (*Platanthera praeclara*), and two federal candidate species: sicklefin chub (*Macrhybopsis meeki*) and sturgeon chub (*Macrhybopsis gelida*) (USACE, 2006). These species have not been identified as being present on this installation (USACE, 2006).

There are 18 species that have a designated state status and occur within Leavenworth County (U.S. Army, 2008; USACE, 2006), but have not been identified as being present on Fort Leavenworth (USACE, 2006). The Fort has developed an ESMP for one state-listed species, the non-federally listed bald eagle, which is in accordance with Army Regulation 200-3 Natural Resources-Land, Forest and Wildlife Management, and is part of the INRMP (USACE, 2006).

4.15.8.2 Environmental Effects

No Action Alternative

Fort Leavenworth does not have any federal- or state-listed species or habitats, high quality natural areas, sensitive sites, or sensitive plant species (Fort Leavenworth, 2014; Midwestern Joint Regional Correction Facility Support Elements, 2008; USACE, 2006). Therefore, the implementation of the No Action Alternative would result in minor impacts to biological resources, and the affected environment would remain in its current state. There would not be any significant effects, because Fort Leavenworth would continue to abide by federal and state regulations governing the management of biological resources.

Alternative 1—Implement Force Reductions

Implementing force reductions under Alternative 1 would result in beneficial impacts to biological resources and habitat within Fort Leavenworth. With a reduced operational tempo because of the reduction in force, habitat would have more time to recover between events that create disturbances. Additionally, conservation management practices would be easier to accomplish with a reduction in mission throughput. While no federal or state-listed species are known to occur on this installation, Fort Leavenworth would continue to conserve other sensitive animal and plant species.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Leavenworth, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.15.9 Wetlands

4.15.9.1 Affected Environment

A review of NWI maps identified approximately 1,696 acres of palustrine, freshwater pond, and riverine wetlands within the Fort Leavenworth installation (USFWS, 2010). NWI mapping is an educated delineation based upon interpreting USGS topographic data, the USGS National Hydrography Dataset, NRCS soil data, and aerial imagery. No formal wetland delineation of the installation was performed.

The majority of the wetlands identified through NWI were palustrine forested wetlands; however, palustrine scrub-shrub, palustrine emergent, palustrine open water, and riverine wetlands were also identified (USFWS, 2010). Of the approximately 1,696 acres of wetlands on Fort Leavenworth, approximately 1,600 acres are located within the floodplain of the Missouri River in the northeastern portion of the installation where very little base activity currently occurs. Artificial levees are located in the southwestern portion of the floodplain to protect

Sherman Airfield. East of the levees, wetlands are dominated by floodplain forests (USACE, 2006). Table 4.15-2 identifies the acres of each wetland type on Fort Leavenworth.

Table 4.15-2. Acres of Wetland Types on Fort Leavenworth

Wetland Type	Acres
Palustrine forested	1,402
Palustrine scrub-shrub	221
Palustrine emergent	39
Palustrine open water	28
Riverine intermittent	6
Total acres	1,696

Source: USFWS (2010)

4.15.9.2 Environmental Effects

No Action Alternative

Negligible, adverse impacts are anticipated under the No Action Alternative on Fort Leavenworth. Impacts to wetlands from any current projects under construction would have already been assessed and, if required, been properly permitted and mitigated. Activities that occur in range areas would continue at current schedules; however, because these activities occur far from any NWI delineated wetlands, their continuing impacts to wetlands would be negligible. Current management of recreational facilities, such as golf courses, would also continue under the No Action Alternative which could contribute to pollutants entering adjacent wetlands and ponds.

Alternative 1—Implement Force Reductions

Beneficial impacts to wetlands as a result of the implementation of Alternative 1 are anticipated. A force reduction at Fort Leavenworth would mean that ranges would be less used than under the current schedule. Soil would be less disturbed from base activities and training exercises which would further minimize the potential for sediment to run off into wetlands. Wetlands that are currently degraded would have time to regenerate, and their functions and values would begin to restore.

Adverse impacts to wetlands could conceivably occur if force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Leavenworth the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met.

4.15.10 Water Resources

4.15.10.1 Affected Environment

Surface Water/Watersheds

Fort Leavenworth is located within the Missouri River watershed and this waterbody forms the northern and eastern boundaries of the installation. Surface waters present include numerous intermittent streams, three small man-made lakes, and several unnamed ponds (USACE, 2009). Combined acreage of these surface waters is approximately 12 acres (USACE, 2009). The largest of the streams are Corral Creek and Quarry Creek. Corral Creek flows across the southern portion of the installation to the Missouri River. Quarry Creek begins in the central portion of the installation and drains towards the northeast. Smith Lake and Merritt Lake are located in the southeast portion of Fort Leavenworth.

Both Merritt and Smith lakes are on the *2014 Kansas Draft 303(d) List of Impaired Waters* for impairment of aquatic life use due to eutrophication (Kansas DHE, 2014). However, none of the surface waters are listed as impaired. At this time, Fort Leavenworth does not have any state or federal discharge permits (Fort Leavenworth, 2014).

Groundwater

The Missouri River alluvial aquifer contains large amounts of groundwater within the Fort Leavenworth vicinity (USACE, 2009). Alluvial groundwater is also associated with some of the tributaries of the Missouri River, however. these supplies are limited and restricted due to clay layers (U.S. Army, 2004, 2008). In the aquifer, the formations providing water are on average at 40 feet below the surface (U.S. Army, 2008). The alluvial aquifer is recharged through precipitation and the flow from the adjacent Missouri River (Kelly, 2004). Fort Leavenworth operates five wells within the Missouri River floodplain in the northeast portion of the installation to supply potable water (Kelly, 2004). Groundwater contamination in the form of trace metals and organic compounds was detected at three sites within in the same floodplain that supports the installation well field (Kelly, 2004).

Water Supply

American Water Enterprises, Inc. operates and maintains the water collection, distribution, and treatment systems (USACE, 2009). Fort Leavenworth uses groundwater drawn from the alluvial aquifer associated with the Missouri River and its tributaries as its potable water source (Kelly, 2004; U.S. Army, 2004). As of 2003, approximately 1.5 mgd of raw water (Kelly, 2004) is drawn from five wells in the Fort Leavenworth well field inside the levee protected area of the installation (U.S. Army, 2008). The water treatment plant on the installation treats the water using lime, soda ash, CO_2, and fluoride followed by filtration and chlorination (U.S. Army, 2008). The treatment plant has a 5-mgd capacity (CAC, 1992, as cited by U.S. Army, 2004). The Fort Leavenworth water supply system is supported by a pumping station and three storage tanks

with a combined capacity of 2,300,000 gallons, and cast iron mains (U.S. Army, 2008; USACE, 2009).

Wastewater

Sewage at Fort Leavenworth is collected by a sanitary sewer system owned and operated by American Water Enterprises, Inc. Underground 30-inch sanitary sewer lines and nine lift/pump stations collect and transport wastewater to the city of Leavenworth treatment plant located off the installation (U.S. Army, 2008; USACE, 2009). The treatment plant is designed to treat an average daily flow of 6.88 mgd and, according to the city it averages over 90 percent removal of pollutants (U.S. DOJ, 2011). Final treated wastewater is discharged to the Missouri River. In areas of suitable topography such as the cantonment and housing areas gravity flow sewers move the wastewater; however in other locations lift stations and force mains are necessary for distribution (U.S. Army, 2004).

Stormwater

Stormwater collection infrastructure for developed areas includes underground drainage pipes, grates, and gutters (USACE, 2009). In less developed areas and upland areas runoff flows to open drainages and ditches, or buried pipes where necessary (U.S. Army, 2004; USACE, 2009). Many of the intermittent unnamed streams on the installation property act as natural stormwater drainages funnels runoff to ponds or Corral or Quarry creeks (U.S. Army, 2008). The physical collection system includes approximately 152,000 linear feet of vitrified clay, polyvinyl chloride, and cast iron pipes with diameters ranging from 3 to 30 inches (USACE, 2009). Within the cantonment and housing areas in the south-central portion of the installation, stormwater moves by gravity through pipes to surface outlets at the Missouri River (USACE, 2009). Stormwater runoff from construction activity disturbing a land area equal to or greater than 1 acre requires an NPDES permit (U.S. Army, 2008). At this time, Fort Leavenworth does not have any state or federal discharge permits (Fort Leavenworth, 2014).

Floodplains

E.O. 11988, *Floodplain Management*, requires federal agencies to avoid floodplain development and any adverse impacts from the use or modification of floodplains when there is a feasible alternative. Specifically, Section 1 of E.O. 11988 states that an agency is required to “reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities.” The 100-year floodplain indicates areas where the flood has a 1 percent chance of being equaled or exceeded in any year. The area encompassed within the bend of the Missouri River, in the northeastern portion of the installation, is within the 100-year floodplain and these bottomlands occasionally flood (U.S. Army, 2008; USACE, 2009). A levee designed for the 25-year flood surrounds and protects Sherman AAF located in this area (USACE, 2009).

4.15.10.2 Environmental Effects

No Action Alternative

Minor, adverse impacts to water resources would continue under the No Action Alternative. Limited outdoor training would continue to occur at Fort Leavenworth ranges and facilities as would potential disturbance to and sedimentation of surface water resources. The installation would continue to strive to meet federal and state water quality criteria, drinking water standards, and floodplain management requirements. Stormwater management would continue as would adherence to state stormwater requirements and BMPs. Current water resources management and compliance activities would continue to occur under this alternative.

Alternative 1—Implement Force Reductions

Beneficial impacts to water resources are anticipated as a result of implementing Alternative 1. Water resources conditions would remain at current levels under Alternative 1. A force reduction would result in fewer training exercises thereby decreasing the potential for surface water disturbance and sedimentation. The decrease in personnel would reduce potable water demand and wastewater treatment allowing additional capacity for other users. Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Fort Leavenworth, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented. Force reduction at Fort Leavenworth is not anticipated to cause violations of federal and state water quality regulations and discharge permits.

4.15.11 Facilities

4.15.11.1 Affected Environment

Fort Leavenworth occupies 5,634 acres. Of this area, approximately 2,400 acres include the cantonment area. Fort Leavenworth's mission of leadership, training, and correctional supervision is supported by administrative facilities, educational facilities, conference center, Sherman AAF, National Guard 35th ID Headquarters, and the U.S. Disciplinary Barracks. Additional support facilities at Fort Leavenworth include Family housing, health care, commissary, post exchange, child care, schools, restaurants, recreational facilities, and parks and open spaces (USACE, 2009).

4.15.11.2 Environmental Effects

No Action Alternative

No impacts are anticipated under the No Action Alternative. Fort Leavenworth would continue to use its existing facilities to support its tenants and missions.

Alternative 1—Implement Force Reductions

Minor impacts to facilities are anticipated as a result of implementation of force reductions under Alternative 1. Force reductions associated with Alternative 1 would reduce requirements for facilities and affect space utilization across the installation. Construction or major expansion projects that had been programmed in the future may not occur or could be downscoped. Occupants of older, underutilized, or excess facilities may be moved to newer facilities; in some cases this could require modification of existing facilities. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.15.12 Socioeconomics

4.15.12.1 Affected Environment

Fort Leavenworth is located in Leavenworth County, Kansas. The ROI includes counties that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, and contractor personnel and their Families reside. The ROI consists of Fort Leavenworth and Leavenworth County in Kansas. This section provides a summary of demographic and economic characteristics within the ROI.

Population and Demographics

Using 2013 as a baseline, Fort Leavenworth has a total working population of 10,222, consisting of active component Soldiers and Army civilians, students and trainees, other military services, civilians and contractors. Of the total working population, 5,004 were permanent party Soldiers and Army civilians. The population that lives on Fort Leavenworth consists of 7,256 Soldiers (including students), 20 civilians and their 5,815 Family members, for a total on-installation resident population of 13,091. The population of residents on Fort Leavenworth includes many students on permanent change of station (PCS) orders due to the length of their curriculum. Many PCS students would be accompanied by Family members. An estimate of the total population potentially affected by the assessed force reductions is 2,524 personnel with 1,408 spouses, and 2,423 children for a total of 6,355. The proportion of the residential population of Fort Leavenworth that are PCS students versus permanent party is not known; therefore, determining an estimate of the population living off the installation is not possible.

Fort Leavenworth is home to the Combined Arms Center and provides Combined Arms training and leadership education for Soldiers and Army civilians. Fort Leavenworth averages approximately 2,400 students assigned for training and can accommodate certain percentage in housing on the installation. Any remaining students would be accommodated in local lodging facilities or rental units.

In 2012, the ROI had a total population of 77,710, approximately a 2 percent increase from 2010. The population in the ROI is presented in Table 4.15-3, and the 2012 racial and ethnic composition of the ROI is presented in Table 4.15-4 (U.S. Census Bureau, 2012a).

Table 4.15-3. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Leavenworth County, Kansas	77,710	+1.9

Table 4.15-4. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of Kansas	87.2	6.2	1.2	2.6	2.7	11.0	77.5
Leavenworth County, Kansas	85.2	9.5	0.9	1.3	2.9	6.4	79.7

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Income

In 2012, the total employed labor force in the ROI was 34,087 (U.S. Census, 2012b). Between 2000 and 2012, total employed labor force (including Soldiers and Army civilians) increased in both the state of Kansas and Leavenworth County (Table 4.15-5) (U.S. Census, 2000 and 2012b). Employment, median home value, household income, and poverty levels are presented in Table 4.15-5.

Table 4.15-5. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000-2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Kansas	1,395,634	+6.0	127,400	51,273	8.9
Leavenworth County, Kansas	34,087	+7.8	166,600	62,035	7.1

Information regarding the workforce by industry for each county within the ROI was obtained from the U.S. Census Bureau. Information presented below is for the employed labor force.

Leavenworth County

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of total workforce in Leavenworth County (22 percent). Retail trade is the second largest employment sector (11 percent), followed by public administration (11 percent). The Armed Forces account for 4 percent of the county's workforce. The 10 remaining industries employ 56 percent of the workforce.

Major employers in Leavenworth County include Fort Leavenworth, Leavenworth Public Schools USD #453, and VA Eastern Kansas Health Care (Leavenworth County, 2011).

Housing

According to the Kansas ARNG (2013), in 2009, the Public Affairs Office indicated that 1,583 Family housing units for permanent military personnel are provided by Fort Leavenworth. In addition to the residency on the installation, 716 military personnel and approximately 1,440 Family members occupy housing off the installation (Kansas ARNG, 2013). Approximately half of the off-installation military personnel are estimated to own their own homes, most of them residing in the cities of Leavenworth and Lansing (Kansas ARNG, 2013). Fort Leavenworth created a partnership between the Military and Michaels Military Housing, to form the Frontier Heritage Communities to privatize housing (Frontier Heritage Communities, 2014).

Schools

Fort Leavenworth has its own school district known as Unified School District 207, although it is not a DoD Dependent School. Students who reside on Fort Leavenworth are eligible to attend the district schools. There are three elementary schools on the installation: Eisenhower, MacArthur, and Bradley. Patton Junior High School is also located on Fort Leavenworth. High school students must attend school off the installation. Total enrollment for the 2006-2007 school year was 1,712 students (Fort Leavenworth FMWR, 2014). If students live off the installation, there are many public schools within the surrounding neighborhoods. In total, there are 11 unified school districts within Leavenworth County (Kansas ARNG, 2013). Several colleges and universities are also located in Leavenworth County.

The Fort Leavenworth Education Center on the installation provides a full range of adult, continuing education programs that include college-prep, Associate's, Bachelor's, and Master's degree programs. These education programs on the installation are provided by Central Michigan University; Kansas City, Kansas, Community College; Kansas State University; Upper Iowa University; and Webster University (USACE, 2006).

Public Health and Safety

Police Services

General law enforcement on Fort Leavenworth is the responsibility of the Provost Marshal using U.S. Army Police and 500th MP Detachment. Under the Uniform Code of Military Justice, military authorities have off-installation jurisdiction over offenses committed by military personnel. The military law enforcement authorities coordinate their off-installation activities with local law enforcement authorities on a case by case basis.

Fire and Emergency Services

Fire protection and emergency services are provided on Fort Leavenworth by the DES. The fire department provides all fire protection services on the installation with two fire stations currently in use: Station #1 at 750 McClellan Avenue; and Station #2 at 295 Biddle Avenue (USACE, 2006).

Medical Facilities

Health care at Fort Leavenworth is provided by the Munson Army Health Center and the Thomas L. Smith Dental Clinic. The main medical facility is the Munson Army Health Center, which provides a Family Medicine Department, Allergy and Immunizations Clinic, Army Wellness Center, optometry, pharmacy services, physical therapy, Nutrition Care Clinic, orthopedics services, radiology, and Medical Management Division (U.S. Army Medical Department, 2014).

Family Support Services

Fort Leavenworth provides its military community and Family members with services, including Army Family Covenant for Families, child development center programs, family child care, Parent Central Services, Parent Involvement, School Age Center, School Support Services, youth center, and youth sports and fitness (Fort Leavenworth FMWR, 2014).

Recreation Facilities

Fort Leavenworth provides its military community, families, and civilians with aquatics programs and pools, an arts and crafts center, an auto craft center, Fort Leavenworth Hunt, a golf course, the Harney Sports Complex, outdoor recreation equipment rental, rod and gun, stables and horses, the Strike Zone Bowling Center, Victory Gardens, and a community entertainment center (Fort Leavenworth FMWR, 2014).

4.15.12.2 Environmental Effects

No Action Alternative

The operations at Fort Leavenworth would continue to benefit regional economic activity. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of 2,524[20] Army positions (1,789 Soldiers and 735 Army civilians), each with an average annual income of $46,760 and $63,875, respectively. In addition, this alternative would affect an estimated 3,831 Family members (1,408 spouses and 2,423 dependent children). The total number of Army employees and their Family members directly affected under Alternative 1 is projected to be 6,355.

In accordance with the EIFS analysis a significant impact is defined as a situation when the forecast economic impact value falls outside the historical positive or negative ranges. Table 4.15-6 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis changes in sales, income, employment and population in the ROI under Alternative 1 fall outside the historical range and are categorized as a significant impact.

Table 4.15-6. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	7.8	7.8	4.8	2.3
Economic contraction significance value	-6.1	-2.9	-5.2	-2.4
Forecast value	-6.7	-5.8	-12.0	-6.1

[20] This number was derived by assuming the loss of 70 percent of Fort Leavenworth's Soldiers and 30 percent of the Army civilians.

Table 4.15-7 shows the predicted impacts to income, employment, and population of the reductions against the 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

Table 4.15-7. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$154,235,700	-2,900 (Direct)	-6,355
		-312 (Induced)	
		-3,213 (Total)	
Total 2012 ROI economic estimates	$2,874,672,000	34,087	77,710
Percent reduction of 2012 figures	-5.4	-9.4	-8.1

Note: Sales estimates are not consistently available from public sources for all counties in the United States; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from EIFS is described in the paragraphs below.

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 2,524 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 376 direct contract service jobs would also be lost. An additional 312 induced jobs would be lost due to the reduction in demand for goods and services within the ROI. The total reduction in employment is estimated to be 3,213, a 9.4 percent reduction of the total employed labor force in the ROI of 34,087. Income is estimated to reduce by $154.2 million, a 5.4 percent decrease in income in 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $145 million. Sales tax receipts to local and state governments would also decrease. The average state and local sales tax rate for Kansas is 8.2 percent (Tax Foundation, 2014). To estimate sales tax reductions, information was utilized on the proportion of sales that would be subject to sales taxes on average across the county. According to the U.S. Economic Census, an estimated 16 percent of sales taxes would be subject to sales tax (U.S. Economic Census, 2012). Therefore, with an estimated reduction of $144.9 million in sales, would result in a decrease in sales tax receipts of $1.9 million.

Of the approximately 77,710 people (including those residing on Fort Leavenworth) who live within the ROI, 6,355 Army employees and their Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 8.2 percent. This number likely overstates potential population impacts because some of the people

no longer employed by the Army would continue to live and work within the ROI, finding employment in other industry sectors.

Additionally, students, trainees, and their Families at Fort Leavenworth may have a substantial impact on the local economy through lodging, eating, and shopping expenditures. Additionally, formal graduation ceremonies generate demand for lodging and dining facilities when Family members attend. The impact to Fort Leavenworth's training missions cannot be determined until after the Army completes its force structure decisions; therefore, analyzing the impact to those missions is beyond the scope of this document.

Housing

The population reduction that would result under Alternative 1 would decrease demand and increase housing availability on the installation and in the region, potentially leading to a reduction in median home values. With an expected decrease in population within the ROI of 8.2 percent along with the considerable number of Army personnel and Families living off the installation, housing impacts under Alternative 1 would be adverse and could range from minor to significant.

Schools

Under Alternative 1, the reduction of 2,524 Army personnel would decrease the number of children by 2,423 in the ROI. It is anticipated that school districts that provide education to Army children on the installation would be impacted by this action. The schools on Fort Leavenworth, with current enrollment of 1,712 students, as well as the 11 unified schools districts in Leavenworth County would be most affected under Alternative 1. If enrollment in individual schools is significantly impacted, schools may need to reduce the number of teachers, administrators, and other staff, and potentially close or consolidate with other schools within the same school district should enrollment fall below sustainable levels.

The reduction of Soldiers on Fort Leavenworth would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal Impact Aid a district receives is based on the number of students who are considered “federally connected” and attend district schools. Actual projected dollar amounts cannot be determined at this time due to the variability of appropriated dollars from year to year, and the uncertainty of the actual number of affected school-age children for Army and civilian Families. School districts in the ROI would likely need fewer teachers and materials as enrollment drops, which would offset the reduced Federal Impact Aid. Overall, adverse impacts to schools associated with Alternative 1 would be minor to significant depending on the number of military-connected students attending school.

Public Services

The demand for law enforcement, medical care providers, and fire and emergency service providers on the installation may decrease if Army Soldiers, Army civilians, and their Family

members, affected under Alternative 1 move out of the ROI. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements. Overall, minor impacts to public health and safety would occur under Alternative 1. The impacts to public services are not expected to be significant because the existing service level for the installation and the ROI would still be available.

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. Overall, minor impacts to Family Support Services and recreation facilities would occur under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, states: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). In general, Alternative 1 would not have a disproportionate adverse impact to minorities, economically disadvantaged populations or children in the ROI. Job losses would be experienced across all income levels and economic sectors and spread geographically throughout the ROI. As shown in Table 4.15.-4, minority populations in Leavenworth County are proportionally smaller than in the state as a whole, so there would be no disproportionate effect to environmental justice populations.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of the people associated with the installation, including children. Therefore, it is not anticipated that implementing Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.15.13 Energy Demand and Generation

4.15.13.1 Affected Environment

Fort Leavenworth's energy needs are currently met by a combination of electric power and natural gas. During the past decade, Congress has enacted major energy bills and the President has issued Executive Orders that direct federal agencies to address energy efficiency and environmental sustainability. The federal requirements for energy conservation that are most relevant to Fort Leavenworth include the Energy Policy Act of 2005, E.O. 13423 *Strengthening Federal Environmental, Energy, and Transportation Management*, issued January 2007, Energy Independence and Security Act of 2007, and E.O. 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, issued October 2009. Fort Leavenworth is responsible for complying with these requirements.

Electricity

Kansas Power and Light Inc. supplies electricity to Fort Leavenworth. Electric facilities are currently owned and operated by the Leavenworth/Jefferson Cooperative. Three substations and 15 distribution feeders supply the primary voltage to the installation via above-ground and underground facilities. The larger portions of the Family housing areas and schools on Fort Leavenworth have underground electrical feeder lines. Feeders in and around the airfield and ranges are also underground. Underground facilities are a combination of direct-buried facilities, duct and manhole construction, and cable in conduits (USACE, 2009).

Natural Gas

Seminole Energy is the primary provider of natural gas at Fort Leavenworth. Seminole Energy provides gas via the Southern Star pipeline. All buildings in the cantonment area are heated with natural gas and outlying areas on the installation are heated with propane (USACE, 2009).

4.15.13.2 Environmental Effects

No Action Alternative

Minor, adverse impacts are anticipated on energy demand and generation. The continued use of outdated, energy-inefficient facilities could hinder Fort Leavenworth's requirement to reduce energy consumption. Some older facilities may require renovations to improve energy efficiency to achieve federal mandate requirements.

Alternative 1—Implement Force Reductions

Minor, beneficial impacts to energy demand are anticipated because force reductions would reduce the installation's overall demand for energy. The installation would also be better positioned to meet energy and sustainability goals. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not

reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on energy demand are not analyzed.

4.15.14 Land Use Conflicts and Compatibility

4.15.14.1 Affected Environment

Regional Location and Background

Fort Leavenworth, Kansas is located approximately 38 miles northwest of downtown Kansas City, Missouri, and 20 miles from Kansas City International Airport. Fort Leavenworth is located on the west bluff of the Missouri River just north of the town of Leavenworth, Kansas. Established as a frontier outpost in 1827, the installation provided protection to the northwest fur trade and developing trade with Santa Fe. Throughout the 20th century, officer education became the installation's primary mission and it is now the location of the Army's center for advanced tactical education plus combat development and training (U.S. Army, 2004).

There are two important military missions that have assured Fort Leavenworth's unique position in the Nation's military history: the confinement and rehabilitation of military criminals at U.S. Army's central military prison and the post-graduate officer training program. These missions were rooted in the latter half of the 19th century; however, they have continued through the 20th century and into the 21st (U.S. Army, 2009).

Land Use at Fort Leavenworth

Fort Leavenworth occupies approximately 5,634 acres, roughly 2,408 acres of which comprise the garrison area. Approximate boundaries of the garrison are the installation boundary to the south, Sherman Avenue to the east, Hancock and Biddle streets to the west, and Sylvan Trail to the north. Land uses within the garrison area are primarily administrative, residential, and installation support functions that facilitate the military mission. Approximately 213 acres within the garrison are within an NHL District. Also within the garrison, but outside the NHL District, is the Fort Leavenworth National Cemetery, managed by the Veterans Administration (USACE, 2009).

Outside the garrison, land use is primarily open space used for limited training and recreation. Approximately 3,480 acres on Fort Leavenworth are unimproved lands covered by forest, water (ponds, lakes, streams), and grassland; 257 acres are open fields; and approximately 1,400 acres improved grounds, including lawns, playgrounds, parks, athletic fields, the golf course, and similar open spaces (USACE, 2009).

Land use on the installation is segregated into five zones. The Administrative Zone includes administrative, educational, and headquarters facilities and the U.S. Disciplinary Barracks. The Community Zone contains service and support facilities related to staff and Family health and personal needs, including schools, recreational facilities, and Munson Army Health Center. The

Housing Zone consists of large residential neighborhoods in the southwest corner of the installation, neighborhoods interspersed throughout the historic areas, and associated parks and community areas. The Light Industrial Zone contains storage, maintenance, shop, warehouse facilities and the water treatment plant. The Open Space Zone is comprised of all areas outside the other four zones, and is primarily undeveloped or used for low-impact activities (USACE, 2009).

Surrounding Land Use

Land uses surrounding Fort Leavenworth largely consist of residential, agricultural, and municipal uses along with undeveloped forested and open space (USACE, 2006; USACE, 2009). The area outside the northwest portion of the installation is a planned growth area for additional residential development by the city of Leavenworth (USACE, 2009). The Leavenworth County land use plan's Future Land Use Map indicates that lands located west and southwest of Fort Leavenworth are also future growth areas for low-density residential development (Leavenworth County, 2013). Future land use and development in the area surrounding Fort Leavenworth is anticipated to include continued construction of residential, commercial, and industrial facilities, and conversion of farmland to developed uses (USACE, 2009). Existing and planned land uses surrounding Fort Leavenworth are not in conflict with ongoing mission activities and related land uses on the installation.

4.15.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, existing force levels and current U.S. Army mission activities at Fort Leavenworth would continue unchanged. Land uses and their respective distribution throughout the installation would remain identical to existing conditions. Surrounding development outside the installation is expected to grow in intensity over time, but land uses would remain similar in character to those currently present. The potential for land use conflicts or incompatibilities is not expected to change from current conditions; therefore, the No Action Alternative would have no effect on land use, either within or outside the installation.

Alternative 1—Implement Force Reductions

Alternative 1 would involve the implementation of force reductions and would entail a decrease in current U.S. Army mission activities at Fort Leavenworth. Land use conditions both within and outside the installation would be similar to those described under the No Action Alternative. Force reductions could result in decreased overall population growth regionally, and may have a negligible impact to development demand in planned growth areas adjacent to the installation. The potential for land use conflicts or incompatibilities is not expected to change from current conditions; therefore, Alternative 1 would have a negligible impact on land use.

4.15.15 Hazardous Materials and Hazardous Waste

4.15.15.1 Affected Environment

Fort Leavenworth activities that use hazardous materials are conducted in accordance with applicable federal and state regulations and the Fort Leavenworth, DPW Environmental Division's procedures that provide oversight and guidance to individual units that require hazardous material (U.S. Army, 2008). Several programs to minimize and prevent damage to the environment from the use of hazardous materials are implemented at Fort Leavenworth. These programs include the Fort Leavenworth SPCC Plan, the HWMP, and the Pollution Prevention Plan (Kansas ARNG, 2013).

Vehicle operations and maintenance are currently performed by the Logistics Resource Center/DPW vehicle maintenance activity on the installation. Hazardous materials used in transportation vehicle and tactical equipment maintenance include oils, greases, solvents, gasoline, diesel, lead-acid batteries, antifreeze, and refrigerants (U.S. Army, 2008).

Hazardous Waste Treatment, Storage, and Disposal

Typical hazardous wastes at the installation include oily rags, contaminated fuels, greases, aerosol cans, and any solvents that cannot be recycled. The installation HWMP requires that hazardous waste is managed and handled by personnel who are properly trained in hazardous waste handling. The installation program establishes procedures and policies, and assigns responsibilities associated with the generation, handling, management, and disposal of hazardous waste at Fort Leavenworth. The policies and procedures outlined in the plan comply with RCRA; the Kansas Hazardous Waste Generators Program; and other applicable federal, state and local regulations. The DPW Environmental Division provides initial and annual refresher training to representatives of various units operating at Fort Leavenworth that generate hazardous wastes. The training includes specific instruction on the proper procedures for identification, handling, transport, and turn-in of hazardous wastes (U.S. Army, 2008).

Fort Leavenworth is monitored by the Kansas Department of Health and Environment under the authority of the Kansas Hazardous Waste Generators Program and RCRA. Fort Leavenworth has developed recycling/minimization efforts to reduce the quantity of waste generated. Lead-acid batteries, fluorescent lamps, and high-intensity light bulbs are recycled (U.S. Army, 2008).

Hazardous Waste Investigation and Remediation Sites

There are multiple waste disposal/landfill areas on the Fort Leavenworth property, and environmental investigations have been conducted at these sites (Louis Berger, 2011). The IRP tracks 74 sites on Fort Leavenworth. These sites include old landfills, contaminated sites, contaminated buildings, incinerators, and other activities that have or had the potential to have significant impacts to the environment. Former industrial and agricultural activities at Fort Leavenworth generated wastes that were stored, treated, or disposed of at the installation

according to standard practices at that time. Disposal site contaminants include heavy metals, sewage, chlorinated solvents, mineral spirits, petroleum hydrocarbons, and pesticides. Investigation and remediation of these sites is conducted in accordance with the Fort Leavenworth IRP.

Fort Leavenworth implements an Army Defense Environmental Restoration Program IAP that identifies environmental cleanup requirements at each site or area of concern, and proposes a comprehensive, installation-wide approach to investigations and remedial actions. The installation is currently investigating 14 sites, remediating 1 site, and conducting long-term monitoring on 13 sites. Remedial activities include removal of contaminated waste, sludge, or soil; capping; containment; in-situ treatment of soil; and natural attenuation. None of the sites is on the NPL (USACE, 2009).

Other Hazards

An Environmental Baseline Survey was prepared in October 2008 by the U.S. Army Center for Health Promotion and Preventive Medicine (Kansas ARNG, 2013). Additionally, there was no evidence of PCB-containing equipment or transformers, radiological materials, asbestos-containing materials, LBP, or munitions or explosives of concern. Fort Leavenworth is located in an area with elevated background radon levels.

4.15.15.2 Environmental Effects

No Action Alternative

Minor, adverse impacts are anticipated under the No Action Alternative because of the continued use and generation of hazardous materials and wastes on Fort Leavenworth. The existing types and quantities of hazardous wastes generated on the installation have been accommodated by the existing hazardous waste management system, and all materials and waste would continue to be handled in accordance with all applicable laws, regulations, and plans minimizing potential impacts.

Alternative 1—Implement Force Reductions

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Fort Leavenworth, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

With the force reductions, less hazardous waste could be generated. Because of the reduced numbers of people, the potential for spills would be somewhat reduced during training and maintenance activities.

Hazardous materials and wastes would continue to be handled per BMPs that are implemented in compliance with appropriate regulations and as per Fort Leavenworth's hazardous material and waste programs; therefore, minor, adverse impacts are anticipated.

As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.15.16 Traffic and Transportation

4.15.16.1 Affected Environment

Fort Leavenworth is located west of I-29 and north of I-70; both provide high-speed road access to nearby Kansas City. U.S. Highway 73 and Kansas 92 provide local access and link Fort Leavenworth with I-29 and the Kansas City International Airport. Kansas Highway 7 is another important link to I-70 (USACE, 2009). Kansas 5, U.S. Highway 24-40, Missouri 45 and Kansas 192 also provide access (U.S. Army, 2008).

Public air transportation is provided primarily by the Kansas City International Airport, located 18 miles southeast of the installation. The region is also served by several civil airports, including Kansas City Municipal Airport, Johnson County Executive Airport, Charles B. Wheeler Downtown Airport, and Clay County Regional Airport (USACE, 2009).

Sherman AAF on Fort Leavenworth is an approved joint-use military airfield, used both by the Army for military activities and by the city of Leavenworth for civilian flights. No commercial airline operates at the airfield (USACE, 2009).

There are no passenger railways serving Fort Leavenworth; Amtrak passenger rail service is currently available through Kansas City's Union Station. The Union-Pacific Railroad crossing the installation provides freight service. There are no public bus services at Fort Leavenworth (USACE, 2009).

There are two primary entrances to the installation. The Main Gate (Gate 1) is located at the intersection of U.S. Highway 73 (Metropolitan Street) and Grant Avenue/Seventh Street. The second main entrance (the West Gate or Gate 2), is located at the intersection of County Road 14 and Hancock Avenue. A third gate, Sherman Avenue Gate, allows one-way traffic into and out of the cantonment during peak traffic hours (USACE, 2009; U.S. Army, 2008).

Grant Avenue is the most convenient access point for vehicular traffic; 80 percent of incoming and outgoing traffic passes through the Main Gate. Grant Avenue is a four-lane road that runs north-south and connects the Main Gate to the north end of the garrison. Bottlenecks and congestion are common along Grant Avenue (USACE, 2009; U.S. Army, 2008).

There are 51 miles of improved roads on Fort Leavenworth, primarily within the installation area. Remote portions of the installation are served by dirt or gravel roads (U.S. Army, 2008).

4.15.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, current levels of traffic and associated congestion would continue at Fort Leavenworth, particularly along Grant Avenue on the installation. There would continue to be a minor, adverse impact to transportation.

Alternative 1—Implement Force Reductions

Under Alternative 1, implementing force reduction would have a beneficial impact on traffic on the installation and close to the installation. If the full force reduction of 50 percent of staff were to be implemented, the reduction of traffic congestion and bottlenecks, particularly along Grant Avenue, would be noticeable.

4.15.17 Cumulative Effects

The ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Leavenworth consists of Leavenworth County in Kansas. No planned or proposed actions within the ROI have the potential to cumulatively add impacts to Army 2020 alternatives have been identified by the installation.

Reasonably Foreseeable Future Projects on Fort Leavenworth

No reasonably foreseeable future projects on Fort Leavenworth were identified by the installation.

Reasonably Foreseeable Future Projects outside Fort Leavenworth

Reasonably foreseeable future projects outside Fort Leavenworth that would be appropriate for inclusion in the cumulative impacts analysis include construction of roads, hotels and conference centers. Additional construction and development activities, infrastructure improvements, and business and government projects and activities could also potentially affect socioeconomic impacts. Additionally, smaller, less diversified economies will be more vulnerable to the force reductions and provide fewer opportunities to displaced Army employees.

No Action Alternative

There would be no cumulative effects of the foreseeable future actions with the No Action Alternative. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reductions

With the exception of socioeconomics, implementation of the Alternative 1 in conjunction with these projects would not result in any significant cumulative effects on resources at the installation.

The socioeconomic impact under Alternative 1, as described in Section 4.15.12.2 with a loss of 2,542 Soldiers and Army civilians, could lead to significant impacts to the population, regional economy, schools, and housing. Fort Leavenworth is an economic driver of the region, employing over 5,000 on the installation. The relatively smaller, rural economy of the ROI depends on the installation's employment and economic activity. With fewer opportunities for employment, the ROI would likely not be able absorb many of the displaced forces, leading to additional adverse effects on regional economic conditions in the ROI. However, Kansas City, Missouri metropolitan area, within 40 miles of the installation, would provide additional employment opportunities.

Stationing changes would also affect regional economic conditions through the jobs and income they bring (or lose) within the region. Military personnel spend their money in the ROI economy, supporting additional jobs, income, taxes, and sales impacts of Soldiers, Army civilians, and their Families. Fort Leavenworth is also home to the Combined Arms Center and provides Combined Arms training and leadership education for Soldiers and Army civilians. Fort Leavenworth averages approximately 2,400 students assigned for training. Cumulative actions could include reduced training opportunities because of the force reductions on Fort Leavenworth. This could lead to further adverse impacts to socioeconomic conditions because of reduced temporary population and visitors and the attendant economic activity, spending, and jobs and income they support. Alternative 1 and the loss of approximately 2,500 Soldiers and Army civilians, in combination with current and foreseeable future actions, could have significant impacts to employment, income, tax receipts, housing values, and schools in the ROI.

Other infrastructure improvements and construction and development activity would also benefit the regional economy through additional economic activity, jobs, and income in the ROI; however, these benefits would not offset the adverse impacts under Alternative 1 and other adverse cumulative actions. Under Alternative 1, the loss of approximately 2,500 Soldiers, in conjunction with other reasonably foreseeable actions, would have significant impacts to employment, income, tax receipts, housing values, and schools and in ROI.

4.16 Fort Lee, Virginia

4.16.1 Introduction

Fort Lee was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population, is discussed in Section 4.14.1 of the 2013 PEA. The following updates the information provided in the 2013 PEA.

Fort Lee, Virginia, provides a training platform for all of the Army's sustainment functions as well as training Navy, Air Force and Marine joint sustainment requirements. Fort Lee is the home of the Combined Arms Support Command (CASCOM) and the Sustainment Center of Excellence (SCOE) providing future logistics capability development, doctrine development and support, as well as leader and IET development. CASCOM also consists of the Army Logistics University, the U.S. Army Quartermaster School, the U.S. Army Ordnance School, the U.S. Army Transportation School and Marine Corps and Air Force Detachments. Together, CASCOM schools train 36 percent of all Army enlisted Soldiers across 57 military occupational specialties, 40 percent of all Army warrant officers in 17 specialties, and 100 percent of Army Sustainment Officers in 7 concentrations, as well as numerous civilian-focused courses. Additionally, for the year ending March 2013, CASCOM had trained 5,718 joint personnel in 60 courses and 946 international personnel in various courses.

Fort Lee is also home to the Defense Contract Management Agency, the headquarters of the Defense Commissary Agency, Kenner Army Health Clinic, the only two active component FORSCOM Mortuary Affairs Companies in the Army, the Military Entrance Processing Station, the Army Quartermaster Museum, the Army Women's Museum, and is the future home of the Humanitarian Demining Training Center. Since the original analysis presented in the 2013 PEA, the 49th Quartermaster Group was inactivated at Fort Lee, resulting in a loss of 879 Military Personnel. The remaining Permanent Party Military consist almost entirely of instructors and cadre that support training missions on Fort Lee.

Fort Lee is located 25 miles south of Richmond, Virginia, in Prince George County situated between the cities of Petersburg and Hopewell. Petersburg, Hopewell, and Colonial Heights together constitute a minor metropolitan area encompassing Fort Lee known as the Tri-Cities. This location lies at a strategic hub of our Nation's infrastructure providing multiple options for moving troops, TDY status personnel and equipment while allowing easy access to our National Command Authority, the United States, and World. Fort Lee is conveniently located near several major cities and military installations throughout the Commonwealth and is less than 2 hours from Washington and provides easy access to seven seaports, all within1.5 hours driving time, and both the James River and Appomattox River carry barge traffic. Petersburg has also remained a strategic rail hub since before the civil war and has access to many airfields in the immediate area.

Fort Lee is situated on 5,678 acres comprising three distinct areas: the cantonment, the Range Complex (includes North Range), and the Ordnance Campus. Fort Lee's Range Complex supports live fire, maneuver, and other specialized training. In addition to training areas and ranges located on Fort Lee, two nearby military installations support specialized field training tasks for AIT students and permanent party military personnel. Fort A.P. Hill, located 70 miles north of Fort Lee, supports field training in Explosive Ordnance Disposal. Fort Pickett, located 45 miles away accommodates specific field training tasks associated with the use of its drop zone.

Fort Lee's 2011 baseline permanent party population was 6,474. In this SPEA, Alternative 1 assesses a potential population loss of 3,600, including approximately 2,792 permanent party Soldiers and 746 Army civilians.

4.16.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Lee; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.16-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.16-1. Fort Lee Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Minor	Minor
Noise	Negligible	Beneficial
Soils	Negligible	Negligible
Biological Resources	Negligible	Negligible
Wetlands	Negligible	Negligible
Water Resources	Negligible	Negligible
Facilities	Negligible	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	No Impacts	Beneficial
Hazardous Materials and Hazardous Waste	Negligible	Minor
Traffic and Transportation	Negligible	Beneficial

4.16.3 Air Quality

4.16.3.1 Affected Environment

Air quality is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.14.1.2 because there would be no significant, adverse environmental impacts from implementing alternatives included in the analysis. No changes have occurred to the affected environment since 2013. The Fort Lee area is currently not designated as nonattainment for any criteria pollutants, but Prince George County is a maintenance area for the 1997 O_3 standard (EPA, 2013).

4.16.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, mobile and stationary source emissions at current levels would result in minor, adverse impacts to air quality.

Alternative 1—Implement Force Reductions

Force reductions at Fort Lee would result in minor, long-term, and beneficial impacts to air quality because of reduced operations and training activities and reduced vehicle miles travelled associated with the facility.

The relocation of personnel outside of the area because of force reductions could result in negligible, short-term effects on air quality associated with mobile sources. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with air quality regulations. Even if the full end-strength reductions were to be realized at Fort Lee, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.16.4 Airspace

4.16.4.1 Affected Environment

Airspace is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.14.1.2 because of lack of significant, adverse environmental impacts from implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013. As described in the 2013 PEA, airspace at Fort Lee is classified as Class E and is utilized primarily through the Fort Lee Aerial Delivery and Field Services

Department who perform Sling Load and Low Cost Aerial Delivery Systems training with rotary-wing aircraft.

4.16.4.2 Environmental Effects

No Action Alternative

The 2013 PEA VEC dismissal statement concluded that there would be negligible impacts to airspace at Fort Lee under the No Action Alternative. For the current analysis, Fort Lee would continue to maintain current airspace operations and current airspace classifications and restrictions are sufficient to meet current airspace requirements. No airspace conflicts are anticipated and impacts to airspace would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that negligible impacts to airspace would occur at Fort Lee. Under Alternative 1, implementation of proposed further force reductions is not expected to result in increased adverse impacts. Further, Alternative 1 is not expected to involve major changes to the installation operations or types of activities on Fort Lee with continued airspace utilization by the Fort Lee's Aerial Delivery and Field Services Department. Any impacts as a result of the force reduction would be negligible.

4.16.5 Cultural Resources

4.16.5.1 Affected Environment

The affected environment for cultural resources at Fort Lee has not changed since 2013, as described in Section 4.14.3 of the 2013 PEA.

4.16.5.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in minor impacts to cultural resources, as described in Section 4.14.2.2 of the 2013 PEA. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures.

Alternative 1—Implement Force Reductions

As described in Section 4.14.2.2 of the 2013 PEA, Alternative 1 would have a minor impact on cultural resources. The Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort Lee, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic structures from these activities are not analyzed. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of force reductions, the installation would comply with applicable laws, such as the NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects.

The effects of this alternative are considered to be similar to the No Action Alternative –future activities with the potential to effect cultural resources would continue to be monitored and the impacts reduced through preventative and minimization measures. This alternative could result in some beneficial effects as a decrease in training activities could reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources.

4.16.6 Noise

4.16.6.1 Affected Environment

Noise is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.14.1.2, due to negligible to beneficial impacts as a result of implementing alternatives included in that analysis.

4.16.6.2 Environmental Effects

No Action Alternative

The 2013 PEA anticipated negligible noise impacts because noise generating activities at the installation would continue at the same levels and intensity as historically experienced. Under the No Action Alternative, negligible impacts would continue.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Lee would result in slightly beneficial noise impacts. Decreased use of the Qualifications Training Range and other live-fire ranges, and less frequent military vehicle operation would decrease the frequency and duration of noise generated on Fort Lee. The size of this beneficial impact under Alternative 1 would be similar to those described in the 2013 PEA.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with noise ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Lee, the Army would ensure that adequate staffing remains so that the installation would

comply with all mandatory environmental regulations including noise ordinances and regulations.

4.16.7 Soils

4.16.7.1 Affected Environment

Soils are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.14.1.2 due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

4.16.7.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible, adverse impacts to wetlands and the affected environment would remain in its present state.

Alternative 1—Implement Force Reductions

Per Section 4.14.1.2 of the 2013 PEA, there would be negligible impacts to soils under Alternative 1. Decreases in military training would reduce erosion levels and the amount of soil displaced as described in the 2013 PEA.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Lee, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations. Therefore, impacts under Alternative 1 at Fort Lee would be beneficial and remain the same as those discussed in Section 4.14.1.2 of the 2013 PEA.

4.16.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.16.8.1 Affected Environment

Biological resources are among the VECs excluded from detailed analysis as described in Section 4.14.1.1 of the 2013 PEA due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

4.16.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in no significant impacts to biological resources and the affected environment would remain in its current state.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts to vegetation or wildlife, including threatened or endangered species, would occur on Fort Lee. Fort Lee anticipates that further proposed reduction in forces would not change this finding because Alternative 1 does not involve major changes to installation operations or types of activities conducted on Fort Lee, only a decrease in the frequency of training activities. This conclusion is further evidenced by the fact that currently no listed threatened and endangered species are located on Fort Lee. The Army is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Lee, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.16.9 Wetlands

4.16.9.1 Affected Environment

Wetlands are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.14.1.2 due to lack of significant, adverse environmental impacts as a result of implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013.

4.16.9.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in no significant impacts to wetlands and the affected environment would remain in its present state.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts to wetlands would occur on Fort Lee. As noted in the 2013 PEA, Fort Lee anticipates that further proposed reduction in forces will not change this finding, since Alternative 1 does not involve major changes to the installation operations or types of activities conducted on Fort Lee, only a decrease in the frequency of training activities. The installation would continue to manage its wetlands in accordance with the installation INRMP, and ensure that wetland impacts are avoided and/or mitigated according to the Clean Water Act and Section 404 permitting. Impacts to wetlands could conceivably occur if the further force reductions decreased environmental

staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Lee, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at Fort Lee would remain the same as those discussed in Section 4.3.7.2 of the 2013 PEA.

4.16.10 Water Resources

4.16.10.1 Affected Environment

Water resources are among the VECs excluded from detailed analysis as described in Section 4.14.1.2 of the 2013 PEA due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

4.16.10.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to water resources similar to those described in Section 4.14.1.2 of the 2013 PEA. The water supply and wastewater systems on the installation are adequate to support water resources needs.

Alternative 1—Implement Force Reductions

Under Alternative 1 in the 2013 PEA, negligible impacts to water resources, including water demand and wastewater volume, would occur on Fort Lee. Reductions in training activities would decrease surface water impacts from sedimentation and stormwater runoff. Fort Lee anticipates that further proposed reduction in forces would not change this finding because Alternative 1 of this SPEA does not involve major changes to installation operations or types of activities conducted on Fort Lee, only a decrease in the frequency of training activities. The installation would continue to manage its water resources in accordance with applicable federal and state water quality criteria, drinking water standards, and stormwater and floodplain management requirements.

Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Fort Lee, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented.

4.16.11 Facilities

4.16.11.1 Affected Environment

Facilities is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.14.1.2 because there were no significant, adverse environmental impacts from implementing alternatives included in the analysis. No changes have occurred to the affected environment since 2013. As described in the 2013 PEA, the cantonment area of Fort Lee has facilities necessary for a complete community, including a post exchange, commissary, housing and Family Support Services, and medical and mission-support facilities.

4.16.11.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that there would be negligible impacts to facilities under the No Action Alternative at Fort Lee. For the current analysis, Fort Lee would continue to use its existing facilities to support its tenants and missions so impacts to facilities would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to facilities would occur on Fort Lee. Under Alternative 1, implementation of the proposed further force reductions would result in overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demands for utilities and reduced demands for training facilities and support services. The force reductions would also provide the installation the opportunity to reduce reliance on relocatable facilities and some older, non-standard buildings. Some permanent facilities may be redesignated to support units remaining at Fort Lee to provide more space and facilities that are better able to meet tenant and Army needs. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.16.12 Socioeconomics

4.16.12.1 Affected Environment

The ROI for Fort Lee in this analysis includes those areas that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, contractor

personnel, and their Families reside. The installation is 25 miles south of Richmond, Virginia, in Prince George County situated between the cities of Petersburg and Hopewell. Together, Petersburg, Hopewell, and Colonial Heights constitute a minor metropolitan area, which encompasses Fort Lee, known as the Tri-Cities. These cities do not fall under the jurisdiction of adjacent counties but are located within the ROI.

The ROI includes Chesterfield, Dinwiddie, and Prince George counties, and the independent cities of Colonial Heights, Hopewell, and Petersburg. It should be noted that only the Southern Tier of Chesterfield County is considered to be economically connected to Fort Lee. However, in order to be consistent with the 2013 PEA and because the economic model presented in Section 4.16.12.2 cannot analyze data for partial counties or independent cities, all of Chesterfield County is included in this analysis.

This section provides a summary of demographic and economic characteristics within the ROI. These indicators are described in greater detail in Section 4.14.3 of the 2013 PEA. However, demographic and economic indicators have been updated where more current data are available.

Population and Demographics

Using 2011 as a baseline, Fort Lee has a total working population of 22,487 consisting of active component Soldiers and Army civilians, students and trainees, and other military services, civilians, and contractors. Of the total working population, 6,474 were permanent party Soldiers and Army civilians. The population that lives on Fort Lee consists of 1,654 Soldiers and estimated 4,354 Family members, for a total on-installation resident population of 6,007. No civilians are eligible to live on the installation at this time (Fort Lee, 2014a and 2014b). The portion of Soldiers and Army civilians living off the installation in 2011 was estimated to be 12,137 and consists of Soldiers, Army civilians, and their Family members.

Fort Lee is home to CASCOM and SCOE, which annually train 36 percent of all Army enlisted Soldiers across 57 military occupational specialties, 40 percent of all Army warrant officers in 17 specialties, and all Army Sustainment Officers in 7 concentrations, and provides numerous civilian-focused courses. In 2013, CASCOM trained 5,718 joint personnel in 60 courses and 946 international personnel in various courses.

The largest mission on Fort Lee is training with the majority of Soldiers supporting this mission as instructors and cadre. Fort Lee is the DoD hub for the field-portion of the Mortuary Affairs mission, referred to as Contingency Fatality Operations. Fort Lee houses the only active component FORSCOM Mortuary Affairs Companies in the Army. In addition, Fort Lee houses the Joint Mortuary Affairs Center, which executes both the Training and Doctrine Command Mortuary Affairs training mission and the DoD Contingency Fatality Operations Executive Agent mission on behalf of and under the oversight of Army G-4.

Fort Lee graduated 30,198 AIT trainees from CASCOM's Ordnance, Quartermaster, and Transportation Schools in FY 2013. AIT trainees are housed on the installation for the expected length of their assigned curriculum which may range from 4 weeks to 33 weeks. According to the 2014 Army Stationing and Installation Plan, Fort Lee has a billet load ranging from 7,000 to 8,000 AIT trainees on a given day and can accommodate up to 9,130 (non-surge) or 11,833 (surge) AIT trainees in Troop Housing (Fort Lee, 2014c).

The Army Logistics University on Fort Lee trains approximately 30,000 students annually, 80 percent to 90 percent of whom are TDY students from other installations. In 2013, Fort Lee trained 25,791 TDY Soldiers, 3,623 civilians, 444 TDY students from other services, and 426 foreign students (Fort Lee, 2014c). TDY students seek lodging on Fort Lee or off the installation for the expected length of their assigned curriculum, which may range from 2 weeks to 16 weeks. Fort Lee averages a daily population of approximately 1,800 TDY students and Fort Lee lodging currently offers 1,423 rooms to patrons. The proposed implementation of Army lodging at Fort Lee could increase the number of available lodging units on the installation (Fort Lee, 2014a). At least 20 percent of Fort Lee's TDY students are currently referred to lodging establishments off the installation to honor an agreement between Fort Lee and the surrounding communities.

In 2012, the ROI had a population of 460,688, a 1.8 percent increase from 2010. Compared to 2010, the 2012 population increased in Chesterfield, Dinwiddie, and Prince George counties and the city of Colonial Heights. The cities of Hopewell and Petersburg experienced a slight decline in population (Table 4.16-2). As shown in Table 4.16-3, the racial and ethnic composition of geographies within the ROI varies significantly. In the city of Petersburg, more than 79.0 percent of residents are African American while in the city of Colonial Heights more than 80.0 percent of the population is non-Hispanic White alone (U.S. Census Bureau, 2012a).

Table 4.16-2. Population and Demographics, 2012

Region of Influence Counties / Cities	Population	Population Change 2010–2012 (percent)
Chesterfield County, Virginia	323,862	2.4
Dinwiddie County, Virginia	28,040	0.1
Prince George County, Virginia	36,986	3.5
City of Colonial Heights, Virginia	17,479	0.4
City of Hopewell, Virginia	22,348	-1.1
City of Petersburg, Virginia	31,973	-1.4

Table 4.16-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties/ Cities	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
State of Virginia	71.1	19.7	0.5	6.0	2.6	8.4	64.1
Chesterfield County, Virginia	70.4	23.0	0.6	3.5	2.4	7.5	64.5
Dinwiddie County, Virginia	64.7	32.8	0.4	0.5	1.5	2.7	62.7
Prince George County, Virginia	61.9	32.5	0.7	1.8	2.8	6.7	57.1
City of Colonial Heights, Virginia	82.3	10.2	0.4	3.3	2.2	3.9	80.5
City of Hopewell, Virginia	55.4	37.0	0.4	0.8	3.2	6.6	53.1
City of Petersburg, Virginia	16.1	79.1	0.3	0.8	1.8	3.8	15.1

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Income

Information presented below represents an update from the 2013 PEA, which provided employment and income data from 2009. Between 2000 and 2012, total employment in Chesterfield and Dinwiddie counties increased while it decreased in Prince George County and the cities of Colonial Heights, Hopewell, and Petersburg. The city of Hopewell experienced the most significant decline in total employment (Table 4.16-4) (U.S. Census Bureau, 2000 and 2012b).

The median household income in geographies within the ROI varies considerably, ranging from $35,126 in the city of Petersburg to $72,363 in Chesterfield County. Only Chesterfield County reports a median household income greater than the state average. Median home values in the ROI are lower than the state average and range from a low of $120,700 in the city of Petersburg to $233,400 in Chesterfield County.

The poverty rate in Dinwiddie County and the cities of Hopewell and Petersburg is greater than the Virginia average (U.S. Census Bureau, 2012b). According to the Report of Fiscal Stress prepared for FY 2012, the cities of Petersburg and Hopewell were ranked 3rd and 14th in terms of fiscal stress of the 134 counties and cities in Virginia (Commonwealth of Virginia, 2014). Prince George County has the fewest number of residents living below the poverty line (Table 4.16-4) (U.S. Census Bureau, 2012b).

Table 4.16-4. Employment and Income, 2012

State and Region of Influence Counties/Cities	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Virginia	3,989,521	+12.6	249,700	63,636	11.1
Chesterfield County, Virginia	159,094	+16.7	233,400	72,363	6.4
Dinwiddie County, Virginia	12,181	+5.6	164,600	51,582	12.9
Prince George County, Virginia	15,124	-7.9	208,600	63,031	6.0
City of Colonial Heights, Virginia	8,277	-0.3	190,200	51,612	7.3
City of Hopewell, Virginia	8,399	-11.3	141,600	37,029	19.8
City of Petersburg, Virginia	12,292	-9.1	120,700	35,126	24.9

Information regarding the workforce by industry for each county and independent city within the ROI was obtained from the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for the employed labor force.

Chesterfield County, Virginia

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Chesterfield County (23 percent). Retail trade is the second largest employment sector (12 percent), followed by the professional, scientific, and management, and administrative and waste management services (10 percent). The finance and insurance, and real estate and rental and leasing sector also accounts for 10 percent of the total workforce. The Armed Forces account for 1 percent of the workforce in Chesterfield County. The remaining nine sectors account for 45 percent of the workforce.

Dinwiddie County, Virginia

Similar to Chesterfield County, the primary employment sector in Dinwiddie County is educational services, and health care and social assistance (23 percent). Manufacturing is the second largest sector (14 percent), followed by retail trade (13 percent). Construction is the fourth largest employment sector (11 percent). The Armed Forces account for less than 1 percent of the total workforce in Dinwiddie County. The remaining nine sectors account for 39 percent of the workforce.

Prince George County, Virginia

The educational services, and health care and social assistance sector accounts for the greatest share of total workforce employment in Prince George County (16 percent). Unlike Chesterfield and Dinwiddie counties, the Armed Forces accounts for a significant share of total workforce employment in Prince George County (slightly less than 16 percent). Manufacturing is the third largest employment sector (12 percent), and the public administration and professional, scientific, and management, and administrative and waste management services sectors individually both account for 9 percent. The remaining nine sectors account for 38 percent of the Prince George County workforce.

City of Colonial Heights, Virginia

The educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in the city of Colonial Heights (22 percent). Retail trade is the second largest employment sector (16 percent), followed by manufacturing (10 percent) and arts, entertainment, and recreation, and accommodation and food services (9 percent). The Armed Forces account for less than 1 percent of the city of Colonial Heights workforce. The remaining nine sectors employ 42 percent of the workforce.

City of Hopewell, Virginia

Similar to other areas within the ROI, the educational services, and health care and social assistance sector is the largest employment sectors in the city of Hopewell (24 percent). Retail trade is the second largest employment sector (13 percent), followed by manufacturing and the professional, scientific, and management, and administrative and waste management services (approximately 10 percent each). The Armed Forces account for 3 percent of the city of Hopewell's total workforce. The remaining nine sectors account for 40 percent of the total workforce.

City of Petersburg, Virginia

The primary employment sector in the city of Petersburg is educational services, and heath care and social assistance (27 percent). Retail trade is the second largest employment sector (11 percent), followed by public administration; manufacturing; and the arts, entertainment, and recreation, and accommodation and food services sectors (approximately 10 percent each). The

Armed Forces account for 3 percent of the city of Petersburg's workforce. The remaining nine sectors employ 29 percent of the workforce.

Housing

In 2013, there were 117,313 housing units within a 20 minute drive of Fort Lee. Of this, approximately 78.7 percent were single family units, 17.2 percent were multi-family units, and the remaining 4.1 percent were classified as manufactured, trailers, or other. The vacancy rate of owner-occupied homes was an estimated to be 2.0 percent while the rental vacancy rate was 9.6 percent, which is lower than reported in 2010. The overall vacancy rate was 7.9 percent.

The housing market analysis prepared for Fort Lee in 2013 reports both the accompanied and unaccompanied housing requirements for military personnel stationed on Fort Lee. The analysis is based on the installation resident population in 2013 and includes active component military and non-Army personnel and excludes TDY students, trainees, and transient/rotational personnel. More than 4,330 active component personnel are eligible for housing on the installation including, 133 unaccompanied personnel, 137 military couples, 193 voluntarily separated personnel, and 2,873 military Families.

Of the 1,424 Family housing units on the installation, the Fort Lee Housing Office reports that 1,404 are currently occupied, for an occupancy rate of 98.8 percent. This includes two-, three-, and four-bedroom homes. The construction of an additional 84 housing units is anticipated to be complete in July 2014. There are currently 69 families on the waiting list for Family housing. Fort Lee can accommodate 892 unaccompanied personnel. Of this, 249 spaces are currently occupied (Fort Lee, 2014b).

Schools

As described in the 2013 PEA, the enrollment of military-connected students associated with Fort Lee is constantly changing. Soldiers move to Fort Lee with their Families for tours ranging in length from 6 months to 3 years. A survey conducted in November 2011 for CYSS reported that more than 5.0 percent of school enrollment across the ROI was attributable to military-connected students. However, the 2013 PEA states that this is likely an underestimate because of non-response error in the survey.

Military-connected students living off the installation attend schools in Chesterfield and Dinwiddie counties and the cities of Colonial Heights, Hopewell, and Petersburg. As reported in the 2013 PEA, military-connected students enrolled in public schools in the abovementioned geographies was an estimated 2,211 students.

Military-connected students living on Fort Lee may attend public school in Prince George County, private school, or homeschool. Non-military-connected student enrollment in Prince George County Public Schools has declined in recent years while enrollment of military-

connected students in the district has increased. In January 2013, approximately 30.9 percent or 1,990 of the 6,432 students enrolled in Prince George County Public Schools are military-connected. In February 2014, total enrollment in Prince George County Public Schools was 6,380 students, of which approximately 35 percent to 38 percent was attributable to military-connected students (Elzie, 2014; Fort Lee, n.d.).

During the 2011-2012 academic year, Prince George County Public Schools received approximately $3.6 million in Federal Impact Aid funds, which are associated with the enrollment of military-connected students. In the earlier part of the 2012-2013 academic year, the district had received $2.08 million in such funds (Fort Lee, n.d.). The total annual allocation of Federal Impact Aid funds to Prince George County Public Schools is not available at this time. In addition, the school district constructed a new elementary school to accommodate increased enrollment associated with more full-time Soldiers on Fort Lee because of BRAC growth (Fort Lee, n.d.).

Public Health and Safety

The Fort Lee Police and Fire departments provide services on the installation. The Fort Lee Fire and Emergency Services Division have mutual aid agreements with Prince George and Dinwiddie counties and cities of Colonial Heights, Hopewell, and Petersburg. On installation medical services are administered by the Kenner Army Health Clinic, which functions solely as an outpatient clinic. The clinic provides care to all active component personnel, retirees, and their Family members within a 20-mile radius of Fort Lee. Services are also provided to AIT students training on Fort Lee. People enrolled in the clinic are referred to off installation civilian and/or military hospitals and practitioners for acute care, specialty services, and long-term medical needs. Additional information regarding public health and safety is provided in the 2013 PEA.

Family Support Services

Fort Lee’s ACS provides programs, services, facilities, and information for Soldiers and their Families. Services range from child care and youth programs to deployment, employment, financial, and relocation readiness, among others. Children of retired military members are eligible to participate in a variety of programs. The installation’s CYSS programs experience relatively high turnover rates because many children are only enrolled as long as their parent(s) or guardian are at Fort Lee, and in many instances this is a period of 6 months for PCS training.

The Exceptional Family Member Program works with military Families with special needs to address their unique needs throughout the assignment process and once they have settled into a new installation. In 2013, there were 881 individuals assigned to Fort Lee enrolled in the Exceptional Family Member Program (Eoff, 2013).

The Virginia Department of Social Services provides assistance to all state residents, including active component military personnel and their Families stationed on Fort Lee. The agency provides a range of services which includes but is not limited to adult and child protection services, assisted living facilities, and support for adults and children with special health care needs or disabilities. Additional information about Family Support Services is provided in the 2013 PEA.

Recreation Facilities

A variety of recreational opportunities are provided through the Fort Lee FMWR. Amenities include batting cages, a skate park, outdoor recreation opportunities, swimming pool, and auto crafts shop, among others. Additional information about recreation facilities is provided in the 2013 PEA.

4.16.12.2 Environmental Effects

No Action Alternative

The continuation of operations at Fort Lee represents a beneficial source of regional economic activity. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of up to 3,538[21] Army positions (2,792 Soldiers and 746 Army civilians), with an average annual income of $46,760 and $78,963, respectively. In addition, this alternative would affect an estimated 5,371 Family members, including 1,974 spouses and 3,396 children. The total number of Army employees and their Family members who may be directly affected under Alternative 1 is projected to be 8,909.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecast value falls outside the historical positive and negative range. Table 4.16-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the

[21] This number was derived by assuming the loss of 70 percent of Fort Lee's Soldiers and 30 percent of the Army civilians to arrive at 3,538. The 2013 PEA assumed the loss of 35 percent of Fort Lee's Soldiers and 15 percent of the Army civilians to arrive at 2,432.

EIFS model. Based on the EIFS analysis, there would not be significant impacts to sales, income, and employment because the estimate percentage change is within the historical range. However, there would be a significant impact to population because the estimated percentage change is outside the historical range.

Table 4.16-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+5.7	+3.4	+4.2	+6.3
Economic contraction significance value	-19.5	-9.7	-14.6	-1.5
Forecast value	-1.5	-1.7	-4.3	-2.3

Table 4.16-6 summarizes the predicted impacts to income, employment, and population of force reductions against 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecasted values, these figures show the same significance determinations as the EIFS predictions in the previous table**.**

Table 4.16-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$242,934,300	-3,993 (Direct)	-8,909
		-921 (Induced)	
		-4,914 (Total)	
Total 2012 ROI economic estimates	$20,542,881,000	215,367	460,688
Percent reduction of 2012 figures	-1.2	-2.3	-1.9

Note: Sales estimates are not consistently available from public sources for all counties in the United States; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from EIFS is described in the paragraphs below.

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 3,538 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 455 direct contract service jobs would also be lost. An additional 921 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. The total reduction in employment is estimated to be 4,914, a reduction of 2.3 percent from the total employed labor force in the ROI of 215,367. Income is estimated to fall by $242.9 million, a 1.2 percent decrease in income from 2012.

Under Alternative 1, the total reduction in sales within the ROI is estimated to be $338.4 million. There would also be a loss in sales tax receipts to local and state governments. The state and average local sales tax rate for Virginia is 5.63 percent (Tax Foundation, 2014). To estimate sales tax reductions, information on the proportion of sales that would be subject to sales taxes on average across the country was utilized. According to the U.S. Economic Census, an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). The percentage and applicable tax rate was applied to the estimated decrease in sales of $338.4 million resulting in an estimated sales tax receipts decrease of $3 million under Alternative 1.

Of the 460,688 people (including those residing on Fort Lee) who live within the ROI, 3,538 military employees and their estimated 5,371 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 1.9 percent. This number could overstate potential population impacts because some people no longer employed by the military may continue to live and work within the ROI, finding employment in other industry sectors. However, because of the rural nature of the ROI and the fact that Fort Lee serves as a primary employer and as an economic driver within the ROI, the majority of displaced personnel are likely to move out of the area to seek other opportunities with the Army or elsewhere. There are few employment sectors in the ROI to absorb the number of displaced military employees. A small number of displaced personnel may seek and find work within the ROI; however, others may not be able to find new employment.

Additionally, installation students may have a substantial impact on the local economy through lodging, eating, and shopping expenditures. Additionally, formal graduation ceremonies generate demand for lodging and dining facilities when Family members attend. The impact to Fort Lee's training missions cannot be determined until the Army completes its force structure decisions; therefore, analyzing the impact to those missions is beyond the scope of this document.

Housing

The population reduction that would result under Alternative 1 would lead to a decreased housing demand and increased housing availability on the installation and across the larger ROI. Under Alternative 1, occupancy rates in privatized Family housing units would fall below the 96 percent requirement. Subsequently, on-installation Family housing would be available upon request by incoming families and may allow other authorized personnel, such as Army civilians, to move onto the installation. In addition, occupancy in barrack spaces would fall below 100 percent and could potentially result in these units being converted back to the Garrison Unaccompanied Housing staff requiring daily management (Fort Lee, 2014c).

Increased vacancy across the region because of force reductions and/or personnel moving onto the installation has the potential to result in a decrease in median home values across the ROI. Overall, because of the relatively large population of the ROI, the installation reduction that

would occur under Alternative 1 has the potential to result in minor impacts to the housing market.

Schools

Military-connected students living on Fort Lee and associated with Soldiers attend schools in Prince George County and accounted for approximately 30.9 percent of total student enrollment in January 2013, a share that has increased in recent years because of the decline of non-military-connected students. During the 2011-2012 academic year, Prince George County Public Schools received approximately $3.6 million in Federal Impact Aid funds and $2.1 million in the earlier part of the 2012-2013 academic year. Off installation enrollment by military-connected students is distributed across the larger ROI and numerous school districts.

Under Alternative 1, it is possible that enrollment could decrease across the ROI, particularly in Prince George County Public Schools. As described above, the school district receives sizable Federal Impact Aid funds, the allocation of which is based on the number of military-connected students they support. The actual projected loss of Federal Impact Aid funds cannot be determined at this time due to the variability of appropriated dollars from year to year, and the uncertainty regarding the specific impacts to ROI school enrollment. In addition, operating costs may decrease as school districts adjust to reduced enrollment. However, school districts may also have invested in capital improvements or new facilities, which require bond repayment/debt servicing. With decreased revenue for these school districts, it may place additional burden on school districts with potential implications for operations. These are fixed costs that would not be proportionately reduced, such as operational costs (teachers, other staff, and materials).

Overall, schools within the ROI could experience significant, adverse impacts from the decline in military-connected student enrollment, particularly in Prince George County, that would result under Alternative 1. If enrollment in individual schools declines significantly, schools may need to reduce the number of teachers, administrators, and other staff, and potentially close or consolidate with other schools within the same school district should enrollment fall below sustainable levels.

Public Services

The demand for law enforcement, medical care providers, and fire and emergency service providers on the installation would decrease if Soldiers, Army civilians, and their Families affected under Alternative 1 move to areas outside the ROI. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements. The impacts to public services are not expected to be significant because the existing service level for the installation and the ROI would still be available.

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. As a result, minor impacts to Family Support Services and recreation facilities would occur under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, states: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). As shown in Table 4.16-3, the proportion of minority populations is notably higher in Prince George County and the cities of Hopewell and Petersburg than the proportion in other geographies within the ROI and Virginia as a whole. Of the counties within the ROI, Dinwiddie County and the cities of Hopewell and Petersburg have a higher proportion of populations living below the poverty level when compared to the Virginia average. Because minority and low-income populations are more heavily concentrated in these jurisdictions, there is potential that environmental justice populations to be adversely affected under Alternative 1. However, Alternative 1 is not expected to have a disproportionate adverse impact to minorities, economically disadvantaged populations or children in the ROI.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of people associated with the installation, including children. Therefore, it is not anticipated Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.16.13 Energy Demand and Generation

4.16.13.1 Affected Environment

Energy demand and generation is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.14.1.2 because there were no significant, adverse environmental

impacts resulting from implementing alternatives included in the analysis. No changes have occurred to the affected environment since 2013. As described in the 2013 PEA, Dominion Virginia Power supplies electricity to Fort Lee and also owns and operates the on-installation distribution system. Atmos Energy currently supplies natural gas to Fort Lee via infrastructure owned by the state and Columbia Gas of Virginia. Fort Lee owns the on-installation natural gas distribution system.

4.16.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, adverse impacts to energy demand and generation would be the same as discussed in the 2013 PEA, and there would be negligible impacts. Fort Lee would continue to consume similar types and amounts of energy, and maintenance of existing utility systems would continue.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy demand and generation would occur on Fort Lee. Under Alternative 1, minor, beneficial impacts to energy demand are anticipated due to a further reduction in energy consumption associated with the additional force reductions. The installation would also be better positioned to meet energy and sustainability goals.

4.16.14 Land Use Conflicts and Compatibility

4.16.14.1 Affected Environment

Land Use is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.14.1.2, due to negligible to beneficial impacts as a result of implementing alternatives included in that analysis.

4.16.14.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that no changes to land use conditions would occur and no impacts are anticipated. Under the No Action Alternative, no impacts to land use would occur.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Lee would result in beneficial impacts to land use because land use compatibility issues on Fort Lee are principally concerned with noise and light generated by training and recreational activities on the installation, and these would decrease with force reductions. Under Alternative 1, impacts would be similar to those described in the 2013 PEA.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with land use ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Lee, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including land use ordinances and regulations.

4.16.15 Hazardous Materials and Hazardous Waste

4.16.15.1 Affected Environment

As described in the 2013 PEA, hazardous materials are used on Fort Lee. Fort Lee has a Hazardous Waste Facility, a Hazardous Material Control Center, and a Solid Waste Recycling Center to handle all types of waste from units and facilities on Fort Lee. Hazardous materials and waste are handled, stored, and transported in accordance with RCRA and U.S. Department of Transportation regulations. No substantial changes have occurred to the affected environment since 2013.

4.16.15.2 Environmental Effects

No Action Alternative

As stated in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative. Use of hazardous materials and generation of hazardous wastes would continue on Fort Lee in accordance with all applicable laws, regulations, and plans.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that minor, adverse impacts from hazardous materials and hazardous waste would occur on Fort Lee. Alternative 1 is not expected to involve major changes to the installation operations or types of activities conducted on Fort Lee. Because of the reduced numbers of people, it is expected that the potential for spills would be reduced further during training and maintenance activities. Fort Lee would continue to implement its hazardous waste management in accordance with its HWMP and applicable regulations under either alternative. The volume of waste generated and material requiring storage would increase slightly as deactivating units would turn in hazardous material for storage to avoid transportation risks.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Fort Lee, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.16.16 Traffic and Transportation

4.16.16.1 Affected Environment

Transportation resources are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.14.1.2, due to negligible or beneficial impacts as a result of implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013. As described in the 2013 PEA, the basic roadway in and around Fort Lee is adequate for regional as well as installation traffic. It is characterized by adequate LOS with minimal congestion isolated to key areas during morning and afternoon peaks.

4.16.16.2 Environmental Effects

No Action Alternative

In the 2013 PEA, due to adequate LOS with minimal congestion, negligible impacts to traffic or transportation are anticipated as a result of the No Action Alternative. With no changes to the affected environment since 2013, these same impacts are expected.

Alternative 1—Implement Force Reductions

In the 2013 PEA, due to reduced traffic volumes it was analyzed that a reduction in forces would result in overall beneficial impacts to traffic and transportation. Under Alternative 1, beneficial impacts are expected for similar reasons, but due to a greater reduction in active component Soldiers and Army civilians, the beneficial impacts are expected to be even greater than analyzed in the 2013 PEA.

4.16.17 Cumulative Effects

As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Lee encompasses Chesterfield, Dinwiddie, and Prince George counties in Virginia; and the independent cities of Colonial Heights, Hopewell, and Petersburg in Virginia. Section 4.14.5 of the 2013 PEA noted numerous planned or proposed actions (including Fort Lee, other agency, and other public/private actions) within the ROI that reasonably could be initiated within the next 5 years and would have the potential to cumulatively add impacts to Alternative 1. A number of the Army's proposed projects have been previously identified in the installation's RPMP, the Final EA for the Army Lodging Facility at Fort Lee, and the completion of the 49th Group draw down on Fort Lee. Additional actions have been identified beyond those noted in the cumulative effects analysis of the 2013 PEA and are noted below.

Reasonably Foreseeable Future Projects on Fort Lee

The Army proposes implementation of the Privatization of Army Lodging at Fort Lee during the same timeframe as the proposed Military and civilian reductions. The Privatization of Army Lodging EA analyzes the environmental and socioeconomic impacts of privatization. Fort Lee currently has 1,423 lodging units. Renovation, demolition and construction options proposed by Privatization of Army Lodging could increase the number of available lodging units on the installation. If the student population decreases, there could be cumulative negative impacts to Fort Lee Lodging operations and to hotels in the local economy. Prior to the completion of the 1,000 Room Lodge, Fort Lee guaranteed the local community that 20 percent of all TDY students will be referred to off-installation lodging facilities.

Other reasonably foreseeable future projects include the following:

- 49th Quartermaster Group realignment (reduction of 879 permanent party military personnel)[22]
- 1,000 room lodge (operational)
- Privatization of Army lodging
- Phase 2 of Adams Avenue Barracks Project (underway)
- Humanitarian Demining Training Center moves to Fort Lee
- Bowling center new construction FY 2014
- Phase 3 of Adams Avenue Barracks Project (pushed to FY 2017)
- Kenner Army Health Clinic new construction (pushed to FY 2020 and beyond)

Reasonably Foreseeable Future Projects outside Fort Lee

The region is experiencing little growth with some losses. According to *The Economic Impact of Fort Lee*, Fort Lee accounts for $2.4 billion in economic output for the three-county and three-city region surrounding Fort Lee, approximately 13.62 percent of the total Gross Domestic Product. Expected employment losses include the following:

- Boehringer Ingelheim Pharmaceuticals will step down its presence in the area and will leave Petersburg by the summer 2014, eliminating roughly 300 jobs.
- A food product operator, Reinhart Food Services, is moving from Prince George County to northern Virginia, potentially affecting 46 employees.

[22] Since the 2011 baseline, the Army has announced the decision to realign the 49th Group. The 879 positions reduced were part of Fort Lee's baseline population of 6,474; therefore, the resulting 879 personnel reduction is part of, not in addition to, the 3,600 reduction analyzed in this SPEA.

Major construction projects include the Route 460 improvements project that may be cancelled based on environmental permitting obstacles; this loss of this project would mean additional lost economic growth in the region.

No Action Alternative

The cumulative impacts of the No Action Alternative is essentially the same as was determined in the 2013 PEA, with beneficial to minor impacts to resource areas. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reduction

Overall, the potential cumulative impacts of Alternative 1 at Fort Lee are anticipated to be significant and adverse for socioeconomics, with beneficial to minor and adverse impacts for the other resources.

The socioeconomic impact within the ROI, as described in Section 4.16.12.2 with a reduction of 3,538 Soldiers and Army civilians, could lead to significant impact on the population and schools. Current and foreseeable actions include construction and development activities on and off the installation, which would have beneficial impacts to the regional economy through additional economic activity, jobs, and income in the ROI. Additionally, stationing changes, such as the 49th Quartermaster Group realignment, would also affect regional economic conditions through the loss of jobs and income within the region, which would impact additional downstream jobs and income.

Fort Lee is home to CASCOM and SCOE; the field-portion of the Mortuary Affairs mission, referred to as Contingency Fatality Operations; the FORSCOM Mortuary Affairs Companies in the Army; the Joint Mortuary Affairs Center; AIT from CASCOM's Ordnance, Quartermaster, and Transportation Schools; and the Army Logistics University. Cumulative actions could include reduced training opportunities because of the force reductions on Fort Lee. This could lead to further adverse impacts to socioeconomic conditions because of reduced temporary population and visitors and the attendant economic activity, spending, and jobs and income they support.

Fort Lee is a relatively larger employer in the region; the Armed Forces account for almost 16 percent of the workforce in Prince George County. The ROI could likely absorb some of the displaced workers, depending on the economy and labor market in the region. With three major employers leaving the region, it may be the case that the unemployment is increasing and displaced forces would not absorbed into the local labor force, with additional adverse impacts in the ROI. Under Alternative 1, the loss of approximately 3,600 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, could have significant impacts to population, employment, tax receipts, housing values, and schools in the ROI.

4.17 Fort Leonard Wood, Missouri

4.17.1 Introduction

Fort Leonard Wood was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population, is discussed in Section 4.15.1 of the 2013 PEA.

Fort Leonard Wood's 2011 baseline permanent party population was 9,161. In this SPEA, Alternative 1 assesses a potential population loss of 5,400, including approximately 4,496 permanent party Soldiers and 821 Army civilians.

4.17.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Leonard Wood; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.17-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.17-1. Fort Leonard Wood Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Negligible	Minor
Noise	Negligible	Negligible
Soils	Negligible	Negligible
Biological Resources	Negligible	Negligible
Wetlands	Negligible	Negligible
Water Resources	Negligible	Negligible
Facilities	Negligible	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	No Impacts	No Impacts
Hazardous Materials and Hazardous Waste	Negligible	Minor
Traffic and Transportation	Negligible	Beneficial

4.17.3 Air Quality

4.17.3.1 Affected Environment

Air quality is among the VECs excluded from detailed analysis in the 2013 PEA, as described in Section 4.15.1.2, because there were no significant, adverse environmental impacts that would result from implementing alternatives included in the analysis. No changes have occurred to the affected environment since 2013. The Fort Leonard Wood area has not been designated as a nonattainment area for any criteria pollutants (EPA, 2013).

4.17.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, continuation of mobile and stationary source emissions at current levels would result in minor, adverse impacts to air quality.

Alternative 1—Implement Force Reductions

Force reductions at Fort Leonard Wood would result in minor, long-term, and beneficial impacts to air quality because of reduced operations and training activities and reduced vehicle miles traveled associated with the facility.

The relocation of personnel outside of the area because of force reductions could result in negligible, short-term effects on air quality associated with mobile sources. As discussed in Chapter 1, the demolition of existing buildings or the placement of them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with air quality regulations. Even if the full end-strength reductions were to be realized at Fort Leonard Wood, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.17.4 Airspace

4.17.4.1 Affected Environment

Airspace is among the VECs excluded from detailed analysis in the 2013 PEA, as described in Section 4.15.1.2, because of lack of significant, adverse environmental impacts from implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013. Restricted airspace at Fort Leonard Wood (R-4501 A-H) occurs in the southern and eastern portions of the installation and range from as low as the surface to 2,200 feet msl up to 18,000 feet msl. The higher elevation restricted airspace occurs in the southern range (U.S. Army, 2011).

4.17.4.2 Environmental Effects

No Action Alternative

The 2013 PEA VEC dismissal statement concluded that there would be negligible impacts to airspace at Fort Leonard Wood under the No Action Alternative. For the current analysis, Fort Leonard Wood would continue to maintain current airspace operations, and current airspace classifications and restrictions are sufficient to meet current airspace requirements. No airspace conflicts are anticipated and impacts to airspace would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that negligible impacts to airspace would occur at Fort Leonard Wood. Under Alternative 1, implementation of proposed further force reductions would continue to have negligible, adverse impacts to airspace. Reductions at Fort Leonard Wood would not result in changes to airspace classifications, and it would not change the frequency or intensity of activities at Fort Leonard Wood that require the use of airspace.

4.17.5 Cultural Resources

4.17.5.1 Affected Environment

The affected environment for cultural resources at Fort Leonard Wood has not changed since 2013, as described in Section 4.16.1.2 of the 2013 PEA.

4.17.5.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to cultural resources, as described in Section 4.16.1.2 of the 2013 PEA. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures.

Alternative 1—Implement Force Reductions

As described in Section 4.16.1.2 of the 2013 PEA, Alternative 1 would have a minor impact on cultural resources. The Army is committed to The Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort Leonard Wood, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic structures from these activities are not analyzed. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of force reductions; the installation would comply with applicable laws, such as the NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects.

This alternative could result in some beneficial effects because a decrease in training activities could reduce the potential for the inadvertent disturbance of archaeological resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources.

4.17.6 Noise

4.17.6.1 Affected Environment

Noise is among the VECs excluded from detailed analysis in the 2013 PEA, as described in Section 4.15.1.2, because of negligible impacts as a result of implementing alternatives included in that analysis.

4.17.6.2 Environmental Effects

No Action Alternative

The 2013 PEA anticipated negligible noise impacts because noise generating activities at the installation would continue at the same levels and intensity as historically experienced. Under the No Action Alternative, negligible impacts to noise would continue to occur.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Leonard Wood would result in noise impacts similar to those under the No Action Alternative. Alternative 1 would not include changes to aircraft operations or to the type of weapons training conducted. Negligible impacts under Alternative 1 would be similar to those described in the 2013 PEA.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with noise ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Leonard Wood, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including noise ordinances and regulations.

4.17.7 Soils

4.17.7.1 Affected Environment

Soils are among the VECs excluded from detailed analysis in the 2013 PEA, as described in Section 4.15.1.2, because of the lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

4.17.7.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to soils and the affected environment would remain in its current state.

Alternative 1—Implement Force Reductions

Per Section 4.15.1.2 of the 2013 PEA, negligible impacts to soils would occur under Alternative 1. The installation would continue to manage its resources in accordance with the installation's INRMP.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Leonard Wood, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations. Therefore, impacts under Alternative 1 at Fort Leonard Wood would be beneficial and remain the same as those discussed in Section 4.15.1.2 of the 2013 PEA.

4.17.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.17.8.1 Affected Environment

Fort Leonard Wood is located approximately 120 miles southwest of St. Louis, Missouri, and contains approximately 61,410 acres of land in the Ozark Plateau region. Much of the surrounding land is part of the Mark Twain National Forest. Biological resources are among the VECs excluded from detailed analysis, as described in Section 4.15.1.1 in the 2013 PEA, because of the lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

4.17.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in no significant impacts to biological resources and the affected environment would remain in its current state.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the implementation of Alternative 1 presented in the 2013 PEA would have no impact on biological resources. Fort Leonard Wood anticipates that further proposed reduction in forces (Alternative 1 presented in the current SPEA) would not change this finding because Alternative 1 does not include activities that would significantly affect fish, wildlife, threatened and endangered species, habitat, natural resources, or vegetation. Additionally, the Army is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Leonard Wood, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.17.9 Wetlands

4.17.9.1 Affected Environment

Wetlands are among the VECs excluded from detailed analysis in the 2013 PEA, as described in Section 4.15.1.2, because of the lack of significant, adverse environmental impacts from implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013.

4.17.9.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible, adverse impacts to wetlands and the affected environment would remain in its present state.

Alternative 1—Implement Force Reductions

Per Section 4.7.1.2 of the 2013 PEA, there would be negligible changes to wetlands under Alternative 1. The installation would continue to manage its wetlands in accordance with the installation INRMP, and ensure that wetland impacts are avoided and/or mitigated for. Impacts to wetlands could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Leonard Wood, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at

Fort Leonard Wood would remain the same as those discussed in Section 4.15.1.2 of the 2013 PEA.

4.17.10 Water Resources

4.17.10.1 Affected Environment

Water resources are among the VECs excluded from detailed analysis, as described in Section 4.15.1.2 of the 2013 PEA, because of the lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

4.17.10.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to water resources similar to those described in Section 4.15.1.2 of the 2013 PEA. Surface waters and water supply would not be impacted.

Alternative 1—Implement Force Reductions

Under Alternative 1 in the 2013 PEA, negligible impacts to water resources, including water demand and surface water disturbance, would occur on Fort Leonard Wood. Fort Leonard Wood anticipates that further proposed reduction in forces would not change this finding because Alternative 1 of this SPEA does not involve major changes to installation operations or types of activities conducted on Fort Leonard Wood, only a decrease in the frequency of training activities. The installation would continue to manage its water resources in accordance with applicable federal and state water quality criteria, drinking water standards, and stormwater and floodplain management requirements.

Adverse impacts could conceivably occur to water resources if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Fort Leonard Wood, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented.

4.17.11 Facilities

4.17.11.1 Affected Environment

Facilities is among the VECs excluded from detailed analysis in the 2013 PEA, as described in Section 4.15.1.2, because there were no significant, adverse environmental impacts from implementing alternatives included in the analysis. No changes have occurred to the affected

environment since 2013. As described in the 2013 PEA, the main cantonment area of Fort Leonard Wood has facilities necessary to support a complete community, including a post exchange, commissary, housing and Family Support Services, and medical and mission-support facilities.

4.17.11.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that there would be negligible impacts to facilities under the No Action Alternative at Fort Leonard Wood. For the current analysis, Fort Leonard Wood would continue to use its existing facilities to support its tenants and missions, and impacts to facilities would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to facilities would occur on Fort Leonard Wood. Under Alternative 1, implementation of the proposed further force reductions would result in overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demands for utilities and reduced demands for training facilities and support services. The force reductions would also provide the installation the opportunity to reduce reliance on relocatable facilities and some older, non-standard buildings. Some permanent facilities may be redesignated to support units remaining at Fort Leonard Wood to provide more space and facilities that are better able to meet tenant and Army needs. As discussed in Chapter 1, the demolition of existing buildings or the placement of them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.17.12 Socioeconomics

4.17.12.1 Affected Environment

Fort Leonard Wood is located in the south-central portion of Pulaski County in Missouri. The ROI consists of Pulaski, Phelps, Laclede, Camden, Maries, Miller, and Texas counties in Missouri. The ROI for Fort Leonard Wood includes those areas that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, and contractor personnel and their Families reside. It is assumed that personnel purchase the majority

of their goods and services within the ROI. This section provides a summary of demographic and economic characteristics within this region.

Population and Demographics

Using 2011 as a baseline, Fort Leonard Wood has a total working population of 33,215, consisting of active component Soldiers and Army civilians, students and trainees, other military services, civilians, and contractors. Of the total working population, 9,161 were permanent party Soldiers and Army civilians. The population that lives on Fort Leonard Wood consists of 2,706 Soldiers and their 5,190 Family members for a total on-installation resident population of 7,896 (Lloyd, 2014). Finally, the portion of the Soldiers and Army civilian population living off the installation is estimated to be 16,254 and consists of Soldiers, Army civilians, and their Family members.

Fort Leonard Wood is home to the Maneuver Support Center of Excellence; U.S. Army Chemical, Biological, Radiological, and Nuclear School; U.S. Army Engineer School; U.S. Army Military Police School; Joint Transportation; and other training for Soldiers, Marines, Sailors, Airmen and others. Students are based at Fort Leonard Wood for the expected length of their assigned curriculum, which may range from 3 days to 30 weeks. Fort Leonard Wood averages approximately 18,151 students assigned for training and can accommodate up to 16,810 in on-installation barracks. Any remaining students would be accommodated in local lodging facilities or rental units.

The ROI's population in 2012 was 237,353. Between 2010 and 2012, the population decreased slightly in Laclede, Phelps, and Miller counties and increased in the remaining ROI counties (Table 4.17-2). The racial and ethnic composition of the ROI is presented in Table 4.17-3.

Table 4.17-2. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Camden County, Missouri	43,869	+0.3
Laclede County, Missouri	35,419	-0.4
Maries County, Missouri	8,995	+2.0
Miller County, Missouri	24,810	-0.3
Phelps County, Missouri	45,054	-0.2
Pulaski County, Missouri	53,445	+2.2
Texas County, Missouri	25,761	+0.9

Table 4.17-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of Missouri	83.9	11.7	0.5	1.8	2.0	3.7	80.6
Camden County, Missouri	97.1	0.5	0.5	0.5	1.2	2.4	95.0
Laclede County, Missouri	96.2	0.7	0.7	0.5	1.8	2.1	94.3
Maries County, Missouri	97.7	0.4	0.7	0.1	1.1	1.1	96.8
Miller County, Missouri	96.7	0.6	0.6	0.3	1.6	1.6	95.4
Phelps County, Missouri	91.4	2.4	0.8	3	2.2	2.2	89.7
Pulaski County, Missouri	79.2	11.9	1.0	2.8	4.4	9.7	71.6
Texas County, Missouri	93.5	3.5	0.7	0.4	1.9	1.9	91.9

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Income

Between 2000 and 2012, the total employment increased in Pulaski, Phelps, Laclede, Camden, and Texas counties and in the state of Missouri, while it decreased between 2 and 4 percent in Maries and Miller counties (Table 4.17-4) (U.S. Census Bureau, 2000 and 2012b). The proportion of the population living below the poverty level in the ROI counties is similar to that of the state. Texas County has the highest proportion of its residents living below the poverty level, 21 percent. In addition, median household income was lowest in Texas County in comparison with the other ROI counties and the state. Employment, median home value, median household income, and population living below the poverty level are summarized in Table 4.17-4.

Table 4.17-4. Employment and Income, 2012

States and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000-2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Missouri	2,802,986	+5	$138,400	$47,333	15
Camden County, Missouri	19,291	+18	$181,500	$44,577	14
Laclede County, Missouri	15,259	+2	$92,300	$39,101	19
Maries County, Missouri	3,957	-4	$118,600	$44,885	14
Miller County, Missouri	10,767	-2	$110,900	$34,763	19
Phelps County, Missouri	19,396	+9	$110,400	$41,388	19
Pulaski County, Missouri	28,074	+32	$122,000	$47,251	14
Texas County, Missouri	9,342	+1	$92,900	$34,520	21

Information regarding the workforce by industry for each county within the ROI was obtained from the U.S. Census Bureau (U.S. Census Bureau, 2012). Information presented below is for the employed labor force, including the Armed Forces.

Camden County, Missouri

According to the U.S. Census Bureau, the primary employment sector in Camden County is the educational services, and health care and social assistance sector (21 percent). Retail trade is the second largest sector (14 percent), closely followed by the arts, entertainment, and recreation, and accommodation and food services (14 percent). The Armed Forces account for less than 1 percent of Camden County's workforce. The remaining sectors employ 50 percent of the workforce.

Laclede County, Missouri

The manufacturing sector is the largest employment sector in Laclede County (26 percent). Educational services, and health care and social assistance is the second largest sector (16 percent), followed by retail trade (13 percent). The Armed forces account for less than 1 percent of the Laclede County workforce. The remaining 10 sectors employ 44 percent of the working population.

Maries County, Missouri

The educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Maries County (20 percent). Manufacturing is the second largest employment sector (13 percent), followed by public administration (10 percent). The Armed Forces account for less than 1 percent of the Maries County workforce. The remaining sectors employ 56 percent of the total workforce.

Miller County, Missouri

The educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Miller County (20 percent). Retail trade is the second largest sector (16 percent), followed by construction (11 percent). The Armed Forces account for less than 1 percent of Miller County's workforce. The remaining sectors employ 52 percent of the workforce.

Phelps County, Missouri

The primary employment sector in Phelps County is the educational services, and health care and social assistance sector (30 percent). Retail trade is the second largest sector (14 percent), followed by the arts, entertainment, and recreation, and accommodation and food services sector (11 percent). The Armed Forces accounts for less than 1 percent of total employment in Phelps County. The remaining sectors account for 44 percent of the workforce.

Pulaski County, Missouri

According to the U.S. Census Bureau, the Armed Forces account for the largest employment sector (46 percent) in Pulaski County. Public administration is the second largest sector (13 percent), followed by the educational services, and health care and social assistance sector (9 percent). The remaining 10 sectors account for 32 percent of the total workforce.

Texas County, Missouri

The educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Texas County (20 percent). Public administration is the second largest sector (13 percent), closely followed by retail trade (12 percent). The Armed Forces account for 1 percent of Texas County's total employment. The remaining sectors employ 54 percent of the working population.

Fort Leonard Wood is the leading employer in Pulaski County, followed by the Waynesville R-VI School District, which had 778 employees in 2014. A few counties in the region have a small number of small manufacturers and health care employers, and agriculture remains a pervasive economic activity in the ROI (Fort Leonard Wood, 2014a).

Housing

Housing resources at Fort Leonard Wood were described in the 2013 PEA and include 1,806 permanent military Family units. Fort Leonard Wood also has barracks space for 1,304 unaccompanied personnel. Additionally, Fort Leonard Wood has privatized Army lodging facilities that can accommodate up to 1,653 guests. Finally, because it is a major training installation, Fort Leonard Wood has trainee barracks that can accommodate up to 16,810 students during their training assignments at Fort Leonard Wood (Fort Leonard Wood, 2014b).

Schools

Permanent military Families living on the installation attend Waynesville R-VI Schools. Currently, 5,190 Family members live in Fort Leonard Wood housing, including approximately 3,200 school-age children. As described in the 2013 PEA, children of military and civilian employees at Fort Leonard Wood comprise a substantial number of students in the school districts of these counties. Federal aid is provided to schools to compensate for the loss of property tax dollars the districts would otherwise receive if the installation were a non-federal property. The largest school district is the Waynesville R-VI School District with 6,075 students, and it receives far more U.S. Department of Education and DoD Federal Impact Aid than any of the other districts because of its location. The Waynesville R-VI School District has schools located on and off Fort Leonard Wood. The Waynesville R-VI School District's annual revenue is $75,943,069 with Federal Impact Aid accounting for 25.27 percent. In addition, its annual payroll is $48,333,000 (Fort Leonard Wood, 2014a).

Public Health and Safety

Police Services

The Fort Leonard Wood DES Law Enforcement Branch and Security Operations Branch oversees law enforcement operations, patrols, gate security, training, traffic accidents, and criminal investigations on the installation. City, county, and state police departments provide law enforcement in the ROI.

Fire and Emergency Services

The Fort Leonard Wood Fire and Emergency Services Branch responds to emergencies involving structures, facilities, transportation equipment, hazardous materials, and natural and human-made disasters; directs fire prevention activities; and conducts public education programs. The Fort Leonard Wood Fire and Emergency Services Branch has mutual aid agreements with Pulaski County and the cities of Saint Robert and Waynesville.

Medical Facilities

Fort Leonard Wood's medical services available on the installation are administered at the General Leonard Wood Army Community Hospital. The Consolidated Troop Medical Clinic is

the designated clinic for all IET and AIT Soldiers assigned to Fort Leonard Wood in a training status. The services provided by Consolidated Troop Medical Clinic include sick calls, physical exams, preparation for overseas movement, case management, laboratory and pharmacy services, physical therapy, radiology, and occupational therapy. Medical facilities located off the installation provide a varied range of primary and specialty health care capability.

The General Leonard Wood Army Community Hospital serves a population of 58,813 retirees and their Family members, 12,690 active component Family members, and more than 16,000 permanent party Soldiers and Soldiers in training. The hospital also serves as an emergency medical facility for any serious emergency medical events for local nonmilitary connected civilians or civilians traveling through the area on I-44.

Active component Family members and retirees and their Family members can receive care at the General Leonard Wood Army Community Hospital's Community Based Primary Care Clinic located off the installation in nearby Saint Robert. Further information on medical facilities is available in the 2013 PEA. Other than the Fort Leonard Wood Hospital, the closest emergency rooms are 30 miles away in Rolla or Lebanon, 45 miles away in Houston, and 50 miles away in Osage Beach. The nearest large hospitals with specialty providers are 90 miles away in Springfield, Missouri, or 105 miles away in Columbia, Missouri (Fort Leonard Wood, 2014a).

Family Support Services

Fort Leonard Wood's ACS is a human service organization with programs and services dedicated to assisting Soldiers and their Families under FMWR. Fort Leonard Wood's CYSS is a division of FMWR. It provides facilities and care for children, as well as sports and instructional classes for children of active component military, DoD civilian, and DoD contractor personnel. Fort Leonard Wood's Youth Sports and Fitness Program offers both individual and team activities and involves not only Fort Leonard Wood teams but also the surrounding community teams. Further information on Family Support Services is available in the 2013 PEA.

Recreation Facilities

Fort Leonard Wood offers its military community, Families, Army civilians, and surrounding communities batting cages, Frisbee, golf, a skate park, auto crafts shop, outdoor swimming pool, bowling center, go-kart race track, 18-hole miniature golf course, 18-hole golf course, fitness centers, outdoor recreation opportunities including access to the Lake of the Ozarks Recreation Area, sports teams, and a public library through FMWR.

4.17.12.2 Environmental Effects

No Action Alternative

The operations at Fort Leonard Wood would continue to benefit regional economic activity, contributing economic and social benefits as businesses and jobs are drawn to the area. Fort

Leonard Wood would continue to provide community services and contribute to the tax base of the local economy. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of 5,317[23] Army positions (4,496 Soldiers and 821 Army civilians), each with an average annual income of $46,760 and $53,914, respectively. In addition, this alternative would affect an estimated 2,967 spouses and 5,104 dependent children for a total estimated potential impact to 8,071 Family members. The total population of Army employees and their Family members directly affected under Alternative 1 is projected to be 13,388.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative range. Table 4.17-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, changes in income, employment, and population in the ROI under Alternative 1 fall outside the historical range and are categorized as a significant impact. However, there would not be a significant impact to sales because the estimated percentage change is within the historical range.

Table 4.17-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+9.0	+4.6	+5.1	+2.4
Economic contraction significance value	-8.4	-3.5	-4.9	-1.5
Forecast value	-3.3	-3.9	-6.6	-5.2

[23] This number was derived by assuming the loss of 70 percent of Fort Leonard Wood's Soldiers and 30 percent of the Army civilians to arrive at 5,317. The 2013 PEA assumed the loss of 35 percent of Fort Leonard Wood's Soldiers and 15 percent of the Army civilians to arrive at 3,864.

Table 4.17-6 summarizes the predicted impacts to income, employment, and population of the reductions against the 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

Table 4.17-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$299,753,800	-5,990 (direct)	-13,388
		-867 (induced)	
		-6,857 (total)	
Total 2012 ROI economic estimates	$7,829,150,000	106,086	237,353
Percent reduction of 2012 figures	-3.8	-6.5	-5.6

Note: Sales estimates are not consistently available for all counties from public sources; therefore, comparisons of impacts with current sales estimates are not possible in all cases and, thus, are not included in this table.

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 5,317 Soldiers and civilians under Alternative 1, EIFS estimates an additional 673 direct contract service jobs would also be lost. An additional 867 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. Total reduction in employment is estimated to be 6,857, a significant reduction of 6.5 percent of the total employed labor force in the ROI of 106,086. Income is estimated to reduce by $299.7 million, a significant decrease of 3.8 percent in income from 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $318.2 million. There would also be a loss in sales tax receipts to local and state governments. The state and average local sales tax for Missouri is 7.6 percent (Tax Foundation, 2014). To estimate sales tax reductions, information on the proportion of sales that would be subject to sales on average across the country was used. According to the U.S. Economic Census, an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $318.2 million resulting in an estimated sales tax receipts decrease of $3.9 million under Alternative 1.

Of the 237,353 people (including those residing on Fort Leonard Wood) who live within the ROI, 13,388 Army employees and their Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 5.6 percent. This number could overstate potential population impacts because some of the people no longer

employed by the military could continue to live and work within the ROI, finding employment in other industry sectors. However, due to the rural nature of the area and Fort Leonard Wood as a dominant employer and economic driver of the ROI, most displaced forces would likely move out of the area to seek other opportunities with the Army or elsewhere. There are few employing sectors in the ROI to absorb displaced military employees. A small number of displaced personnel may seek and find work within the ROI; however, others may not be able to find new employment, with possible implications for the unemployment rate.

As stated above, the regional economy is highly dependent on Fort Leonard Wood. Agriculture is the second largest industry in the region followed by healthcare, retail, and education. Counties in the region have small manufacturers and health care employers and tend to be dependent on agriculture. The majority of employment opportunities in the region are near minimum wage. These employment opportunities are often seasonal and typically offer very limited benefit packages. Any workforce reductions at Fort Leonard Wood would have an adverse impact on the region's already-high unemployment rate. Agriculture would likely absorb few of the displaced members of the workforce. For civilian cuts, specialized skill sets may make it difficult to find positions paying at or near those that are provided at Fort Leonard Wood. Professional positions in the region would be substantially reduced, and the capability to attract high technology companies with related skills would be seriously harmed.

Installation trainees and students may have a substantial impact on the local economy through lodging, eating, and shopping expenditures. Additionally, formal graduation ceremonies generate demand for lodging and dining facilities when Family members attend. The impact to Fort Leonard Wood's training missions cannot be determined until after the Army completes its force structure decisions; therefore, analyzing the impact to those missions is beyond the scope of this document.

Housing

As stated in the 2013 PEA, the proposed reduction would increase availability of single barracks, single Soldier housing, and Family housing on the installation. It is anticipated that fewer notices of non-availability would be generated, and fewer Soldiers would live off the installation. The population reduction would lead to a decrease in demand for housing and an increase in housing availability in the ROI, potentially resulting in a reduction in median home values. Alternative 1 would have an adverse impact on housing throughout the ROI, ranging from minor to significant.

Schools

Under Alternative 1, a reduction of 5,317 Soldiers and Army civilians would result in a reduction of 8,071 Family members of which, 5,104 would be children. Some school districts with schools located on and off Fort Leonard Wood would be affected under Alternative 1. The Waynesville R-VI School District, with approximately 6,000 students, is likely to be affected more than other

districts because of its proximity to the installation and the number of military Family members that attend schools in this district. If enrollment in individual schools declines substantially, schools may need to reduce the number of teachers, administrators, and other staff and potentially close or consolidate with other schools within the same school district if enrollment falls below sustainable levels.

Several facilities are new or recently renovated, and the districts would likely have capital investments and debt that still need to be serviced even though overall funding levels are reduced. As a result, the Waynesville School District may have to reduce staff even further to continue to support debt servicing, and the quality of education to remaining students could suffer. The loss of Soldiers and Army civilians from Fort Leonard Wood would result in a significant loss of students and Federal Impact Aid revenue for the Waynesville R-VI School District and for other proximate school districts (Fort Leonard Wood, 2014a).

The reduction of Soldiers on Fort Leonard Wood would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal Impact Aid a district receives is based on the number of students who are considered “federally connected” and attend district schools. Actual projected dollar amounts cannot be determined at this time due to the variability of appropriated dollars from year to year and the uncertainty of the actual number of affected school-age children. School districts in the ROI would likely need fewer teachers and materials as enrollment drops, which would partially offset the reduced Federal Impact Aid. Overall, adverse impacts to schools under Alternative 1 would be minor to significant, depending on the reduction in the number of military-connected students attending specific schools.

Public Services

The demand for law enforcement, medical care providers, and fire and emergency service providers on the installation would decrease if Soldiers, Army civilians, and their Family members affected under Alternative 1 move to areas outside the ROI. The loss of Army personnel would likely affect the ability of the General Leonard Wood Army Community Hospital to maintain its status as a full service hospital. The General Leonard Wood Army Community Hospital provides some services that are not otherwise available in the ROI and that are important to the health and safety of Fort Leonard Wood personnel and the regional community.

Overall, significant adverse impacts to public health and safety would occur under Alternative 1. Although the level and number of services may decrease at medical facilities on the installation and in the ROI, the Army, regardless of any drawdown in military or civilian personnel, is committed to meeting health and safety requirements.

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. As a result, minor impacts to Family Support Services and recreation facilities would occur under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, provides: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). There are higher proportions of minority populations in Pulaski County and slightly higher proportions of poverty populations in Laclede, Phelps, Miller and Texas counties when compared to the state's proportions as a whole. In these areas with higher proportions of environmental justice populations, there is the potential that these populations could be adversely affected under Alternative 1. However, it is not anticipated that Alternative 1 would have disproportionate adverse impacts to minorities, economically disadvantaged populations, or children in the ROI. Job losses would be experienced across all income levels and economic sectors and spread geographically throughout the ROI.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of the people associated with the installation, including children. Therefore, it is not anticipated that implementing Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, are beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.17.13 Energy Demand and Generation

4.17.13.1 Affected Environment

Energy demand and generation is among the VECs excluded from detailed analysis in the 2013 PEA, as described in Section 4.15.1.2, because there were no significant, adverse environmental

impacts from implementing alternatives included in the analysis. No changes have occurred to the affected environment since 2013. As described in the 2013 PEA, electricity is provided by Sho-Me Power Electrical Cooperative, and natural gas is provided by Omega Pipeline Company.

4.17.13.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that there would be negligible impacts to energy demand and generation under the No Action Alternative at Fort Leonard Wood. For the current analysis, maintenance of existing utility systems would continue, Fort Leonard Wood would continue to consume similar types and amounts of energy, and impacts to energy demand would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy demand and generation would occur on Fort Leonard Wood. Under Alternative 1, minor, beneficial impacts to energy are anticipated due to a further reduction in energy consumption associated with the additional force reductions. The installation would also be better positioned to meet energy and sustainability goals.

4.17.14 Land Use Conflicts and Compatibility

4.17.14.1 Affected Environment

Land use is among the VECs excluded from detailed analysis in the 2013 PEA, as described in Section 4.4.1.2, because of negligible impacts resulting from implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013.

4.17.14.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that no changes to land use conditions would occur and no impacts are anticipated. Under the No Action Alternative, there would be no impacts to land use at Fort Leonard Wood.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Leonard Wood would result in land use impacts similar to those anticipated under the No Action Alternative. Under Alternative 1, impacts would be similar to those described in the 2013 PEA: no impacts to land use.

The Army is committed to ensuring that personnel cuts will not result in non-compliance of land use ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Leonard Wood, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including land use ordinances and regulations.

4.17.15 Hazardous Materials and Hazardous Waste

4.17.15.1 Affected Environment

As described in the 2013 PEA, hazardous materials are used on Fort Leonard Wood. Fort Leonard Wood has a 90-day storage facility to handle all types of hazardous waste from units and facilities. Hazardous materials and hazardous waste are handled, stored, and transported in accordance with the RCRA and state and local regulations. No substantial changes have occurred to the affected environment since 2013.

4.17.15.2 Environmental Effects

No Action Alternative

As stated in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative. Use of hazardous materials and generation of hazardous wastes would continue on Fort Leonard Wood in accordance with all applicable laws, regulations, and plans.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that temporary, minor, and adverse impacts from hazardous materials and hazardous waste would occur on Fort Leonard Wood. Alternative 1 in this SPEA is not expected to involve substantial changes to the installation operations or types of activities conducted on Fort Leonard Wood. Because of the reduced numbers of people, it is likely that the potential for spills would be reduced further during training and maintenance activities. Under Alternative 1 in this SPEA, Fort Leonard Wood would continue to implement its hazardous waste management in accordance with its HWMP and applicable regulations. The volume of waste generated and material requiring storage would increase slightly as deactivating units would turn in hazardous material for storage to avoid transportation risks.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Fort Leonard Wood, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.17.16 Traffic and Transportation

4.17.16.1 Affected Environment

Transportation resources are among the VECs excluded from detailed analysis in the 2013 PEA, as described in Section 4.15.1.2, because of negligible impacts resulting from implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013. As described in the 2013 PEA, there are no issues with the current traffic LOS.

4.17.16.2 Environmental Effects

No Action Alternative

Transportation resources for Fort Leonard Wood would experience a negligible impact under the No Action Alternative. The alternative would not increase traffic, and as described in the 2013 PEA, there are no issues with the current traffic LOS.

Alternative 1—Implement Force Reductions

With fewer people, there would be fewer cars and less traffic; therefore, a negligible, beneficial impact is anticipated for Fort Leonard Wood under Alternative 1.

4.17.17 Cumulative Effects

The ROI for the cumulative effects analysis includes the following counties in Missouri: Camden, Laclede, Maries, Miller, Phelps, Pulaski, and Texas. Section 4.15.5 of the 2013 PEA noted a number of past or present actions within the ROI that have the potential to cumulatively add impacts to Army 2020 alternatives. MILCON projects underway or pending starting in the coming year(s) are estimated to total more than $600 million.

Reasonably Foreseeable Future Projects on Fort Leonard Wood

No additional actions have been identified by the installation beyond those noted in the cumulative effects analysis of the 2013 PEA.

Reasonably Foreseeable Future Projects outside Fort Leonard Wood

The Army is not aware of any reasonably foreseeable future projects outside Fort Leonard Wood for the cumulative impacts analysis. However, there are other projects and actions that affect regional economic conditions and development activities, infrastructure improvements, and business and government projects and activities. Additionally, smaller, less diversified economies will be more vulnerable to the force reductions and provide fewer opportunities to displaced Army employees.

No Action Alternative

Cumulative effects under the No Action Alternative would be essentially the same as was determined in the 2013 PEA and would be beneficial through minor and adverse. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reductions

Cumulative effects under Alternative 1 would be essentially the same as was determined in the 2013 PEA. Overall, the potential cumulative impacts under Alternative 1 at Fort Leonard Wood are anticipated to be significant and adverse for socioeconomics with impacts for the other resources ranging from minor and adverse to beneficial. The socioeconomic impact under Alternative 1, as described in Section 4.17.12.2 with a loss of 5,317 Soldiers and Army civilians, could lead to significant impacts to the population, regional economy, schools, and housing. Not only is Fort Leonard Wood a leading training installation, it is also a leading employer and economic engine for the region, employing over 9,000 civilians in a variety of fields to include information technology, medical, engineering and accounting. Specifically, in Pulaski County, the Armed Forces accounts for 46 percent of the workforce, demonstrating the importance of installation to employment opportunities in the region. The relatively smaller, rural economy of the ROI depends on the installation's employment and economic activity. With fewer opportunities for employment, the ROI would likely not be able absorb many of the displaced forces.

Current and reasonably foreseeable actions include MILCON projects and other force re-stationing or reductions. Other services have not finalized military end-strength reduction plans, but these additional reductions could occur. These stationing changes would also affect regional economic conditions through the loss of jobs and income the region. The loss of additional military personnel would result in less spending in the ROI economy, with the loss of additional jobs, income, taxes, and sales impacts.

Fort Leonard Wood is home to the Maneuver Support Center of Excellence, U.S. Army Chemical, Biological, Radiological, and Nuclear School, U.S. Army Engineer School, U.S. Army Military Police School, Joint Transportation and other training for Soldiers, Marines, Sailors, Airmen and others. Fort Leonard Wood averages approximately 18,151 students assigned for training at a time. Cumulative actions could include reduced training opportunities because of the force reductions on Fort Leonard Wood. This could lead to further adverse impacts to socioeconomic conditions because of reduced temporary population and visitors and the attendant economic activity, spending, and jobs and income they support.

Other infrastructure improvements and construction and development activity would also benefit the regional economy through additional economic activity, jobs, and income in the ROI; however, these benefits would not offset the adverse impacts under Alternative 1. Under

Alternative 1, the loss of approximately 5,400 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have significant impacts to employment, income, tax receipts, housing values, and schools in the ROI.

4.18 Fort Meade, Maryland

4.18.1 Introduction

Fort Meade is a permanent U.S. Army installation located in the northwest corner of Anne Arundel County, Maryland (Figure 4.18-1). The installation is 17 miles southwest of downtown Baltimore, Maryland, and 24 miles northeast of Washington, DC. Annapolis is the Anne Arundel county seat and is located on the Chesapeake Bay approximately 14 miles southeast of the installation. Fort Meade is bounded by the Baltimore-Washington Parkway (MD 295) to the northwest, Annapolis Road (MD 175) to the east, Patuxent Freeway (MD 32) to the south and west, and the MARC Penn Line and Amtrak Line to the southeast.

Fort Meade encompasses 5,139 acres and consists of 1,673 separate buildings. Fort Meade was established in 1917 and was an active training facility during World War I and World War II. Fort Meade is the Nation's Preeminent Center for Information, Intelligence, and Cyber Operations. Fort Meade's primary mission is to provide a wide range of services to more than 116 partner organizations from the Army, Navy, Air Force, Marines, and Coast Guard, as well as several federal agencies such as the National Security Agency (NSA), EPA, the Office of Personnel Management, and the Army Cyber Command. With more than 56,000 employees, Fort Meade is currently the largest employer in the state of Maryland with more than 50 percent of the staff being civilian workers (Fort Meade, 2014a).

Fort Meade's 2013 baseline permanent party population was 6,638. In this SPEA, Alternative 1 assesses a potential population loss of 3,500, including approximately 2,640 permanent party Soldiers and 860 Army civilians.

Figure 4.18-1. Fort Meade, Maryland

4.18.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental or socioeconomic impacts are anticipated for Fort Meade. Table 4.18-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.18-1. Fort Meade Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	No Impacts	No Impacts
Cultural Resources	Negligible	Negligible
Noise	No Impacts	No Impacts
Soils	Negligible	Negligible
Biological Resources	Negligible	Negligible
Wetlands	Negligible	Negligible
Water Resources	Negligible	Negligible
Facilities	No Impacts	Minor
Socioeconomics	Beneficial	Less than Significant
Energy Demand and Generation	Minor	Beneficial
Land Use Conflict and Compatibility	Negligible	No Impacts
Hazardous Materials and Hazardous Waste	Minor	Minor
Traffic and Transportation	Minor	Beneficial

4.18.3 Air Quality

4.18.3.1 Affected Environment

Fort Meade is located in an area in nonattainment for $PM_{2.5}$ and in moderate nonattainment for O_3. Federal regulations designate AQCRs in violation of NAAQS as nonattainment areas. The Metropolitan Interstate area, including Anne Arundel County and Fort Meade, is AQCR 115 (EPA, 2013).

The Maryland Department of the Environment administers a program for permitting the construction and operation of new, existing, and modified stationary sources of air emissions in Maryland. Air permitting is required for many industries and facilities that emit regulated pollutants. The Maryland Department of the Environment sets permit rules and standards for emissions sources on the basis of the age and size of the emitting units, attainment status of the region where the source is located, dates of equipment installation and/or modification, and type and quantities of pollutants emitted.

Fort Meade maintains a synthetic Minor Permit to Operate. The permit requirements include an annual inventory for all significant stationary sources of air emissions and also cover monitoring, recordkeeping, and reporting (USACE, 2012). A synthetic minor permit means that Fort Meade, which is in a non-attainment area where air quality does not meet NAAQS, must keep emissions for all criteria pollutants below 25 tons per year or apply for a Title V Permit as a major source.

The installation is required to submit a comprehensive emissions statement annually. Fort Meade's 2012 installation-wide air emissions for significant stationary sources are shown in Table 4.18-2.

Table 4.18-2. Annual Emissions from Significant Stationary Sources at Fort Meade (2012)

VOC	NO_x	SO_2	$PM_{2.5}$	PM_{10}
(tons per year)				
13.38	22.39	0.10	0.43	0.81

Source: Fort Meade (2013a)

4.18.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the existing levels of emissions would continue to result in minor impacts to air quality. Emissions would continue to occur from mobile and stationary sources and would continue to be below the permitted thresholds.

Alternative 1—Implement Force Reductions

Force reductions under Alternative 1 at Fort Meade would result in long-term, beneficial air quality impacts because of reduced demand for heating/hot water and reduced mobile source emissions from vehicle trips to and from the facility.

Given the population density of AQCR 115, it is likely that the reduced vehicle trips to and from the installation would occur at a new location within the same airshed, reducing the beneficial impact. Short-term, negligible impacts to air quality could result from the relocation of personnel outside of the area due to the force reduction.

As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with air quality regulations. Even if the full end-strength reductions were to be realized at Fort Meade, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.18.4 Airspace

4.18.4.1 Affected Environment

Airspace at Fort Meade is classified as Class B airspace ranging from the surface to 10,000 feet msl based on its proximity to Baltimore/Washington International Thurgood Marshall Airport. No restricted airspace occurs at Fort Meade; however, based on its close proximity to Washington, DC, it is located on the boundary of the Washington, DC, Metropolitan Special Flight Rules Area that requires the establishment of radio communication upon entry, the filing of flight plans, use of discrete transponder codes and traffic plan operations for airports within the Special Flight Rules Area. While located in the Special Flight Rules Area, Fort Meade is outside the boundary of the Washington, DC, Metropolitan Area Flight Restricted Zone, the most limiting of airspace classifications (Federal Register, 2008).

Fort Meade is bordered in the south by Tipton Airport, a public airport with a single runway which opened in 1999 on the site of the former Tipton AAF that was closed as a result of the 1988 BRAC Act. All Fort Meade airspace needs are addressed through this location (Fort Meade Flying Activity, n.d.).

4.18.4.2 Environmental Effects

No Action Alternative

Fort Meade would maintain existing airspace operations under the No Action Alternative. All current airspace restrictions are sufficient to meet current airspace requirements and no airspace conflicts are anticipated. There would be no impacts to airspace at Fort Meade under the No Action Alternative.

Alternative 1—Implement Force Reductions

Airspace restrictions and classifications around Fort Meade are sufficient to meet current airspace requirements and a reduction in force would not alter the current airspace use and would not be projected to require additional airspace restrictions and as there are no air operations or training conducted by the Army at Fort Meade, no impacts to airspace would occur.

4.18.5 Cultural Resources

4.18.5.1 Affected Environment

The affected environment for cultural resources at Fort Meade is the installation footprint. The entirety of Fort Meade has been surveyed for archaeological sites. These surveys have resulted in the identification of 41 archaeological sites; 1 of which has been determined eligible for listing in the NRHP. Of the remaining 40 sites, 33 have been determined not eligible for the NRHP. The remaining seven are cemeteries that are considered not eligible, but are avoided during undertakings due to the presence of human remains (USACE, 2011).

Fort Meade has completed architectural surveys for all buildings and structures located on the installation constructed prior to 1960. These surveys have identified five architectural resources that are eligible for listing in the NRHP: the Fort Meade Historic District, the water treatment plant (Building 8688) and three bridges constructed by German Prisoners of War during World War II (USACE, 2011). The Fort Meade Historic District consists of 13 contributing structures, all of which date from the 1920s through the early 1940s (USACE, 2011).

There are 15 federally recognized tribes that maintain connections to lands now within the installation. A tribal consultation plan is detailed in Appendix D of the ICRMP. No TCPs or sacred areas have been identified within Fort Meade by affiliated tribes.

Fort Meade updated its ICRMP in 2011 to include information on recently evaluated historic buildings and to provide a plan for future cultural resources management and preservation. In addition to the ICRMP, Fort Meade and the Maryland Historical Trust have signed a programmatic agreement that outlines the maintenance and repair standards and guidelines for historic buildings (USACE, 2011).

4.18.5.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, cultural resources would continue to be managed in adherence with all applicable federal laws and the ICRMP. The cultural resource management staff at the installation would continue to consult with the SHPO and applicable tribes on the effects of undertakings that may affect cultural resources. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures. The effects of the No Action Alternative would be negligible as there are few archaeological sites and historic architectural resources present on the installation and existing protocols and procedures should prevent adverse impacts to these resources.

Alternative 1—Implement Force Reductions

Alternative 1 would have a negligible impacts on cultural resources. The effects of this alternative are considered to be similar to the No Action Alternative—future activities with the potential to effect cultural resources would continue to be monitored and the impacts reduced through preventative and minimization measures. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources. The Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort Meade, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to subsurface archaeological sites and historic structures from these activities are not analyzed. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of troop reductions, the installation would comply with applicable laws, such as the NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects.

4.18.6 Noise

4.18.6.1 Affected Environment

Fort Meade is relatively quiet with no significant sources of noise. Since the primary mission of the installation is to provide intelligence, administrative, and command functions, it does not have an airfield, heavy industrial operations, or heavy weapons ranges. Vehicular traffic is the major contributor to ambient noise levels at Fort Meade, and two major regional highways are adjacent to the installation: MD 295 (Baltimore-Washington Parkway) to the northwest and MD 32 (Patuxent Freeway) to the west and south (USACE, 2007). Other sources of noise include the normal operation of heating, ventilation and air conditioning systems; military unit physical training; lawn maintenance; snow removal; and construction activities. None of these operations or activities produce excessive levels of noise. Occasional helicopter arrivals and departures from Fort Meade associated with Naval Support Activity Washington's mission can increase the local ambient sound levels, but these are generally short in duration (NSA, 2010).

Existing ambient noise levels at several locations within Fort Meade have been estimated to be between a day-night average level of 55 to 65 dBA, depending on the noise receptor. Sensitive noise receptors both on and off the installation consist of residential areas, and nighttime ambient noise levels in particular have been shown to be under 55 dBA (NSA, 2009). Therefore, existing ambient noise levels at Fort Meade fall within the "normally acceptable" range as defined by the U.S. Army, FAA, and HUD criteria (NSA, 2010).

One potential source of noise originating outside the installation is Tipton Airport, a general aviation public airport located immediately to the south of the Fort Meade boundary. Aircraft operations at the airport are typically conducted from 8:30 a.m.–6:00 p.m. daily, primarily by sport, recreational, private, and business aircraft (Tipton Airport, 2014). Aircraft noise at Fort Meade is low, however, due to the fact that approach paths at Tipton Airport are oriented in an east-west direction and commercial aircraft are not permitted to fly over the NSA campus (NSA, 2010).

4.18.6.2 Environmental Effects

No Action Alternative

With implementation of the No Action Alternative, no changes in ambient noise levels are anticipated. Existing installation operations and force strength would continue unchanged. Fort Meade would remain relatively quiet with no significant sources of noise, and vehicular traffic on highways adjacent to the installation would remain the primary source of ambient noise. It is anticipated that the No Action Alternative would have no noise impacts.

Alternative 1—Implement Force Reductions

Overall, force reductions under Alternative 1 are not expected to have unavoidable, long-term impacts to sensitive noise receptors. No additional aircraft activity, vehicular traffic or construction would be likely to occur with a reduction in forces, and no change in the character of operations at the installation are anticipated. Force reductions implemented under Alternative 1 would have a negligible likelihood of driving any changes in noise levels either on or off the installation; therefore, Alternative 1 would have no noise impacts.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with noise ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Meade, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.18.7 Soils

4.18.7.1 Affected Environment

Fort Meade lies within the Atlantic Coastal Plain Physiographic Province, characterized by low hills, shallow valleys, and flat plains. The Atlantic Coastal Plain Province is underlain by unconsolidated sediments such as clay, silt, sand, and gravel on top of a harder crystalline substrate. Areas of the central portion of Fort Meade are within the 100 year floodplains of Midway Branch and Franklin Branch; a small area of the western portion of the installation is within the 100 year floodplain of the Lower Patuxent River. However, the majority of the installation is not within a 100 year floodplain (FEMA, 2012).

The predominant upland soils on Fort Meade are from the Christiana, Downer, Evesboro, Fort Mott, Hammonton, Patapsco, and Russet soil series and are characterized as very deep, flat to gently rolling, and moderately well drained to well drained. These soils are derived primarily from fluviomarine and wind-blown deposits of varying textures. Floodplain and wetland soils on Fort Meade are characterized as very deep, flat, and poorly drained. Theses soils are derived primarily from alluvium and fluviomarine sediment (NRCS, 2013).

The dominant soil map units on Fort Meade are moderately to highly erodible due mostly to their being comprised primarily of silt. Silty soils are easily detached and produce the greatest rates of runoff if they are left bare or exposed to wind and water. Thus, the dominant soils on Fort Meade, if not adequately protected by vegetation cover, would be easily eroded (NRCS, 2013). However, at Fort Meade, activities that could disturb soils are managed in accordance with the provisions of Code of Maryland Regulations which requires approved sediment and erosion plans for projects that disturb more than 5,000 square feet of land area and disturb more than 100 cubic yards of earth.

4.18.7.2 Environmental Effects

No Action Alternative

Negligible, adverse impacts to soils are anticipated under the No Action Alternative. Areas of soil erosion would continue to erode; likewise any ongoing or future scheduled construction projects would likely contribute to negligible impacts to soil from erosion. Fort Meade would continue to adhere to all state requirements and comply with BMPs described in the INRMP (U.S. Army, 2007).

Alternative 1—Implement Force Reductions

Negligible impacts to soils are anticipated under Alternative 1. There are no active munition ranges on the installation; however, there is a light maneuver/training area and a confidence/obstacle course. A force reduction may lead to fewer impacts from these types of activities; however, soils on the installation would still be impacted. A force reduction may lead to fewer future construction projects, which could potentially reduce impacts to soil from erosion.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Meade, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory regulations.

4.18.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.18.8.1 Affected Environment

Vegetation

Vegetative cover on Fort Meade consists of a mixture of individual mature trees, shrubbery and other landscaping plants, and mowed lawns. Fort Meade has an established Forest Conservation Act and Tree Management Policy to maintain a campus-like environment and preserve forested areas to the maximum extent practical in accordance with the Maryland Forest Conservation Act, while continuing to sustain and support current and future missions. Fort Meade complies with the Maryland Forest Conservation Act to the maximum extent practicable and manages its Forest Conservation Program in agreement with the Maryland Department of Natural Resources (DNR). The installation supports Army, federal, state, and local laws, regulations, policies, and initiatives to the fullest extent possible (USACE, 2012).

Wildlife

Wildlife species found on Fort Meade are typical of those found in urban-suburban areas. White-tailed deer and groundhogs occur on the installation. Other mammals include gray squirrel, raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), eastern chipmunk (*Tamias striatus*), field mouse and vole (*Microtus* spp.), mole (*Scalopus aquaticus*), and red fox (USACE, 2012). Birds common to the installation are limited to those species that have adapted to an urban-suburban habitat, such as American robin (*Turdus migratorius*), catbird (*Dumetella carolinensis*), mockingbird (*Mimus polyglyottos*), Carolina wren (*Thryothorus ludovicianus*), downy woodpecker (*Picoides pubescens*), European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), and song sparrow (*Melospiza melodia*) (USACE, 2012).

Threatened and Endangered Species

No federally listed or proposed endangered or threatened species are known to occur on Fort Meade. Rare, threatened, and endangered species survey conducted in 2001 (Eco-Science Professionals, 2001, as cited by Fort Meade, 2012) as well as a 2009 flora and fauna survey (USACE, 2009, as cited by Fort Meade, 2012) did not identify federally listed endangered or threatened species on Fort Meade.

State-listed species are not protected under the ESA; however, whenever feasible, the installation cooperates with state authorities in an effort to identify and conserve state-listed species (AAFES, 2006, as cited by Fort Meade, 2006). A 2002 survey identified the state rare mud salamander (*Pseudotriton montanus*) located along the western boundary of the installation (Versar, Inc., 2005, as cited by Fort Meade, 2006). The Little Patuxent River, adjacent to the WWTP, supports one of only two populations of the state-threatened glassy darter (*Etheostoma*

vitreum) in Maryland. The glassy darter is a member of the Perch family named for its translucent body.

Fort Meade also is home to the following Maryland species of concern:

- Downy bushclover (*Lespedeza stuevei*)—Maryland watchlist
- Pubescent sedge (*Carex hirtifolia*)—Maryland watchlist (Berman Tract)
- Purple chokeberry (*Aronia prunifloia*)—Maryland watchlist
- Roughish panicgrass (*Panicum leucothrix*)—Maryland status uncertain

Fort Meade voluntarily maintains four Habitat Protection Areas on the installation. Habitat Protection Areas are self-designated sensitive areas; one such area is located close to the WWTP. Fort Meade coordinates with Maryland DNR and tries to avoid affecting these areas to the maximum extent practical.

4.18.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to biological resources and the affected environment would remain in its current state.

Alternative 1—Implement Force Reductions

Fort Meade anticipates that implementation of Alternative 1 could result in beneficial impacts to biological resources and habitat due to force reductions if demolished buildings were returned to natural areas. However, growth pressures from the newly created Army Cyber Command within all the services could result in either expansion into these vacated building or new structures being built on the same site with an increased adverse impact on biological resources. Impacts to threatened and endangered species are expected to be negligible because no federally listed endangered or threatened species are known to occur on Fort Meade. Additionally, impacts to state-listed species of concern are likely to be negligible because designated Habitat Protection Areas would continue to be maintained under a BMP.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Meade, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.18.9 Wetlands

4.18.9.1 Affected Environment

Fort Meade contains approximately 271 acres of freshwater wetlands, associated with the watersheds of the Little Patuxent River in the western portion of the installation, Midway Branch in the center of the installation, and Franklin Branch in the eastern portion of the installation (USACE, 2012). The majority of the wetlands on the installation occur in the southwestern portion, adjacent to the Little Patuxent River. Several forested wetlands located within the Midway Branch watershed may be eligible for special concern status under the Maryland Department of the Environment because they contain ecologically important habitat for special species (USACE, 2007); however, no Maryland Department of the Environment determination has been made to date (Maryland Department of the Environment, 1998).

4.18.9.2 Environmental Effects

No Action Alternative

Negligible, adverse impacts to wetlands on Fort Meade are anticipated under the No Action Alternative. Impacts to wetlands from any current projects under construction would have already been assessed and, if required, been properly permitted and mitigated. Current management of wetlands under the INRMP, which includes avoidance and mitigation, would continue under the No Action Alternative (U.S. Army, 2007). Current management of recreational facilities would also continue under the No Action Alternative which could contribute to pollutants entering adjacent wetlands and ponds.

Alternative 1—Implement Force Reductions

Negligible impacts to wetlands on Fort Meade as a result of the implementation of Alternative 1 are anticipated. There are no active munitions ranges on the installation; however, there is a light maneuver/training area and a confidence/obstacle course. A force reduction would not lead to fewer impacts from these types of activities, because they do not occur in wetlands. Thus, it is unlikely a force reduction would change the impact threshold from the No Action Alternative.

Adverse impacts to wetlands could conceivably occur if force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Meade, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met.

4.18.10 Water Resources

4.18.10.1 Affected Environment

Surface Water/Watersheds

Fort Meade is located within the greater Chesapeake Bay watershed. The Chesapeake Bay is North America's largest and most biologically diverse estuary, home to more than 3,600 species of plants, fish, and animals (Chesapeake Bay Program, 2000). To protect and restore this valuable ecosystem, Maryland joined a consortium of state and federal agencies to establish the Chesapeake Bay Program partnership. The Army's conservation mission supports the Chesapeake Bay Programs, and Fort Meade is implementing BMPs that support the guidelines established by the partnership.

The installation lies almost entirely within the Little Patuxent River watershed (MD watershed code number 02131105), of the Patuxent River Basin. A very small area in the northeast corner of the installation drains to the Severn River. The Patuxent River drains an area of 932 square miles before emptying into the Chesapeake Bay on the western shore, and is designated a "scenic river" under the Maryland Scenic and Wild Rivers Act of 1968. The Act mandates the preservation and protection of natural values associated with each designated river, and State and local governments are required to take whatever actions necessary to protect and enhance the qualities of the designated rivers. The Little Patuxent River is currently listed on Maryland's list of impaired waters under Section 303(d) of the Clean Water Act. Impairments include sediments, metals (cadmium), and biological.

Fort Meade contains approximately 7.2 miles of perennial streams as well as other intermittent and ephemeral channels. The most significant water resources on Fort Meade are Franklin Branch and Midway Branch as well as Burba Lake. The majority of the installation is drained by Midway Branch and its primary tributary, the Franklin Branch. Both are tributaries to the Little Patuxent River. Midway Branch flows for the entire length of Fort Meade from the northern end to the southern end, then confluences with the Little Patuxent River off-site. Franklin Branch also flows through the installation from the northern end through Burba Lake, an 8.2 acre man-made lake, and confluences with Midway Branch. There are also several stormwater management features, particularly ponds, spread across Fort Meade.

Riparian buffers were incorporated into the Fort Meade Comprehensive Expansion Management Plan and subsequent BRAC projects to minimize impacts and degradation to waterbodies leading to the Chesapeake Bay. Fort Meade maintains a voluntary 100-foot riparian forest buffers along streams and abutting wetlands to the maximum extent practical.

Fort Meade is located within the Maryland Coastal Zone Management Program. This program uses various regulations to protect and conserve coastal and marine resources including uses of terrestrial and aquatic habitat. One of those resources is the Chesapeake Bay.

Groundwater

The aquifers underlying Fort Meade are the Upper Patapsco, Lower Patapsco, and Patuxent aquifers (USACE, 2012). Nearest to the surface is the unconfined Upper Patapsco aquifer occurring under water table conditions (Maryland Department of the Environment, 2012). The Arundel Clay formation overlies the Patuxent aquifer, separating it from the Lower Patapsco aquifer. The Patuxent aquifer is located below the Lower and Upper Patapsco aquifers and is 200-400 feet thick (USACE, 2012). Consisting of sand, silt, and clay substrates this aquifer contains large quantities of water (Maryland Department of the Environment, 2012). The installation has wells from 500 to 800 feet deep, drawing water from the Patuxent aquifer (U.S. Army, 2012a). Groundwater sampling within the installation boundaries has found contaminants including VOCs, semi-VOCs, total petroleum hydrocarbons (diesel range and/or gasoline range organics), pesticides, herbicides, and metals (USACE, 2013). At many sites, these contaminants have been detected but the concentrations do not exceed standards or pose a risk to human health or the environment. At those sites where concentrations are elevated, exceed standards, and/or may pose a risk, additional remedial investigations, site assessments, and monitoring are being implemented or are proposed. Cleanup at many of these sites involves active remediation operations, groundwater monitoring, or preventative measures. Any groundwater withdrawn from the Patuxent aquifer for public drinking water follows the Safe Drinking Water Act and Code of Maryland Regulations and is monitored (USACE, 2012).

Water Supply

The water supply system is privatized and owned and operated by American Water USACE, 2012). Six wells, drawing groundwater from the Patuxent aquifer, provide water for the installation (USASMDC, 2011). Groundwater is transferred to American Water's treatment plant prior to distribution. The maximum allowed draw capacity permitted by the Maryland Department of the Environment is 3.3 mgd, or approximately 1,200 million gallons per year (Permit No. AA1969G021 (07), effective 1 June 2012, expires 1 June 2024) (Fort Meade, 2014b).

Potable water storage is provided by three ASTs and seven active water storage tanks (USASMDC, 2011). The ASTs can hold a total storage volume of 2.3 million gallons and the active storage tanks can hold 200,000 to 600,000 gallons (U.S. Army, 2011, as cited by USACE, 2012).

Wastewater

American Water, a utility company, is the owner and operator of the Fort Meade wastewater treatment system. The WWTP, which discharges to the Little Patuxent River under an NPDES WWTP permit, has a design flow of 12.3 mgd. The average flow to the plant is currently approximately 2.5 mgd (Fort Meade, 2014b). During wet weather, maximum instantaneous flows can reach 12 mgd although the 10-year average is 2.3 mgd (USACE, 2012). In addition to

the wastewater treatment permit, the treatment plant also has NPDES permits for stormwater discharge from industrial facilities and from maintenance and repair actions.

Stormwater

In addition to the natural drainage areas supported by the three main surface waters on the installation, the Fort Meade stormwater system contains the physical infrastructure of storm drainpipes, drainage structures, swales, ditches, and retention ponds (USACE, 2012). Natural and constructed drainage systems eventually drain south of the installation to the Little Patuxent River, a tributary of the Chesapeake Bay (U.S. Army, 2011, as cited by USACE, 2012).

The Fort Meade SWPPP describes construction and industrial BMPs to prevent and reduce pollution in installation waterways due sediment and other contaminants (U.S. Army, 2011 as cited by USACE, 2012). Several stormwater management techniques employed include low impact development, rain gardens, debris cleanup, replacement of concrete drains, and riparian buffers (U.S. Army, 2012a). All new construction projects greater than 5,000 square feet are required to meet the stormwater requirements of the Energy Independence and Security Act of 2008 as well as the Maryland Department of the Environment environmental site design requirements for stormwater management.

Floodplains

E.O. 11988, *Floodplain Management*, requires federal agencies to avoid floodplain development and any adverse impacts from the use or modification of floodplains when there is a feasible alternative. Specifically, Section 1 of E.O. 11988 states that an agency is required to “reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities.” The 100-year floodplain indicates areas where the flood has a 1 percent chance of being equaled or exceeded in any year. The 500-year floodplain indicates areas where the flood has a 0.2 percent chance of being equaled or exceeded in any year. Specific areas of flooding include areas adjacent to the Franklin and Midway Branches (USACE, 2012).

4.18.10.2 Environmental Effects

No Action Alternative

Negligible impacts to water resources are anticipated from the No Action Alternative. Conditions of water resources under the No Action Alternative would not change. Fort Meade would continue to strive to meet federal and state water quality criteria, drinking water standards, and floodplain management requirements. The installation would continue to comply with all federal and state regulations and guidelines concerning wastewater, stormwater management, and floodplains. Current water resources management and compliance activities would continue to occur.

Alternative 1—Implement Force Reductions

Negligible impacts to water resources are anticipated from Alternative 1. Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Fort Meade, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented. A decrease in personnel would reduce the amount of treated wastewater discharged to the receiving surface water and the demand for potable water and treatment. These would likely have negligible to beneficial impacts. Force reduction at Fort Meade is not anticipated to cause violations of federal and state water quality regulations and discharge permits.

4.18.11 Facilities

4.18.11.1 Affected Environment

Fort Meade is the Nation’s center for information, intelligence, and cyber operations. Fort Meade's facility infrastructure consists of 1,673 buildings providing 11,055, 345 square feet of building space. Fort Meade's workforce is comprised of 13,594 military and 35,539 civilian for a total workforce of 49,258 military and civilian employees (Fort Meade, 2014b).

Support facilities at Fort Meade include troop barracks, Family housing, temporary lodging, apartments, schools, child and youth services, a conference center, a wellness center, chapels, a fitness center, afield house, and other recreational facilities (U.S. Army, 2012b).

BRAC 2005 actions had significant impacts to Fort Meade’s facilities. BRAC 2005 actions included the construction of the following: Defense Information Systems Agency headquarters (a total of 1,000,000 square feet of office space in five buildings); new headquarters for the Defense Media Activity (186,000 square feet in a multi-story building); a new headquarters for the Colocation of Defense/Military Adjudication Activities (152,000 square feet); and associated support infrastructure (USACE, 2008).

4.18.11.2 Environmental Effects

No Action Alternative

No impacts are anticipated under the No Action Alternative. Fort Meade would continue to use its existing facilities to support its tenants and missions.

Alternative 1—Implement Force Reductions

Minor impacts to facilities are anticipated as a result of implementation of force reductions under Alternative 1. Force reductions associated with Alternative 1 would reduce requirements for

facilities and affect space utilization across the installation. Construction or major expansion projects that had been programmed in the future may not occur or could be downscoped. Occupants of older, underutilized, or excess facilities may be moved to newer facilities; in some cases this could require modification of existing facilities. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.18.12 Socioeconomics

4.18.12.1 Affected Environment

The ROI consists of Fort Meade and Anne Arundel, Baltimore, Howard, and Prince George's counties in Maryland. The ROI includes counties that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, and contractor personnel and their Families reside. This section provides a summary of demographic and economic characteristics within the ROI.

Population and Demographics

Using 2013 as a baseline, Fort Meade has a total working population of 51,628 consisting of active component Soldiers and Army civilians, students and trainees, other military services, civilians and contractors. Of the total working population, 6,638 were permanent party Soldiers and Army civilians. The population that lives on Fort Meade consists of 2,100 Soldiers and an estimated 3,188 Family members, for a total on-installation Army resident population of 5,288 (Stafford, 2014). The portion of Soldiers, Army civilians, and Family members living off the installation is estimated to be 11,427. Additionally, there are 771 total students and trainees on the installation at any given time, which includes PCS military students, TDY students and trainees, PCS civilian student, and TDY civilian students.

In 2012, the ROI population was over 2.5 million. Compared to 2010, the 2012 population increased in all counties in the ROI with the largest increase in Howard County (Table 4.18-3). The racial and ethnic composition of the ROI is presented in Table 4.18-4 (U.S. Census Bureau, 2012a).

Table 4.18-3. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Anne Arundel County, Maryland	550,175	+2.3
Baltimore County, Maryland	817,682	+1.6
Howard County, Maryland	299,356	+4.3
Prince George's County, Maryland	881,419	+2.1

Table 4.18-4. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
State of Maryland	60.8	30.0	0.5	6.0	2.5	8.7	53.9
Anne Arundel County, Maryland	76.9	16.1	0.4	3.7	2.8	6.6	71.5
Baltimore County, Maryland	64.8	27.0	0.4	5.4	2.2	4.6	61.4
Howard County, Maryland	62.3	18.1	0.4	15.7	3.4	6.2	57.6
Prince George's County, Maryland	26.5	65.3	1.0	4.4	2.6	15.7	14.8

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Income

In 2012, the total employed labor force in the ROI was approximately 1.3 million (U.S. Census Bureau, 2012b). Between 2010 and 2012, the total employed labor force (including civilians and military) increased in the state of Maryland and all of the ROI counties, with the largest increase in Howard County (Table 4.18-5). Employment, median home value, and household income, and population below the poverty level are presented in Table 4.18-5.

Table 4.18-5. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000-2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Maryland	2,952,570	+11.8	304,900	72,999	9.4
Anne Arundel County, Maryland	285,024	+8.9	349,800	86,987	5.9
Baltimore County, Maryland	408,698	+7.8	$263,900	$66,068	5.7
Howard County, Maryland	156,885	+14.9	435,300	107,821	4.4
Prince George's County, Maryland	460,186	+13.3	289,400	73,568	8.7

Source: U.S. Census Bureau (2012b, 2000)

Information regarding the workforce by industry for each county within the ROI was obtained from the U.S. Census Bureau. Information presented below is for the employed labor force.

Anne Arundel County, Maryland

According to the U.S. Census Bureau, the educational services, and health care, and social assistance sector accounts for the greatest share of total workforce in Anne Arundel County (19 percent). The professional, scientific, and management, and administrative, and waste management services sector is the second largest employer (14 percent), followed by public administration (13 percent). The Armed Forces account for 2 percent of the county's workforce. The remaining 10 industries employ 54 percent of the workforce.

Major employers in Anne Arundel County include Baltimore Washington Medical Center, Booz Allen & Hamilton, Maryland Live! Casino, and Northrop Grumman Corporation (Maryland DLLR, 2013).

Baltimore County, Maryland

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of total workforce in Baltimore County (26 percent). Professional, scientific, and management, and administrative and waste management services is the second largest employment sector (12 percent), followed by retail trade (11 percent). The Armed Forces account for less than 1 percent of the county's workforce. The remaining 10 industries employ 51 percent of the county's workforce (U.S. Census Bureau, 2010).

The top three principal employers in Baltimore County include Social Security Administration/CMS, Baltimore County Public Schools, and Baltimore County Government (Baltimore County Department of Economic Development, 2010).

Howard County, Maryland

According to the U.S. Census, the educational services, and health care and social assistance sector accounts for the greatest share of total workforce in Howard County (22 percent). Professional, scientific, management, administrative, and waste management services sector is the second largest employment sector (20 percent), followed by public administration (11 percent). The Armed Forces account for less than 1 percent of the county's workforce. The remaining 10 industries employ 47 percent of the workforce.

Major employers in Howard County include Cellco Partnership, Giant, Howard County General Hospital, and Maxim Healthcare Service (Maryland DLLR, 2013).

Prince George's County, Maryland

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of total workforce in Prince George's County (21 percent). Public administration is the second largest employment sector (16 percent), followed by professional, scientific, management, administrative, and waste management services sector (15 percent). The Armed Forces account for less than 1 percent of the county's workforce. The remaining 10 industries employ 48 percent of the workforce.

Major employers in Prince George's County include Dimensions Health Corporation, Doctors Hospital, Giant, and Marriott Hotel Services (Maryland DLLR, 2013).

Housing

There are currently 2,627 permanent military Family homes provided by the Army's privatized housing partner, Corvias Military Living. Active component military, including Army, Navy, Air Force, Marines and Coast Guard, and their Family members currently occupy 2,277 homes and 350 homes are occupied by military retirees, federal civilian employees and their Family members. A total of 8,500 military, retirees, civilians and their Family members live in installation Family housing. An additional 906 active component military from all services live in the permanent party barracks and 362 active component military from all services live in training barracks. Active component military eligible to stay in barracks but for which no space is available are issued Certificates of Non-Availability to obtain housing off the installation. Currently, a privatized apartment project within the installation fence line, known as Reece Crossings, is under construction to provide 816 beds for single active component military from E-1 to E-5.

Fort Meade currently provides on-installation transient lodging services through the use of 196 lodging units within seven buildings. Fort Meade has lodging facilities primarily for official TDY or PCS. When Soldiers on TDY, PCS, or unofficial demand cannot be accommodated on the installation, they receive Certificates of Non-Availability to stay at an off-the-installation lodging facility. During the 4-year period from FY 2008 through FY 2011, Fort Meade Army Lodging had an occupancy rate of 81 percent (USACE, 2012). A Candlewood Suites hotel is currently under construction through the Privatized Army Lodging Program to replace out of date lodging facilities.

Schools

All schools on Fort Meade are part of Anne Arundel County Public Schools. Fort Meade has seven schools on the installation: West Meade Early Education Center (pre-kindergarten to kindergarten); Pershing Hill Elementary (grades 1–5); Manor View Elementary (grades 1–5); Meade Heights Elementary (grades 1–5); Meade Middle School (grades 6–8); MacArthur Middle School (grades 6–8); and Meade High School (grades 9–12). Student's home address determines the school they attend. Unless the student is homeschooled or has been accepted to attend a different school (i.e., magnet program or charter school), all kindergarten through grade 12 students who live on the installation attend one of the aforementioned schools on the installation.

Many military Families who live off the installation commute from various areas and generally live in four major school districts. Many military members travel to Fort Meade from the following surrounding counties: Prince George's County, Montgomery County, Howard County, Baltimore County, and Anne Arundel County (Fort Meade's location).

Due to the population growth at Fort Meade, it is expected that Meade Middle and Meade High School will be affected by the newly-anticipated housing developments around Fort Meade. Meade High School is currently using portable trailers that house students for classes due to the lack of space in the building. The school has recently been approved to make interior changes and improvements. Additionally, the construction of an addition to the Meade High School is planned for the summer of 2014.

Public Health and Safety

Police Services

The Fort Meade DES provides police protection for the installation. The Police Services Division provides physical security, law enforcement, crime prevention and investigation, traffic enforcement and control, apprehension of military deserters, and animal control (Fort Meade, 2013b).

Fire and Emergency Services

The Fort Meade Fire and Emergency Services Department provides fire suppression, rescue, fire prevention, emergency medical response, hazardous materials response, and aircraft crash response (Fort Meade, 2013b).

Medical Facilities

Healthcare on the installation is provided at the Kimbrough Ambulatory Care Clinic. Kimbrough is the headquarters of the U.S. Army Medical Department Activity. Kimbrough provides primary care, selected specialty care, and same-day surgery for TRICARE Prime patients, but it is not a hospital and does not provide emergency services. The Veterans Administration operates a newly constructed Health Clinic adjacent to Kimbrough Ambulatory Care Clinic. In addition, a renovation of an existing building is now home to the first Army Wellness Center. Health care facilities off the installation include the Anne Arundel Medical Center, Howard County General Hospital, Baltimore Washington Medical Center, and Johns Hopkins Hospital. Fort Meade has two dental clinics (AMEDD, 2010; Fort Meade Alliance, 2010; MHA, 2011).

Family Support Services

The Fort Meade ACS mission is to provide comprehensive, coordinated and responsive services that support the readiness of Soldiers and civilian employees (both appropriated and non-appropriated funded) and their Families. There are a wide variety of programs and services to assist Soldiers and their Families, including Army Emergency Relief Program, Army Family Action Plan, Army Family Team Building, Army Volunteer Corps, Employment Readiness, Exceptional Family Member, Financial Readiness, Relocation Assistance, Sexual Assault Prevention and Response Program, Family Advocacy Program, New Parent Support, Soldier and Family Assistance Center, and Survivor Outreach Services.

The Fort Meade CYSS provides recreational and learning programs for children and teens at Fort Meade. Fort Meade CYSS encompasses three child development centers, a teen center, youth center, youth sports, SKIES program, and school liaison services.

While Fort Meade's ACS programs and CYSS programs are Army programs, services are also provided to all other branches. The Fleet and Family Support Services and Airman and Family Readiness Centers are co-located with the ACS program. Only those programs which are geared directly toward one particular service, such as Family Readiness Programs, Mobilization and Demobilization services, are restricted to Soldiers and their Families. All other services and youth programs are provided across branches.

Recreation Facilities

Fort Meade Family and MWR provides its military community, Families, and civilians various recreational opportunities on the installation, including a fitness center and indoor pool, field house, outdoor recreational opportunities and rentals, Burba Park, dog park, RV park and storage

lot, automobile craft center, library, leisure travel services, special events and an arts and crafts center.

4.18.12.2 Environmental Effects

No Action Alternative

Fort Meade's operations would continue to benefit regional economic activity. No additional impacts to population, housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a less than significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of 3,500[24] Army positions (2,640 Soldiers and 860 Army civilians), each with an average annual income of $46,760 and $64,203, respectively. In addition, this alternative would affect an estimated 5,313 Family members (1,953 spouses and 3,360 dependent children). The total population of Army employees and their Families directly affected under Alternative 1 is projected to be 8,813.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative ranges. Table 4.18-6 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, there would not be significant impacts to sales, income, employment, and population in the ROI under Alternative 1 because the estimated percentage changes are within the historical range.

[24] This number was derived by assuming the loss of 70 percent of Fort Meade's Soldiers and 30 percent of the Army civilians.

Table 4.18-6. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+4.9	+3.0	+3.8	+1.7
Economic contraction significance value	-6.7	-3.2	-3.2	-0.6
Forecast value	-0.2	-0.2	-0.5	-0.3

Table 4.18-7 summarizes the predicted impacts to income, employment, and population of the reductions against the 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

Table 4.18-7. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$247,821,800	-3,946 (Direct)	-8,813
		-1,204 (Induced)	
		-5,150 (Total)	
Total 2012 ROI economic estimates	$136,382,182,000	1,310,793	1,731,767
Percent reduction of 2012 figures	-0.2	-0.4	-0.5

Note: Sales estimates are not consistently available from public sources for all counties in the United States; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from EIFS is described in the paragraphs below.

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 3,500 Army Soldiers and civilians under Alternative 1, EIFS estimates an additional 446 direct contract service jobs would also be lost. An additional 1,204 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. Total reduction in employment is estimated to be 5,150, a 0.4 percent reduction of the total employed labor force in the ROI of 1,310,793. Income is estimated to reduce by $247.8 million, a 0.2 percent decrease in income in 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $390 million. There would also be a loss in sales tax receipts to local and state governments. The state and average local sales tax for Maryland is 6 percent (Tax Foundation, 2014). To estimate sales tax reductions, information was utilized on the proportion of sales that would be subject to sales tax on average across the country. According to the U.S. Economic Census, an estimated 16 percent

of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $389.6 million resulting in an estimated sales tax receipts decrease of $3.7 million under Alternative 1.

Of the 1,731,767 people (including those residing on Fort Meade) who live within the ROI, 8,813 Army employees and their Family members are predicted to no longer reside in the area under Alternative 1, resulting in a population reduction of 0.5 percent. This number likely overstates potential population impacts because some of the people no longer employed by the Army would continue to live and work within the ROI, finding employment in other industry sectors.

Housing

The population reduction under Alternative 1 would lead to temporary decreased demand for housing and increased housing availability on the installation and in the region, potentially leading to a reduction in median home values. With an expected decrease in population within the ROI of 0.5 percent along with the large and diversified ROI economy, it is likely that housing impacts under Alternative 1 would be minor and adverse.

Schools

Under Alternative 1, the reduction of 3,500 Army personnel would decrease the number of children by 3,360 in the ROI. It is anticipated that school districts that provide education to Army children on the installation would be impacted under this Alternative. Meade Middle School and Meade High school, located on the installation, would be most affected by these decreases in enrollment as these schools provide education for Army children on and off the installation. The remaining five Anne Arundel County schools on the installation and school districts in the ROI that provide education to military children would also have a decreased number of military-dependent students attending their schools. Alternative 1 may have beneficial impacts in some of the school districts that are experiencing considerable growth in enrollment, which includes the schools on the installation, where student enrollment is close to or over the schools' capacity. Within these schools, Alternative 1 could lead to reduced school crowding, smaller class sizes, and a reduction in student to teacher ratios.

The reduction of Soldiers on Fort Meade would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal School Impact Aid a district receives is based on the number of students who are considered "federally connected" and attend district schools. Actual projected dollar amounts cannot be determined at this time due to the variability of appropriated dollars from year to year and the uncertainty regarding the actual number of affected school-age children. In 2010, however, Federal Impact Aid accounts for 3.5 percent of revenue sources for Anne Arundel County schools, and the county received $2.0 million in Federal Impact Aid funds (Anne Arundel County, 2009a).

School districts in the ROI would likely need fewer teachers and materials as military-dependent enrollment drops, which would partially offset some of the reduced Federal Impact Aid. Overall, impacts to schools under Alternative 1 would range from beneficial to significant and adverse, depending on the reduction of the number of military-connected students attending schools and the current enrollment relative to the school's capacity.

Public Services

Law enforcement, medical care providers, and fire and emergency service providers on the installation may experience a decrease in demand if Soldiers and Army civilians, and their Family members, affected by Alternative 1, move to areas outside the ROI. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements. Overall, there would be minor, adverse impacts to public health and safety as a result of Alternative 1. The impacts to public services are not expected to be significant because the existing service level for the installation and the ROI would still be available.

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. While there may be a decreased demand from Army customers, demands of all other services will remain constant and potentially increase. Overall, there will be minor impacts to Family Support Services and recreation facilities because these installation-supported services are operated primarily by non-appropriated-funded civilian employees who are not part of the Alternative 1 reductions.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, provides: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). The racial and ethnic composition of the ROI differs from that of the state as a whole, with notably higher proportions of African American and poverty populations in Prince George's County when compared to the state as a whole. Because minority populations are more heavily concentrated in Prince George's County, Alternative 1 has the potential to result in adverse impacts to minority-owned and/or minority-staffed businesses if Soldiers and Army civilians directly affected under Alternative 1 move to areas outside the ROI. Overall, although adverse impacts to environmental justice populations might occur under Alternative 1, they would not disproportionately affect these populations.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of the people associated with the installation, including children. Therefore, it is not anticipated that implementing Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.18.13 Energy Demand and Generation

4.18.13.1 Affected Environment

Fort Meade's energy needs are currently met by a combination of electric power and natural gas. During the past decade, Congress has enacted major energy bills, and the President has issued Executive Orders that direct federal agencies to address energy efficiency and environmental sustainability. The federal requirements for energy conservation that are most relevant to Fort Meade include the Energy Policy Act of 2005; E.O. 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, issued January 2007; Energy Independence and Security Act of 2007; and E.O. 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, issued October 2009. Fort Meade is striving to comply with these requirements.

Electricity

Baltimore Gas and Electric supplies electricity to Fort Meade. A 115-kV transmission line brings electricity to master substations on the installation. The existing primary source for about 80 percent of installation power is a 110-kV feeder line from Baltimore Gas and Electric's Waugh Chapel Power Station. In 2004, Fort Meade partnered with Baltimore Gas and Electric to privatize the electric utility. Since then, Baltimore Gas and Electric has upgraded 75 percent of the installation's gas and electrical systems (Fort Meade, 2011).

Natural Gas

Baltimore Gas and Electric supplies natural gas to Fort Meade. The natural gas distribution system at Fort Meade is extensive and runs throughout the installation. New, gas-fired boilers installed throughout the installation have replaced old, centralized oil-fired boilers (USASMDC, 2011).

4.18.13.2 Environmental Effects

No Action Alternative

Minor, adverse impacts are anticipated on energy demand. The continued use of outdated, energy-inefficient facilities could hinder Fort Meade's requirement to reduce energy consumption. Some older facilities may require renovations to improve energy efficiency to achieve federal mandate requirements.

Alternative 1—Implement Force Reductions

Minor, beneficial impacts to energy demand are anticipated because force reductions would reduce the installation's overall demand for energy. The installation would also be better positioned to meet energy and sustainability goals. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on energy demand are not analyzed.

4.18.14 Land Use Conflicts and Compatibility

4.18.14.1 Affected Environment

Regional Setting

Land use at Fort Meade is made up of general designated land use categories including Operations, Tenant Agency, Housing, Community, School, and Open Space (USACE, 2007). The northern half of Fort Meade is predominantly military Family housing with schools. The southern half consists primarily of administrative, unaccompanied housing, and instructional operations. The retail center is near the center of the installation between Reece and Mapes roads. NSA has expanded into the center of the installation, currently constructing its "East Campus," and occupies approximately 862 acres. Existing development at Fort Meade includes administrative buildings and industrial areas in the form of motor pools and warehouses as well as a significant number of Family housing units that are currently being upgraded under the RCI. The installation also has recreational areas and a shopping complex with a main post exchange, commissary, bank, gas station, post office, and bowling alley (NSA, 2010).

Surrounding Land Uses

The overall pattern of land use surrounding Fort Meade is best characterized as a developed, suburban landscape that supports a growing population. Towns near Fort Meade include Odenton to the east, Jessup to the north, and Laurel to the west (USACE, 2007). Land planning and development in the areas adjacent to the installation is guided by the Anne Arundel County 2009 General Development Plan. The plan establishes a vision for the future based on four core principles: balanced growth and sustainability, community preservation and enhancement, environmental stewardship, and quality public services. It includes a Land Use Plan to guide

future development patterns, and a Transportation Plan with recommendations for improving the County's road network, public transit options, and travel demand management (Anne Arundel County, 2009b). The Anne Arundel County Zoning Ordinance establishes a set of enforceable regulations established to promote compatible patterns of land use within the County. Zoning districts that have been created based on the desired predominant use of land govern the use and development of individual property within Anne Arundel County (Anne Arundel County, 2014). Areas to the north and east of Fort Meade are zoned for a range of residential uses with higher density residential development to the east. Areas to the northwest are zoned for residential use with some industrial zoning areas as well. Zoning regulations to the west of Fort Meade establish a wide variety of residential, commercial, and industrial uses with large amounts of open space along the Little Patuxent River. Land use in these commercial and industrial areas is mostly government in nature. Areas to the south of Fort Meade are zoned for recreation and parks, including the 12,750-acre Patuxent Research Refuge (NSA, 2010).

4.18.14.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would include the continuation of existing operations and force strength at Fort Meade. Since Fort Meade serves predominantly intelligence, administrative, and command functions, the installation does not have an airfield, heavy industrial areas, or heavy weapons ranges (USACE, 2007) and existing uses on the installation are compatible with those in surrounding areas. Continued population growth in areas immediately surrounding the installation could generate land development pressures that may represent potential land use incompatibilities in the future. While the 2009 General Development Plan notes that growth in the region outpaced that of the Baltimore region and Maryland as a whole over the preceding 20 years, it forecasts that growth will slow as the county matures and reaches the limits of its development capacity (Anne Arundel County, 2009b). Overall, negligible land use compatibility impacts are anticipated with implementation of the No Action Alternative.

Alternative 1—Implement Force Reductions

Under Alternative 1, the impacts from force reductions on land use compatibility would be similar to those described for the No Action Alternative. No changes to the pattern or character of land use on the installation are anticipated, and there would be no likelihood of land use conflicts with use surrounding the installation. Alternative 1 would therefore have no impacts related to land use conflicts and compatibility.

4.18.15 Hazardous Materials and Hazardous Waste

4.18.15.1 Affected Environment

Hazardous Materials

Fort Meade's DPW Environmental Division is responsible for managing hazardous materials and waste. Hazardous materials ranging from small quantities of cleaners and printing supplies to larger quantities of fuels, oils, and chemicals are used in most facilities at Fort Meade. Current policy stipulates that DoD facilities will use materials that are the most environmentally suitable and least damaging as long as the materials meet the criteria and specifications for a given task (USACE, 2007).

The installation operates under an SPCC/ISC Plan for all facilities where hazardous materials are stored. The SPCC/ISC Plan delineates measures and practices that require implementation to prevent and/or minimize spills and releases from storage and handling of hazardous materials to protect ground and water surfaces. In accordance with state, federal, and Army regulations, the SPCC/ISC Plan is updated at least every 3 years, or when significant changes in operations occur that could affect the likelihood of a spill. The SPCC/ISC Plan provides emergency response instructions for spills and uncontrolled releases of hazardous materials. Instructions include notification, probable spill routes, control measures, exposure limits, and evacuation guidelines. Material Safety Data Sheets that provide information about health hazards and first-aid procedures are included in the SPCC/ISC Plan (Baltimore Gas & Electric, 2012).

Fort Meade also has an installation HWMP. Those who handle or manage hazardous materials or hazardous waste are trained in accordance with federal, state, local, and Army requirements.

Hazardous Waste Treatment, Storage, and Disposal

Fort Meade generates relatively small quantities of a variety of hazardous wastes and is regulated as a RCRA hazardous waste generator. Procedures for handling, storage, transportation, and disposal of hazardous materials and wastes are outlined in the installation's HWMP. The plan also outlines command responsibilities, identification procedures, inspections, personnel training, and spill response procedures.

Several activities routinely performed on the installation generate hazardous waste; however, hazardous wastes that are stored for less than 90 days do not require a permit. Typical hazardous wastes that might be generated include waste paint; thinners; antifreeze; various petroleum products, oils, and lubricants; brake fluid; hydraulic fluid; cleaners; degreasers; solvents; fuels (gasoline and diesel); and batteries. Hazardous materials are handled and stored in appropriate cabinets or containers in accordance with applicable regulations and label precautions. All hazardous wastes are disposed of at permitted treatment, storage, and disposal facilities.

Hazardous wastes are maintained at satellite accumulation areas on Fort Meade. After these facilities have reached regulated capacities (55-gallon drum for hazardous waste, 1 quart for acutely hazardous waste), the hazardous waste is transported to the Controlled Hazardous Substance Storage Facility (Building 2250). In accordance with EPA and Maryland Department of the Environment regulations, a running inventory of hazardous waste is maintained at the storage facility.

Sludge disposed of from the WWTP requires a Sewage Sludge Utilization Permit to be obtained from the Maryland Department of the Environment by the contractor handling the sludge. Non-hazardous solid waste generated on Fort Meade is transported off the installation by a contractor and disposed of at permitted landfills (Baltimore Gas & Electric, 2012).

Hazardous Waste Investigation and Remediation Sites

The Fort Meade IRP is intended to protect human health, safety, and the environment. The IRP is carried out in accordance with all federal, state, and local laws. On July 28, 1998, all of Fort Meade was designated a site on the NPL under CERCLA, based on the evaluation of four locations that have been identified as past storage and disposal sites for hazardous materials and wastes: the Defense Reutilization and Marketing Office, active sanitary landfill, clean fill dump, and laundry facility. In 2009, Fort Meade signed a Federal Facility Agreement with EPA, U.S. Department of the Interior, and U.S. Architect of the Capitol. This document establishes the roles that all signatories play in the restoration of the installation and the formal mechanisms of this process. The IRP's staff works closely with EPA, Maryland Department of the Environment, and local government agencies to ensure that cleanup processes are conducted properly and efficiently. The staff also receives input from community groups and nearby residential areas (USACE, 2013).

The installation also has an active Military Munitions Response Program, which includes two Munitions Response Sites.

Other Hazards

Other hazards present at Fort Meade are controlled, managed, and removed through specific programs and plans and include UXO, PCBs, LBP, asbestos-containing materials, radon, mold, and pesticides.

4.18.15.2 Environmental Effects

No Action Alternative

Minor, adverse impacts are anticipated under the No Action Alternative because there would be continued use and generation of hazardous materials and wastes on Fort Meade. The existing types and quantities of hazardous wastes generated on the installation have been accommodated by the existing hazardous waste management system, and all materials and waste would continue

to be handled in accordance with all applicable laws, regulations, and plans minimizing potential impacts.

Alternative 1—Implement Force Reductions

Minor, adverse impacts are anticipated from implementation of Alternative 1. Remediation activities are not expected to be affected by Alternative 1. Because of the reduced numbers of people, it is expected that the potential for spills would be reduced during training and maintenance activities. Waste collection, storage, and disposal processes would remain mostly unchanged, although the quantities may be reduced. No violation of hazardous waste regulations or the Fort Meade hazardous waste permit is anticipated as a result of force reductions. Volumes of generated waste are expected to decline depending on the specific units affected.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Fort Meade, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.18.16 Traffic and Transportation

4.18.16.1 Affected Environment

Transportation in and around Fort Meade is achieved mainly via road and street networks, pedestrian walks, trails, and limited bike paths, supported by an extensive commuter rail and bus network. The transportation system serves installation traffic consisting of everyday work, living, and recreation trips (USACE, 2012).

Off-Installation Roadways

Local roadways providing direct access to the installation include the Patuxent Freeway (MD 32), Fort Meade Road (MD 198), Reece Road (MD 174), and Annapolis Road (MD 175) (USACE, 2012). MD 175 generally operates with good LOS during peak hours (U.S. Army, 2010). Farther to the west is the Baltimore–Washington Parkway (MD 295). MD 295 can be congested during the morning and afternoon peak hours in the peak direction of flow carrying traffic north-south between Baltimore, Maryland, and Washington, DC. MD 295 is adjacent to Fort Meade, extending southwest-northeast. It is a freeway that links Fort Meade to Washington, DC (and points south) to the southwest and Baltimore, Maryland; Philadelphia, Pennsylvania; and Wilmington, Delaware, to the northeast. I-95 generally parallels MD-295 and is approximately 5 miles from the installation (USACE, 2012).

Installation Roadways and Gate Traffic

Transportation on roadways in and around Fort Meade during the morning and afternoon peak periods typically experiences moderate to heavy delays at the gates for access to the installation. A system of sidewalks primarily limited to troop areas and military housing accommodates pedestrian traffic. Troop pathways are provided between foot traffic high-volume areas (USACE, 2012). Roadway widenings (five projects) and ACP improvements (two projects) designated as necessary to accommodate BRAC personnel were documented in the Final EA for Road Improvements (U.S. Army, 2010); however, only two intersection projects have been completed with the remainder unfunded.

Fort Meade (not including the NSA) can be accessed by five ACPs. All ACPs are gated entry, and vehicle occupants undergo identification card checks and random vehicle inspections at these points. Gate 7 (Demps Control Center, Reece Road Gate) is the only gate that provides 24-hour access, and all visitors without a DoD decal and identification badge must use this gate (USACE, 2012).

Air, Rail, and Public Transportation

The closest airport—Baltimore/Washington International Thurgood Marshall—is approximately 10 miles from Fort Meade. It provides commercial cargo and passenger air service. Amtrak passenger rail service has stations in Washington, DC, Baltimore, and Baltimore/Washington International Thurgood Marshall Airport, where connections can be made to areas throughout the country (USACE, 2012).

MARC, part of the Maryland Transit Administration (MTA) provides commuter rail service along the Penn line (same line as Amtrak) extending from Perryville and Aberdeen through Baltimore to Washington, DC, including stops at Baltimore/Washington International Thurgood Marshall Airport, Odenton (less than 4 miles from Fort Meade), the New Carrollton Metro Station and Washington Union Station (MTA, 2014). Fort Meade operates a shuttle service to the Odenton MARC station during the morning and evening rush hours (USACE, 2012). MARC also provides commuter rail service between Baltimore and Washington along the Camden line, which is primarily west of the Penn line, beginning at Camden Yard in Baltimore, with stops including Laurel (less than 6 miles from Fort Meade), the Greenbelt Metro Station and Washington Union Station (MTA, 2014).

In addition to MARC, MTA administers and operates an interconnected system of subway (heavy rail), light rail, city buses and commuter buses that directly or indirectly serve Fort Meade. The MTA also supports WMATA, which provides bus connections to Baltimore/Washington International Thurgood Marshall Airport and other locations near Fort Meade, and the WMATA subway (heavy rail) system with 6 lines and more than 100 stations connecting the Washington area (MTA, 2014).

The (Baltimore) Metro heavy rail system provides high-speed transit service in a 15.5-mile corridor from Owings Mills in western Baltimore County through downtown Baltimore to Johns Hopkins Hospital. Passengers can transfer to light rail covering additional service portions of Baltimore City, Baltimore County, and Anne Arundel County, including Baltimore/Washington International Thurgood Marshall Airport (MTA, 2014). Local bus routes provided by MTA, WMATA, and Connect-A-Ride (sponsored by Anne Arundel and Howard counties) serve Odenton and Fort Meade (USACE, 2012).

4.18.16.2 Environmental Effects

No Action Alternative

The No Action Alternative would continue the current trends of increasing traffic congestion on roadways near or on the installation itself, including continued personnel increases by various tenants of Fort Meade. The traffic impact is currently moderately significant and although two intersection improvement projects have been completed within the fence line of the installation, other needed road widening projects and ACP replacements have not been constructed. Maryland State Highway has completed one intersection improvement project on MD 175 and will be awarding two others in 2014. However, difficulties in retention of trained gate guards have resulted in the closure of one ACP and reducing the effectiveness of any roadway improvement.

Alternative 1—Implement Force Reductions

Alternative 1 would result in a minor, beneficial improvement in traffic on and off the installation related to the reduction of personnel. If the maximum population reduction scenario of 3,500 were to be implemented, reducing the installation population by approximately 7 percent, a slight decrease in congestion is expected on the installation and nearby; however, this may be offset by increases in other tenants, including NSA.

4.18.17 Cumulative Effects

The ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Meade consists of Anne Arundel, Baltimore, Howard, and Prince George's counties in Maryland. No specific planned or proposed government sector layoffs or downsizing within the ROI are known to Fort Meade that would further reduce employment or economic activity with the ROI.

Reasonably Foreseeable Future Projects on Fort Meade

There are currently 14 major construction projects that are ongoing and or funded to begin. These projects would continue to grow the installation for which the Army workforce is responsible to support and integrate into the overall functioning of the installation, including:

- Route 175 intersections
- Rockenbach ACP
- Enhanced Use Lease office building
- Army and Air Force Exchange Service Exchange Service
- Reece Crossings Apartment Project
- Candlewood Suites Privatized Lodging
- multiple NSA East Campus projects
- a major water reclamation project

Reasonably Foreseeable Future Projects outside Fort Meade

The Army is not aware of any reasonably foreseeable future projects outside Fort Meade which would be appropriate for inclusion in the cumulative impacts analysis. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, larger economies with more job opportunities could absorb some of the displaced Army workforce, lessening adverse effects on force reductions.

No Action Alternative

Implementation of the No Action Alternative in conjunction with these projects would not result in any significant cumulative effects on resources at the installation. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reductions

Implementation of Alternative 1 with these projects would not result in any significant cumulative effects on most resources at the installation. The socioeconomic impact within the ROI, as described in Section 4.18.12.2 with a reduction of approximately 3,500 Soldiers and Army civilians, would be minor and adverse on population, the regional economy, housing, with potential significant impacts to some schools.

Fort Meade is located in the greater Baltimore metropolitan area, and the ROI has a population of over 1.2 million. Because of the large employment base and diverse economy in the region, the ROI would be less vulnerable to these force reductions because other industries and considerable economic activity occurs within the ROI. Other construction and development activities on the installation and in the ROI would benefit the regional economy through additional economic activity, jobs, and income in the ROI.

Other stationing and realignment activities on the installation are not expected to add to these force reductions. Aberdeen Proving Ground is also located within the Baltimore region, and is expected to incur a loss of up to 4,272 Soldiers and Army civilians. Aberdeen Proving Ground is located northeast of the city of Baltimore, while Fort Meade is located southwest of the city. The two installations have one common county in their ROIs, Baltimore County. While the majority of the regional economic impact would be experienced within the respective ROIs, the cumulative impacts associated with both installations' force reductions could lead to additional adverse regional economic impacts in the greater Baltimore metropolitan region and the state of Maryland overall.

Under Alternative 1, the loss of approximately 3,500 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have a minor, adverse impact on regional economic conditions in the broader ROI. However, schools that provide education to Fort Meade students might be significantly adversely impacted under Alternative 1; the cumulative force reductions at Aberdeen Proving Ground are not expected to contribute to these impacts.

4.19 Fort Polk, Louisiana

4.19.1 Introduction

Fort Polk was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population, is discussed in Section 4.16.1 of the 2013 PEA. The following updates the information provided in the 2013 PEA.

Fort Polk's Main Post is composed of DoD and USFS-permitted lands totaling approximately 152,303 acres. DoD-owned lands are located to the north of the Main Post totaling 66,998 acres. USFS-permitted lands are located to the south of the Main Post and are separated into two areas. The Intensive Use Area is located in the middle of the Main Post and is approximately 40,481 acres and contains approximately half of the installation's ranges. The Limited Use Area is located in the southern portion of the Main Post and is approximately 44,824 acres. Lands utilized on the USFS, Kisatchie National Forest, are governed by a special use permit agreement and operating plan. Peason Ridge is approximately 56,831 acres and is used to support both Army maneuver and live-fire training, but is not used for long-term housing of Army personnel or civilians, which occurs only on the Main Post. In February 2010, the Joint Readiness Training Center (JRTC) and Fort Polk Land Acquisition Program Final EIS was completed. Expansion of Fort Polk, up to 100,000 acres, was analyzed and the installation received the authorization to actively pursue the Land Acquisition Program. In FY 2012, the USACE began closing on some of these new properties. To date, approximately 23,341 acres of new training lands have been purchased and is reflected in the new acreage amount for Peason Ridge. Fort Polk uses National Forest property north of Peason Ridge in an area of USFS land referred to as the Special Limited Use Area or "Horse's Head" due to its configuration. The Special Limited Use Area consists of 12,820 acres and is available for limited training by JRTC and Fort Polk. The Army has leased a parcel of land to support the transport and convoys of units to and from Main Post to Peason Ridge commonly referred to as the "yellow brick road."

Airfield deployment/redeployment activity associated with JRTC rotations or mobilization take place on the JRTC Intermediate Staging Base at the Alexandria Airport. This site can accept and support (landing, loading, and refueling) any combination of size and number of Air Force or civilian transport aircraft required under any operational scenario at the installation.

Fort Polk has four strategic deployable units stationed on installation: 162nd Infantry Brigade totaling 1,366; 4th Brigade of the 10th Mountain Division with approximately 3,495 Soldiers; 1st Maneuver Enhancement Brigade with 2,603 Soldiers and the 115th Combat Support Hospital troop strength of 266. JRTC Training Center of Excellence has 1,230 Soldiers within their Operations Group. Several Louisiana, Texas, and Mississippi reserve and ARNG units are trained during annual training periods at JRTC and Fort Polk. JRTC conducts at least 10, but no more than 12 rotations annually with an average of 3,487 transient and rotational average daily load per training event.

The 5th Aviation Battalion (Provisional) has 28 permanently assigned rotary-wing aircraft: 18 LUH-72 Lakotas and 10 OH-58 Kiowas. Det 1 Company B 256 BSTB, Louisiana ARNG, conducts RQ-7A and B Shadow UAS launch and recovery operations from its Tactical UAS Operations Facility. There are several permanently assigned aircraft located at Polk AAF that serve to support JRTC rotational training activities. The 147th Reconnaissance Wing from the Texas Air National Guard is another tenant unit that flies the MQ-1 Predator UAS in support of U.S. Air Force Green Flag East exercises in conjunction with JRTC rotational training. Polk AAF also supports transient C-130 airlift operations in support of JRTC rotational training, as well as transient VIP aircraft. Currently a site survey is planned at Polk AAF in late April 2014 to evaluate the potential bed-down of a Gray Eagle UAS detachment from the National Training Center.

Fort Polk's 2011 baseline permanent party population was 10,836. In this SPEA, Alternative 1 assesses a potential population loss of 6,500, including approximately 6,039 permanent party Soldiers and 461 Army civilians.

4.19.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Polk; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.19-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.19-1. Fort Polk Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Negligible	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Negligible	Negligible
Noise	No Impacts	Negligible
Soils	Minor	Negligible
Biological Resources	Negligible	Negligible
Wetlands	Negligible	Beneficial
Water Resources	Negligible	Beneficial
Facilities	No Impacts	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	No Impacts	Negligible
Hazardous Materials and Hazardous Waste	Negligible	Minor
Traffic and Transportation	Negligible	Beneficial

4.19.3 Air Quality

4.19.3.1 Affected Environment

The air quality affected environment of the Fort Polk ROI remains the same as described in Section 4.16.2.1 of the 2013 PEA. The Fort Polk area has not been designated as a nonattainment area for any criteria pollutants (EPA, 2013).

4.19.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that mobile and stationary source emissions, as well as emissions from training, at current levels would result in negligible impacts to air quality. Air quality impacts of the No Action Alternative for this SPEA remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that force reductions at Fort Polk would result in minor, beneficial impacts to air quality because of reduced operations and maintenance activities and reduced vehicle miles traveled associated with the installation. Impacts to air quality from the further force reductions proposed under Alternative 1 would continue to be beneficial assuming a

corresponding decrease in operations and vehicle travel to and from Fort Polk. The size of this beneficial impact under Alternative 1 would be slightly increased than that identified in the 2013 PEA. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with air quality regulations. Even if the full end-strength reductions were to be realized at Fort Polk, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.19.4 Airspace

4.19.4.1 Affected Environment

Airspace is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.16.1.2 due to lack of significant, adverse environmental impacts as a result of implementing alternatives included in that analysis. Polk AAF operates 24 hours a day, 7 days a week to provide support services for all tenant and rotational training air crews at JRTC. Polk Army Radar Approach Control manages and controls FAA-delegated airspace above central Louisiana and eastern Texas. Control of this airspace allows JRTC the flexibility to complete Army and joint aviation training for missions across the range of military operations. Polk Army Radar Approach Control controls all military, commercial, and general aviation departures and arrivals at Polk AAF, Alexandria International Airport, and 20 satellite airports, and it de-conflicts civil traffic with complex military operations at JRTC. Fort Polk manages a dedicated SUA that spans 1,100 square miles around the installation, up to and including 18,000 feet. Fort Polk has access to this SUA continuously and air operations take place day and night within this area. The SUA defines the airspace within which military aircraft vertical and horizontal maneuver must be limited or restricted and provides for the separation of military aircraft from non-participating aircraft.

4.19.4.2 Environmental Effects

No Action Alternative

The 2013 PEA VEC dismissal statement concluded that there would be negligible impacts to airspace at Fort Polk under the No Action Alternative. For the current analysis, Fort Polk would continue to maintain current airspace operations and current airspace classifications and restrictions are sufficient to meet current airspace requirements. No airspace conflicts are anticipated and impacts to airspace would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that negligible impacts to airspace would occur at Fort Polk. Under Alternative 1, implementation of proposed further force reductions would continue to have negligible, adverse impacts to airspace. The use of airspace would not change substantially with the loss of ground units as a result of this alternative and both general aviation and UAS would continue to require airspace to support training. The implementation of Alternative 1 would not result in a decreased requirement from airspace, but rather a lower utilization and less frequent activation of existing airspace.

4.19.5 Cultural Resources

4.19.5.1 Affected Environment

Cultural resources were dismissed from detailed analysis in Section 4.4.1.2 of the 2013 PEA due to negligible impacts associated with implementing the alternatives included in that analysis. Existing protocols and procedures outlined in the Fort Polk ICRMP (Fort Polk, 2012) and other agreements describe the standard operating procedures for managing and protecting resources on the installation. As described in the 2013 PEA, undertakings with the potential to affect archaeological resources are monitored and regulated when anticipated and preventative and minimization measures employed when determined necessary.

As noted in the 2013 PEA, Fort Polk completed archaeological surveys for the entirety of the installation. These surveys have resulted in the identification of 3,390 archaeological sites, of which 129 of those have been determined eligible for listing in the NRHP and 157 are potentially eligible. Eligible archaeological sites are monitored twice a year and potentially eligible sites are monitored once a year. Fort Polk also manages and monitors 19 historic cemeteries.

There are no architectural resources that are eligible for listing on the NHPA present at Fort Polk. An architectural survey was completed in 2010 to determine if there are Cold War Era resources present at the installation and to evaluate their eligibility to the NRHP. All Cold War Era buildings were determined not eligible for listing on the NRHP.

There has been a change to the affected environment since 2013; the available land base for training is increasing due to the Fort Polk Land Purchase Program. The number of cultural resource sites presented above reflects only those sites located on originally owned and permitted training lands. Newly acquired lands are currently being surveyed for cultural resources as was required by the 2010 EIS for the Fort Polk Land Acquisition Program. To meet this commitment, IMCOM has resourced cultural resource survey work on these new properties and provides the staff for maintaining protective signage at eligible or potentially eligible sites as well as for the curation of artifacts from DoD owned or permitted property. Archaeological and historic resources identified and determined eligible or potentially eligible during these surveys would be managed following the protocols and procedures currently in place.

4.19.5.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to cultural resources and the affected environment would remain in its current condition. The addition of new lands to the installation would not change these impacts.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts to cultural resources would occur at Fort Polk due to existing protocols and procedures that ensure the consideration of cultural resources during undertakings with the potential to affect resources. Fort Polk anticipates that a further reduction in forces will not change this finding because the protocols and procedures currently in place with continue to be utilized.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort Polk, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic structures from these activities are not analyzed. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of force reductions, the installation would comply with applicable laws, such as the NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects.

4.19.6 Noise

4.19.6.1 Affected Environment

Noise is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.16.1.2, due to negligible impacts as a result of implementing alternatives included in that analysis. Fort Polk's acoustic environment is typically impacted by noise-generating activities such as commercial air traffic, logging operations near the installation, highway and road traffic, and hunting, as well as military training.

As discussed in the 2013 PEA, the principal sources of noise resulting from military training operations at JRTC and Fort Polk result from fixed wing and rotary-wing aircraft and bomb blast noises generated from JRTC training activities. Training noise impacts may include noise from large caliber weapons, small arms, other ordnance, fixed-wing aircraft, rotary-wing aircraft, military vehicles, and other daily operations. The small arms ranges at Zion Hills and Peason

Ridge did not need noise contours as even 50 caliber rifle noise did not extend beyond the installation border. Noise from large caliber weapons fire and artillery may extend 3,280 to 16,404 feet from the installation boundary and is categorized in a normally incompatible NZ II. NZ III, classified as incompatible, does not extend beyond the installation. Noise measurements taken by the U.S. Army Center for Health Promotion and Preventive Medicine (now the U.S. Army Public Health Command) show that the noise experienced on-installation is slightly higher than the levels experienced off-installation.

Fort Polk's IONMP is intended to address noise issues in a proactive manner. Elements of the IONMP include assessment of noise levels, education of the military and civilian community, management of noise complaints, mitigation of noise and vibration, the "Fly Neighborly" program, and noise abatement procedures. Fort Polk's Public Affairs Office maintains a Noise Hotline to receive noise complaints or other concerns about military training. The Public Affairs Office monitors the hotline daily and has a policy of responding to complaints within 24 hours.

4.19.6.2 Environmental Effects

No Action Alternative

The 2013 PEA anticipated no noise impacts because noise generating activities at the installation would continue at the same levels and intensity as historically experienced. Impacts under the No Action Alternative on Fort Polk remain the same as those discussed in Section 4.16.1 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1, existing ranges would still be utilized for firing the same types of weapons systems and conducting the same types of training. A negligible reduction in the frequency of noise generating training events is anticipated. The operations of JRTC would continue to be the major generator of training related noise. The number of weapons qualifications and maneuver training events could be anticipated to decrease slightly. Noise impacts would likely remain comparable to current conditions. The current frequency of aviation training activities, a significant contributor of noise at the installation, may be decreased, but no changes are anticipated to dB levels; therefore, expected impacts would be negligible. Sensitive wildlife populations would not be impacted by the reduction of personnel at Fort Polk. Wildlife in the area is noise-tolerant, having become habituated to noise in the current training environment. Noise from simulated artillery rounds and .50 caliber blank weapons fire and small arms fire has not been shown to affect RCW nesting or reproductive success, even for those inhabiting direct fire ranges and impact areas (Delaney et al., 2000).

The 2013 PEA concluded that the force reductions at Fort Polk would result in negligible noise impacts because Fort Polk would have a negligible anticipated reduction in the frequency of noise generating training events. The size of this impact under Alternative 1 would be similar to

that described in the 2013 PEA. The Army is committed to ensuring that personnel cuts will not result in non-compliance with noise ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Polk, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including noise ordinances and regulations.

4.19.7 Soils

4.19.7.1 Affected Environment

The soils affected environment on the installation remains the same as described in Section 4.16.3.1 of the 2013 PEA.

4.19.7.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to soils were anticipated from continuing training, to include impacts to soils from removal of or damage to vegetation, digging activities, ground disturbance from vehicles, and ammunition or explosives used in training events. Impacts under the No Action Alternative on Fort Polk remain the same as those discussed in Section 4.16.3.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, negligible, adverse impacts to soils were anticipated as a result of less use of training areas. A force reduction would result in less erosion, soil compaction, and loss of vegetation.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Polk, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory regulations. Therefore, impacts under Alternative 1 at Fort Polk would be beneficial and remain the same as those discussed in Section 4.16.3.2 of the 2013 PEA.

4.19.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.19.8.1 Affected Environment

Biological resources are among the VECs excluded from detailed analysis as described in Section 4.16.1.2 of the 2013 PEA due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. Fort Polk recently completed the FY 2014–2019 INRMP. Within this comprehensive plan is the Endangered Species Management component which identifies the management actions for the endangered RCW. The most positive benefit of this INRMP is the commitment that has been made to protect and manage the natural resources on the training lands (Fort Polk, 2014a). This commitment will ensure training lands are maintained in a sustainable mindset, while allowing for ecosystem management simultaneously to ensure quality ecosystem for future generations. As the training mission evolves, natural resources management practices will continuously adapt to ensure a healthy ecosystem is managed for future generations to enjoy, while continuously supporting the training environment for Soldiers.

The baseline data for Fort Polk has changed over the last few years and continues to change due to an ongoing land purchase program at the installation. Currently 23,341 acres have been purchased with a sale agreement for another 9,500 acres. Most of the acres that have been purchased to date were previously owned by large timber companies focused on short rotation pine plantations optimized for the maximum economic value with little biodiversity or sustainment activities occurring on these areas. Fort Polk is in the process of performing timber inventories and stand descriptions to determine the current timber species, age and class present. Additionally these lands are being surveyed for the placement of fire breaks to contain fires on these lands due to future management and training activities. These new lands are also being surveyed for the presence of threatened and endangered species.

Currently, 13,352 acres have been surveyed, thus resulting in the identification of 16 new forest management compartments. No threatened or endangered species have been observed to be present on these lands. An additional 9,989 acres are under timber inventory and threatened and endangered species surveys; to date, no threatened or endangered species have been identified.

4.19.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in no significant impacts to biological resources and the affected environment would remain in its current state. Fort Polk would continue to adhere to its existing resource management plans and INRMP to further minimize and monitor any potential effects.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that impacts to biological resources would be negligible on Fort Polk. Furthermore, the Army expects that the reduction in training activities due to force reduction Fort Polk would increase the ease of environmental monitoring and would decrease the chance for impacts to vegetation and wildlife. The Army anticipates that further proposed reduction in forces would not change this finding. Fort Pork has one federally listed endangered species, the RCW (*Picoidies borealis*) and one candidate species, the Louisiana pine snake (*Pituophis ruthveni*). No adverse impacts to threatened or endangered species are anticipated as a result of Alternative 1.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Polk, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.19.9 Wetlands

4.19.9.1 Affected Environment

The wetlands affected environment on the installation remains the same as described in Section 4.16.4.1 of the 2013 PEA.

4.19.9.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, negligible, adverse impacts to wetlands were are anticipated from continued training schedules. Potential wetland impacts would be reviewed and managed to be avoided, to the extent practicable, or mitigated. Impacts under the No Action Alternative on Fort Polk remain the same as those discussed in Section 4.16.4.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Alternative 1 of the 2013 PEA did not discuss impacts to wetlands; instead, it inadvertently discussed impacts to soil erosion from force reductions. Under Alternative 1 of this SPEA, beneficial impacts to wetlands are anticipated as a result of less use of ranges and training areas. Less sedimentation and vegetation loss are anticipated, and degraded wetlands are expected to restore towards their reference functions and values. Impacts to wetlands could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Polk, the Army

would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met.

4.19.10 Water Resources

4.19.10.1 Affected Environment

The affected environment for water resources on Fort Polk remains the same as that described in Section 4.16.5.1 of the 2013 PEA for watersheds, groundwater, water supply, and stormwater resources. However, there have been changes to the affected environment for wastewater resources. As part of the wastewater discharge system, there is a rapid infiltration process with an overland flow discharge into the natural baygalls in the Zion Hills area. This overland flow process is presently being de-commissioned and the site will be remediated to its original forested state. The introduction of, and funded project to construct, two new WWTPs at South Fort and North Fort, respectively, has officially begun through the Utility Privatization Provider, American Water with a combined cost of $85 million. The two new plants will be constructed within the footprints of the original plants and will use an Activated Sludge process that will discharge into the adjacent receiving streams at the plant sites. The new plants will not require the additional overland flow system. Design of the new plants include stages of treatment to be very receptive to low and/or high flow rates capable of accommodating fluctuations in population (Fort Polk, 2014d).

4.19.10.2 Environmental Effects

No Action Alternative

In the 2013 PEA, negligible impacts to water resources were anticipated from the No Action Alternative. Ongoing construction and training activities were expected to continue as would implementation of environmental management, BMPs, and permitting leading to minimal impacts. Impacts to water resources under the No Action Alternative would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

Minor, beneficial impacts to water resources were anticipated from implementation of force reductions under Alternative 1 in the 2013 PEA because of reduced demand for potable water supply and an increase in available wastewater treatment capacity. Reduction in training area use from force reductions on Fort Polk was also anticipated to potentially reduce impacts to surface waters due to disturbance and spills. The 2013 PEA Alternative 1 stated that a reduction in wastewater flows at the installation WWTP could result in inadequate discharges for operation. However, the Army is committed to the health and safety of its tenants and the environment and would make any operational or other changes necessary to ensure the proper operation of the wastewater system at the new flow levels, including adequate staff to ensure all testing and permit requirements continue to be met. Increased force reductions under Alternative 1 of this

SPEA would continue to have the same beneficial impacts to water supplies, wastewater capacity, and surface waters.

Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Fort Polk, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented.

4.19.11 Facilities

4.19.11.1 Affected Environment

Fort Polk consists of three general areas: cantonment, training and impact areas. The cantonment area of Fort Polk consists of about 8,050 acres in the western portion of the installation. It encompasses two developed areas North and South Fort that contain a mixture of permanent and temporary structures and Family housing areas. South Fort Polk Cantonment is home to installation, brigade, battalion, and company headquarters, maintenance and support facilities and Polk AAF.

There are 2,383 buildings on the installation of which 96 are World War II era buildings still in use. These World War II facilities are being used for interim administrative space until permanent facilities can be constructed. It is anticipated by the end of FY 2015 approximately 67 of these facilities would remain. Significant, permanent structures within the cantonment include the newly constructed post exchange, commissary, Bayne Jones Army Community Hospital, multiple new clinics, Warrior in Transition Headquarters and Barracks, Library Education Center, Mission Training Center, 34 enlisted unaccompanied personnel housing (26 of which have been or are planned for renovation), two newly constructed Brigade Headquarters, a new 270 Soldier enlisted unaccompanied personnel housing unit, four new Company Headquarters, language training facility, new tactical equipment maintenance facility, railhead and adjacent support facilities, enhanced Family housing communities, and Family support facilities including four large community centers with swimming pools.

Facilities utilized for training at Fort Polk are located outside the cantonment area. These facilities include basic weapons and marksmanship ranges, direct fire gunnery ranges, collective live fire ranges, non-live fire facilities, and other training areas.

Polk AAF consists of a 4,100-foot Class A precision runway with associated parking ramp, taxiways, including a Shadow UAS runway. Excess hangar capacity at Polk AAF is used to support severe weather evacuations during rotational training. JRTC and Fort Polk have three recognized flight landing strips. All of the flight landing strips are unsurfaced runways for fixed wing rotary aircraft with the capability of landing C-130 and C-17s (Fort Polk, 2014d).

4.19.11.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be no impacts to facilities at Fort Polk. For the current analysis, Fort Polk would continue to use its existing facilities to support its Soldiers and missions and many of the modernization projects that are planned would be completed and sustainment activities would continue so impacts to facilities would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to facilities would occur on Fort Polk. Under Alternative 1, implementation of the proposed further force reductions would result in overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped, and moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities. Fort Polk has made substantial investments in facilities in the last 10 years and the additional force reductions could cause newer facilities to be underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demands for utilities and reduced demands for training facilities and support services. The force reductions would also provide the installation the opportunity to reduce reliance on aging facilities nearing the end of the life-cycle. Some facilities could be re-purposed to support tenant unit requirements. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.19.12 Socioeconomics

4.19.12.1 Affected Environment

Fort Polk's Main Post is located in Vernon Parish, approximately 7 miles east of Leesville and 20 miles north of DeRidder in Louisiana. The ROI for Fort Polk includes those areas that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, contractor personnel, and their Families reside and consists of Beauregard, Natchitoches, Rapides, Sabine, and Vernon parishes.

This section provides a summary of demographic and economic characteristics within the ROI. These indicators are described in greater detail in Section 4.16.7 of the 2013 PEA. However, demographic and economic indicators have been updated where more current data are available.

Population and Demographics

Using 2011 as a baseline, Fort Polk has a total working population of 23,330 consisting of active component Soldiers and Army civilians, and other military services, contractors, and civilians. Of the total working population, 10,836 were permanent party Soldiers and Army civilians. The population that lives on Fort Polk consists of 9,390 Soldiers and an estimated 14,510 Family members, for a total on-installation resident population of 23,900 (Fort Polk, 2014b). The portion of Soldiers, Army civilians, and Family members living off the installation in 2011 was estimated to be 3,641.

In 2012, the ROI had a total population of 286,309, a 1.0 percent increase from 2010. Vernon Parish experienced the highest growth of the parishes in the ROI. Natchitoches Parish is the only parish in the ROI that experienced a decline in population. The population in the ROI is presented in Table 4.19-2, and the 2012 racial and ethnic composition of the ROI is presented in Table 4.19-3 (U.S. Census Bureau, 2012a).

Table 4.19-2. Population and Demographics, 2012

Region of Influence Parishes	Population	Population Change 2010–2012 (percent)
Beauregard Parish, Louisiana	36,240	+1.6
Natchitoches Parish, Louisiana	39,434	-0.3
Rapides Parish, Louisiana	132,270	+0.5
Sabine Parish, Louisiana	24,315	+0.3
Vernon Parish, Louisiana	54,050	+3.3

Table 4.19-3. Racial and Ethnic Composition, 2012

State and Region of Influence Parishes	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
State of Louisiana	63.7	32.4	0.7	1.7	1.4	4.5	59.9
Beauregard Parish, Louisiana	82.2	13.5	1.1	0.7	2.5	3.2	79.8
Natchitoches Parish, Louisiana	55.0	41.5	1.0	0.6	1.9	1.9	53.7
Rapides Parish, Louisiana	64.1	32.1	0.9	1.3	1.6	2.7	61.9
Sabine Parish, Louisiana	70.8	16.7	8.6	8.6	3.5	3.6	68.7
Vernon Parish, Louisiana	77.9	14.7	1.6	1.9	3.5	8.6	71.0

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Income

Information presented in Table 4.19-4 represents an update from the 2013 PEA, which provided employment and income data from 2009. Between 2000 and 2012, the greatest increase in workforce occurred in Beauregard Parish, approximately 13.6 percent. Employed workforce in Vernon Parish remained relatively unchanged during this period (Table 4.19-4) (U.S. Census Bureau, 2000 and 2012b).

Beauregard and Vernon parishes have a median household income greater than other parishes in the ROI and in Louisiana as a whole. In Natchitoches Parish, the median household income is notably lower and the percent of people living below the poverty line is higher than other parishes in the ROI and Louisiana as a whole (U.S. Census Bureau, 2012b). The median home value in parishes in the ROI ranges from $89,300 and $117,400, all of which are lower than the Louisiana average (U.S. Census Bureau, 2012b).

Information regarding the workforce by industry for each parish within the ROI was obtained from the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for the employed labor force.

Table 4.19-4. Employment and Income, 2012

State and Region of Influence Parishes	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Louisiana	2,009,440	+7.5	137,700	44,673	18.7
Beauregard Parish, Louisiana	14,639	+13.6	89,900	46,762	14.8
Natchitoches Parish, Louisiana	16,111	+8.0	94,500	32,649	27.4
Rapides Parish, Louisiana	54,381	+7.0	117,400	40,946	19.9
Sabine Parish, Louisiana	8,972	+6.0	77,800	36,914	21.2
Vernon Parish, Louisiana	23,475	+0.1	89,300	46,260	12.6

Beauregard Parish, Louisiana

The educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Beauregard Parish (19 percent). Retail trade is the second largest employment sector (12 percent), followed by the construction and manufacturing sectors (10 percent individually). The Armed Forces account for 3 percent for the total workforce in Beauregard Parish. The nine remaining sectors account for the 46 percent of the workforce.

Natchitoches Parish, Louisiana

Similar to Beauregard Parish, the educational services, and health care and social assistance sector is the primary employment sector in Natchitoches Parish (25 percent). Retail trade is the second largest employment sector (13 percent), followed by manufacturing (11 percent). The arts, entertainment, and recreation, and accommodation and food services also accounts for a notable share of the total workforce in Natchitoches Parish (9 percent). The Armed Forces account for less than 1 percent of the Natchitoches Parish workforce. The nine remaining sectors account for 42 percent of the workforce.

Rapides Parish, Louisiana

The educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Rapides Parish (30 percent). Retail trade is the second largest employment sector (13 percent), followed by the construction; manufacturing; public administration; arts, entertainment, and recreation, and accommodation and food services; and professional, scientific, and management, and administrative and waste management services sectors (7 percent individually). The Armed Forces account for 1 percent of the Rapides Parish workforce. The 6 remaining sectors account for 21 percent of the total workforce.

Sabine Parish, Louisiana

The educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Rapides Parish (20 percent). The agriculture, forestry, fishing and hunting, and mining services sector is the second largest employment sector (18 percent), followed by retail trade (11 percent). The construction (7 percent) and other services, except public administration (7 percent) sectors, also account for a notable share of the total workforce in Sabine Parish. The Armed Forces account for less than 1 percent of the workforce. The eight remaining of sectors account for 37 percent of the total workforce.

Vernon Parish, Louisiana

The Armed Forces account for the greatest share of the total workforce in Vernon Parish (23 percent). The educational services, and health care and social assistance is the second largest employment sector (17 percent), followed by public administration (12 percent). Retail trade also represents a notable share of the total workforce in Vernon Parish (10 percent). The 10 remaining sectors employ 38 percent of the workforce.

Housing

Currently, there are 3,570 Family housing and 110 senior bachelor units on the installation. An additional 4,002 barrack spaces are available for unaccompanied personnel, and another 240 are under construction. A 10-year housing renovation program for Family housing will conclude in 2015. Fort Polk, under the RCI housing program, has currently authorized a maximum of 3,661 housing units. Approximately 524 barracks spaces have been renovated to improve

accommodates (Fort Polk, 2014d). At any given time, approximately 95 percent of units are available for occupancy while the remaining 5 percent undergo renovations in preparation of the next occupants.

Schools

Military-connected students attend schools in Vernon and Beauregard parishes. The Vernon Parish School Board governs 19 schools, which includes 1 alternative and 2 local education agency schools, located on the installation (North Polk Elementary and South Polk Elementary). In Vernon Parish, military-connected students attend 19 schools and account for 33 percent of total district enrollment. In Beauregard Parish, military-connected students attend 12 schools and account for 8 percent of total district enrollment. In total, 3,815 military-connected students attend schools in these parishes. Schools with military-connected students receive approximately $6.5 million in Federal Impact Aid funds (Fort Polk, 2014d).

Funding has been set aside for two construction projects. Leesville High School in Vernon Parish is currently undergoing a $21.5 million renovation that is expected to be complete during the 2014–2015 academic year. An additional $21.1 million has been allocated for the construction of a new South Polk Elementary School that will be sited on Highway 467 North. The school will serve between 800 students and 900 students in grades 1 through 4 (Fort Polk, 2014d).

Public Health and Safety

The DES Police Division employs 60 personnel and provides law enforcement, emergency response, and property protection at Fort Polk. The Fort Polk Fire Department, a part of the DES, employs 68 personnel and provides emergency firefighting, fire prevention, and rescue services at Fort Polk. The DES Physical Security Division employs 26 personnel and provides support to Fort Polk in the form of force protection, access control, and physical security inspections of sensitive buildings, arms rooms, motor pools, Mission Essential Vulnerable Areas, and Secret Internal Protocol Router Network Communication. Since 2004, all divisions have invested in new technology and equipment (Fort Polk, 2014d).

Medical services on the installation are provided by Bayne Jones Army Community Hospital. Healthcare services are available to military personnel and retirees, and their Family members. A wide range of services are available, which include but are not limited to emergency services, family and internal medicine, occupational therapy, and pediatrics. The installation also provides dental services and supports a Warrior Transition Battalion. Additional information regarding these facilities is provided in the 2013 PEA.

Family Support Services

The Fort Polk ACS provide programs, activities, facilities, services, and information to Soldiers, retires, and their Families in managing the challenges of daily living experienced in the unique context of military service, and in maintaining readiness by coordinating and delivering

comprehensive, responsive services that promote self-reliance, resiliency and stability. The installation has won awards for these programs and services.

In October 2010, a new Soldier and Family Assistance Center opened. This program provides a safe haven that promotes healing and provides a number of services dedicated to the needs of Wounded Warriors and their Families.

Fort Polk's CYSS offers programs for children and youth ages 4 weeks to 18 years. Programs include child development and school-age centers, Family child care, and middle school/teen programs. Since 2010, four new child development centers have been built and a new School-Age Center is under construction and scheduled to open in 2015.

In September 2004, the Fort Polk MWR opened a new library that was included as part of the Education Center and Library construction project. The renamed Home of Heroes Soldier Recreation Center has also recently undergone renovations. Many facilities on the installation have undergone upgrades and other renovations in recent years (Fort Polk, 2014d).

Recreation Facilities

Fort Polk's Community Recreation Division is designed to help sustain and build resiliency in Soldiers and their Families through fitness, recreation, and leisure activities. A variety of recreation opportunities are available to members of the Fort Polk community. Facilities and programs include fitness centers, swimming pools, bowling center, Splash Park, miniature golf, go carts, Comprehensive Soldier Fitness, outdoor recreational opportunities, Arts and Crafts Center, Automotive Skills Program, among others. The HIRED! Apprentice Program, offered to youth from ages 15 to 18 years, allows participation in a 12-week apprenticeship to gain experience and knowledge in the workforce (Fort Polk, 2014d).

4.19.12.2 Environmental Effects

No Action Alternative

Operations at Fort Polk would continue to beneficial impact regional economic activity. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of up to 6,500[25] Army positions (6,039 Soldiers and 461 Army civilians), with an average annual income of $46,760 and $54,499, respectively. In addition, this alternative would affect an estimated 9,867 Family members, including 3,627 spouses and 6,240 children. The total number of military employees and their Family members who may be directly affected under Alternative 1 is projected to 16,367.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative range. Table 4.19-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, there would be significant impacts to income, employment, and population because the estimated change falls outside the deviation from the historical range. There would not be significant impacts to sales because the estimated percent change falls within the historical range.

Table 4.19-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+5.6	+4.2	+5.0	+3.4
Economic contraction significance value	-5.2	-3.0	-5.2	-2.4
Forecast value	-2.9	-3.6	-7.3	-5.6

Table 4.19-6 summarizes the predicted impacts to income, employment, and population of force reductions against 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecasted values, these figures show the same significance determinations as the EIFS predictions in the previous table.

[25] This number was derived by assuming the loss of Fort Polk's BCT, around 60 percent of Fort Polk's non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 6,500. The 2013 PEA assumed the loss of Fort Polk's BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 5,316.

Table 4.19-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$369,438,700	-7,261 (Direct)	-16,367
		-1,164 (Induced)	
		-8,425 (Total)	
Total 2012 ROI economic estimates	$10,713,741,000	117,578	286,309
Percent reduction of 2012 figures	-3.4	-7.2	-5.7

Note: Sales estimates are not consistently available from public sources for all counties in the United States; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from EIFS is described in the paragraphs below.

With a potential reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 6,500 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 761 direct contract service jobs would also be lost. An additional 1,164 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. The total reduction in employment is estimated to be 8,425, a significant reduction of 7.2 percent from the total employed labor force in the ROI of 117,578. Income is estimated to reduce by $369.4 million, a 3.4 percent decrease in income from 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $401.6 million. There would also be a loss in sales tax receipts to local and state governments. The state and average local sales tax for Louisiana is 8.89 percent (Tax Foundation, 2014). To estimate sales tax reductions, information on the proportion of sales that would be subject to sales taxes on average across the country was utilized. According to the U.S. Economic Census, an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $401.6 million, resulting in an estimated sales tax receipts decrease of $5.7 million under Alternative 1.

Of the 286,309 people (including those residing on Fort Polk) who live within the ROI, 6,500 Army employees and their estimated 9,867 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 5.7 percent. This number could overstate potential population impacts because some people no longer employed by the military may continue to live and work within the ROI, finding employment in other industry sectors. However, because Fort Polk serves as a primary employer and as an economic driver within the ROI, the majority of displaced personnel are likely to move out of the area to seek other opportunities with the Army or elsewhere. There are few employment sectors in the ROI to absorb the number of displaced military employees. A small number of displaced

personnel may seek and find work within the ROI; however, others may not be able to find new employment potentially affecting the unemployment rate.

Housing

The population reduction that would result under Alternative 1 would decrease housing demand and increase housing availability on the installation and across the larger ROI, potentially resulting in a decrease in median home values. The reduced demand for housing and increased availability of housing associated with the force reductions has the potential to result in minor to significant impacts to the housing market, with more adverse impacts in areas with high concentrations of military residents, particularly in communities of Leesville, Deridder, and some smaller municipalities within proximity to the installation.

Schools

Under Alternative 1, the potential reduction of 6,500 Soldiers and Army civilians would decrease the number of children within the ROI by approximately 6,240. As described in Section 4.19.12.1, military-connected students represent a sizable share of total school district enrollment in Vernon and Beauregard parishes. Subsequently, these school districts receive sizable Federal Impact Aid funds. Under Alternative 1, it is anticipated that school districts in Vernon and Beauregard parishes would experience a more significant decline in military-connected student enrollment than other areas within the ROI. If enrollment in individual schools declines significantly, schools may need to reduce the number of teachers, administrators, and other staff, and potentially close or consolidate with other schools within the same school district should enrollment fall below sustainable levels.

The allocation of Federal Impact Aid funds is based on the number of military-connected students that individual school districts support. The actual projected loss of Federal Impact Aid funds cannot be determined at this time due to the variability of appropriated dollars from year to year, and the uncertainty regarding the specific impacts to ROI school enrollment. It is anticipated that schools across the ROI, particularly in Vernon and Beauregard parishes, would likely need fewer teachers and materials as enrollment declines. However, schools may also have invested in capital improvements or new facilities, which require bond repayment/debt servicing. With decreased revenue for these school districts, it may place additional burden on school districts with potential implications for school operations. These are fixed costs that would not be proportionately reduced such as those for operational costs (teachers and supplies).

These school districts depend on the allocation of Federal Impact Aid funds to operate their schools and a decrease in this funding that may result under Alternative 1 has the potential to result in significant, adverse impacts, particularly in Vernon Parish where the modernization of one of the high schools and construction of a new elementary school has exhausted the school board’s bond authority (Fort Polk, 2014c).

Overall, schools within the ROI could experience significant, adverse impacts from the decline in military-connected student enrollment that would result under Alternative 1.

Public Services

A reduction in personnel would have minor impacts to emergency services, fire, police, and medical services because the reduction is anticipated to decrease the need for these services. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements. Minor, adverse impacts are not expected because the existing service level for the installation and the ROI would still be available.

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. As a result, minor impacts to Family Support Services and recreation facilities would occur under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, states: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). As shown in Table 4.19-3, the proportion of minority populations in Natchitoches Parish is greater than other parishes within the ROI and Louisiana as a whole. Because minority populations are more heavily concentrated in Natchitoches Parish, the implementation of Alternative 1 has the potential to result in adverse impacts to minority-owned and/or -staffed businesses if Soldiers and Army civilians directly affected under Alternative 1 move to areas outside the ROI. Of the parishes within the ROI, Natchitoches, Rapides, and Sabine parishes have a higher proportion of populations living below the poverty level when compared to the Louisiana average. Because the proportion of poverty populations is greater than the state average, Alternative 1 could cause adverse impacts to environmental justice populations. However, it is not anticipated that Alternative 1 would have disproportionate impacts to minorities, economically disadvantaged populations or children in the ROI because losses would be experienced across all income levels and economic sectors and spread geographically throughout the ROI.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that

may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of people associated with the installation, including children. Therefore, it is not anticipated that implementing Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.19.13 Energy Demand and Generation

4.19.13.1 Affected Environment

Energy demand and generation is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.16.1.2 due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. The energy utilities have been or are in the process of being privatized at Fort Polk. Fort Polk has also taken some proactive measures for reduction in energy consumption such as installation of solar panels on barracks, walking paths, pedestrian crosswalks; construction of LEED buildings; upgrading and retrofitting existing heating ventilation and cooling systems to improve efficiency; installation of LED lighting; and energy metering of buildings on the installation. No other significant changes have occurred to the affected environment since 2013.

4.19.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA dismissal statement concluded that there would be negligible impacts to energy demand and generation at Fort Polk. For the current analysis, maintenance of existing utility systems would continue and Fort Polk would continue to consume similar types and amounts of energy so impacts to energy demand would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy demand and generation would occur on Fort Polk. Under Alternative 1, minor, beneficial impacts to energy are anticipated due to a further reduction in energy consumption associated with the additional force reductions. The installation would also be better positioned to meet energy and sustainability goals.

4.19.14 Land Use Conflicts and Compatibility

4.19.14.1 Affected Environment

The land use affected environment of the Fort Polk installation remains generally the same as described in Section 4.16.8.1 of the 2013 PEA.

The primary purpose of all land uses at Fort Polk is to provide a realistic training environment focused on achieving superior high operations tempo training for home and rotational units. There are numerous secondary land uses respective of each garrison directorate's mission but all are focused on supporting training, Soldiers and Families.

Vernon Parish and the communities within it that surround the installation have developed a Comprehensive Land Use Plan intended to serve as a long-term blueprint for enhancing quality of life in the parish, guiding investment opportunities and attracting new businesses to allow growth moving into the future. The Vernon Parish Plan was completed in May 2011, and provides a set of guiding policies that act as an advisory roadmap for key areas that affect the local community's quality of life. There are currently no official land use plans or zoning requirements for either Sabine or Natchitoches parishes.

The DPTMS Range Operations Mission is to maximize the capability, availability and accessibility of ranges and training lands to support doctrinal training requirements of units that train on the installation. As a result, Fort Polk implements programs to preclude incompatible land uses on the installation's training capability. Additionally, installation training lands are managed with an integrated training requirement and ecosystem approach as well as a sustainable range outreach program with the local community. The installation also works to ensure that other installation plans support the installation Range Complex Master Plan.

4.19.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that no changes to land use conditions would occur, and no impacts are anticipated. Impacts under the No Action Alternative on Fort Polk remain the same as those discussed in Section 4.16.8.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Polk would result in negligible short and long-term impacts to installation land use due to the loss of Soldiers. Impacts would be similar to those described under Alternative 1 in the 2013 PEA.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with land use ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Polk, the Army would ensure that adequate staffing remains so that the installation would

comply with all mandatory environmental regulations including land use ordinances and regulations.

4.19.15 Hazardous Materials and Hazardous Waste

4.19.15.1 Affected Environment

As described in the 2013 PEA, hazardous materials are used on Fort Polk. The installation is a RCRA large-quantity generator of hazardous wastes. Hazardous materials and waste are primarily managed by the Environmental and Natural Resources Management Division, which maintains a HWMP and an Oil and Hazardous Substances Contingency Plan. These documents provide standard operating procedures for the collection, storage, transport, and disposal of hazardous materials and waste. No substantial changes have occurred to the affected environment since 2013.

4.19.15.2 Environmental Effects

No Action Alternative

As stated in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative. Use of hazardous materials and generation of hazardous wastes would continue on Fort Polk in accordance with all applicable laws, regulations and plans.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that minor, adverse impacts from hazardous materials and hazardous waste would occur on Fort Polk. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on Fort Polk. Because of the reduced numbers of people, it is likely that the potential for spills would be reduced further during training and maintenance activities. The volume of waste generated and material requiring storage would increase slightly because deactivating units would turn in hazardous material for storage to avoid transportation risks. Under Alternative 1 in this SPEA, Fort Polk would continue to implement its hazardous waste management in accordance with its HWMP and applicable regulations and therefore, adverse impacts would be minor.

Under Alternative 1, adverse impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Fort Polk, the Army would ensure that adequate staffing remains so that the installation would comply with all mandated environmental requirements.

As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.19.16 Traffic and Transportation

4.19.16.1 Affected Environment

The transportation affected environment of the Fort Polk ROI remains effectively the same as described in Section 4.16.10.1 of the 2013 PEA, except for the identification of a future bypass along Highway 467, as noted in the Vernon Parish Comprehensive Plan (Fort Polk, 2014c). Fort Polk has four-lane highways connecting it to north to Shreveport, and south to Lake Charles along U.S. Highway 171 and west to Alexandria along Louisiana Highway 28.

JRTC and Fort Polk has seven ACPs that are open for access onto the installation. In April 2013, a Traffic Study was completed at Fort Polk. This study did not find any significant issues or failures of installation roadways.

4.19.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated negligible impacts. The existing transportation system is determined to be sufficient to support the current traffic load; therefore, negligible impacts to traffic and transportation systems are expected to continue.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Polk would result in beneficial impacts to traffic and transportation systems. It is anticipated that traffic congestion would diminish at key ACPs and entrance gates. The Fort Polk traffic system is currently providing acceptable LOS for Fort Polk Soldiers, Family members, and Army civilian employees. The size of the beneficial impact under Alternative 1 would be larger than anticipated at the time of the 2013 PEA due to further force reductions diminishing traffic congestion even more than anticipated in the 2013 PEA.

4.19.17 Cumulative Effects

As noted in the 2013 PEA, the ROI for this cumulative impact analysis of Army 2020 realignment at Fort Polk encompasses Beauregard, Natchitoches, Rapides, Sabine and Vernon parishes in Louisiana. Section 4.16.11 of the 2013 PEA noted numerous planned or proposed actions within the ROI that reasonably could be initiated within the next 5 years and would have the potential to cumulatively add impacts to Alternative 1. A number of the Army's proposed projects have been previously identified in the installation's Real Property Master Planning Board and are programmed for future execution.

Reasonably Foreseeable Future Projects on Fort Polk

Additional actions that have been identified by the installation beyond those noted in the cumulative effects analysis of the 2013 PEA include the following:

- Expansion of restricted airspace over new land
- Polk AAF runway extension

Reasonably Foreseeable Future Projects outside Fort Polk

Beyond those mentioned in the 2013 PEA, the Army is not aware of any reasonably foreseeable future projects outside Fort Polk that would be appropriate for inclusion in the cumulative impacts analysis. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, smaller, less diversified economies will be more vulnerable to force reductions and provide fewer opportunities to displaced Army employees.

No Action Alternative

There will be no cumulative effects due to the No Action Alternative, essentially the same as was determined in the 2013 PEA. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1–Implement Force Reductions

The cumulative effects of Alternative 1 would be essentially the same as was determined in the 2013 PEA. Overall, the potential cumulative impacts of Alternative 1 at Fort Polk are anticipated to be significant and adverse for socioeconomics, with generally beneficial impacts for the other resources.

The socioeconomic impact under Alternative 1, as described in Section 4.19.12.2 with force reductions of 6,500, could lead to significant impacts to the population, the regional economy, schools, and housing, specifically in the ROI cities of Alexandria, Deridder, and Leesville, and Natchitoches Parish. Fort Polk has long been a key component of the region's economy, employing several thousand Soldiers and civilian employees within the ROI. The relatively smaller, rural economy of the ROI depends on the installation's employment and economic activity. With fewer opportunities for employment, the ROI would likely not be able absorb many of the displaced forces. Specifically, in Vernon Parish, the Armed Forces accounts for 23 percent of the workforce, demonstrating the importance of the installation to employment opportunities in the region.

Stationing changes would also affect regional economic conditions through the jobs and income they bring (or lose) within the region. Military personnel spend their money in the ROI economy,

supporting additional jobs, income, taxes, and sales impacts. Reductions in Army employment would be partially offset by Louisiana Department of Transportation projects as part of the efforts to improve state highways. Other infrastructure improvements and construction and development activity would also benefit the regional economy through additional economic activity, jobs, and income in the ROI; however, these benefits would not offset the adverse impacts under Alternative 1 and other adverse cumulative actions. Under Alternative 1, the loss of 6,500 Soldiers, in conjunction with other reasonably foreseeable actions, would have significant impacts to employment, income, tax receipts, housing values, and schools in the ROI.

4.20 Fort Riley, Kansas

4.20.1 Introduction

Fort Riley was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population is discussed in Section 4.17.1 of the 2013 PEA.

Fort Riley's 2011 baseline permanent party population was 19,995. In this SPEA, Alternative 1 assesses a potential population loss of 16,000, including approximately 15,357 permanent party Soldiers and 643 Army civilians.

4.20.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Riley; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.20-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.20-1. Fort Riley Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Negligible	Minor
Noise	Negligible	Beneficial
Soils	Minor	Negligible
Biological Resources	Negligible	Beneficial
Wetlands	Negligible	Negligible
Water Resources	Minor	Beneficial
Facilities	Negligible	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	Negligible	Negligible
Hazardous Materials and Hazardous Waste	Negligible	Minor
Traffic and Transportation	Negligible	Beneficial

4.20.3 Air Quality

4.20.3.1 Affected Environment

The air quality affected environment of the Fort Riley ROI remains the same as described in Section 4.17.2.1 of the 2013 PEA. The Fort Riley area has not been designated as a nonattainment area for any criteria pollutants (EPA, 2013).

4.20.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source emissions at current levels, as well as fugitive dust from training activities, would result in minor, adverse impacts to air quality. Air quality impacts under the No Action Alternative for this SPEA remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Riley would result in minor, beneficial impacts to air quality because of reduced operations and maintenance activities and reduced vehicle miles travelled associated with the facility. Impacts to air quality from the further force reductions proposed under Alternative 1 would continue to be beneficial assuming a corresponding decrease in operations and vehicle travel to and from Fort Riley. The size of this beneficial impact under Alternative 1 would be roughly double that anticipated at the time of the 2013 PEA.

As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with air quality regulations. Even if the full end-strength reductions were to be realized at Fort Riley, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.20.4 Airspace

4.20.4.1 Affected Environment

The airspace affected environment for Fort Riley remains the same as described in Section 4.17.3.1 of the 2013 PEA; restricted airspace is sufficient to meet the current airspace requirements.

4.20.4.2 Environmental Effects

No Action Alternative

Impacts to Fort Riley under the No Action Alternative remain negligible, as described in Section 4.17.3.2 of the 2013 PEA. Fort Riley would maintain existing airspace operations.

Alternative 1—Implement Force Reductions

Force reductions under Alternative 1 are anticipated to result in a lower utilization of current aviation assets and current airspace at Fort Riley. Restricted airspace would continue to be sufficient to meet airspace requirements. Adverse impacts to airspace under Alternative 1 would be negligible.

4.20.5 Cultural Resources

4.20.5.1 Affected Environment

The affected environment for cultural resources at Fort Riley has not changed since 2013, as described in Section 4.17.4 of the 2013 PEA.

4.20.5.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to cultural resources as described in Section 4.17.4.2 of the 2013 PEA. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures.

Alternative 1—Implement Force Reductions

As described in Section 4.17.4.2 of the 2013 PEA, Alternative 1 would have a minor impact on cultural resources. The Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort Riley, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic structures from these activities are not analyzed. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of force reductions, the installation would comply with applicable laws, such as the NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects.

This alternative could result in some beneficial effects as a decrease in training activities could reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources.

4.20.6 Noise

4.20.6.1 Affected Environment

The noise affected environment of the Fort Riley installation remains effectively the same as described in Section 4.17.5.1 of the 2013 PEA.

4.20.6.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to noise as described in Section 4.17.5.2 of the 2013 PEA. Noise generating activities at the installation would continue at the same levels and intensity as historically experienced.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Riley would result in negligible and slightly beneficial noise impacts, since there would be a reduction in the frequency of noise generating events. The beneficial impact under Alternative 1 would be similar to that described the 2013 PEA.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with noise ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Riley, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including noise ordinances and regulations.

4.20.7 Soils

4.20.7.1 Affected Environment

The soils affected environment on the installation remains the same as was discussed in Section 4.17.6.1 of the 2013 PEA.

4.20.7.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to soils were anticipated from continued maneuver training. Impacts under the No Action Alternative on Fort Riley remain the same as those discussed in Section 4.17.6.1 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, minor, adverse impacts to soils were anticipated from continued maneuver training. However, a force reduction would result in a reduction in training

and associated soil compaction and loss of vegetation. This training reduction would result in less sediment discharge to state waters, so negligible impacts are anticipated.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Riley, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.20.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.20.8.1 Affected Environment

Habitat on Fort Riley consists of native grasslands, riparian woodlands, and converted farm lands that are now characterized by tall- and mixed-grass prairie. Dominant vegetation types include big bluestem, indiangrass, and switchgrass. The remainder of Fort Riley's natural area is primarily woodland. Six federally and/or state-listed threatened and endangered species are known to exist on Fort Riley along with 18 rare species, which are listed in Table 4.17-2 of the 2013 PEA. Environmental monitoring and habitat management on Fort Riley are conducted in accordance with the 2010 INRMP (Fort Riley, 2010).

4.20.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in no significant impacts to biological resources and the affected environment would remain in its current state. Fort Riley would continue to adhere to its existing resource management plans and to further minimize and monitor any potential impacts. Units are briefed prior to each training event regarding sensitive areas on the installation, such as protected species habitat.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the implementation of Alternative 1 in that 2013 PEA would have a beneficial impact on biological resources. The Army anticipates that this beneficial impact would persist at or above the level reported in the 2013 PEA with the implementation of further reduction in forces in this SPEA. Biological resources and habitat would continue to be monitored under the 2010 INRMP (Fort Riley, 2010). Additionally, proactive conservation management practices would be more easily accomplished with reduced mission throughput and there would be less training disturbance, allowing areas with habitat more time to recover and

less potential for training related disturbance. The Army is also committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Riley, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.20.9 Wetlands

4.20.9.1 Affected Environment

Wetlands are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.17.1.2 due to lack of significant, adverse environmental impacts as a result of implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013.

4.20.9.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible, adverse impacts to wetlands and the affected environment would remain in its present state.

Alternative 1—Implement Force Reductions

Per Section 4.17.1.2 of the 2013 PEA, there would be negligible changes to wetlands under Alternative 1. The installation would continue to manage its wetlands in accordance with the installation INRMP, which includes designating most wetland areas as off-limits. Impacts to wetlands could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Riley, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met.

4.20.10 Water Resources

4.20.10.1 Affected Environment

The affected environment for water resources on Fort Riley remains the same as that described in Section 4.17.8.1 of the 2013 PEA. There are no changes to surface water, water supply, wastewater, and stormwater resources.

4.20.10.2 Environmental Effects

No Action Alternative

In the 2013 PEA, minor, adverse impacts to water resources were anticipated from the No Action Alternative due to the disturbance and pollution, including sedimentation, of surface waters from continuing training activities on Fort Riley. Surface water impacts to water resources under the No Action Alternative would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

Beneficial impacts to water resources were anticipated from implementation of force reductions under Alternative 1 in the 2013 PEA because of reduced demand for potable water supply. Reduction in training area use from force reductions on Fort Riley is anticipated to potentially reduce impacts to surface waters due to disturbance and spills and provide beneficial impacts. The increased force reductions are expected to cause a proportionate reduction in wastewater flows at the installation WWTP, and without necessary changes, this could result in discharges exceeding permitted levels.

Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Fort Riley, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented. Increased force reductions under Alternative 1 of this SPEA would continue to have the same beneficial impacts to surface waters and water supplies but would not have the adverse impacts anticipated for the WWTP.

4.20.11 Facilities

4.20.11.1 Affected Environment

The facilities affected environment of the Fort Riley installation remains the same as was discussed in Section 4.17.9.1 of the 2013 PEA.

4.20.11.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be negligible impacts to facilities at Fort Riley. The installation’s current facility shortfalls have been prioritized for programming and funding by the Army, however impacts to facilities would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that minor, adverse impacts to facilities would occur on Fort Riley. Under Alternative 1, implementation of proposed further force reductions would also have overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could become downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demands for utilities and reduced demands for training facilities and support services. The force reductions would also provide the installation the opportunity to reduce reliance on relocatable buildings. Some permanent facilities may be re-designated to support units remaining at Fort Riley to provide more space and facilities that are better able to meet tenant and Army needs. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.20.12 Socioeconomics

4.20.12.1 Affected Environment

The ROI for Fort Riley is generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, contractor personnel, and their Families reside. The installation is located in northeast Kansas on the Kansas River between Junction City and Manhattan. The ROI includes Geary, Dickinson, Clay, and Riley counties.

This section provides a summary of demographic and economic characteristics within the ROI. These indicators are described in greater detail in Section 4.17.10 of the 2013 PEA. However, some demographic and economic indicators have been updated where more current data are available.

Population and Demographics

Using 2011 as a baseline, Fort Riley has a total working population of 25,582 consisting of active component Soldiers and Army civilians, and other military services personnel, contractors, and civilians. Of the total working population, 19,995 were permanent party Soldiers and Army civilians. The population that lives on Fort Riley consists of 9,579 Soldiers, 176 Army civilians who are spouses of Soldiers, and an estimated 14,365 Family members, for a total on installation resident population of 23,944 (Elstrom, 2014). The portion of Soldiers and Army civilians living off the installation in 2011 was estimated to be 26,227 and consists of Soldiers, Army civilians, and their Family members.

In 2012, the population in the ROI was 142,600, a 6.6 percent increase from 2010. Geary and Riley counties experienced the most significant growth of the counties during this time. These counties are also more racially diverse than the other counties within the ROI (U.S. Census Bureau, 2012a). The population in the ROI is presented in Table 4.20-2, and the 2012 racial and ethnic composition of the ROI is presented in Table 4.20-3.

Table 4.20-2. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Clay County, Kansas	8,523	-0.1
Dickinson County, Kansas	19,806	+0.3
Geary County, Kansas	38,257	+11.3
Riley County, Kansas	76,030	+6.9

Table 4.20-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
State of Kansas	87.2	6.2	1.2	2.6	2.7	11.0	77.5
Clay County, Kansas	97.2	0.6	0.4	0.4	1.3	2.5	95.0
Dickinson County, Kansas	95.7	1.1	0.7	0.4	2.1	4.4	91.9
Geary County, Kansas	70.6	18.4	1.2	3.4	5.7	13.8	59.9
Riley County, Kansas	84.6	7.0	0.7	0.7	3.3	7.4	78.4

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Income

Information presented below represents an update from the 2013 PEA, which provided employment and income data from 2009. Between 2000 and 2012, total employment in Geary and Riley counties grew at a faster rate than other counties in the ROI and Kansas as a whole (Table 4.20-4) (U.S. Census Bureau, 2000 and 2012b).

The median household income in the counties within the ROI is relatively similar to each other, all of which are lower than Kansas as a whole. The percentage of those living below the poverty line is greatest in Riley County (22.7 percent). Poverty rates in the other counties within the ROI are relatively similar to each other and Kansas (U.S. Census Bureau, 2012b).

At $166,900, the median home value in Riley County is higher than other counties within the ROI. Clay County has a median home value notably lower than other counties in the ROI and Kansas as a whole (U.S. Census Bureau, 2012b).

Table 4.20.4. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Kansas	1,413,433	+6.2	127,400	51,273	13.2
Clay County, Kansas	4,193	-3.1	87,200	43,879	12.3
Dickinson County, Kansas	9,706	-0.6	106,400	49,535	11.4
Geary County, Kansas	16,723	+22.7	130,600	47,879	10.8
Riley County, Kansas	39,843	+12.1	166,900	43,364	22.7

Information regarding the workforce by industry for each county within the ROI was obtained from the U.S. Census Bureau. Information presented below is for the employed labor force.

Clay County, Kansas

The educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Clay County (20 percent). Retail trade accounts for the second largest share of the total workforce (12 percent), followed by the construction and agriculture, forestry, fishing and hunting, and mining sectors (10 percent each). The Armed Forces account for 4 percent of Clay County's total workforce. The nine remaining sectors account for 44 percent of the total workforce.

Dickinson County, Kansas

Similar to Clay County**,** the primary employment sector in Dickinson County is educational services, and health care and social assistance (22 percent). Retail trade is the second largest employment sector (13 percent), followed by manufacturing (12 percent). The Armed Forces account for 3 percent of the Dickson County workforce. The remaining 10 sectors, which each account for less than 10 percent individually, employ 50 percent of the total workforce.

Geary County, Kansas

The Armed Forces is the primary employment sector in Geary County (21 percent). The educational services, and health care and social assistance sector is the second largest employment sector (17 percent), followed by public administration (13 percent). Retail trade also accounts for a notable share of the total workforce (10 percent). The 10 remaining sectors account for 39 percent of the total workforce.

Riley County, Kansas

Similar to Clay and Dickinson counties**,** the educational services, and health care and social assistance sector accounts for the greatest share of Riley County's total workforce (32 percent). The Armed Forces is the second largest employment sector (16 percent), followed by the retail trade and arts, entertainment, and recreation, and accommodation and food services sectors (10 percent each). The 10 remaining sectors account for 32 percent of the total workforce.

Housing

Installation housing is composed of Family quarters and barracks. Totaling more than 6.1 million square feet, there are 4,020 Family units on the installation. Approximately 95.0 percent of the installation's 6,213 barrack spaces meet the Army's highest standards. Currently, barrack spaces have an occupancy rate of 83.6 percent (Fort Riley, 2013, 2014a).

Schools

Approximately 8,310 military-connected students attend schools throughout the region. This represents 26.0 percent of enrollment in regional schools. The majority of military-connected students attend schools in the Geary County School District (5,644 students). The district received approximately $13.9 million in Federal Impact Aid during the 2012–2013 academic year (Fort Riley, 2013). The 2013 PEA reports that military-connected students who attend schools in the Geary County School District represent approximately 62.0 percent of total enrollment.

Another 1,334 military-connected students attended schools in the Manhattan-Ogden School District, for which the district received approximately $264,625 in Federal Impact Aid during the 2012-2013 academic year (Fort Riley, 2013). Military-connected students represent approximately 25.0 percent of district enrollment, as presented in the 2013 PEA. The remaining 1,332 military-connected students attended schools in other districts. These districts received approximately $549,063 in Federal Impact Aid during the 2012-2013 academic year (Fort Riley, 2013). Together, these students represent 6 percent of enrollment in other districts, as presented in the 2013 PEA.

Public Health and Safety

DES oversees the administration of police and fire protection services on the installation. A range of medical services are also provided on the installation by the Irwin Army Community Hospital. The hospital provides services for military personnel, retirees, and their Families. Additional information regarding these facilities is provided in the 2013 PEA.

Family Support Services

The Fort Riley Directorate of FMWR and ACS provide programs, services, facilities, and information for Soldiers and their Families. Services range from child care and youth programs to deployment, employment, financial, and relocation readiness, among others. Additional information about Family Support Services is provided in the 2013 PEA.

Recreation Facilities

The installation offers a range of recreation facilities and programs. These include but are not limited to fitness centers, swimming pools, outdoor recreation opportunities, and a Warrior Zone. Additional information about recreation facilities is provided in the 2013 PEA.

4.20.12.2 Environmental Effects

No Action Alternative

The continuation of operations at Fort Riley represents a beneficial source of regional economic activity. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics are presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of up to 16,000[26] Army positions (15,357 Soldiers and 643 Army civilians), with an average annual income of $46,760 and $63,875, respectively. In addition, this alternative would affect an estimated 24,288 Family members, including 8,928 spouses and 15,360 children. The total number of military employees and their Family members who may be directly affected under Alternative 1 is projected to be 40,288.

[26] This number was derived by assuming the loss of two BCTs, 60 percent of Fort Riley's non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 16,000. The 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 8,000.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative range. Table 4.20-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, there would be significant impacts to sales, income, employment, and population because the estimated percentage change is outside the historical ranges for all these parameters.

Table 4.20-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+6.1	+8.2	+6.0	+7.8
Economic contraction significance value	-5.5	-4.5	-3.8	-2.9
Forecast value	-11.9	-14.4	-28.9	-30.5

Table 4.20-6 summarizes the predicted impacts to income, employment, and population of force reductions against 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecasted values, these figures show the same significance determinations as the EIFS predictions in the previous table.

Table 4.20-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$865,132,400	-17,780 (Direct)	40,288
		-1,854 (Induced)	
		-19,633 (Total)	
Total 2012 ROI economic estimates	$6,016,300,000	70,465	142,616
Percent reduction of 2012 figures	-14.4	-27.9	-28.2

Note: Sales estimates are not consistently available from public sources for all counties in the United States; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from EIFS is described in the paragraphs below.

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 16,000 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 1,780 direct contract service jobs would also be lost. An additional 1,854 induced jobs would be lost because of the reduction

in demand for goods and services within the ROI. The total reduction in employment is estimated to be 19,633, a significant reduction of 27.9 percent from the total employed labor force in the ROI of 70,465. Income is estimated to fall by $865.1 million, a significant 14.4 percent decrease in income from 2012.

Under Alternative 1, the total reduction in sales within the ROI is estimated to be $786.6 million. There would also be a loss in sales tax receipts to local and state governments. The average state and local sales tax rate for Kansas is 8.2 percent (Tax Foundation, 2014). To estimate sales tax reductions, information on the proportion of sales that would be subject to sales tax on average across the country was utilized. According to the U.S. Economic Census, an estimated 16 percent of sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $786.6 million resulting in an estimated sales tax receipts decrease of $10.26 million under Alternative 1.

Of the 142,616 people (including those residing on Fort Riley) who live within the ROI, 16,000 Army employees and their estimated 24,288 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 28.2 percent. This number could overstate potential population impacts because some of the people no longer employed by the military could continue to live and work within the ROI, finding employment in other industry sectors. However, due to the rural nature of the area and Fort Riley as a dominant employer and economic driver of the ROI, the majority of displaced personnel would likely move out of the area to seek other opportunities. There are few employing sectors in the ROI able to absorb the number of displaced military employees expected under Alternative 1. A small number of displaced personnel may stay in the ROI and seek and find work while others may remain unemployed and possibly affect the unemployment rate in the ROI.

Housing

The population reduction that would result under Alternative 1 would decrease housing demand and increase housing availability on the installation and across the larger ROI, potentially resulting in a decrease in median home values. Because of the relatively small population of the ROI, the reduced demand for housing and increased availability of housing associated with the force reductions that would occur under Alternative 1 has the potential to result in minor to significant impacts to the housing market.

Schools

During the 2012–2013 academic year, military-connected students accounted for approximately 26.0 percent of enrollment in regional schools (Fort Riley, 2013). The 5,644 military-connected students who attend schools in the Geary County School District represent 62.0 percent of the district’s total enrollment, and subsequently these schools receive significant Federal Impact Aid funds. Approximately 25.0 percent of the Manhattan-Ogden School District is comprised of military-connected students (1,334 students). The remaining 1,332 military-connected students

account for a combined 6 percent of enrollment in other school districts across the region. In total, school districts received $13.9 million in Federal Impact Aid during the 2012/2013 academic year.

Under Alternative 1, it is possible that enrollment could decline significantly across several school districts, particularly in Geary County. As described above, school districts within the ROI receive sizable federal and DoD funds, the allocation of which is based on the number of military-connected students they support. The actual projected loss of federal and DoD funds cannot be determined at this time due to the variability of appropriated dollars from year to year, and the uncertainty regarding the specific impacts to ROI school enrollment. However, it is anticipated that schools across the ROI, particularly in Geary County, would likely need fewer teachers and materials as enrollment declines, which would offset the reduction in Federal Impact Aid.

Overall, schools within the ROI could experience significant, adverse impacts from the decline in military-connected student enrollment, particularly in Geary County, that would result under Alternative 1. If enrollment in individual schools declines significantly, schools may need to reduce the number of teachers, administrators, and other staff, and potentially close or consolidate with other schools within the same school district should enrollment fall below sustainable levels.

Public Services

A reduction in personnel would have minor impacts to emergency services, fire, police, and medical services because the reduction is anticipated to decrease the need for these services. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements. The impacts to public services are not expected to be significant because the existing service level for the installation and the ROI would still be available.

Off the installation, emergency service departments are comprised of both paid staff and volunteers, some of whom may be Soldiers or Army civilians. Municipalities with high concentrations of Soldiers and Army civilians may experience a greater loss of potential volunteers and/or tax revenues to support paid positions than other municipalities, which may reduce the ability to provide specific public services in localized areas. Mutual aid agreements with adjacent municipalities and/or those not as significantly impacted may be able to help offset the loss of existing/potential volunteers and/or tax revenue to support paid positions. Overall, impacts to public services would be minor.

Family Support Services and Recreation Facilities

Under Alternative 1, Fort Riley would experience a significant population reduction. Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. The extent of these impacts would depend on the specific service(s) provided; however, many non-appropriated business activities and recreation facilities/activities would experience the most significant impacts. Overall, minor to significant impacts to Family Support Services and recreation facilities would occur under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, states: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). As shown in Table 4.20-3, the proportion of minority populations is notably higher in Geary County than the proportion in other counties within the ROI and Kansas as a whole. Other counties within the ROI have fewer minority residents than Kansas as a whole. Because minority populations are more heavily concentrated in Geary County, Alternative 1 has the potential to affect environmental justice populations. Of the counties within the ROI, only Riley County has a higher proportion of populations living below the poverty level when compared to the Kansas average. Although these populations could be adversely impacted under Alternative 1, the impacts are not likely to be disproportional.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of people associated with the installation, including children. Therefore, it is not anticipated Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.20.13 Energy Demand and Generation

4.20.13.1 Affected Environment

The energy demand and generation affected environment of the Fort Riley installation remains the same as described in Section 4.17.11.1 of the 2013 PEA.

4.20.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be negligible impacts to energy demand and generation at Fort Riley. For the current analysis, maintenance of existing utility systems would continue and Fort Riley would continue to consume similar types and amounts of energy so impacts to energy demand and generation would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy demand and generation would occur on Fort Riley. Under Alternative 1, minor, beneficial impacts to energy are anticipated due to a further reduction in energy consumption associated with the additional force reductions. The installation would also be better positioned to meet energy and sustainability goals.

4.20.14 Land Use Conflicts and Compatibility

4.20.14.1 Affected Environment

Land Use is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.17.1.2, due to negligible impacts as a result of implementing alternatives included in that analysis. As noted in the 2013 PEA, the installation has sufficient vacant space in existing buildings, sufficient land available to build facilities, or a combination thereof, to meet the mission requirements.

4.20.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that no changes to land use conditions would occur, and negligible impacts are anticipated. Impacts under the No Action Alternative on Fort Riley remain the same as those discussed in Section 4.17.1 of the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Riley would result in negligible impacts to installation land use similar to the No Action Alternative. Under Alternative 1, impacts would be similar to those described in the 2013 PEA.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with land ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Riley, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including land use ordinances and regulations.

4.20.15 Hazardous Materials and Hazardous Waste

4.20.15.1 Affected Environment

As described in the 2013 PEA, hazardous materials are used on Fort Riley. Fort Riley operates under a HWMP intended to promote the protection of public health and the environment. Army policy is to substitute nontoxic and nonhazardous materials for toxic and hazardous ones; ensure compliance with local, state, and federal hazardous waste requirements; and ensure the use of waste management practices that comply with all applicable requirements pertaining to generation, treatment, storage, disposal, and transportation of hazardous wastes. The plan reduces the need for corrective action through controlled management of solid and hazardous waste. No substantial changes have occurred to the affected environment since 2013.

4.20.15.2 Environmental Effects

No Action Alternative

As stated in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative. Use of hazardous materials and generation of hazardous wastes would continue on Fort Riley in accordance with all applicable laws, regulations and plans.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that minor, adverse impacts from hazardous materials and hazardous waste would occur on Fort Riley. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on Fort Riley. Because of the reduced numbers of people, it is likely that the potential for spills would be reduced further during training and maintenance activities. The volume of waste generated and material requiring storage would increase slightly because deactivating units would turn in hazardous material for storage to avoid transportation risks. Under Alternative 1 in this SPEA, Fort Riley would continue to implement its hazardous waste management in accordance with its HWMP and applicable regulations and therefore, adverse impacts would be minor.

Under Alternative 1, adverse impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Fort Riley, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.20.16 Traffic and Transportation

4.20.16.1 Affected Environment

The transportation affected environment of the Fort Riley ROI remains the same as described in Section 4.17.13.1 of the 2013 PEA with major road routes in the region including I-70, an east-west interstate highway that passes less than 0.5 mile to the south of the cantonment area. Other major routes in the area include U.S. Route 77, and Kansas State Routes 18, 57, and 82.

4.20.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated negligible impacts. Fort Riley's transportation system provides adequate LOS for its Soldiers, Family members, and civilians so negligible impacts would continue to be anticipated.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Riley would result in beneficial impacts to traffic and transportation systems. With the departure of Soldiers, Army civilians and their Family members, a decrease in traffic congestion and travel time on installation and area roads are anticipated. The size of the beneficial impact under Alternative 1 would be larger than anticipated at the time of the 2013 PEA due to the larger force reduction.

4.20.17 Cumulative Effects

As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Riley consist of four counties in Kansas: Geary, Dickinson, Clay, and Riley. Section 4.17.14 of the 2013 PEA noted numerous planned or proposed actions within the ROI that reasonably could be initiated within the next 5 years and would have the potential to cumulatively add impacts to Alternative 1. A number of the Army's proposed projects have been

previously identified in the installation's Real Property Master Planning Board and are programmed for future execution.

Reasonably Foreseeable Future Projects on Fort Riley

No additional actions have been identified by the installation beyond those noted in the cumulative effects analysis of the 2013 PEA.

Reasonably Foreseeable Future Projects outside Fort Riley

Beyond those mentioned in the 2013 PEA, the Army is not aware of any reasonably foreseeable future projects outside Fort Riley which would be appropriate for inclusion in the cumulative impacts analysis. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, smaller, less diversified economies will be more vulnerable to force reductions and provide fewer opportunities to displaced Army employees.

No Action Alternative

There will be no cumulative effects due to the No Action Alternative, essentially the same as was determined in the 2013 PEA. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reductions

The cumulative effects of Alternative 1 would be essentially the same as was determined in the 2013 PEA. Overall, the potential cumulative impacts of Alternative 1 at Fort Riley is anticipated to be significant and adverse for socioeconomics, with negligible to beneficial impacts for the other resources.

The socioeconomic impact under Alternative 1, as described in Section 4.20.12.2 with a loss of 16,000 Soldiers and Army civilians, could lead to significant impacts to the population, regional economy, schools, and housing, specifically in the ROI cities of Manhattan and Junction City in Kansas. Fort Riley has long been a key component of the region's economy with total installation employment of almost 20,000. The relatively smaller economy of the ROI depends on the installation's employment and economic activity. Specifically, in Geary and Riley counties, the Armed Forces account for 21 and 16 percent of the workforce, respectively, demonstrating the importance of the installation to employment opportunities in the region. With fewer opportunities for employment, the ROI would likely not be able absorb many of the displaced forces.

Stationing changes would also affect regional economic conditions through the jobs and income they bring (or lose) within the region. Military personnel spend their money in the ROI economy, supporting additional jobs, income, taxes, and sales impacts. Other infrastructure improvements

and construction and development activity would also benefit the regional economy through additional economic activity, jobs, and income in the ROI; however, these benefits would not offset the adverse impacts under Alternative 1 and other adverse cumulative actions. Under Alternative 1, the loss of 16,000 Soldiers, in conjunction with other reasonably foreseeable actions, would have significant impacts to employment, income, tax receipts, housing values, and schools in the ROI.

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4.21 Fort Rucker, Alabama

4.21.1 Introduction

Fort Rucker is located in southeastern Coffee and southwestern Dale counties, approximately 20 miles northwest of Dothan, Alabama, surrounded by the cities of Daleville, Enterprise, and Ozark (Figure 4.21-1). The Fort Rucker reservation encompasses approximately 63,072 acres. Fort Rucker serves as the headquarters for Army Aviation and is home to the U.S. Army Aviation Center of Excellence (USAACE). The airspace used to accomplish the training mission spans over 29,590 square miles in southeast Alabama, northwest Florida, and southwest Georgia. An approximately 2,180-acre cantonment area is in the southern portion of Fort Rucker and provides temporary and permanent living quarters for Soldiers and their Families. The cantonment area includes residential areas, support facilities, retail centers, restaurants, and health care facilities.

Fort Rucker was established in 1942 as a part of the U.S. War Department's base expansion effort following the onset of World War II. Fort Rucker was situated on 58,000 acres of sub-marginal farmland that the federal government was originally acquiring as a wildlife refuge. South of Daleville, Alabama, an additional 1,259 acres were acquired for the construction of an airfield to support the training camp. Troops were first stationed for training on Fort Rucker in 1943. The installation was primarily used for a variety of training activities and was used to house foreign prisoners during World War II. Camp Rucker was inactive between 1946 and 1950, and again for a brief period in 1954.

The primary mission of USAACE, headquartered on Fort Rucker, is to train, educate and develop Army aviation professionals and integrate Aviation capabilities across war fighting functions in support of commanders and Soldiers on the ground. Five basefields, 17 stagefields, and 73 government-owned remote training (landing) sites, on and off the installation, are used to accomplish flight training.

Fort Rucker's 2013 baseline permanent party population was 4,957. In this SPEA, Alternative 1 assesses a potential population loss of 2,500, including approximately 1,754 permanent party Soldiers and 736 Army civilians.

Figure 4.21-1. Fort Rucker, Alabama

4.21.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Rucker; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.21-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.21-1. Fort Rucker Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Negligible	Negligible
Noise	Minor	Beneficial
Soils	Minor	Beneficial
Biological Resources	Negligible	Beneficial
Wetlands	Minor	Beneficial
Water Resources	Minor	Beneficial
Facilities	Negligible	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Minor	Beneficial
Land Use Conflict and Compatibility	Minor	Beneficial
Hazardous Materials and Hazardous Waste	Minor	Minor
Traffic and Transportation	Less than Significant	Beneficial

4.21.3 Air Quality

4.21.3.1 Affected Environment

Fort Rucker is located in an area in attainment for all the criteria pollutants (EPA, 2013). Primary stationary air pollution sources at Fort Rucker include fossil fuel boilers and water heaters, woodworking shops, paint booths, incinerators, USTs and ASTs, and any other source that might release pollutants into the atmosphere. Other potential major sources of air pollutants are military equipment, aircraft and vehicles (Fort Rucker, 2008). Fort Rucker (facility number 604-0008) emissions are in compliance with the Title V Permit from the Alabama Department of Environmental Management (Alabama DEM, 2010). The current Title V permit expires on April 25, 2015.

4.21.3.2 Environmental Effects

No Action Alternative

Continuation of existing levels of emissions under the No Action Alternative would result in minor, adverse impacts to air quality. Emissions would remain at levels well below the maximum allowed under existing permits.

Alternative 1—Implement Force Reductions

Force reductions proposed at Fort Rucker under Alternative 1 would result in minor, long-term, beneficial air quality impacts because of reduced demand for heating/hot water and reduced operation of mobile sources to and from the facility. Additional beneficial impacts would occur from the potential reduction in training flights, reducing emissions from aircraft. Emissions from civilian aircraft are not expected to change.

The relocation of personnel outside of the area because of force reductions could result in negligible, short-term impacts to air quality associated with mobile sources. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with air quality regulations. Even if the full end-strength reductions were to be realized at Fort Rucker, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.21.4 Airspace

4.21.4.1 Affected Environment

Airspace at Fort Rucker is highly regulated due to the high density of civilian airports adjacent to Fort Rucker and its outlying aviation facilities. Twelve public use airports are located in the seven-county southeast Alabama region. Fort Rucker uses many of these airports and others outside the region. Caused by the high demand of airspace due to the volume of military training, civilian air traffic may impact aircraft operations (e.g., approaches/departures and traffic patterns). As a result, the entirety of Fort Rucker is considered an alert area A-211 to inform pilots that airspace contains a high volume of pilot training or activity (FAA, 2012). In addition, much of Fort Rucker lies within the Rose Hill MOA, in which airspace is restricted from 8,000 feet msl to 18,000 feet msl. Nearby restricted airspace includes Moody MOA to the east which similarly restricts airspace from 8,000 feet msl to 18,000 feet msl and the Eglin C MOA which restricts airspace from 1,000 feet msl to 3,000 feet msl (FAA VFRMAP, 2013).

Airspace at Fort Rucker is managed by USACE G3 Air. Currently, airspace interactions between Fort Rucker and civilian air interests are healthy throughout the region. The Cairns Army Radar Approach Control directs airspace throughout the area capably managing the high volume of air traffic. Fort Rucker also provides technical assistance to many of the small airport operations within the region (Fort Rucker, 2009a).

4.21.4.2 Environmental Effects

No Action Alternative

Fort Rucker would maintain existing airspace operations under the No Action Alternative. All current airspace restrictions are sufficient to meet current airspace requirements and no airspace conflicts are anticipated. There would be no impacts to airspace at Fort Rucker under the No Action Alternative.

Alternative 1—Implement Force Reductions

Airspace restrictions and classifications around Fort Rucker are sufficient to meet current airspace requirements and a force reduction, while potentially altering and reducing current airspace use, would not be projected to require additional airspace restrictions. Negligible, adverse impacts could occur in the event that force reductions impact aircraft and airspace management personnel (i.e., air traffic controllers). In the event that aircraft and airspace management personnel area are reduced, Fort Rucker would maintain staff levels to meet current airspace requirements.

4.21.5 Cultural Resources

4.21.5.1 Affected Environment

The affected environment for cultural resources at Fort Rucker is the installation footprint. All of Fort Rucker has been surveyed for archaeological resources with the exception of impact areas. These areas have been excluded because of the presence of UXO and continued use of explosives. A total of 315 sites have been identified within the installation and an additional 26 sites have been identified on leased lands in Alabama, Florida, and Georgia (Fort Rucker, 2010). Of the 315 sites, 6 have been determined eligible for listing in the NRHP and 1 requires additional research. Eight of the sites located on leased lands are considered potentially eligible.

Architectural surveys at the installation have identified and evaluated all architectural resources constructed prior to 1965. All of the resources present at Fort Rucker date from World War II to the Cold War Era. Of these resources, only one is eligible for listing on the NRHP, the Chapel of Wings (Building 109) constructed in 1942. Although the building itself is identical to others from the same period, the interior furnishings were constructed by German Prisoners of War during World War II.

In addition to these resources, there are 5 cemeteries and 15 former church locations within the installation. These are managed by the installation but are considered separate from archaeological and architectural resources.

Fort Rucker has identified 21 federally recognized tribes with an interest in this area of Alabama. The installation initiated consultation with these tribes in 2002 and will continue to work with

tribes that express an interest in the resources present at Fort Rucker. No TCPs or sacred areas have been identified within the installation.

The ICRMP for USAACE and Fort Rucker Garrison was completed in 2010. The ICRMP establishes the priorities and standards for the management of cultural resources at Fort Rucker and outlines a 5-year schedule for accomplishing objectives.

4.21.5.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, cultural resources would continue to be managed in adherence with all applicable federal laws and the ICRMP. The cultural resource management staff at the installation would continue to consult with the SHPO and applicable tribes on the effects of undertakings that may affect cultural resources. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures. The effects of the No Action Alternative would be negligible as there are few archaeological sites and only one historic architectural resource present on the installation. Existing protocols and procedures should prevent adverse impacts to these resources.

Alternative 1—Implement Force Reductions

Alternative 1 would have a negligible impact on cultural resources. Currently, there is only one historic architectural resource present on the installation that could be impacted in the future by the force reductions proposed in this alternative. The effects of this alternative are considered to be similar to the No Action Alternative –future activities with the potential to affect cultural resources would continue to be monitored and the impacts reduced through preventative and minimization measures. This alternative could result in some beneficial effects as a decrease in training activities could reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources.

As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic structures from these activities are not analyzed. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of force reductions, the installation would comply with applicable laws, such as NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort

Rucker, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.21.6 Noise

4.21.6.1 Affected Environment

Training and operational activities are the primary sources of noise at Fort Rucker. Training typically occurs 24 hours per day. Operational noise on Fort Rucker is generated through small arms fire, demolition and large caliber weapons, simulators, and rotary-wing (helicopter) aircraft training. Helicopter flights are a major component of military training and operations, and helicopter flight training represents the largest operational source of noise. Helicopter corridors extend from airfields and heliports to training areas. Numerous rotary-wing aircraft are stationed at Fort Rucker and are used extensively throughout the installation and adjacent areas. Heavy weapons and small arms firing are conducted in the impact area on the northern portion of the installation. Other noise sources include routine construction and demolition activities and military and civilian motor vehicle operations (U.S. Army Public Health Command, 2011).

According to the Fort Rucker RPMP, land use patterns within the installation are such that sensitive noise receptors like Family housing, community areas, and recreational uses are generally well buffered from more intensive activities by open space (Fort Rucker, 2008). Because of the nature of operations at Fort Rucker and the character of development in adjacent communities, noise contours associated with aviation and weapons training extend into surrounding areas not normally recommended for the siting of noise-sensitive land uses. Areas within NZ II extend northeast, northwest, and southwest from Fort Rucker into the unincorporated parts of Coffee and Dale counties. In Dale County, these areas are located along County Road 36 and County Road 38. In Coffee County, these areas are along Alabama Highway 27 (Ozark Highway), Alabama Highway 51, County Road 143, and east of County Road 156. These areas are predominantly forested, but several single family residences along with a few businesses and agricultural operations exist within the NZ II contours, especially along Alabama Highway 51 (Fort Rucker, 2009a). There are two areas within the NZ III contour for large-caliber weapons that extend outside Fort Rucker boundaries. One area is in an unincorporated part of Coffee County, east of Alabama Highway 51 and northeast of Tabernacle Stagefield. This area is mostly forested with an isolated residence. The other area is in an unincorporated part Dale County southeast of Molinelli Forward Area Refueling Point with primarily undeveloped forest land. All areas within the NZ III contour for small-caliber weapons are located within the Fort Rucker boundaries (Fort Rucker, 2009a).

Fort Rucker receives a relatively small number of noise complaints annually, given the number of aircraft movements and types of training activities. According to complaint records, the majority of these complaints stem from aircraft operations occurring in the extensive Fort Rucker airspace, as well as the air-to-ground weapons training at the Matteson, Kilo, and Golf run and

dive ranges (U.S. Army Public Health Command, 2011). The city of Enterprise and, to a lesser extent, the city of Ozark are growing closer to areas affected by weapons training and there have been many complaints in adjacent off-installation areas of these communities, especially along Alabama Highway 27, generated by the effects of nightly weapons training (Fort Rucker, 2009a). Each complaint is fielded by the Noise Mitigation Officer, USAACE G-3 Air, and is addressed promptly. The aviation mission at Fort Rucker and its subsequent operations are not expected to change in the near future (U.S. Army Public Health Command, 2011).

Fort Rucker implements an IONMP for current and future noise management. The IONMP fosters communication between Fort Rucker and its civilian neighbors and provides a method for responding to civilian issues related to noise generated by Fort Rucker training activities. Other goals of the IONMP include education of both installation personnel and surrounding residents, management of noise complaints, mitigation of noise and vibration, and noise abatement procedures. Noise monitoring systems and data management are also included in the plan (U.S. Army Public Health Command, 2011; USACE, 2013).

According to federal guidelines used to assess noise and land use compatibility, the overall impact of Fort Rucker's current training activities would be characterized as moderate (U.S. Army Public Health Command, 2011). The Zone III noise contours for small arms operations, aircraft large caliber operations, and basefield/stagefield helicopter operations all remain relatively localized to the installation and/or satellite facility boundary. Few, if any, sensitive land uses are contained within the majority of the Zone III noise contours. The Zone II noise contours for arms and aircraft operations routinely extend beyond the installation or satellite facility boundary. In several instances, the Zone II contours contain noise sensitive land uses, primarily which are low-density residential in nature (U.S. Army Public Health Command, 2011).

4.21.6.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, units stationed at Fort Rucker would remain in place at existing levels. There would be no change from existing operations and no changes in associated noise levels. NZ II and III contours would continue to extend into areas outside the installation containing noise-sensitive land uses. Because of the character of existing operations, existing noise levels and contours, and frequency of complaints, less than significant noise (moderate, adverse) impacts are anticipated to continue under the No Action Alternative.

Alternative 1—Implement Force Reductions

Under Alternative 1, it is anticipated that there would be a reduction in noise occurrences from aircraft, which are the main contributor to installation noise complaints. There would likewise be a reduction in other training exercises with reduction in forces. Fort Rucker would likely see the

current level of noise complaints remain the same or decrease, with the frequency of these complaints decreasing. Overall, with implementation of Alternative 1, it is expected that noise impacts would be reduced, resulting in beneficial impacts to noise. Given the character of ongoing operations at Fort Rucker, however, no significant changes in noise levels or noise contours are expected.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with noise ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Rucker, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including noise ordinances and regulations.

4.21.7 Soils

4.21.7.1 Affected Environment

Fort Rucker lies within the Atlantic Coastal Plain Physiographic Province, characterized by low hills, shallow valleys, and flat plains. Major portions of Fort Rucker are within the 100-year floodplain (FEMA, 2007). Most slopes on the installation occur within the 0 to 10 percent range, with few areas exceeding 5 percent (NRCS, 2013). The soils of the Atlantic Coastal Plain Province on Fort Rucker are underlain by unconsolidated sediments such as clay, silt, and sand.

The predominant uplands soils on Fort Rucker are generally very deep, nearly level to gently rolling, and moderately well drained to somewhat excessively well drained. Upland soils are underlain by sandy, loamy, and fluvial marine deposits from sedimentary rock. Predominant floodplain and swamp soils on Fort Rucker are generally deep to very deep, smooth and nearly level, poorly to somewhat poorly drained, and underlain by loamy marine deposits from sedimentary rocks. Predominant soil series on Fort Rucker include Angie, Cuthbert, Eustis, Lakeland, Lucy, Luverne, Orangeburg, and Shubata (NRCS, 2013).

Soils on Fort Rucker have been physically affected by training activities (Fort Rucker, 2009b), as well as from natural forces such as wind and water. Activities associated with training include utilizing and maintaining range roads, operating tracked vehicles, and firing ordnances. The soils on Fort Rucker are low to moderately erodible based on their high sand content and sparse vegetative cover (NRCS, 2013); therefore, training activities can have a detrimental impact to soils. Fort Rucker has implemented an erosion/sediment control project to minimize and mitigate for impacts to soils on the installation (Fort Rucker, 2009b).

4.21.7.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, minor, adverse impacts to soils are anticipated at Fort Rucker. Although Fort Rucker would continue to maintain its erosion/sediment control projects, training

activities would occur under the current schedule which would lead to continued minor, adverse impacts to soil resources.

Alternative 1—Implement Force Reductions

Under Alternative 1, beneficial impacts to soils are anticipated. Force reductions would likely result in decreased use of the training ranges which could have beneficial impacts to soils because there would be an anticipated decrease in soil compaction, and vegetation loss, and accelerated erosion. Over time, less sediment would discharge in to waters and wetlands.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Rucker, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory regulations.

4.21.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.21.8.1 Affected Environment

Vegetation

Five major habitat types occur on Fort Rucker: upland forested areas, pine plantations, agricultural lands, developed areas, and lowland areas. Within these larger habitat types, some areas are considered severely eroded (Fort Rucker, 2009b). The vegetation species common to these habitat types are summarized below.

Upland Forest

Upland forested areas include mixed forests with both pine and hardwood species on moderately well-drained, mesic sites where mesophytic species predominate. Such forests are abundant on the installation in uplands with clay subsoils. They occur throughout the installation and are the dominant community type on the western half of Fort Rucker. This type of forest has developed naturally through regrowth on much of the formerly cultivated upland areas. On the tops of hills and ridges where conditions are drier, the forest vegetation typically includes more xeric-adapted dominant species and tends to be more open than the more widespread forest vegetation.

Pines in the overstory of these mixed pine-hardwood forests include loblolly, shortleaf (*Pinus echinata*), and longleaf (*Pinus palustris*) in decreasing order of frequency. Common large hardwood species include southern red oak (*Quercus falcata*), water oak (*Quercus nigra*), diamond-leaf oak (*Quercus laurifolia*), sweetgum (*Liquidambar styraciflua*), and yellow poplar

(*Liriodendron tulipifera*). Post oak (*Quercus stellata*), black oak (*Quercus velutina*), and hickory (*Carya* spp.) are less common. Southern magnolia (*Magnolia grandiflora*), American beech (*Fagus grandifolia*), white oak (*Quercus alba*), and spruce pine (*Pinus glabra*) may occur on flats on lower slopes. Predominant small trees include sassafras (*Sassafras albidum*), flowering dogwood (*Cornus florida*), sourwood (*Oxydendron arboretum*), hawthorn (*Crataegus* spp.), persimmon (*Diospyros virginiana*), and wild cherry (*Prunus serotina*). Blackjack oak (*Quercus marilandica*), fringe tree (*Chionanthus virginicus*), eastern red cedar (*Juniperus virginiana*), yaupon holly (*Ilex vomitoria*), and devilwood (*Osmanthus americana*) may also occur. American holly (*Ilex opaca*) is scarce.

Shrub understory plants are mostly members of the blueberry/huckleberry complex (*Vaccinium* spp.), wax myrtle (*Myrica cerifera*), and occasionally, piedmont azalea (*Rhododendron canescens*) and red buckeye (*Aesculus pavia*), along with small individuals of the overstory species described above. Blackberry (*Rubus* spp.) and wild plum (*Prunus americana*) may be common in forest openings. Ground cover includes a wide variety of grasses and forbs, including numerous species of legumes, but no particular species are especially characteristic of this habitat type (Fort Rucker, 2009b).

Pine Plantations

Even-aged pine plantations are common on Fort Rucker. Most are comparatively small, encompassing 25 acres or less. Loblolly pine has been planted on most sites having heavy soils and mesic conditions. Younger stands planted on lighter, more xeric soils within recent years consist of longleaf pine. In younger plantations, old field plant species are typically present. These include blackberry, wild plum, and numerous grasses and forbs (Fort Rucker, 2009b).

Agricultural Lands

Fort Rucker has substantial cleared acreage devoted to agricultural production through an outlease program. Typically, agricultural lands are planted with grain, legumes, or grass, or are intentionally fallow. Early successional woody invaders of abandoned fields are determined by nearby species of seed trees and seed dispersal capability. In most cases, loblolly pine and/or sweetgum are the dominant invaders. Oaks (especially water oak), flowering dogwood, and yellow poplar are common in marginal areas adjacent to forests with mature trees. Sassafras and persimmon also are common woody invaders. Blackberries are common around field edges. Among the most conspicuous, persistent, herbaceous invaders of interiors of abandoned fields are broomsedge (*Andropogon virginicus*) and goldenrod (*Solidago* spp.) (Fort Rucker, 2009b).

Developed Areas

Developed areas include residential properties, golf courses, and similar open areas. These areas cover approximately 5,000 acres and include a mix of ornamental grasses, shrubs, and trees (Fort Rucker, 2009b).

Lowland Areas

Lowland areas include floodplain forests, wetlands, ponds, and lakes. Floodplain forests occur along larger streams on Fort Rucker, such as Claybank and Steep Head creeks. Deciduous hardwood species such as green ash (*Fraxinus pennsylvanica*), tupelo gum (*Nyssa aquatic*), red maple (*Acer rubrum*), and river birch (*Betula nigra*) typically dominate. Coniferous trees common in this type of forest include spruce pine and bald cypress (*Taxodium distichum*). Characteristic shrubs and herbs include palmetto (*Sabal minor*), Sebastian bush (*Ditrysinia fruticosa*), mountain laurel (*Kalmia latifolia*), Atamasco lily (*Zephyranthes atamasco*), spider lily (*Hymenocallis occidentalis*), and partridge berry (*Mitchella repens*).

Wetland vegetation varies by wetland type. Bay swamps contain thick evergreen forests dominated by sweet bay (*Magnolia virginiana*), with tupelo gum and yellow poplar also present. Common shrubs and vines include white titi (*Cyrilla racemiflora*), sweet pepper bush (*Clethra alnifolia*), gallberry (*Ilex glabra*), and Jackson brier (*Smilax* spp.). Characteristic herbs of this habitat include golden club (*Orontium aquaticum*), green arum (*Peltandra virginica*), and reinorchid (*Platanthera clavellata*). Bogs and wet meadows typically are dominated by various grasses and sedges, but some bogs are dominated by woody vegetation. Characteristic plant species in these habitats include white titi, wax myrtle, gallberry, yellow poplar, alder (*Alnus serrulata*), and blueberries. Various grasses, sedges, and rushes are common, as well as yellow-eyed grass (*Xris* spp.), meadow beauty (*Rhexia* spp.), rattlebox (*Crotalaria* spp.), St. John's wort (*Hypericum* spp.), pipewort (*Eriocaulon* spp.), sundew (*Drosera* spp.), lobelia (*Lobelia* spp.), narrow-leafed sunflower (*Helianthus angustifolius)*, and clubmosses (*Lycopodium* spp.). Sphagnum moss (*Sphagnum* spp.) also is often abundant in these habitats.

Seeps and intermittent streams may contain plants such as mosses and liverworts. Perennial streams are often vegetated with green arum, golden club, yelloweyed grass, duck potato (*Sagittaria* spp.), and alder. Beaver ponds and other small ponds often support abundant floating, rooted-floating, and emergent aquatic vegetation (Fort Rucker, 2009b).

Wildlife

Fort Rucker has a rich and diverse fauna. Some common species that may occur in an upland forests include eastern chipmunk, eastern cottontail rabbit, cotton mouse (*Peromyscus gossypinus*), Virginia opossum (*Didelphis marsupialis*), eastern garter snake, and southern leopard frog, as well as a variety of songbirds such as blue jay (*Cyanocitta cristata*) and northern cardinal (*Cardinalis cardinalis*). Natural animal communities in the area have been affected by urbanization. Two large mammals present at the time of settlement, the panther (*Puma concolor coryi*) and black bear (*Ursus americanus*), have been extirpated from the area. White-tailed deer, wild turkey, and the introduced feral hog (*Sus scrofa*) are common, as are many smaller mammals that have been relatively undisturbed by urbanization.

Threatened and Endangered Species

The Choctaw bean (*Villosa choctawensis*) and fuzzy pigtoe (*Pleurobema strodeanum*) have been recorded on Fort Rucker, in recent surveys. While the other bivalve species have the potential to occur on Fort Rucker they have not been found in recent surveys. No portion of Fort Rucker has been designated as critical habitat for these species (Fort Rucker, 2013).

The American alligator (*Alligator mississippiensis*), which is listed as threatened only due to its similarity in appearance to the endangered American crocodile (*Crocodylus acutus*), also has been recorded on Fort Rucker. The wood stork (*Mycteria americana*) could occur on Fort Rucker. Though not recorded, it is possible that the eastern indigo snake (*Drymarchon corais couperi*) and RCW could occur on Fort Rucker. The eastern population of the gopher tortoise (*Gopherus polyphemus*) is a candidate species for federal listing.

Table 4.21-2 shows federally listed threatened or endangered species that could occur at Fort Rucker.

Table 4.21-2. Federally Listed Species with the potential to occur on Fort Rucker

Scientific Name	Common Name	Federal Status
Reptiles		
Alligator mississippiensis	American alligator	Threatened
Drymarchon corais couperi	Eastern Indigo Snake	Threatened
Bivalves		
Fusconaia burkei	Tapered pigtoe	Threatened
Fusconaia Escambia	Narrow pigtoe	Threatened
Fusconaia rotulata	Round ebonyshell	Endangered
Hamiota australis	Southern sandshell	Endangered
Margaritifera marrianae	Alabama pearlshell	Endangered
Pleurobema strodeanum	Fuzzy pigtoe	Threatened
Ptychobranchus jonesi	Southern kidneyshell	Endangered
Villosa choctawensis	Choctaw bean	Endangered
Birds		
Mycteria Americana	Wood Stork	Endangered
Picoides borealis	Red-cockaded woodpecker	Endangered

State-protected species that have confirmed populations, or have been sighted on the installation, are the gopher tortoise, osprey (*Pandion haliaetus*), bald eagle, common ground dove (*Columbina passerine*), Cooper's hawk (*Accipiter cooperi*), Choctaw bean, Eastern coachwhip (*Masticophis flagellum flagellum*), and southeastern pocket gopher (*Geomys pinetis*). There is a

historical record of the Florida pine snake (*Heterodon simus*) occurring on Fort Rucker. Though not recorded, it is likely that the Alligator snapping turtle (*Macroclemys temmincki*), wood stork, Southeastern myotis, and Rafinesque's big-eared bat occur on Fort Rucker (Fort Rucker, 2009b).

No plant species listed as endangered or threatened by USFWS are currently known to occur on Fort Rucker based an onsite flora survey conducted by Mount and Diamond (1992), although 18 federally listed species are known to exist in the state of Alabama. Several former federal Category 2 species, the incised groovebur (*Agrimonia incisa*), Flyr's nemesis (*Brickellia cordifolia*), Baltzell's sedge (*Carex baltzellii*), and Alabama anglepod (*Matelea alabamensis*), may occur on Fort Rucker but have not been confirmed. The state of Alabama has no official list of threatened or endangered plants.

4.21.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in no significant impacts to biological resources, and the affected environment would remain in its current state. Management of biological resources on Fort Rucker would continue as outlined in the current INRMP (Fort Rucker, 2009b).

Alternative 1—Implement Force Reductions

The Army anticipates that the reduction of installation personnel outlined in Alternative 1 could result in beneficial impacts to biological resources and habitat. Implementation of Alternative 1 would result in reduction of training activities potentially allowing land currently used for training exercises to transition into viable habitat with reduced frequency of disturbances. The Army is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Rucker, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.21.9 Wetlands

4.21.9.1 Affected Environment

A review of NWI maps identified approximately 3,588 acres of palustrine, lacustrine, and riverine wetlands within the Fort Rucker (USFWS, 2010). NWI mapping is an educated delineation based upon interpreting USGS topographic data, the USGS National Hydrography Dataset, NRCS soil data, and aerial imagery. No formal wetland delineation of the installation was performed.

The majority of the wetlands identified through NWI were palustrine forested wetlands; however, palustrine scrub-shrub, palustrine emergent, palustrine open water, and riverine

wetlands were also identified (USFWS, 2010). After forested wetlands, Lake Tholocco, a 655-acre mostly recreational lake in the east-central portion of the installation is the next largest wetland area. Table 4.21-3 identifies the acres of each wetland type on Fort Rucker.

Table 4.21-3. Acres of Wetland Types on Fort Rucker

Wetland Type	Acres
Palustrine forested	2,497
Palustrine scrub-shrub	293
Palustrine emergent	30
Palustrine open water	74
Lacustrine	656
Riverine lower perennial	38
Total acres	**3,588**

Source: USFWS (2010)

4.21.9.2 Environmental Effects

No Action Alternative

Minor, adverse impacts to wetlands at Fort Rucker are anticipated under the No Action Alternative. Training activities on the ranges and air fields would continue to occur under current schedules and impacts to wetlands from these activities would continue. Current management of wetlands to minimize impacts to wetlands would also continue under the No Action Alternative.

Alternative 1—Implement Force Reductions

Beneficial impacts to wetlands are anticipated from the implementation of Alternative 1. A force reduction at Fort Rucker would mean that airfields and training ranges would be less used. As a result, there would be less sedimentation from runoff entering wetland areas, fewer instances of vegetation becoming denuded, and wetland functions and values would remain intact. Adverse impacts to wetlands could conceivably occur if force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Rucker, the Army would ensure that adequate staffing remains so mandated environmental requirements would continue to be met.

4.21.10 Water Resources

4.21.10.1 Affected Environment

Surface Water/Watersheds

The rivers, streams, lakes, and ponds within the Fort Rucker boundaries are part of the Choctawhatchee River Basin (USACE, 2013). Flowing southwest, the Choctawhatchee River passes the installation boundary on the southeast and the Pea River, a Choctawhatchee River tributary, passes the installation on the northwest (Fort Rucker, 2009b, as cited by USACE, 2013). Several tributaries feed the Choctawhatchee River in the southeastern portion of Fort Rucker. Claybank Creek, another Choctawhatchee River tributary, flows through the center of the installation in a southerly direction from its headwaters to the north of the installation. Eighty-two percent of the surface area of Fort Rucker drains to Claybank Creek and its tributaries (USACE, 2013). Specifically, the Blacks Mill Creek and Bowles Creek/Steep Head Creek tributaries receive drainage from the northwestern part of the installation (Fort Rucker, 2009b, as cited by USACE, 2013).

Surface water quality characteristics observed in the vicinity of Fort Rucker include moderate turbidity and hardness for the Choctawhatchee River and tributaries (USACE, 2013). Except for high iron concentrations, Clean Water Act ambient water quality criteria are met (USACE, 2013). Claybank Creek and Choctawhatchee River are classified as “Fish and Wildlife” waters, meaning they are suitable for fish, aquatic life, and wildlife propagation (Alabama DEM, 2012).

Groundwater

Fort Rucker, within the Southeastern Coastal Plain, is underlain by several aquifers in addition to being connected hydraulically to the Floridian aquifer system (Fort Rucker, 2009b, as cited by USACE, 2013). The aquifers immediately under the installation are the Lisbon and Tuscahoma Formation aquifers. The Lisbon aquifer extends 10 to 140 feet deep and has surface extents in the uplands present in the northwestern portion of the installation. The Tuscahoma aquifer has surficial extents in the northern portion of the installation in addition to the low areas associated with the Claybank, Steep Head, and Bowles creeks. The hydrologically connected Nanafalia and Clayton Formation aquifers are beneath the Lisbon and Tuscahoma Formations and are characterized by thicknesses of 400 to 500 feet (USACE, 2013). Even though these aquifers are not present in the surface layers within installation boundaries, they are the main groundwater sources for the installation (USACE, 2013; Fort Rucker, 2009b, as cited by USACE, 2013). Groundwater withdrawal has resulted in cones of depression at pumping sites in addition to a 50 to 60 foot decrease in the aquifer water level at Fort Rucker (USACE, 2013). The groundwater in these aquifers flows to the south.

Water Supply

American Water Enterprises, Inc., a private company, operates and maintains the drinking water system on Fort Rucker (U.S. Army, 2014a). Fort Rucker uses groundwater drawn from the Nanafalia and Clayton aquifers as its main potable water source (USACE, 2013). A collection of seven wells serves as the source of water for the cantonment and several heliport areas. Separate wells provide water for non-potable uses such as fire suppression, training, and recreation. The Cairns AAF and the Shell AHP receive water supplies through the cities of Daleville and Enterprise, respectively (U.S. Army, 2014a).

Water treatment consists of a chlorine disinfection process. Except for exceedances of manganese and iron, primary and secondary drinking water parameters achieve state standards (USACE, 2013). Fort Rucker instituted a Source Water Assessment Program to protect drinking water wells and their supply (U.S. Army, 2014a). Protection measures included identification of contaminant sources, source risks, contaminant mapping, and public education.

Wastewater

Fort Rucker has several NPDES permits for compliance and control of wastewater (EPA, 2014). In 2003, the wastewater system on Fort Rucker was contracted to American Water Enterprises, Inc. for 50 years (Fort Rucker, 2008, as cited by USACE, 2013). WWTPs located on the installation service the Main Post and Cairns AAF whereas wastewater from Shell AHP is transferred to and treated at a WWTP in the city of Enterprise (U.S. Army, 2014b; EPA, 2014).

Stormwater

Within developed zones of the installation, such as the cantonment area, the goal of the stormwater management system is to direct the runoff away from use areas, facilities, and infrastructure. In addition to natural drainage ways, the stormwater collection system in these areas consists of storm drains, roadside ditches, culverts, and swales. Surface runoff is channeled to either infiltration or detention systems. Oil/water separators are installed to prevent pollutants from aircraft and vehicle wash areas from draining to surface waters (Fort Rucker, 2008, as cited by USACE, 2013).

Stormwater runoff from construction activity disturbing a land area equal to or greater than 1 acre requires an NPDES permit through the Alabama Department of Environmental Management. Additionally, these construction sites must adhere to guidelines and implement appropriate BMPs detailed in the *Alabama Handbook for Erosion Control, Sediment Control and Stormwater Management on Construction Sites and Urban Area*s (Fort Rucker, 2009b, as cited by USACE, 2013). Fort Rucker has an NPDES Phase I permit (No. AL0002178) for stormwater inlets/outfalls (USACE, 2013).

Floodplains

E.O. 11988, *Floodplain Management*, requires federal agencies to avoid floodplain development and any adverse impacts from the use or modification of floodplains when there is a feasible alternative. Specifically, Section 1 of E.O. 11988 states that an agency is required to "reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities." The 100-year floodplain indicates areas where the flood has a 1 percent chance of being equaled or exceeded in any year. Specific areas designated as 100-year floodplains include areas adjacent to Bowles Creek and its tributaries in the northwestern portion of Fort Rucker (Fort Rucker, 2009b, as cited by USACE, 2013).

4.21.10.2 Environmental Effects

No Action Alternative

Minor, adverse impacts to water resources are anticipated from the No Action Alternative. Ongoing groundwater pumping for water supplies would continue to decrease aquifer levels and lead to cones of depression. Fort Rucker would continue to meet federal and state water quality criteria, drinking water standards, and floodplain management requirements. Stormwater management would continue under the existing NPDES Phase I permit as would adherence to state stormwater requirements and BMP guidelines, especially for construction sites. Current water resources management and compliance activities would continue to occur under this alternative.

Alternative 1—Implement Force Reductions

Beneficial impacts to water resources are anticipated as a result of implementing Alternative 1. A reduction in personnel would decrease demand for potable water and would reduce groundwater withdrawals. Reduced use of aircraft and other vehicles would lead to less frequent washings and decreased potential for pollutant discharge as well as provide more non-potable water for other uses. Implementation would lead to additional wastewater treatment capacity for other uses. Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Fort Rucker, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented. Force reduction at Fort Rucker is not anticipated to cause violations of federal and state water quality regulations and discharge permits.

4.21.11 Facilities

4.21.11.1 Affected Environment

Fort Rucker supports upwards of 36 organizations that are multi-command, multi-service, and multi-missioned. To carry out its missions, Fort Rucker supports a daytime population of approximately 15,700 personnel including over 5,000 people in uniform, over 7,000 civilian and contract employees and more than 3,700 Family members on the installation (U.S. Army, 2014c).

The cantonment area is located in the southern portion of Fort Rucker and spans approximately 2,800 acres. Supporting facilities include residential housing, retail centers, restaurants, health care facilities, fitness center, athletic fields and other recreational facilities (Fort Rucker, 2008).

Fort Rucker's training area, airspace and land availability encompass 27 counties in 3 states. Flight training is spread across 5 basefields, 1 forward arming fuel point, 17 stagefields, and 73 remote training sites (U.S. Army, 2014c).

4.21.11.2 Environmental Effects

No Action Alternative

No impacts are anticipated under the No Action Alternative. Fort Rucker would continue to use its existing facilities to support its tenants and missions.

Alternative 1—Implement Force Reductions

Under Alternative 1, implementation of the proposed force reductions would result in overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Additionally, force reductions could require the storage of aircraft not being utilized for training due to reduced training schedules. Adverse impacts could occur if sufficient space is not available. The existing aircraft storage space and utilization would need to be evaluated. Some beneficial impacts are also expected as a result of force reductions as a reduction in the frequency of training exercises would be beneficial for maintaining ranges and training areas, improving sustainability of those facilities. A decrease in training operational tempo and related heavy equipment use would be beneficial for the maintenance and sustainability of roadways and off-road maneuver areas. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.21.12 Socioeconomics

4.21.12.1 Affected Environment

Fort Rucker, located in Dale County, Alabama, comprises approximately 63,072 acres. The ROI includes counties that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, and contractor personnel and their Families reside. The ROI consists of Coffee, Dale, and Houston counties in Alabama. This section provides a summary of demographic and economic characteristics within the ROI.

Population and Demographics

Using 2013 as a baseline, Fort Rucker has a total working population of 15,944, consisting of permanent party Soldiers, Army civilians, students and trainees, other military services personnel, contractor personnel, and other civilians. Of the total working population, 4,957 were active component Soldiers and Army civilians. The population that lives on Fort Rucker consists of 1,474 Soldiers and 2,238 Family members, for a total on-installation resident population of 3,712. The portion of the Soldiers, Army civilians, and Family members living off the installation is estimated to be 8,770.

Fort Rucker is home to USAACE and provides all Army aviation flight training, as well as training helicopter pilots for other armed forces branches and for students from more than 60 foreign countries. Students are based at Fort Rucker for the expected length of their assigned curriculum which may range from a few weeks to over a year (Rohrs, 2014). Fort Rucker averages 3,000 students assigned for training and can accommodate most of these students on the installation. However, students may need to stay in local hotels during times when numerous training sessions overlap.

In 2012, the population of the ROI was 204,922. Compared to 2010, the 2012 population increased in all of the ROI counties, with the largest increase in Coffee County (Table 4.21-4). The racial and ethnic composition of the ROI is presented in Table 4.21-5 (U.S. Census Bureau, 2012a).

Table 4.21-4. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Coffee County, Alabama	51,276	+2.7
Dale County, Alabama	50,348	+0.2
Houston County, Alabama	103,298	+1.7

Table 4.21-5. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic (percent)	White Alone, not Hispanic or Latino (percent)
State of Alabama	70.0	26.5	0.7	1.5	4.1	1.2	66.6
Coffee County, Alabama	76.8	17.5	1.4	1.4	2.5	6.4	71.8
Dale County, Alabama	75.2	19.8	0.8	1.2	2.8	5.81.2	70.6
Houston County, Alabama	70.4	26.4	0.5	0.9	1.7	3.2	67.8

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Income

In 2012, the total employed labor force in the ROI was 88,214, including people employed through the Armed Forces (U.S. Census, 2012b). Between 2000 and 2012, total employed labor force (including Soldiers and Army civilians) increased in the state of Alabama and all of the counties in Fort Rucker's ROI, with the largest increases in Coffee and Houston counties (Table 4.21-6) (U.S. Census Bureau, 2000 and 2012b). Employment, median home value, household income, and poverty levels are presented in Table 4.21-6.

Table 4.21-6. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000-2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Alabama	2,034,230	+5.2	122,300	43,160	18.1
Coffee County, Alabama	21,197	+10.2	126,400	44,626	17.1
Dale County, Alabama	22,375	+2.9	96,100	45,247	16.0
Houston County, Alabama	44,642	+10.2	122,000	41,828	17.7

Information regarding the workforce by industry for each county within the ROI was obtained from the U.S. Census Bureau. Information presented below is for the employed labor force.

Coffee County, Alabama

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of total workforce in Coffee County (22 percent). Retail trade is the second largest employment sector (15 percent) followed by the manufacturing sector (11 percent). The Armed Forces account for 5 percent of the county's workforce. The remaining 10 industries employ 52 percent of the workforce.

Major employers in Coffee County include Army Fleet Support, Wayne Farms, Enterprise City School System, and Pilgrim's Pride (Economic Development Partnership of Alabama, 2012).

Dale County, Alabama

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of total workforce in Dale County (19 percent). Transportation, warehousing, and utilities industry is the second largest employment sector (12 percent), followed by retail trade (11 percent). The Armed Forces account for 6 percent of the county's workforce. The remaining 10 industries employ 58 percent of the workforce.

Major employers in Dale County include Fort Rucker, Army Fleet Support, Michelin North America, Inc., and Dale Medical Center (Economic Development Partnership of Alabama, 2012).

Houston County, Alabama

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of total workforce in Houston County (23 percent). Retail trade is the second largest employment sector (14 percent), followed by manufacturing (10 percent) and the arts, entertainment, and recreation, and accommodation and food services sector (10 percent). The Armed Forces account for less than 1 percent of the county's workforce. The remaining 10 industries employ 43 percent of the workforce.

Major employers in Houston County include Southeast Alabama Medical Center, Dothan City and Houston County School Systems, Flowers Hospital, and the City Government of Dothan (Economic Development Partnership of Alabama, 2012).

Housing

The U.S. Military partnered with Corvias Military Living in 2004 to create privatized military housing for Fort Rucker. Corvias Military Living has past experience with privatized military housing at Fort Meade, Fort Bragg, and Fort Polk. Fort Rucker's privatized military housing is divided into three separate neighborhoods: Allen Heights; Bowden Terrace; and Munson Heights (Corvias Military Living, 2014).

Allen Heights houses a mixture of Families and single Soldiers in the Company Grade Officer and Junior NCO armed forces and is home to the first Neighborhood Center at Fort Rucker. Two-story homes are located for the Field Grade Officer armed forces in Munson Heights. Homes in Bowden Terrace accommodate Families of various armed forces rank bands (Corvias Military Living, 2014). In total, the 3 neighborhoods make up approximately 1,500 total housing units and are generally located in the western half of the cantonment (USACE, 2013).

Schools

Fort Rucker has two schools, a primary school (pre-kindergarten through grade 1) and an elementary school (grade 2 through grade 6). The current enrollment is 331 students at the primary school and 414 students at the elementary school. The majority of military Family members that go to school off the installation are attending school in the communities of Enterprise, Daleville, Ozark, and Dothan. In addition, some children attend school in the states of Florida and Georgia due to proximity of the installation to communities in these states.

Public Health and Safety

Police and Fire Services

According to the INRMP, the Director of Public Safety is responsible for providing military police and fire protection support to the installation. Military police responsibilities of the Director of Public Safety include enforcing laws and regulation on Fort Rucker (Fort Rucker, 2009b).

Fire and Emergency Services

According to the Integrated Wildland Fire Management Plan, the Fire Department (Director of Public Safety), has the primary responsibility for prevention and suppression of wildfires. The DPW Environmental and Natural Resources Division, Natural Resources Branch is the primary backup for wildfires.

Medical Facilities

Lyster Army Health Clinic is located on Fort Rucker and is co-located with the Veterans Affairs clinic (VA Wiregrass Clinic). Other services are available in Dothan (Flowers Hospital and SE Alabama Medical Center), Enterprise (Medical Center Enterprise), Ozark (Dale Medical Center), or other specialty clinics. Services are also provided in Birmingham (University of Alabama), as well as at the Navy facilities in Pensacola, and the Air Force facilities at Eglin AFB.

Family Support Services

Fort Rucker assists Soldiers and their Families with programs that include Army Emergency Relief, Army Family Action Plan, Army Family Team Building, Army Volunteer Corps, Exceptional Family Member Program, Family Advocacy Program, Financial Readiness Program, Information and Referral Program, Mobilization and Deployment, Relocation Readiness

Program, Survivor Outreach Services, Victim Advocate Program, and Fort Rucker B.E.S.T. (a Mentorship program for strengthening Soldiers) (U.S. Army, 2014c). There are three chapels on the installation, and Fort Rucker offers religious services programs that directly support Soldiers, Families, and civilians.

Fort Rucker provides child development centers, The Edge Program, family child care, the Hired Program, Parent Central Services, school age services, school liaison services, a youth center, and youth sports and fitness (U.S. Army, 2014c).

Recreation Facilities

Fort Rucker provides its military community, Families, and civilians with indoor and outdoor aquatic centers, arts and crafts center, automotive skills center, center library, Lake Tholocco lodging, outdoor recreation, physical fitness centers, riding stables, Rucker Lanes Bowling Center, Silver Wings Golf Course, and Wounded Warrior Recreation (U.S. Army, 2014c).

4.21.12.2 Environmental Effects

No Action Alternative

The operations at Fort Rucker would continue to benefit regional economic activity. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of 2,490[27] Army positions (1,754 Soldiers and 736 Army civilians), each with an average annual income of $46,760 and $64,730, respectively. In addition, Alternative 1 would affect an estimated 3,780 Family members (1,389 spouses and 2,390 children). The total population of Army employees and their Families affected under Alternative 1 is projected to be 6,270.

Based on the EIFS analysis, a significant impact is defined as a situation when the forecast economic impact value falls outside the historical positive or negative ranges. Table 4.21-7 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the

[27] This number was derived by assuming the loss of 70 percent of Fort Rucker's Soldiers and 30 percent of the Army civilians.

estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, there would be significant impacts to population in the ROI because the forecast change falls outside historical range of population variation. However, there would not be significant impacts to sales, income, and employment in the ROI under Alternative 1 because the estimated percentage change is within the historical range.

Table 4.21-7. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+10.9	+5.8	+2.9	+2.3
Economic contraction significance value	-9.8	-3.3	-4.8	-1.8
Forecast value	-1.8	-2.2	-3.7	-2.3

Table 4.21-8 summarizes the predicted impacts to income, employment, and population of force reductions against 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

Table 4.21-8. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$157,026,600	-2,854 (Direct)	-6,270
		-534 (Induced)	
		-3,389 (Total)	
Total 2012 ROI economic estimates	$7,406,840,000	88,214	204,922
Percent reduction of 2012 figures	-2.1	-3.8	-3.1

Note: Sales estimates are not consistently available from public sources for all counties in the United States; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from EIFS is described in the paragraphs below.

With a potential reduction of the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 2,490 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 364 direct contract service jobs would also be lost. An additional 534 induced jobs would be lost due to the reduction in demand for goods and services within the ROI. The total reduction in employment is estimated to be 3,389, a 3.8 percent reduction of the total employed labor force in the ROI in 2012. Income is estimated to reduce by $157 million, a 2.1 percent decrease in the ROI in 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $194.7 million. Sales tax receipts to local and state governments would also decrease. The state and average local sales tax for Alabama is 8.5 percent (Tax Foundation, 2014). To estimate sales tax reductions, information was utilized on the proportion of sales that would be subject to sales taxes on average across the county. According to the U.S. Economic Census, an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). Therefore, with an estimated reduction of $194.7 million in sales, there would be an estimated decrease in sales tax receipts of $2.7 million.

Of the 204,922 people (including those residing on Fort Rucker) who live within the ROI, 2,490 military employees and their estimated 3,780 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a population reduction of 3.1 percent. This number could overstate potential population impacts because some of the people no longer employed by the Army could continue to live and work within the ROI, finding employment in other industry sectors. However, because of the relatively rural nature of the ROI and that Fort Rucker serves as a primary employer and economic driver within the ROI, the majority of displaced personnel are likely to move out of the area to seek other opportunities with the Army or elsewhere. A small number of displaced personnel may seek and find work within the ROI; however, others may not be able to find new employment, with possible implications for the unemployment rate.

Students and trainees at Fort Rucker may have a substantial impact on the local economy through lodging, eating, and shopping expenditures. Additionally, formal graduation ceremonies generate demand for lodging and dining facilities when Family members attend. The impact to Fort Rucker's training missions cannot be determined until after the Army completes its force structure decisions; therefore, analyzing the impact to those missions is beyond the scope of this document.

Housing

The population reduction that would result under Alternative 1 would decrease the demand for housing and increase housing availability on the installation and in the region, potentially leading to a reduction in median home values. With an expected decrease in population within the ROI of 3.1 percent along with the considerable number of Army personnel and Family members living off the installation, housing impacts under Alternative 1would be adverse and could range from minor to significant.

Schools

Reduction of 2,490 Soldiers and Army civilians under Alternative 1 would result in a reduction of 3,780 Family members, of which 2,390 would be children. It is anticipated that school districts that provide education to Army children on the installation would be impacted by this action. The schools on Fort Rucker, with current enrollment of 745 students, as well as school districts off the installation in Dale, Coffee, and Houston counties where Fort Rucker Army,

civilians, and their Families reside would be most affected under Alternative 1. If enrollment in individual schools is severely affected, schools may need to reduce the number of teachers, administrators, and other staff, and potentially close or consolidate with other schools within the same school district should enrollment fall below sustainable levels.

The reduction of Soldiers on Fort Rucker would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal Impact Aid a district receives is based on the number of students who are considered "federally connected" and attend district schools. Actual projected dollar amounts cannot be determined at this time due to the variability of appropriated dollars from year to year, and the uncertainty of the actual number of affected school-age children for Army and civilian Families. School districts in the ROI would likely need fewer teachers and materials as enrollment drops, which could partially offset the reduced Federal Impact Aid.

Overall, adverse impacts to schools associated with Alternative 1 would be minor to significant depending on the reduction in the number of military-connected students attending specific schools.

Public Services

The demand for law enforcement, medical care providers, and fire and emergency service providers on the installation may decrease if Soldiers, Army civilians, and their Family members, affected under Alternative 1, move out of the ROI. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements. Overall, minor impacts to public health and safety would occur under Alternative 1. The impacts to public services are not expected to be significant because the existing service level for the installation and the ROI would still be available.

Family Support Services and Recreation Facilities

Family Support Service and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. As a result minor impacts to Family Support Services and recreation facilities would occur under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, states: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). In general, Alternative 1 would not have a

disproportionate adverse impact to minorities, economically disadvantaged populations or children in the ROI. Job losses would be experienced across all income levels and economic sectors and spread geographically throughout the ROI. As shown in Tables 4.21-5 and 4.21-6, the proportion of minority and poverty populations in the ROI are similar to those in the state as a whole, resulting in no disproportionate effect to environmental justice populations.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of the people associated with the installation, including children. Therefore, it is not anticipated that implementing Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.21.13 Energy Demand and Generation

4.21.13.1 Affected Environment

Fort Rucker's energy needs are currently met by a combination of electric power and natural gas. During the past decade, Congress has enacted major energy bills, and the President has issued Executive Orders that direct federal agencies to address energy efficiency and environmental sustainability. The federal requirements for energy conservation that are most relevant to Fort Rucker include the Energy Policy Act of 2005, E.O. 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, issued January 2007; Energy Independence and Security Act of 2007; and E.O. 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, issued October 2009. Fort Rucker is striving to comply with these requirements.

Electricity

The Fort Rucker electrical utility system was privatized in 2003 and is managed under a 20-year contract by Alabama Power Company. The installation is served by three distribution substations (Fort Rucker, 2008 as cited by USACE, 2013).

Natural Gas

The natural gas system at Fort Rucker was privatized in 2003 and is managed by Southeast Alabama Gas District. Natural gas is delivered to the Fort Rucker distribution system via a single point on the main installation (Fort Rucker, 2008 as cited by USACE, 2013).

4.21.13.2 Environmental Effects

No Action Alternative

Minor, adverse impacts are anticipated on energy demand and generation. The continued use of outdated, energy inefficient facilities could hinder Fort Rucker's requirement to reduce energy consumption. Some older facilities may require renovations to improve energy efficiency to achieve federal mandate requirements.

Alternative 1—Implement Force Reductions

Minor, beneficial impacts to energy demand are anticipated because force reductions would reduce the installation's overall demand for energy. The installation would also be better positioned to meet energy and sustainability goals. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on energy demand are not analyzed.

4.21.14 Land Use Conflicts and Compatibility

4.21.14.1 Affected Environment

Regional Setting

Fort Rucker encompasses approximately 63,072 acres in southeastern Coffee and southwestern Dale counties, Alabama. Land within Fort Rucker is broadly divided into a cantonment area and an operations area. The installation includes the 57,772-acre main reservation and multiple off-installation areas totaling 5,143 acres that are used primarily for aviation training. Of this acreage, approximately 1,674 acres consist of leased land. Fort Rucker is located in the Wiregrass region of southeast Alabama, approximately 70 miles north of the Florida state line and 35 miles west of the Georgia state line. The communities of Enterprise, Daleville, and Ozark are located west, south, and east of the installation, respectively, and the roadways to those communities serve as the installation's three main gates. The nearest civilian community is Daleville, Alabama, located adjacent to the cantonment area on the southern boundary of the installation. The city of Dothan, Alabama, is the largest city in the region and is located approximately 25 miles to the southeast of the installation (Fort Rucker, 2008).

Fort Rucker serves as the headquarters for U.S. Army Aviation and is the location of USAACE, providing all Army aviation flight training and training helicopter pilots for other armed forces

branches including the Air Force as well as students from over 60 foreign countries. The current mission of USAACE at Fort Rucker is to develop the Army's aviation force for its worldwide mission. This includes developing concepts, doctrine, organization, training, leader development, materials and Soldier requirements. USAACE provides resident and nonresident aviation maintenance, logistics and leadership training support of the total force and foreign nations for the sustainment of joint and combined aviation operations (Fort Rucker, 2008; Fort Rucker, 2009a).

Land Use at Fort Rucker

Land use within the installation is generally divided into a cantonment area and an operations area. The approximately 2,800-acre cantonment area is in the southern portion of Fort Rucker and consists of administrative buildings, simulators and classrooms, medical facilities, housing, recreational facilities, commissary, and post exchange. The cantonment area also includes streets, parking, and utilities infrastructure to support the installation. The operations area is largely undeveloped and includes range and training areas and aviation facilities. The current training area consists of 5 Army basefields; 1 Forward Arming Refuel Point; 17 stagefields, including 1 test site; and 73 remote training sites. Development within the area is concentrated on the various airfields, with approximately 51,000 acres of commercial forest occupying most of the area. Cairns AAF is located approximately 3 miles south of the Daleville Gate and includes property south of Route 84 and east of Route 85. Lowe AHP is located adjacent to the base boundary on the west side of Fort Rucker, approximately 3 miles northwest of the Daleville gate. Hanchey AHP is located north of Hatch Road, approximately 4 miles northeast of the Daleville gate. Shell AHP is located approximately 11 miles west of Fort Rucker and 5 miles north of Enterprise, Alabama. Knox AHP is located adjacent to the installation's southern boundary, approximately 2 miles east of the Daleville gate (Fort Rucker, 2008).

According to the Fort Rucker RPMP, land use patterns on the installation exhibit limited incompatibilities. Virtually all land uses are either compatible or closely linked to neighboring uses. Family housing areas are well buffered from more intensive activities by open space, and housing is located adjacent to community and recreational uses. The installation's administrative center is flanked by supporting classroom and training functions, while industrial activities are segregated and surrounded by open space and recreational areas. The medical clinic is appropriately located near the standby medical training site and is buffered to the north and south by open space (Fort Rucker, 2008).

Surrounding Land Use

Land use within the region surrounding Fort Rucker can be classified as a mix of urban, suburban and agricultural uses. As Fort Rucker has expanded in training scope and size, the communities adjacent to Fort Rucker have also grown. Civilian area growth has been aided by Fort Rucker, due to opportunities for housing, retail, and other opportunities for Soldiers, other employees, and Families that are locating in the area. This increased development and

encroachment toward the installation has also created more opportunities for operational conflicts, due to noise and safety effects created by aviation and weapons training. Varying levels of incompatible development currently exist in the areas around Fort Rucker (Fort Rucker, 2009a). Communities, such as the city of Enterprise and to a lesser extent the city of Ozark, continue to grow closer to areas affected by weapons training (U.S. Army Public Health Command, 2011).

Fort Rucker and several local government officials recognized the need to study land use compatibility issues around the installation and its outlying aviation facilities through participating in the JLUS program. These interested partners engaged the Southeast Alabama Regional Planning and Development Commission to facilitate the study (Fort Rucker, 2009a). The Commission is a regional council of governments representing seven counties, including Coffee and Dale counties, and provides community planning, land use planning, and economic development planning services to its constituent government agencies (Southeast Alabama Regional Planning and Development Commission, 2014). The 2009 Fort Rucker/Wiregrass JLUS sets forth a set of goals and objectives, and proposes a number of conservation, compatible land use and regulatory tools for directing growth in such a way to increase future land use compatibility in the region and to strengthen the relationship between Fort Rucker and surrounding communities (Fort Rucker, 2009a).

4.21.14.2 Environmental Effects

No Action Alternative

Less than significant (minor to moderate), adverse impacts to surrounding land use are expected under the No Action Alternative. These impacts would result from operational conflicts related to noise and safety as growth and development continue to take place adjacent to the installation. Cooperation between Fort Rucker and surrounding governments and planning agencies through the JLUS process is expected to mitigate these impacts through the development of strategies to ensure compatible land use and development in the future. There would be no impacts to existing land use on the installation.

Alternative 1—Implement Force Reductions

The configuration of existing training and operations areas is expected to remain unchanged under Alternative 1. Land uses within the cantonment areas on the installation would likewise remain the same. Reductions in training associated with force reductions would lead to reduced land use conflicts between installation operations and adjacent land uses, since noise and safety concerns would be somewhat diminished. Force reductions under Alternative 1 may lead to decreased population growth in communities surrounding the installation, which in turn could reduce demand for buildable land and possibly slow the encroachment of incompatible development and land uses on the installation boundaries. Overall, existing installation operations and surrounding land development patterns are expected to continue under

Alternative 1, albeit at a reduced pace; therefore, Alternative 1 is expected to have beneficial impacts to land use.

4.21.15 Hazardous Materials and Hazardous Waste

4.21.15.1 Affected Environment

Hazardous Materials

Hazardous materials acquisition, use, handling, and disposition are managed by the Fort Rucker Hazardous Materials Control Center. The Fort Rucker Logistics Readiness Center, Supply and Services Branch, is responsible for overseeing the Hazardous Materials Control Center and coordinating hazardous materials supply requirements for installation-wide activities. Central visibility and tracking of hazardous materials by the Hazardous Materials Control Center provides a way to redistribute excess but serviceable items, thus helping to reduce expenditures and avoid hazardous waste disposal. Since its establishment in 1998, the Hazardous Materials Control Center process has saved over $1.5 million through efficient procurement and redistribution (Fort Rucker, 2014a).

Hazardous Waste Treatment, Storage and Disposal

Fort Rucker hazardous waste streams result from site operations such as cleaning and maintenance of aircraft, vehicles, and buildings, as well as grounds maintenance and various other equipment operations at the installation. Also incorporated into the hazardous waste stream is the management of hospital wastes, LBP, pesticides, herbicides, and UXO (Fort Rucker, 2014a).

Hazardous Waste Investigation and Remediation Sites

Fort Rucker has an IRP that tracks and monitors sites on Fort Rucker that may require restoration and remediation due to contamination. These areas are commonly referred to as SWMUs and Areas of Concern. All IRP sites on Fort Rucker are considered to be low risk, with relatively low potential to affect the natural environment or public. None of the IRP sites have extensive groundwater contamination (USACE, 2013).

Other Hazards

Other hazards present at Fort Rucker are controlled, managed, and removed through specific programs and plans and include UXO, LBP, asbestos-containing materials, hospital wastes, herbicides, and pesticides.

4.21.15.2 Environmental Effects

No Action Alternative

Minor, adverse impacts are anticipated under the No Action Alternative as there would be continued use and generation of hazardous materials and wastes on Fort Rucker. The existing types and quantities of hazardous wastes generated on the installation have been accommodated by the existing hazardous waste management system and all materials and waste would continue to be handled in accordance with all applicable laws, regulations and plans, minimizing potential impacts.

Alternative 1—Implement Force Reductions

Minor, adverse impacts are anticipated as a result of the implementation of Alternative 1. Remediation activities are not expected to be impacted by Alternative 1. Because of the reduced numbers of people, it is likely that the potential for spills would be reduced during training and maintenance activities. Waste collection, storage, and disposal processes would remain mostly unchanged, although the quantities may be reduced. No violation of hazardous waste regulations or the Fort Rucker hazardous waste permit is anticipated as a result of active forces reduction. Volumes of generated waste are expected to decline depending on the specific units affected.

Under Alternative 1, adverse impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Fort Rucker, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.21.16 Traffic and Transportation

4.21.16.1 Affected Environment

Fort Rucker is located on the East Gulf Coastal Plain in southeastern Coffee and southwestern Dale counties, Alabama, approximately 25 miles northwest of Dothan between the cities of Daleville, Enterprise, and Ozark (USAPHC, 2011). It is approximately 90 miles due north of Panama City, Florida, approximately 90 miles southeast of Montgomery, Alabama, and approximately 120 miles northwest of Tallahassee, Florida (Mapquest, 2014). Fort Rucker and the communities in the seven-county region are served by an adequate regional transportation system, with the road and rail networks being the most accessible. Although no interstate

highways pass through the 7-county area, 6 federal highways, more than 30 state routes and county roads, and 5 rail companies serve the area. In addition, commercial airports, river transportation, and deep-water port facilities are all available within a reasonable distance from Fort Rucker (Rust Environment and Infrastructure, 1999, as cited by Fort Rucker, 2009b).

Off-Installation Roadways

The road system is the most important transportation system in the seven-county region. North-south movement is generally easier in the region than east-west movement, primarily because highways serving the former alignment are wider and less circuitous. North-south movement is facilitated by a principal arterial system consisting of U.S. Highways 231 and 431, and Alabama Highway 167. These arterials provide linkage between the main urban centers of southeastern Alabama and access to the cities of Montgomery, Alabama, and Columbus, Georgia, to the north and Florida to the south. U.S. Highway 84 and Alabama Highway 134, though generally narrower and more circuitous, provide the only adequate direct movement from east to west. To the north, U.S. Highway 82 through Barbour County provides east-west movement between Montgomery, Alabama and Brunswick, Georgia. In addition, Alabama Highway 52 between Geneva and Columbia provides through access from Florida to Georgia, connecting with highways in both states (Rust Environment and Infrastructure, 1999, as cited by Fort Rucker, 2009b).

The closest U.S. highways to Fort Rucker are U.S. Highway 231 (a four-lane highway) to the north and east of the installation and U.S. Highway 84 to the west and south of Fort Rucker. Numerous Alabama state roads and county roads extend between the two U.S. highways and provide access to Fort Rucker (Mapquest, 2014).

Access Control Points and Installation Roadways

Ozark, Enterprise and Daleville Gates are open 24/7. Newton and Faulkner Gates are open from 4:30 a.m. to 8:30 p.m. Monday through Friday and closed on weekends and holidays (Fort Rucker, 2014c).

The internal road network of Fort Rucker provides motor access to all areas of the installation and is capable of handling all types of highway vehicles. There are 198 miles of road on Fort Rucker, of which 136 miles are paved (DPW, 2004, as cited by Fort Rucker, 2009b). The street network of the cantonment area is a curvilinear grid system. Outside this area, the street network follows no distinguishable pattern. All roadways are hard surfaced and generally in good condition (Rust Environment and Infrastructure, 1999, as cited by Fort Rucker, 2009b).

Alabama State Road 248 (Rucker Boulevard) enters the southwest portion of the installation at the Enterprise Gate, connects to Alabama State Road 249 (Andrews Avenue) and crosses the center of the cantonment area. Alabama State Road 27 enters the Range on the western side of the installation, passing by Range Control and the impact area. Alabama State Road 85 crosses

and connects with U.S. Highway 84 south of Fort Rucker and traverses the city of Daleville. It enters the main cantonment area in the southeastern section of the installation through the Daleville Gate, proceeds north through the cantonment, and merges with Alabama State Road 249. Alabama State Road 249 (also known as Andrews Avenue) provides access from U.S. Highway 231 to the Ozark Gate (Mapquest, 2014; Fort Rucker, 2014c).

Roadways from the period prior to Fort Rucker's ownership of the property service the outlying training areas, with some roads crossing from military to private land and back to military land (Fort Rucker, 2009b).

Commercial Air Service

Montgomery, Alabama is approximately 90 miles to the north-northwest (Fort Rucker, 2014c). Civilian air transportation facilities in the Fort Rucker region are limited. The only commercial airport located in the Southeast Alabama Regional Planning and Development district is the Dothan-Houston County Municipal Airport, approximately 25 miles east-southeast of Fort Rucker. This airport serves most of the district and adjacent areas in Alabama, Florida, and Georgia. Commercial passenger service to this facility is provided by Express Jet, affiliated with Delta Airlines, and providing service to Atlanta. The nearest commercial jet service currently is located at Montgomery, Alabama and some regional airports in the Florida panhandle. In addition to the Dothan-Houston County Airport, there are 12 general aviation airports located in the district (Rust Environment and Infrastructure, 1999, as cited by Fort Rucker, 2009b).

Freight Rail Service

There are about 2.3 miles (3.7 kilometers) of railroad tracks at Fort Rucker (Fort Rucker, 2014d). The nearest Strategic Rail Corridor Network is the Louisville and Nashville Railroad main line through Montgomery, Alabama. The Seaboard Coast Line track between Fort Rucker and Montgomery is the Federal Railroad Administration Class 2 connector to Strategic Rail Corridor Network (Rust Environment and Infrastructure, 1999, as cited by Fort Rucker, 2009b).

Ancillary, Non-contiguous Airfield Training Support Services

Fort Rucker also uses 78 leased sites to support its military mission. These sites total 1,488 acres and are located in Alabama and Florida (Fort Rucker, 2014d). Satellite airfields are served by county and state roads (Fort Rucker, 2009b). The non-contiguous facilities are not considered in this EA.

4.21.16.2 Environmental Effects

No Action Alternative

The No Action Alternative would result in the continuation of current traffic congestion on and near the installation. No documentation has been identified to indicate that traffic congestion is considered a problem. The impact would therefore be a less than significant adverse impact.

Alternative 1—Implement Force Reductions

Implementing force reductions would result in a beneficial impact to traffic congestion, assuming all current ACPs remain open. If the maximum reduction were to be implemented, reducing the staffing level by more than 50 percent, the beneficial impact to traffic on and near the installation would be noticeable. However, if the reduction in personnel also results in the closure of convenience gates, or limited hours at current 24/7 operations gates, traffic impacts, detours and increases in some costs (such as re-fueling contracts) might occur (Fort Rucker, 2014b). Gate closure actions would require further study to determine consequences and potential mitigation.

4.21.17 Cumulative Effects

The ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Rucker consists of Coffee, Dale, and Houston counties in Alabama.

Reasonably Foreseeable Future Projects on Fort Rucker

The only reasonably foreseeable future project on Fort Rucker is the construction of a consolidated elementary school for FY 2016. Implementation of the Aviation Restructure Initiative could result in additional effects.

Reasonably Foreseeable Future Projects outside Fort Rucker

The Army is not aware of any reasonably foreseeable future projects outside Fort Rucker which would be appropriate for inclusion in the cumulative impacts analysis. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities.

No Action Alternative

There would be no cumulative effects of the foreseeable future actions with the No Action Alternative. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reductions

Overall, the potential cumulative impacts of Alternative 1 at Fort Rucker are anticipated to be significant and adverse for socioeconomics, with generally beneficial impacts for the other resources. The cumulative socioeconomic impact within the ROI, in addition to impacts described in Section 4.21.12.2 with a reduction of 2,490 Soldiers and Army civilians could lead to significant impacts to the regional economy, schools, and housing. Current and foreseeable actions include construction and development activities on and off the installation, which would have beneficial impacts to the regional economy through additional economic activity, jobs, and income in the ROI. Additionally, the Aviation Restructure Initiative has the potential to change

installation populations, which would affect regional economic conditions through the jobs and income they bring (or lose) within the region. Military personnel spend their money in the ROI economy, supporting additional jobs, income, taxes, and sales impacts.

Fort Rucker is a notable employer in the region; the Armed Forces account for 5 and 6 percent of the workforce in Coffee and Dale counties, respectively. The cities of Enterprise and Ozark could likely absorb some of the displaced workers, depending on the economy and labor market in the region. If the majority of the displaced forces are not absorbed into the local labor force, there would be additional adverse impacts.

Fort Rucker has many Soldiers in a student status due to flight school. Cumulative actions could include reduced training opportunities because of the force reductions on Fort Rucker. This could lead to further adverse impacts to socioeconomic conditions because of reduced temporary population and visitors and the attendant economic activity, spending, and jobs and income they support. Alternative 1 and the loss of approximately 2,500 Soldiers, in combination with current and foreseeable future actions, could have significant impacts to employment, income, tax receipts, and housing values, and schools and in the ROI.

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4.22 Fort Sill, Oklahoma

4.22.1 Introduction

Fort Sill was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population is discussed in Section 4.19.1 of the 2013 PEA.

Fort Sill's 2011 baseline permanent party population was 11,337. In this SPEA, Alternative 1 assesses a potential population loss of 6,800, including approximately 6,022 permanent party Soldiers and 820 Army civilians.

4.22.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Sill; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.22-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.22-1. Fort Sill Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Negligible	Minor
Noise	Significant but Mitigable	Beneficial
Soils	Negligible	Negligible
Biological Resources	Negligible	Negligible
Wetlands	Negligible	Negligible
Water Resources	Negligible	Beneficial
Facilities	Negligible	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	No Impacts	Beneficial
Hazardous Materials and Hazardous Waste	Negligible	Less than Significant
Traffic and Transportation	Minor	Beneficial

4.22.3 Air Quality

4.22.3.1 Affected Environment

Air quality is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.19.1.2 because there were no significant, adverse environmental impacts from implementing alternatives included in the analysis. No changes have occurred to the affected environment since 2013. The Fort Sill area has not been designated as a nonattainment area for any criteria pollutants (EPA, 2013).

4.22.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, continuation of mobile and stationary source emissions at current levels would result in minor**,** adverse impacts to air quality.

Alternative 1—Implement Force Reductions

Force reductions at Fort Sill would result in minor, long-term, and beneficial impacts to air quality because of reduced operations and training activities and reduced vehicle miles traveled associated with the facility.

The relocation of personnel outside of the area because of force reductions could result in negligible, short-term effects on air quality associated with mobile sources. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with air quality regulations. Even if the full end-strength reductions were to be realized at Fort Sill, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.22.4 Airspace

4.22.4.1 Affected Environment

Airspace is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.19.1.2 due to lack of significant, adverse environmental impacts as a result of implementing alternatives included in that analysis. The affected environment described in the above-reference section remains essentially the same with only slight changes. Fort Sill is in the process of finalizing an additional airspace expansion, with a completion of the Rule Making Process being estimated for August 1, 2014 (Hafen, 2014).

4.22.4.2 Environmental Effects

No Action Alternative

The 2013 PEA VEC dismissal statement concluded that there would be negligible impacts to airspace at Fort Sill under the No Action Alternative. For the current analysis, Fort Sill would continue to maintain current airspace operations. No airspace conflicts are anticipated and impacts to airspace would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that negligible impacts to airspace would occur at Fort Sill. Under Alternative 1, implementation of proposed further force reductions would continue negligible, adverse impacts to airspace. The use of airspace would not change substantially with the loss of ground units as a result of this alternative and general aviation would continue to require airspace to support training. The implementation of Alternative 1 would not result in a decreased requirement for airspace.

4.22.5 Cultural Resources

4.22.5.1 Affected Environment

The affected environment was described in Section 4.19.2 of the 2013 PEA. Since 2013, Fort Sill has completed an ICRMP that will be implemented in 2014. No other changes to the affected environment have occurred.

4.22.5.2 Environmental Effects

No Action Alternative

Section 4.19.2.2 of the 2013 PEA states that the No Action Alternative would result in less than significant impacts to cultural resources. Since the publication of the 2013 PEA, the installation has completed an ICRMP which details the processes and procedures for the management and preservation of cultural resources. Given this new information, the effects of the No Action Alternative are consistent with other installations analyzed in this document. Continuation of the No Action Alternative would have negligible impacts to cultural resources.

Alternative 1—Implement Force Reductions

The effects of troop reduction on cultural resources were described as significant but mitigable in Section 4.19.2.2 of the 2013 PEA due to potential impacts to cultural resources from facility demolition or abandonment. However, the Proposed Action analyzed in this document varies from that in the 2013 PEA. While various vacated older buildings on the installation may be programmed for demolition, as discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably

foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

Additionally, the Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort Sill, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of force reductions, the installation would comply with applicable laws, such as NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects. Therefore, the implementation of this alternative would result in minor impacts to cultural resources.

This alternative could result in some beneficial effects as a decrease in training activities could reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources.

4.22.6 Noise

4.22.6.1 Affected Environment

The affected environment for noise at Fort Sill remains effectively the same as described in Section 4.19.3.1 of the 2013 PEA. The primary sources of noise at Fort Sill are blast noise from artillery and impacting artillery rounds, fixed and rotary-wing aircraft, close air support training, general personnel activities, and roadway noise.

4.22.6.2 Environmental Effects

No Action Alternative

The 2013 PEA anticipated that noise would continue to be a potentially significant impact that is mitigated to less than significant through the management and scheduling of training activities. Under the No Action Alternative, impacts would remain as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Sill would result in minor, beneficial noise impacts because a reduction in personnel would decrease the frequency of noise generating training events and the amount of noise created. The beneficial impact under Alternative 1 would be similar to that described in the 2013 PEA.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with noise ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Sill, the Army would ensure that adequate staffing remains so that the installation would

comply with all mandatory environmental regulations including noise ordinances and regulations.

4.22.7 Soils

4.22.7.1 Affected Environment

Soils are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.19.1.2 due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

4.22.7.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to soils and the affected environment would remain in its present state.

Alternative 1—Implement Force Reductions

Per Section 4.19.1.2 of the 2013 PEA, there would be negligible impacts to soils under Alternative 1. Soils on Fort Sill are naturally highly erodible and erode regardless of man-made activities. The installation would continue to manage its resources in accordance with the installation INRMP. Under Alternative 1 of this SPEA, impacts to soils could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Sill, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at Fort Sill would be beneficial and remain the same as those discussed in Section 4.19.7.2 of the 2013 PEA.

4.22.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.22.8.1 Affected Environment

Biological Resources are among the VECs excluded from detailed analysis as described in Section 4.19.1.2 of the 2013 PEA due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

Vegetation

Fort Sill lies in an ecological transition area where tall-grass prairie merges with short-grass prairie, and soil variation has created diverse plant communities. Grassland communities constitute more than 70 percent of Fort Sill. There are three major grassland types. Tall grasses like big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), switchgrass (*Panicum virgatum*), and indiangrass (*Sorghastrum nutans*) dominate sites with deep soils. Native legumes and other forbs are also numerous in these areas. Medium and short grasses like blue grama (*Bouteloua gracilis*) and sideoats grama (*Bouteloua curtipendula*) occupy more droughty hardland and slickspot soils. Medium and short grasses like hairy (*Bouteloua hirsuta*) and sideoats grama and fall witchgrasses (*Leptoloma cognatum*) are abundant on very shallow rocky soils. No federally protected plant species occur on the installation. Oklahoma does not have a law that protects rare plant species, so no official list of state rare plants exists (Fort Sill, 2003).

Wildlife

The diversity of natural environments at Fort Sill provides suitable habitat for a wide variety of animal species. Frequently encountered animal life includes a wide range of common invertebrates, birds, fish, reptiles, amphibians, and rodents. Large herbivores and large carnivores, although present, are less frequently encountered.

Game species found at Fort Sill include bobwhite quail (*Colinus virginianus*), white-tailed deer, mourning dove (*Zenaida macroura*), pheasant (*Phasianus colchicus*), elk (*Cervus elaphus*), raccoon, various waterfowl species, and coyote (*Canis latrans*). Common mammals inhabiting the installation include bobcat (*Lynx rufus*), striped skunk, cottontail rabbit, fox squirrel (*Sciurus niger*), beaver, opossum, prairie vole (*Microtus ochrogaster*), deer mouse (*Peromyscus maniculatus*), white-footed mouse (*P. leucopus*), and several bat species. Fish species commonly found on Fort Sill include largemouth bass, bluegill, redear sunfish (*L. microlophus*), green sunfish (*L. cyanellus*), and channel catfish.

Threatened and Endangered Species

Federally listed species that may occur in Comanche County are the black-capped vireo (*Vireo atricapillus*), least tern, piping plover, and whooping crane (*Grus americana*). The black-capped vireo is the only federally listed species documented to occur at Fort Sill. Habitat for the black-capped vireo is scattered within the training areas north and west of the cantonment area (Fort Sill, 2003).

4.22.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in no significant impacts to biological resources and the affected environment would remain in its present state. Management of

biological resources on Fort Sill would continue in accordance with the current installation INRMP (Fort Sill, 2003).

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts to biological resources including, vegetation, wildlife, and threatened or endangered species would occur on Fort Sill. The Army anticipates that further proposed reduction in forces would not change this finding due to a decrease in the frequency of land usage in the Fort Sill training areas, which would limit potential Soldier disturbance of sensitive species and habitats. The Army is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Sill, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.22.9 Wetlands

4.22.9.1 Affected Environment

Wetlands are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.19.1.2 due to lack of significant, adverse environmental impacts as a result of implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013.

4.22.9.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible, adverse impacts to wetlands and the affected environment would remain in its present state.

Alternative 1—Implement Force Reductions

Per Section 4.19.1.2 of the 2013 PEA, there would be negligible changes to wetlands under Alternative 1. The installation would continue to manage its wetlands in accordance with the installation INRMP. Impacts to wetlands could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Sill, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at Fort Sill would remain the same as those discussed in Section 4.19.1.2 of the 2013 PEA.

4.22.10 Water Resources

4.22.10.1 Affected Environment

Water resources are among the VECs excluded from detailed analysis as described in Section 4.19.1.2 of the 2013 PEA due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. The affected environment remains essentially the same with the exception of one change. East Cache Creek is impaired for dissolved oxygen, sulfates, and pH, not for lead and turbidity (Leland, 2014). Blue Beaver Creek is impaired for pathogens (Fort Sill, 2014b).

4.22.10.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to water resources similar to those described in Section 4.19.1.2 of the 2013 PEA. There would be no change to the existing surface waters and water supply as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 in the 2013 PEA, beneficial impacts to water resources, including reduction in water demand and stormwater runoff, would occur on Fort Sill. Reduction in training area use from force reductions on the installation would also potentially reduce impacts to surface waters due to disturbance and spills. The Army anticipates that further proposed reduction in forces would not change this finding because Alternative 1 of this SPEA does not involve major changes to installation operations or types of activities conducted on Fort Sill, only a decrease in the frequency of training activities. The installation would continue to manage its water resources in accordance with applicable federal and state water quality criteria, drinking water standards, and stormwater and floodplain management requirements.

Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Fort Sill, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented.

4.22.11 Facilities

4.22.11.1 Affected Environment

Facilities is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.19.1.2 due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in the analysis. No changes have occurred to the affected

environment since 2013, though some corrections to information are noted. As described in the 2013 PEA, Fort Sill is composed of 7,800 acres of cantonment area and 85,608 acres of rangeland. Rangeland includes 37,306 acres of impact area and 48,302 acres of training areas. In addition, about 5,000 acres of land are available for agricultural use (this is a correction from the 3,000 acres noted in the 2013 PEA). The facilities within the cantonment area include housing, industrial, administrative, medical, and recreation. Approximately 2,400 buildings and other structures are located on the installation. Henry Post Airfield has one paved runway and two sod runways. Other airfield facilities on Fort Sill include an UAS strip, three sod airstrips, and five paved helicopter landing pads. Something that was not noted in the 2013 PEA, Fort Sill has established seven adaptable use zones to assist in future project planning. Adaptable use zones are identified areas of likely future development or redevelopment in the cantonment and range areas. This allows the installation to maximize existing compatible land use while minimizing environmental degradation. All actions occurring within the adaptable use zones conform to local environmental laws, regulations, and associated permitting requirements (Fort Sill, 2013).

4.22.11.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the VEC dismissal statement in the 2013 PEA concluded there would be negligible impacts to facilities at Fort Sill. For the current analysis, Fort Sill would continue to operate and maintain its existing facilities in accordance with its current requirements, resulting in negligible impacts.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA VEC dismissal statement concluded that beneficial impacts to facilities would occur on Fort Sill; concluding that the reduction in forces would allow for the removal and release of temporary, relocatable, buildings and the demolition of some older, energy inefficient buildings. It also noted that with the implementation of force reduction, some permanent facilities may be able to be redesignated to support units remaining at Fort Sill to provide more space and facilities better able to meet tenant unit needs. However, full implementation of the Proposed Action would likely affect the ability of Fort Sill's privatized housing to fill all on-installation housing units. Additional actions would be programmed under the Facility Reduction Program to increase installation building performance and energy efficiency to save on installation operating costs and utilities.

Under Alternative 1, implementation of the proposed further force reductions would result in overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on

overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demands for utilities and reduced demands for training facilities and support services. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.22.12 Socioeconomics

4.22.12.1 Affected Environment

Fort Sill is located near Lawton, Oklahoma, about 90 miles southwest of Oklahoma City. The ROI for Fort Sill in this analysis includes those areas that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, contractor personnel, and their Families reside. The ROI consists of Comanche County, Oklahoma.

This section provides a summary of demographic and economic characteristics within the ROI. These indicators are described in greater detail in Section 4.19.4 of the 2013 PEA. However, some demographic and economic indicators have been updated where more current data are available.

Population and Demographics

Using 2011 as a baseline, Fort Sill has a total working population of 29,052 consisting of active component Soldiers, Army civilians, Reservists, other military services, and contractors. Of the total working population, 11,337 were permanent party Soldiers and Army civilians. Additionally, Fort Sill has a daily population of more than 9,500 temporary trainees and students. In FY 2011, the population that lived on Fort Sill consisted of 3,400 Soldiers and an estimated 2,240 Family members, for a total on-installation resident population of 5,640 (Fort Sill, 2014a). Finally, the portion of Soldiers and Army civilians living off the installation in 2011 was estimated to be 19,985 and consists of Soldiers, Army civilians, and their Family members.

Fort Sill is home to the Fires Center of Excellence, which includes the Air Defense Artillery School, the Field Artillery School, the Basic Officer Leaders Course, and the Noncommissioned Officers Academy. The Fires Center of Excellence also includes Basic Combat Training, Captains Career Course, Warrant Officer Basic Course, and numerous functional courses including the Joint Forward Air Controller and Joint Forward Observer courses, and also supports the Electronic Warfare School and the Ordnance Training Detachment. Basic and the majority of AIT trainees live on the installation in barracks during their training. Students in advanced schoolhouses are based at Fort Sill for the expected length of their assigned curriculum which may range from 4 weeks to 51 weeks. In addition to the barracks, students may also be housed in Army lodging or in facilities off the installation. Barracks and off installation facilities are also heavily used for ARNG/U.S. Army Reservist training. In 2013, 11,049 students and trainees were assigned to Fort Sill for TDY training (Fort Sill, 2014b).

In 2012, the ROI had a population of 126,546, a 2.0 percent increase from 2010 (Table 4.22-2). As shown in Table 4.22-3, Comanche County has more African American and Hispanic residents than Oklahoma as a whole (U.S. Census Bureau, 2012a).

Table 4.22-2. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Comanche County, Oklahoma	126,546	2.0

Table 4.22-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
State of Oklahoma	75.5	7.6	9.0	1.9	5.8	9.3	67.9
Comanche County, Oklahoma	66.9	17.7	6.2	2.4	6.2	12.0	58.1

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Income

Information presented below represents an update from the 2013 PEA, which provided employment and income data from 2009. Between 2000 and 2012, total employment in Comanche County increased by 10.6 percent (Table 4.22-4) (U.S. Census Bureau, 2000 and 2012b). The median household and home value in Comanche County is relatively similar to the Oklahoma average. In Comanche County, the percentage of people living below the poverty line is slightly lower than in Oklahoma overall (U.S. Census Bureau, 2012b).

Information regarding the workforce by industry for Comanche County was obtained from the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for the employed labor force.

Table 4.22-4. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Oklahoma	1,711,480	+9.1	110,800	44,891	16.6
Comanche County, Oklahoma	58,803	+10.6	110,900	46,320	16.5

The primary employment sector is educational services, and health care and social assistance (21 percent). The Armed Forces is the second largest employment sector (18 percent), followed by public administration and retail trade (9 percent individually). The remaining 10 sectors employ 43 percent of the workforce.

Housing

Fort Sill currently has 1,811 Family housing units on the installation, which are managed through a partnership with Corvias Military Living through the RCI (Vogt, 2014). Permanent party Soldiers occupy all available installation housing units. Fort Sill has barracks space for 2,546 unaccompanied permanent personnel. Permanent party Soldiers are allotted 118 square feet of living space while trainee Soldiers are allotted 72 square feet. Currently, approximately 26.9 percent of the 4,837 barrack spaces are available (Fort Sill, 2014a). Approximately 5,000 off-installation Family housing units support Fort Sill Soldiers. Additional housing information is provided in the 2013 PEA.

Schools

Military-connected students residing on the installation attend Lawton Public Schools. Two elementary schools are located on Fort Sill, serving a combined 1,004 military-connected students. All middle and high school students residing on Fort Sill attend schools off the installation and in the larger ROI. More than 8,000 military-connected students attend regional public schools (Murray, 2014). Military-connected students living off the installation attend various public schools across the ROI. Total enrollment and the number and percent of military-connected students enrolled in schools across the ROI is shown in Table 4.22-5.

Table 4.22-5. School Capacity Data for Schools Serving Military-Connected Students, 2012–2013 Academic Year

District Name	Total Enrollment	Military–Connected Students (number)	Military-Connected Students (percent)
Bishop	490	229	46.7
Boone-Apache	591	45	7.6
Cache	1,672	339	20.3
Central High	418	34	8.1
Chattanooga	271	0	0.0
Cyril	343	26	7.56
Duncan	3,933	0	0.0
Elgin	1,839	733	39.9
Fletcher	465	71	15.3
Flower Mound	336	130	38.7

District Name	Total Enrollment	Military–Connected Students (number)	Military-Connected Students (percent)
Frederick	882	0	0.0
Geronimo	372	102	27.4
Indiahoma	203	22	10.8
Lawton	16,216	6,439	39.7
Marlow	1,355	0	0.0
Sterling	413	55	13.3
Snyder	530	9	1.7
Walters	698	86	12.3
TOTAL	**31,027**	**8,320**	**26.8**

Public Health and Safety

The Fort Sill Police Department oversees police protection services on the installation while city, county, and state police departments provide law enforcement in the ROI. The Fort Sill Fire and Emergency Services Division has mutual aid agreements with Comanche, Cotton, Grady, and Tillman counties, the city of Lawton, Reynolds Army Community Hospital, Wichita Mountains National Wildlife Refuge, Great Plains Technology Center, the city of Lawton Emergency Communications Center, and the state of Oklahoma/city of Tulsa.

Medical services on the installation are administered at Reynolds Army Community Hospital. The hospital and a Troop Medical Clinic, also located on the installation, provide healthcare services to basic trainees, AIT students, reservists, active component personnel, retirees, and their Family members residing within a 40-mile radius of Fort Sill (Rhodes, 2014). The installation also has a Warrior Transition Unit which takes care of Soldiers with long-term or complex health issues. Additional information regarding public health and safety is provided in the 2013 PEA.

Family Support Services

Fort Sill ACS, a human service organization, has a number of programs and services in place to assist Soldiers and their Families under FMWR. CYSS, a Division of FMWR, provides facilities and child care for children 6 weeks to 18 years of age. Sports and instructional classes are provided to children of active component military and DoD civilian and contractor personnel. Children of retired military are eligible to participate in the middle school and teen, youth sports and SKIES programs. Additional information on Family Support Services is provided in the 2013 PEA.

Recreation Facilities

There are a variety of recreation facilities that can be used by members of the Fort Sill community. These services are provided by the Fort Sill FMWR. Facilities and activities include but are not limited to a recreation center with an outdoor adventure center, fitness center, racquetball courts, swimming pools, summer bowling camp, camping, and special events, such as Fort Sill's Western Heritage Days (Fort Sill, 2014c).

4.22.12.2 Environmental Effects

No Action Alternative

The continuation of operations at Fort Sill represents a beneficial source of regional economic activity. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of up to 6,842[28] Army positions (6,022 Soldiers and 820 Army civilians), with an average annual income of $46,760 and $53,179, respectively. In addition, this alternative would affect an estimated 10,386 Family members, including 3,818 spouses and 6,568 children. The total number of Army employees and their Family members who may be directly affected by Alternative 1 is projected to be 17,228.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecast value falls outside the historical positive and negative range. The range of values that would represent a significant economic impact in the Fort Sill ROI are summarized in Table 4.22-6. The last row summarizes the estimated economic impacts of Alternative 1 to the region as estimated by the EIFS model. Based on the EIFS analysis, there would significant impacts to sales, income, employment, and population because the estimated percentage change is outside the historical range.

[28] This number was derived by assuming the loss of 70 percent of Fort Sill's Soldiers and 30 percent of the Army civilians to arrive at 6,842. The 2013 PEA assumed the loss of 35 percent of Fort Sill's Soldiers and 15 percent of the Army civilians to arrive at 4,714.

Table 4.22-6. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+15.9	+7.2	+6.8	+7.6
Economic contraction significance value	-6.4	-4.0	-5.3	-3.9
Forecast value	-6.9	-8.0	-14.2	-12.8

Table 4.22-7 summarizes the predicted impacts to income, employment, and population of force reductions against 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecasted values, these figures show the same significance determinations as the EIFS predictions in the previous table.

Table 4.22-7. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$373,991,900	-7,690 (Direct)	-17,228
		-792 (Induced)	
		-8,482 (Total)	
Total 2012 ROI economic estimates	$4,664,387,000	58,803	126,546
Percent reduction of 2012 figures	-8.0	-14.4	-13.6

Note: Sales estimates are not consistently available from public sources for all counties in the United States; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from EIFS is described in the paragraphs below.

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 6,842 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 848 direct contract service jobs would also be lost. An additional 792 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. The total reduction in employment is estimated to be 8,482, a significant reduction of 14.4 percent from the total employed labor force in the ROI of 58,803. Income is estimated to fall by $374.0 million, a 8.0 percent decrease in income from 2012.

Under Alternative 1, the total reduction in sales within the ROI is estimated to be $335.3 million. There would also be a loss in sales tax receipts to local and state governments. The average state and local sales tax rate for Oklahoma is 8.72 percent (Tax Foundation, 2014). To estimate sales tax reductions, information on the proportion of sales that would be subject to sales tax on

average across the country was utilized. According to the U.S. Economic Census, an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). The percentage and applicable tax rate was applied to the estimated decrease in sales of $335.3 million resulting in an estimated sales tax receipts decrease of $4.7 million under Alternative 1 if all sales occurred in Oklahoma. The actual sales tax impact may be higher due to additional local tax rates that have not been estimated here.

Of the 126,546 people (including those residing on Fort Sill) who live within the ROI, 6,842 military employees and their estimated 10,386 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 13.6 percent. To ensure the potential impacts were captured to the greatest extent possible, this population loss was assessed against the EIFS threshold of -3.9 percent and determined to be a significant impact. This number could overstate potential population impacts because some people no longer employed by the military may continue to live and work within the ROI, finding employment in other industry sectors. However, because of the rural nature of the ROI and the fact that Fort Sill serves as a primary employer and as an economic driver within the ROI, the majority of displaced personnel are likely to move out of the area to seek other opportunities with the Army or elsewhere. There are few employment sectors in the ROI to absorb the number of displaced military employees. A small number of displaced personnel may seek and find work within the ROI; however, others may not be able to find new employment.

Additionally, installation students may have a substantial impact on the local economy through lodging, eating, and shopping expenditures. Also, formal graduation ceremonies generate demand for lodging and dining facilities when Family members attend. The impact to Fort Sill's training missions cannot be determined until after the Army completes its force structure decisions; therefore, analyzing the impact to those missions is beyond the scope of this document.

Housing

The population reduction under Alternative 1 would lead to a decreased demand for housing and increased housing availability on the installation and across the ROI, potentially resulting in a decrease in median home values. Because of the relatively small population of the ROI, the reduced demand for housing associated with the force reductions under Alternative 1 has the potential to result in minor to significant impacts to the housing market in the ROI.

Schools

Military-connected students living on Fort Sill attend Lawton Public Schools, both on and off the installation. Military-connected students living off the installation attend various public schools across the ROI. As shown in Table 4.22-5, military-connected students represent a significant share of total school district enrollment in the Bishop, Cache, Elgin, Flower Mound, Geronimo, and Lawton schools. Under Alternative 1, the reduction of 6,800 Army personnel would decrease

the number of children in the ROI by 6,568, a portion of whom attend schools in these districts. Subsequently, enrollment would decrease in public school districts across the ROI. If enrollment in individual schools is significantly impacted, schools may need to reduce the number of teachers, administrators, and other staff, and potentially close or consolidate with other schools should enrollment fall below sustainable levels.

School districts receive sizable Federal Impact Aid funds, the allocation of which is based on the number of military-connected students they support. The actual projected loss of Federal Impact Aid funds cannot be determined at this time due to the variability of appropriated dollars from year to year and the uncertainty regarding the specific impacts to ROI school enrollment. However, it is anticipated that schools across the ROI, particularly in those in the districts mentioned above, would likely need fewer teachers and materials as enrollment declines, which would partially offset the reduction in Federal Impact Aid. Overall, schools within the ROI could experience significant, adverse impacts from the decline in military-connected student enrollment that would result under Alternative 1.

Public Services

A reduction in personnel would have minor impacts to emergency services, fire, police, and medical services because the reduction is anticipated to decrease the need for these services. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements. The impacts to public services are not expected to be significant because the existing service level for the installation and the ROI would still be available.

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. As a result, minor impacts to Family Support Services and recreation facilities would occur under Alternative 1.

Environmental Justice

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, states: “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations” (EPA, 1994). As shown in Table 4.22-3 the proportion of minority populations is higher in Comanche County than the proportion in Oklahoma as a whole. The proportion of Comanche County residents living below the poverty line is slightly lower

than in Oklahoma as a whole. Because minority populations are more heavily concentrated in Comanche County, the implementation of Alternative 1 has the potential to result in adverse impacts to minority-owned and/or -staffed businesses if Soldiers and Army civilians directly affected under Alternative 1 move to areas outside the ROI. However, it is not anticipated that Alternative 1 would have disproportionate adverse impacts to minorities, economically disadvantaged populations or children in the ROI. Job losses would be experienced across all income levels and economic sectors and spread geographically throughout the ROI.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of people associated with the installation, including children. Therefore, it is not anticipated that implementing Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.22.13 Energy Demand and Generation

4.22.13.1 Affected Environment

Energy demand and generation is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.19.1.2 due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013. As described in the 2013 PEA, American Electric Power supplies all the primary electric power to Fort Sill from two different substations. The electric distribution system on the installation is owned by the government and is currently being upgraded and converted to an underground distribution system. Fort Sill's natural gas system has been privatized and is currently owned and operated by Oklahoma Natural Gas. Geothermal wells have been installed across the installation for heating and cooling purposes. New constructions, as well as older structures, are being outfitted with solar panels to supplement energy usage.

4.22.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA VEC dismissal statement concluded that there would be negligible impacts to energy demand and generation at Fort Sill. For the current analysis, maintenance of existing utility systems would continue and Fort Sill would continue to consume similar types and amounts of energy so impacts to energy demand and generation would remain the same as for the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy demand and generation would occur on Fort Sill. Under Alternative 1, minor, beneficial impacts to energy are anticipated due to a further reduction in energy consumption associated with the additional force reductions. The installation would also be better positioned to meet energy and sustainability goals.

4.22.14 Land Use Conflicts and Compatibility

4.22.14.1 Affected Environment

Land Use is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.19.1.2, due to beneficial or no impacts as a result of implementing alternatives included in that analysis.

4.22.14.2 Environmental Effects

No Action Alternative

Similar to the 2013 PEA, under the No Action Alternative, there would be no changes to land use conditions, and no impacts are anticipated.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Sill would result in beneficial impacts to installation land use, since a minor decrease in training land use would have the potential to reduce noise and military training across the installation. Under Alternative 1, impacts would be similar to those described in the 2013 PEA.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with land use ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Sill, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including land use ordinances and regulations.

4.22.15 Hazardous Materials and Hazardous Waste

4.22.15.1 Affected Environment

As described in the 2013 PEA, hazardous materials are used on Fort Sill. Numerous maintenance activities, such as vehicle operation and maintenance, hospital services, and grounds maintenance, require the use and storage of regulated and non-regulated hazardous materials. Fort Sill has developed a Hazardous Materials and Waste Management Plan that prescribes responsibilities, policies, and procedures for managing hazardous materials and waste on the installation. The plan was written to ensure compliance with applicable federal, state, and local laws and regulations. Fort Sill's SPCC Plan addresses the prevention of unintentional pollutant discharges from the bulk storage and handling of petroleum products and other hazardous materials. The plans detail the specific storage locations, the amount of material in potential spill sites throughout Fort Sill, and spill countermeasures that must be taken to minimize hazards from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste. In addition, Fort Sill has incorporated hazardous waste reduction and pollution prevention into its hazardous waste management operations. Examples of hazardous wastes generated at the installation are waste paint, spent solvents, photographic waste, contaminated fuel, battery waste, pharmaceutical waste, aerosols, alcohols, acids, pesticides, and paint thinners. No substantial changes have occurred to the affected environment since 2013.

4.22.15.2 Environmental Effects

No Action Alternative

As stated in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative. Use of hazardous materials and generation of hazardous wastes would continue on Fort Sill in accordance with all applicable laws, regulations and plans.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that temporary and less than significant impacts from hazardous materials and hazardous waste would occur on Fort Sill. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on Fort Sill. Because of the reduced numbers of people, it is likely that the potential for spills would be reduced further during training and maintenance activities. The volume of waste generated and material requiring storage would increase slightly because deactivating units would turn in hazardous material for storage to avoid transportation risks. Under Alternative 1 in this SPEA, Fort Sill would continue to implement its hazardous waste management in accordance with its Hazardous Materials and Waste Management Plan and applicable regulations and the impacts would be less than significant.

Under Alternative 1, adverse impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that

personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Fort Sill, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.22.16 Traffic and Transportation

4.22.16.1 Affected Environment

The transportation affected environment of the Fort Sill ROI remains the same as described in Section 4.19.6.1 of the 2013 PEA with an estimated daily traffic volume through the Fort Sill gates being approximately 24,554 vehicles, and an average daily traffic volume on weekends and holidays through the gates being approximately 11,673 vehicles.

4.22.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated minor, adverse impacts and these impacts would not change. Traffic volume on the installation would not change and the number of Soldiers, Army civilians, and Family members using the Fort Sill transportation system would not change. Minor delays at ACPs would continue. Overall, LOS on major roadways and access points would remain acceptable.

Alternative 1—Implement Force Reductions

As noted in the 2013 PEA, the Army anticipated minor, beneficial impacts to traffic and transportation as a result of the implementation of force reductions. Traffic volume on the installation would decrease, and traffic volume in the local community would decrease to a minor extent. Minor delays at major ACPs would decrease in duration. These beneficial impacts would also occur under Alternative 1 though with greater force reductions, the beneficial impacts would be larger than anticipated at the time of the 2013 PEA.

4.22.17 Cumulative Effects

As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Sill includes Comanche County in Oklahoma. Section 4.19.7 of the 2013 PEA noted numerous planned or proposed actions within the ROI that reasonably could be initiated within the next 5 years and would have the potential to cumulatively add impacts to Alternative 1. A number of the Army's proposed projects have been previously identified in the

installation's Real Property Master Planning Board and are programmed for future execution. Additional actions have been identified beyond those noted in the cumulative effects analysis of the 2013 PEA and are shown below.

Reasonably Foreseeable Future Projects on Fort Sill

Fort Sill is in process of changing the Category Code for 1,201 acres of buffer area for use as maneuver area. Fort Sill is also in process of designating areas on the installation for use of prototype electronic warfare systems.

Reasonably Foreseeable Future Projects outside Fort Sill

Beyond those mentioned in the 2013 PEA, the Army is not aware of any reasonably foreseeable future projects outside Fort Sill that would be appropriate for inclusion in the cumulative impacts analysis. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, smaller, less diversified economies will be more vulnerable to force reductions and provide fewer opportunities to displaced Army employees.

No Action Alternative

The cumulative effects due to the No Action Alternative are essentially the same as was determined in the 2013 PEA. Cumulative impacts of the No Action Alternative will range from beneficial to minor and adverse for all resources except noise, which is anticipated to be significant but mitigable. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reductions

The cumulative effects of Alternative 1 would be essentially the same as was determined in the 2013 PEA. Overall, the potential cumulative impacts of Alternative 1 at Fort Sill is anticipated to be significant and adverse for socioeconomics, with impacts ranging from less than significant to beneficial for the other resources.

The socioeconomic impact under Alternative 1, as described in Section 4.22.12.2 with a loss of 6,842 Soldiers and Army civilians, could lead to significant impacts to population, the regional economy, schools, and housing, specifically in the ROI city of Lawton, Oklahoma. Fort Sill has been an economic driver of the region, employing over 11,000 Soldiers and civilian employees within the ROI. The relatively smaller economy of the ROI depends on the installation's employment and economic activity. Specifically, in Comanche County, the Armed Forces account for 18 percent of the workforce, demonstrating the importance of the installation to employment opportunities in the ROI. With fewer opportunities for employment, the ROI would likely not be able absorb many of the displaced forces. If the majority of the displaced forces are not absorbed into the local labor force, there would be additional adverse impacts.

Fort Sill went through a recent realignment, which resulted in a decrease of 900 permanent personnel. Recent Army garrison management decisions have led to reductions in the Army civilian employee population at Fort Sill. These stationing changes would affect regional economic conditions through the loss of jobs and income within the region. The loss of additional military personnel would result in less spending in the ROI economy, with the loss of additional jobs, income, taxes, and sales impacts. The recent closure of two large call centers in Lawton, Oklahoma, may also contribute to a decline in employment within the ROI.

Fort Sill is home to the Fires Center of Excellence, which includes the Air Defense Artillery School, the Field Artillery School, the Basic Officer Leaders Course, and the Noncommissioned Officers Academy. The Fires Center of Excellence also includes Basic Combat Training, Captains Career Course, Warrant Officer Basic Course, and numerous functional courses. Approximately 11,049 students and trainees were assigned to Fort Sill at any given time in 2013. Cumulative actions could include reduced training opportunities because of the force reductions on Fort Sill. This could lead to further adverse impacts to socioeconomic conditions because of reduced temporary population and visitors and the attendant economic activity, spending, and jobs and income they support.

Under Alternative 1, the loss of approximately 6,800 Soldiers, in conjunction with other reasonably foreseeable actions, would have significant impacts to employment, income, tax receipts, housing values, and schools in the ROI.

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4.23 Fort Stewart, Georgia

4.23.1 Introduction

Fort Stewart was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population is discussed in Section 4.20.1 of the 2013 PEA.

Fort Stewart's 2011 baseline permanent party population was 18,647. In this SPEA, Alternative 1 assesses a potential population loss of 16,000, including approximately 15,317 permanent party Soldiers and 683 Army civilians.

4.23.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Stewart; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.23-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.23-1. Fort Stewart Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Negligible	Minor
Noise	Negligible	Beneficial
Soils	Minor	Negligible
Biological Resources	Negligible	Beneficial
Wetlands	Minor	Beneficial
Water Resources	Minor	Beneficial
Facilities	Negligible	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	Negligible	Beneficial
Hazardous Materials and Hazardous Waste	Negligible	Minor
Traffic and Transportation	Minor	Beneficial

4.23.3 Air Quality

4.23.3.1 Affected Environment

The air quality affected environment of the Fort Stewart ROI remains the same as described in Section 4.20.2.1 of the 2013 PEA. The Fort Stewart area has not been designated as a nonattainment area for any criteria pollutants (EPA, 2013).

4.23.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source emissions at current levels, as well as fugitive dust from training activities, would result in minor, adverse impacts to air quality. Air quality impacts of the No Action Alternative for this SPEA remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Stewart would result in minor, beneficial impacts to air quality because of reduced operations and maintenance activities and reduced vehicle miles travelled associated with the facility. Impacts to air quality from the further force reductions proposed under Alternative 1 would continue to be beneficial assuming a corresponding decrease in operations and vehicle travel to and from Fort Stewart. The size of this beneficial impact under Alternative 1 would be roughly double that anticipated at the time of the 2013 PEA.

As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with air quality regulations. Even if the full end-strength reductions were to be realized at Fort Stewart, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.23.4 Airspace

4.23.4.1 Affected Environment

The airspace affected environment for Fort Stewart remains the same as described in Section 4.20.3.1 of the 2013 PEA; restricted airspace is sufficient to meet the current airspace requirements.

4.23.4.2 Environmental Effects

No Action Alternative

Force reductions under Alternative 1 are not expected to significantly alter Fort Stewart's use of aviation assets or current airspace use. Restricted airspace would continue to be sufficient to meet airspace requirements. Adverse impacts to airspace under Alternative 1 would be negligible.

Alternative 1—Implement Force Reductions

The implementation of Alternative 1 would result in negligible impacts in line with those presented in Section 4.20.3.2 of the 2013 PEA. However, there would be a slight change in impacts in that the installation would require less activation of the SUA in support of ground live-fire training activities; however, due to a growth in the fielding of UAS, there is an increasing requirement for activation of airspace for UAS use. While Fort Stewart's ground training activities still might require a less frequent activation of the existing SUA, this may be offset by more frequent activation for UAS activity.

4.23.5 Cultural Resources

4.23.5.1 Affected Environment

The affected environment for Fort Stewart has changed since the completion of the 2013 PEA. Since 2013, Fort Stewart has completed a revised ICRMP (Maggioni et al., 2014). The affected environment for cultural resources, described below, was updated to be consistent with the information provided in the ICRMP.

The Fort Stewart region has been occupied for at least 12,000 years by Native Americans, Europeans, and the military (Maggioni et al., 2014). Most prehistoric sites at Fort Stewart consist of habitation sites, base camps, small villages, seasonal use camps, hunting stations, and isolated artifact scatters. Most historic period sites at Fort Stewart consist of homesites, agri-industrial related activities, naval stores production and collection sites, and isolated artifact scatters.

Approximately 207,000 of the 280,000 acres of Fort Stewart have been surveyed for cultural resources (Maggioni et al., 2014). As a result of these archaeological surveys, 3,966 archaeological sites and isolated finds have been recorded at Fort Stewart, of which 54 have been recommended eligible and 274 potentially eligible for the NRHP. In addition to these archaeological sites, 60 historic period cemeteries, 1 sacred site and 2 TCPs have been identified.

Fort Stewart has completed an architectural survey and evaluation of all buildings and structures constructed before 1990 (to include Cold War Era buildings eligible under Criteria G of the NRHP). As a result of this building survey, five buildings that have been determined eligible for listing in the NRHP have been identified at Fort Stewart (Glisson's Mill Pond Store and four Fire Towers).

A revised Programmatic Agreement between the 3rd ID (Mechanized), Fort Stewart, and the SHPO was executed in 2011 and provides a streamlined process for Section 106 of the NHPA compliance by the Army at Fort Stewart (Maggioni et al., 2014). The Programmatic Agreement states that Fort Stewart will conduct archaeological surveys (if not previously conducted) to identify any historic properties that could be affected by a project, activity, or undertaking. It also provides a listing of undertakings excluded from evaluation under Section 106 (e.g.,

undertakings in severely disturbed special use and bivouac areas, most areas within the cantonment, and impact areas that are highly likely to be contaminated with UXO). Standard consultation under 36 CFR 800 is completed for all undertaking that have the potential to affect historic properties.

4.23.5.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to cultural resources as described in Section 4.19.2.2 of the 2013 PEA. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures. No changes in effects are warranted as a result of new information presented in the affected environment.

Alternative 1—Implement Force Reductions

As described in Section 4.17.4.2 of the 2013 PEA, Alternative 1 would have a minor impact on cultural resources. No changes in effects are warranted as a result of new information presented in the affected environment. The Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort Stewart, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic structures from these activities are not analyzed. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of force reductions, the installation would comply with applicable laws, such as NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects.

This alternative could result in some beneficial effects as a decrease in training activities could reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources.

4.23.6 Noise

4.23.6.1 Affected Environment

The noise affected environment of the Fort Stewart installation remains the same as described in Section 4.20.5.1 of the 2013 PEA. Primary sources of noise at Fort Stewart include small arms and large-caliber weapons firing.

4.23.6.2 Environmental Effects

No Action Alternative

The 2013 PEA anticipated negligible impacts from noise, because noise generating activities at the installation would continue at the same levels and intensity as historically experienced. Under the No Action Alternative, negligible impacts to noise would continue.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Stewart would result in beneficial noise impacts, since there would be a reduction in the frequency of noise generating events. The beneficial impacts to noise under Alternative 1 would be similar to those described in the 2013 PEA.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with noise ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Stewart, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including noise ordinances and regulations.

4.23.7 Soils

4.23.7.1 Affected Environment

The soils affected environment on the installation remains the same as was discussed in Section 4.20.6.1 of the 2013 PEA.

4.23.7.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to soils were anticipated from continuing training, to include impacts to soils from removal of or damage to vegetation, digging activities, ground disturbance from vehicles, and ammunition or explosives used in training events. Impacts under the No Action Alternative on Fort Stewart remain the same as those discussed in Section 4.20.6.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, negligible, potentially beneficial impacts to soils were anticipated as a result of less use of training areas. A force reduction would result in less erosion, soil compaction, and loss of vegetation, and allow for natural rest and recovery of the landscape.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Stewart, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory regulations. Therefore, impacts under Alternative 1 at Fort Stewart would be negligible and remain the same as those discussed in Section 4.20.6.2 of the 2013 PEA.

4.23.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.23.8.1 Affected Environment

Fort Stewart is home to 11 special status plant species and 22 special status fauna species (Fort Stewart, 2007). Among these species, seven ESA-listed fauna species are currently recorded as occurring on the installation. This includes the West Indian manatee (*Trichechus manatus*), which has only rarely been recorded in the Ogeechee River. Table 4.23-2 lists the threatened or endangered species found on Fort Stewart. Two additional species, smooth coneflower and Atlantic sturgeon (*Acipenser oxyrinchus*), have been added since 2013. Smooth coneflower was a previously listed species but was only recently discovered on Fort Stewart. In contrast, Atlantic sturgeon was known to exist on Fort Stewart, but the status was only recently changed to endangered. These changes are reflected in Table 4.23-2.

Fort Stewart has an active forestry program, one of the largest in DoD. The forestry program is responsible for timber thinning operations and regular application of prescribed fire on live-fire ranges and training lands. Fort Stewart contains about 158,578 acres of upland forest, 82,148 acres of forested wetlands, and 38,253 acres of clearings. The installation contains Georgia's largest remaining stand of longleaf pine forest. The longleaf pine/wiregrass ecosystem at Fort Stewart is also highly compatible with military training. This compatibility stems from the ecosystem's tolerance to such factors as fire, mechanical damage, and disease, as well as its characteristic of open, park-like stands which are essential for visibility during maneuver training.

Table 4.23-2. Threatened or Endangered Species Found on Fort Stewart, and Federally Listed or Listed by the State of Georgia

Common Name	Scientific Name	Federal Status	Georgia State Status
Plants			
Purple honeycomb head	*Baldunia atropurpurea*	--	Rare
Georgia plume	*Elliottia racemosa*	--	Threatened
Green-fly orchid	*Epidendrum magnolia*	--	Unusual
Dwarf witch-alder	*Fothergilla gardenia*	--	Threatened
Michaux's spider orchid	*Habenaria quinqueseta*	--	Threatened
Pond spice	*Litsea aestivalis*	--	Rare
Crestless plume orchid	*Pteroglossaspis ecristata*	--	Threatened
Hooded pitcher plant	*Sarracenia minor*	--	Unusual
Swamp buckthorn	*Sideroxylon thornei*	--	Rare
Silky camellia	*Stewartia malacodendron*	--	Rare
Smooth coneflower	*Echinacea laevigata*	Endangered	Endangered
Mammals			
Rafinesque's big-eared bat	*Corynorhinus rafinesquii*	--	Rare
West Indian manatee	*Trichechus manatus*	Endangered	Endangered
Birds			
Bachman's sparrow	*Aimophila aestivalis*	--	Rare
Bald eagle	*Haliaeetus leucocephalus*	--[a]	Threatened
Wood stork	*Mycteria americana*	Endangered	Endangered
Red-cockaded woodpecker	*Picoides borealis*	Endangered	Endangered
Swallow-tailed kite	*Elanoides forficatus*	--	Rare
Peregrine falcon	*Falco peregrinus*	--	Rare
Southeastern kestrel	*Falco sparverius paulus*	--	Rare
Least tern	*Sterna antillarum*	--	Rare
Reptiles and Amphibians			
Frosted flatwoods salamander	*Ambystoma cingulatum*	Threatened	Threatened
Spotted turtle	*Clemmys guttata*	--	Unusual
Eastern indigo snake	*Drymarchon couperi*	Threatened	Threatened
Gopher tortoise	*Gopherus polyphemus*	Candidate	Threatened
Southern hognose snake	*Heterodon simus*	--	Threatened
Diamondback terrapin	*Malaclemys terrapin*	--	Unusual
Striped newt	*Notophthalmus perstriatus*	Candidate	Threatened

Common Name	Scientific Name	Federal Status	Georgia State Status
Mimic glass lizard	*Ophisaurus mimicus*	--	Rare
Gopher frog	*Rana capito*	--	Rare
Fish			
Shortnose sturgeon	*Acipenser brevirostrum*	Endangered	Endangered
Atlantic sturgeon	*Acipenser oxyrinchus*	Endangered	Endangered
Invertebrates			
Say's spiketail	*Cordulegaster sayi*	--	Threatened

[a] As of August 8, 2007, the Bald Eagle is no longer afforded protection under the ESA; however, it is protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. The Eagle Act is the primary law protecting eagles and protection is very similar to the ESA.

4.23.8.2 Environmental Effects

No Action Alternative

The 2013 PEA analysis concluded that implementation of the No Action Alternative would result in negligible adverse impacts to biological resources and the affected environment would remain in its present state. Management of biological resources on Fort Stewart would continue in accordance with the current installation INRMP (Fort Stewart, 2007). Therefore, negligible adverse impacts would continue under the No Action alternative

Alternative 1—Implement Force Reductions

The 2013 PEA analysis concluded that the implementation of Alternative 1 in the 2013 PEA would result in beneficial impacts to biological resources on Fort Stewart. The Army anticipates that further proposed reduction in forces would not change this finding. Fewer personnel on Fort Stewart would result in reduced scheduling conflicts between training exercises and resource monitoring and management activities.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Stewart, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.23.9 Wetlands

4.23.9.1 Affected Environment

The wetlands affected environment on the installation remains the same as was discussed in Section 4.20.8.1 of the 2013 PEA.

4.23.9.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to wetlands were anticipated from continued training schedules. Potential wetland impacts would be reviewed and managed to be avoided, to the extent practicable, or mitigated for. Impacts under the No Action Alternative on Fort Stewart remain the same as those discussed in Section 4.20.8.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, beneficial impacts to wetlands were anticipated as a result of less use of tank roads, ranges, and training areas. Less sedimentation and vegetation loss were anticipated, and degraded wetlands were expected to restore towards their reference functions and values. Impacts to wetlands could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Stewart, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at Fort Stewart would be beneficial and remain the same as those discussed in Section 4.20.8.2 of the 2013 PEA.

4.23.10 Water Resources

4.23.10.1 Affected Environment

The affected environment for water resources on Fort Stewart remains the same as that described in Section 4.20.9.1 of the 2013 PEA. There are no changes to surface water, water supply, and wastewater resources.

4.23.10.2 Environmental Effects

No Action Alternative

In the 2013 PEA, minor, adverse impacts to water resources were anticipated from the No Action Alternative due to the continued disturbance and pollution of surface waters from training activities. Surface water impacts under the No Action Alternative would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

Minor, beneficial impacts to water resources were anticipated from implementation of force reductions in the 2013 PEA Alternative 1 because of reduced demand for potable water supply and an increase in available wastewater treatment capacity. Reduction in training area use from

force reductions on Fort Stewart was also anticipated to potentially reduce impacts to surface waters due to disturbance and spills. Increased force reductions under Alternative 1 of this SPEA would continue to have the same beneficial impacts to water supplies, wastewater capacity, and surface waters.

Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Fort Stewart, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented.

4.23.11 Facilities

4.23.11.1 Affected Environment

The facilities affected environment of the Fort Stewart installation remains the same as described in Section 4.20.9.1 of the 2013 PEA.

4.23.11.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be negligible impacts to facilities at Fort Stewart. For the current analysis, Fort Stewart would continue to use its existing facilities and Fort Stewart's current facility shortfalls have been prioritized and are seeking or have received Army funding. Impacts to facilities would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that minor impacts to facilities would occur on Fort Stewart. Under Alternative 1, implementation of the proposed further force reductions would also result in overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions as facilities may be re-designated to support units remaining at Fort Stewart to provide more space and facilities that are better able to meet tenant and Army needs. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.23.12 Socioeconomics

4.23.12.1 Affected Environment

The Fort Stewart Military Reservation includes approximately 280,000 acres, making it the largest military installation east of the Mississippi River. It is located approximately 41 miles southwest of the city of Savannah. Fort Stewart and Hunter AAF together are the Army's world-class training and military armored power projection combination on the eastern seaboard of the U.S. Tank, field artillery, helicopter gunnery, and small arms ranges operate simultaneously throughout the year with little time lost to bad weather.

Fort Stewart is primarily located in Liberty and Bryan counties, but also extends into smaller portions of Evans, Long, and Tattnall counties. All of these counties are located in the state of Georgia. The ROI for Fort Stewart in this analysis includes those areas that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, contractor personnel, and their Families reside. All of the aforementioned counties are included in ROI. Liberty County, which contains the city of Hinesville adjacent to the installation, is the county that would be most affected by Army stationing actions. There are additional counties, such as Bulloch, Chatham, Effingham, Glynn, McIntosh, and Wayne counties, in which installation populations may also reside; however, the number of residents in these counties is expected to be small. Therefore, these counties are not included in the ROI. The vast majority of the population and economic impacts would be experienced within the ROI.

Population and Demographics

Using 2011 as a baseline, Fort Stewart has a total working population of 25,243 consisting of active component Soldiers and Army civilians, students and trainees, other military services, civilians and contractors. Of the total working population, 18,647 were permanent party Soldiers and Army civilians. The population that lives on Fort Stewart consists of 3,661 Soldiers, 26 Army civilians, and an estimated 5,597 Family members, for a total on-installation resident population of 9,284 (McKain, 2014). Finally, the portion of Soldiers, Army civilians, and Family members living off the installation is estimated to be 37,669. Additionally, there are 159 students and trainees associated with the installation.

In 2012, the population in the ROI was 149,896. The population in Bryan and Liberty counties increased by 6.7 and 3.1 percent, respectively, between 2010 and 2012, while it increased by 11.9 percent during the same period in Long County. The population decreased in Evans and Tattnall counties during this period by 2.8 and 0.8 percent, respectively (Table 4.23-3). The racial and ethnic composition of the ROI is presented in Table 4.23-4 (U.S. Census Bureau 2012a).

Table 4.23-3. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Bryan County, Georgia	32,250	+6.7
Evans County, Georgia	10,691	-2.8
Liberty County, Georgia	65,461	+3.1
Long County, Georgia	16,170	+11.9
Tattnall County, Georgia	25,324	-0.8

Table 4.23-4. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of Georgia	77.9	13.1	1.2	5.1	2.4	16.9	55.1
Bryan County, Georgia	80.1	15.0	0.4	1.8	2.5	5.8	75.4
Evans County, Georgia	66.8	30.4	0.5	1.0	1.0	11.9	57.5
Liberty County, Georgia	51.1	41.0	0.8	2.3	4.3	11.5	43.0
Long County, Georgia	68.4	25.9	0.8	0.8	3.5	12.1	59.1
Tattnall County, Georgia	68.2	29.7	0.6	0.5	0.9	10.8	58.8

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Income

Between 2000 and 2012, employment rose in all counties in the ROI with the exception of Liberty County, where employment remained constant. Tattnall County had the lowest median income among the counties in the ROI, approximately $13,000 lower than the median income at the state level. Employment, median home value, household income, and population living below the poverty level are presented in Table 4.23-5 (U.S. Census Bureau, 2012b).

Table 4.23-5. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Change in Employment 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Georgia	4,333,284	+11	$156,400	$49,604	17
Bryan County, Georgia	14,461	+29	$189,100	$63,818	12
Evans County, Georgia	4,345	+2	$89,600	$36,602	26
Liberty County, Georgia	29,472	0	$126,800	$44,295	18
Long County, Georgia	5,780	+28	$102,700	$40,044	21
Tattnall County, Georgia	8,164	+1	$84,200	$36,520	26

Information regarding the workforce by industry for each county within the ROI was obtained from the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for the employed labor force.

Bryan County, Georgia

According to the U.S. Census Bureau, the educational services and health care and social assistance sector accounts for the greatest share of the total workforce in Bryan County (20 percent). Retail trade is the second largest employment sector (12 percent), followed by manufacturing (10 percent). The construction and the arts, entertainment, and recreation, and accommodation and food services sectors also account for a significant share of the total workforce in Bryan County (8 percent each). The Armed Forces account for 6 percent of the Bryan County workforce. The remaining sectors account for 36 percent of the workforce in the county.

Evans County, Georgia

The manufacturing sector accounts for the largest share of the total workforce in Evans County (20 percent). The educational services, and health care and social assistance services sector is the second largest source of employment (17 percent). Retail trade is the third largest employment sector (13 percent), followed by the agriculture, forestry, fishing and hunting, and mining services sector (9 percent). The Armed Forces account for less than 1 percent of the Evans County workforce. The remaining nine sectors employ 41 percent the workforce.

Liberty County, Georgia

The primary source of employment in Liberty County is the Armed Forces (22 percent). Public Administration is the second largest employment sector (15 percent), followed by the educational services, and health care and social assistance sector (14 percent). Retail trade also accounts for a significant share of the total workforce in Liberty County (10 percent). The remaining 10 sectors employ 39 percent of the workforce.

Long County, Georgia

The public administration sector is the primary source of employment in Long County (15 percent). The educational services, and health care and social assistance services sector is the second largest employment sector (11 percent), followed by the Armed Forces and the arts, entertainment, and recreations, and accommodation and food services (10 percent each). The remaining 10 sectors employ 54 percent of the workforce.

Tattnall County, Georgia

The primary source of employment in Tattnall County is the educational services, and health care and social assistance services sector (18 percent). Manufacturing is the second largest employment sector (12 percent), followed by public administration (11 percent). Retail trade also accounts for a significant share of the total workforce (10 percent). The Armed Forces account for less than 1 percent of the Tattnall County workforce. The remaining sectors employ 51 percent of the workforce.

Housing

There are 3,630 permanent military Family units on Fort Stewart and 6,435 spaces in barracks on the installation. Additionally, there are 334 single NCO and officer quarters on the installation (McKain, 2014).

Schools

As described in the 2013 PEA, DoD schools located on the installation educated 606 students in kindergarten through grade 6, while 4,188 students in kindergarten through grade 6 attended schools off the installation within Liberty, Long, Evans, and Bryan counties (no students attended schools in Tattnall County). DoD schools on the installation included Brittin Elementary, Diamond Elementary, and Kessler Elementary schools. All students in grades 7 to 12 attend schools off the installation.

Public Health and Safety

Police Services

The Fort Stewart Military Police oversee police operations, patrol installation property, provide ACP/gate protection and protection of life and property, conduct investigations, regulate traffic,

provide crowd control, and perform other public safety duties. City, county, and state police departments provide law enforcement in the ROI.

Fire and Emergency Services

The Fort Stewart Fire Department responds to emergencies involving structures, facilities, transportation equipment, hazardous materials, and natural and man-made disasters; directs fire prevention activities; and conducts public education programs. Services include providing fire safety advice and insuring that structures are equipped with adequate fire precautions to ensure that in the event of fire, people can safely evacuate the premises unharmed.

Medical Facilities

Winn Army Community Hospital and Lloyd C. Hawks Troop Medical Hospital serve Fort Stewart. Clinics provide health services for active component and retired military personnel and their Families on Fort Stewart. Dental services are also available at three dental clinics on the installation. These facilities service active component personnel and their Family members, as well as retirees and their Family members. Off the installation, Liberty Regional Medical Center in Hinesville provides the nearest health care facility.

Family Support Services

The FMWR provides a wide range of facilities for promoting social and emotional well-being of military/civilian service personnel and their Families. The Fort Stewart ACS office within FMWR assists in maintaining the readiness of individuals, Families, and communities within the Army by developing, coordinating, and delivering services which promote self-reliance, resiliency, and stability during war and peace. Programs offered include the Army Family Action Plan, Family Advocacy Program, Survivor Outreach Service, and Warriors in Transition.

Recreation Facilities

Recreation facilities on Fort Stewart are managed by the FMWR and include areas for swimming, boating, hiking, hunting, and fishing. Fort Stewart has allowed the public access to installation lands for hunting and fishing since 1959. In general, any hunting or fishing area not closed for military use is open to the public with appropriate permits and restrictions.

4.23.12.2 Environmental Effects

No Action Alternative

Fort Stewart’s operations would continue to benefit regional economic activity. No additional impacts to population, housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of 16,000[29] Army positions (15,317 Soldiers and 683 Army civilians), with an average annual income of $46,760 and $56,723, respectively. In addition, this alternative would affect an estimated 24,288 Family members (8,928 spouses and 15,360 children). The total number of military employees and their Family members who may be directly affected by Alternative 1 is projected to be 40,288.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative ranges. Table 4.23-6 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, changes in sales, income, employment and population in the ROI under Alternative 1 fall outside the historical range and are categorized as a significant impact.

Table 4.23-6. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	8.4	5.7	18.4	4.7
Economic contraction significance value	-8.1	-5.8	-7.4	-2.6
Forecast value	-16.9	-19.7	-36.7	-27.6

Table 4.23-7 summarizes the predicted impacts to income, employment, and population of the reductions against the 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

[29] This number was derived by assuming the loss of two BCTs, 60 percent of Fort Stewart's non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 16,000. The 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 8,000.

Table 4.23-7. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$853,849,000	-17,757 (Direct)	-40,288
		-1,181 (Induced)	
		-18,938 (Total)	
Total 2012 ROI economic estimates	$4,613,724,000	62,222	149,896
Percent reduction of 2012 figures	-18.5	-30.4	-26.9

Note: Sales estimates are not consistently available from public sources for all counties in the United States; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from EIFS is described in the paragraphs below.

With a potential reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. The EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 16,000 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 1,757 direct contract service jobs would also be lost. An additional 1,181 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. Total reduction in employment is estimated to be 18,938, a significant reduction of 30.4 percent of the total employed labor force in the ROI of 62,222. Income is estimated to be reduced by $853.9 million, a significant decrease of 18.5 percent from 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $639.6 million. There would also be a loss in sales tax receipts to local and state governments. The state and average local sales tax for Georgia is 7.0 percent (Tax Foundation, 2014). To estimate sales tax reductions, information was utilized on the proportion of sales that would be subject to sales taxes on average across the country. According to the U.S. Economic Census, an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $639.6 million, resulting in an estimated sales tax receipts decrease of $7.2 million under Alternative 1.

Of the 149,896 people (including those residing on Fort Stewart) who live within the ROI, 16,000 military employees and 24,288 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 26.9 percent. This number could overstate potential population impacts because some of the people no longer employed by the military could continue to live and work within the ROI, finding employment in other industry sectors. However, due to the rural nature of the area and Fort Stewart as a dominant employer and economic driver of the ROI, most displaced forces may move out of the area to seek other opportunities with the Army or elsewhere. There are few employing sectors in the ROI to absorb displaced military employees. A small number of displaced personnel may

seek and find work within the ROI; however, others may not be able to find new employment with possible implications for the unemployment rate.

This analysis indicates that Fort Stewart's community, and particularly Liberty, Bryan, Tattnall, Long, and Evans counties, would experience significant, adverse socioeconomic impacts, as the predicted impacts to each economic parameter evaluated are well outside the realm of historical economic fluctuations.

Housing

The population reduction that would result under Alternative 1 would decrease housing demand and increase housing availability on the installation and across the larger ROI, which would likely lead to a reduction in median home values.

Schools

Reduction of 16,000 Soldiers and Army civilians would result in a reduction of 24,288 Family members, of which 15,360 would be children. It is anticipated that both schools on the installation and within school districts in Liberty, Long, Evans, and Bryan counties would be impacted under Alternative 1. School districts with larger portions of military children in proximity to Fort Stewart would be more affected than those with fewer military students. If enrollment in individual schools declines significantly, schools may need to reduce the number of teachers, administrators, and other staff, and potentially close or consolidate with other schools within the same school district should enrollment fall below sustainable levels.

The reduction of Soldiers on Fort Stewart would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal Impact Aid a district receives is based on the number of students who are considered “federally connected” and attend district schools. Actual projected dollar amounts cannot be determined at this time due to the variability of appropriated dollars from year to year, and the uncertainty of actual number of affected school-age children. School districts in the ROI would likely need fewer teachers and materials as enrollment drops, which would partially offset the reduced Federal Impact Aid. The loss of approximately 15,360 children will decrease the amount of Federal Impact Aid dollars being provided to these schools. Overall, adverse impacts to schools under Alternative 1 would be minor to significant depending on the reduction in the number of military-connected students attending specific schools.

Public Services

The demand for law enforcement, medical care providers, and fire and emergency service providers on the installation may decrease if Soldiers, Army civilians, and their Family members affected under Alternative 1 move to areas outside the ROI. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or civilian

personnel, the Army is committed to meeting health and safety requirements. Overall, minor impacts to public health and safety would occur under Alternative 1. The impacts to public services are not expected to be significant because the existing service level for the installation and the ROI would still be available.

Family Support Services and Recreation Facilities

Family Support Service and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. As a result, minor impacts to Family Support Services and recreation facilities would occur under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, provides: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). The racial and ethnic composition of the ROI differs from that of the state, with higher proportions of African Americans in Evans, Liberty, Long, and Tattnall counties than in the state as a whole. Additionally, there are higher proportions of poverty populations in all of the ROI counties with the exception of Bryan County when compared to the state's proportions of these populations. Because minority or poverty populations are more heavily concentrated in the ROI, Alternative 1 has the potential to result in adverse impacts to minority or poverty-owned and/or -staffed businesses if Soldiers and Army civilians directly affected under Alternative 1 move to areas outside the ROI. However, these populations would not be disproportionately affected under Alternative 1.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of the people associated with the installation, including children. Therefore, it is not anticipated that implementing Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.23.13 Energy Demand and Generation

4.23.13.1 Affected Environment

The energy demand and generation affected environment of the Fort Stewart installation remains the same as described in Section 4.20.12.1 of the 2013 PEA.

4.23.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be negligible impacts to energy demand and generation at Fort Stewart. For the current analysis, Fort Stewart would continue to draw similar amounts of energy from its utility providers with the same requirements for energy and maintenance of infrastructure so impacts would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy demand and generation would occur on Fort Stewart. Under Alternative 1, minor, beneficial impacts to energy are anticipated due to a further reduction in energy consumption associated with the additional force reductions. The installation would also be better positioned to meet energy and sustainability goals.

4.23.14 Land Use Conflicts and Compatibility

4.23.14.1 Affected Environment

Consisting of 262,000 acres, Fort Stewart's range and training land infrastructure support Abrams tanks, Bradley fighting vehicles, aerial gunnery, artillery, and other live-fire training; maneuver training; and individual team tasks and collective tasks. Fort Stewart has not had incompatible development and use conflicts preventing new construction or training. Sensitive environmental areas are marked in the field and Soldiers are briefed on these restrictions prior to entering the field. All warfighting functions tasks can be accomplished to standard on the Fort Stewart training complex with minimal restrictions and workarounds. Range Support Operations estimates about 554,472 Soldier training days are scheduled annually on the range and training areas of Fort Stewart for mounted and dismounted individual weapons, crew qualifications and maneuver training.

Establishment of a conservation buffer through the Fort Stewart ACUB program has reduced the risk of incompatible development near the installation and provides for conservation of natural resources on a regional scale. The installation and its partners have been working to prevent incompatible development on about 127,000 acres surrounding Fort Stewart primarily through the acquisition or donation of conservation easements. Fort Stewart maintains active ACUB and

JLUS programs, working with local community partners to protect natural resources and sustain military operations. Common goals are to minimize rural land conversion to dense residential development around the installation, utilizing a variety of methods (depending on property owners' objectives), and to encourage compatible development. As of February 2013, the Fort Stewart ACUB program has protected more than 22,000 acres.

4.23.14.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that no changes to land use conditions would occur and no impacts are anticipated. Under the No Action Alternative, there would continue to be no impacts to land use at Fort Stewart.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Stewart would result in minor, beneficial impacts to land use, since a reduction in training activities would allow more opportunities for other land uses such as ecosystem management or recreational activities. Under Alternative 1, impacts to land use would be similar to those described in the 2013 PEA.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with land use ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Stewart, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including land use ordinances and regulations.

4.23.15 Hazardous Materials and Hazardous Waste

4.23.15.1 Affected Environment

As described in the 2013 PEA, hazardous materials are used on Fort Stewart. This includes hazardous materials and waste from USTs and ASTs, pesticides, LBP, asbestos, PCBs, radon, and UXO. Fort Stewart operates under a HWMP. Army policy is to substitute toxic and hazardous materials for nontoxic and nonhazardous ones; ensure compliance with local, state, and federal hazardous waste requirements; and ensure the use of waste management practices that comply with all applicable requirements pertaining to generation, treatment, storage, disposal, and transportation of hazardous wastes. The program reduces the need for corrective action through controlled management of solid and hazardous waste. No substantial changes have occurred to the affected environment since 2013.

4.23.15.2 Environmental Effects

No Action Alternative

As stated in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative. Use of hazardous materials and generation of hazardous wastes would continue on Fort Stewart in accordance with all applicable laws, regulations and plans.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that minor, adverse impacts from hazardous materials and hazardous waste would occur on Fort Stewart. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on Fort Stewart. Because of the reduced numbers of people, it is likely that the potential for spills would be reduced further during training and maintenance activities. The volume of waste generated and material requiring storage would increase slightly because deactivating units would turn in hazardous material for storage to avoid transportation risks. Under Alternative 1 in this SPEA, Fort Stewart would continue to implement its hazardous waste management in accordance with its HWMP and applicable regulations and therefore, adverse impacts would be minor.

Under Alternative 1, adverse impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Fort Stewart, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.23.16 Traffic and Transportation

4.23.16.1 Affected Environment

The transportation affected environment of the Fort Steward ROI remains the same as described in Section 4.20.15.1 of the 2013 PEA.

4.23.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated minor, adverse impacts. Although basically adequate, the system is congested. Some delays at main ACPs would continue resulting in continued minor, adverse impacts, though recommended traffic intersection improvements would be implemented to improve operations.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Stewart would result in beneficial impacts to traffic and transportation systems. As fewer Soldiers and their Family members are left on the installation, traffic congestion would diminish and traffic LOS would improve on the installation and in neighboring communities. As noted in the 2013 PEA, delays at ACPs during peak hours would also decrease. These beneficial impacts would continue under Alternative 1, but with a further reduction in forces, the size of this beneficial impact under Alternative 1 would be larger than anticipated at the time of the 2013 PEA.

4.23.17 Cumulative Effects

As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Stewart consist of five counties in Georgia: Liberty, Bryan, Evans, Long, and Tattnall counties. Section 4.20.16 of the 2013 PEA noted numerous planned or proposed actions within the ROI that reasonably could be initiated within the next 5 years and would have the potential to cumulatively add impacts to Alternative 1. A number of the Army's proposed projects have been previously identified in the installation's Real Property Master Planning Board and are programmed for future execution. No additional actions have been identified beyond those noted in the cumulative effects analysis of the 2013 PEA.

Reasonably Foreseeable Future Projects on Fort Stewart

In addition to the reasonably foreseeable future projects disclosed in the 2013 PEA, the Army is also proposing a partnership with Georgia Power Company to install solar photovoltaic arrays at Fort Stewart. Fort Stewart is currently conducting NEPA analysis to evaluate potential impacts of siting, constructing, and operating a photovoltaic array on its lands.

Reasonably Foreseeable Future Projects outside Fort Stewart

Beyond those mentioned in the 2013 PEA, the Army is not aware of any reasonably foreseeable future projects outside Fort Stewart which would be appropriate for inclusion in the cumulative impacts analysis. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, smaller, less diversified economies will be more vulnerable to the force reductions and provide fewer opportunities to displaced Army employees.

No Action Alternative

The cumulative effects due to the No Action Alternative are essentially the same as was determined in the 2013 PEA, and will be negligible through minor and adverse. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reductions

The cumulative effects of Alternative 1 would be essentially the same as was determined in the 2013 PEA. Overall, the potential cumulative impacts of Alternative 1 at Fort Stewart is anticipated to be significant and adverse for socioeconomics with impacts ranging from minor, adverse to beneficial for the other resources.

The socioeconomic impact under Alternative 1, as described in Section 4.23.12.2 with a loss of 16,000 Soldiers and Army civilians, could lead to significant impacts to population, the regional economy, schools, and housing, specifically in the ROI city of Hinesville, Georgia. Fort Stewart has long been an economic driver of the region, employing almost 19,000 Soldiers and civilian employees within the ROI. The relatively smaller economy of the ROI depends on the installation's employment and economic activity. Specifically, in Liberty and Long counties, the Armed Forces account for 22 and 10 percent of the workforce, respectively, demonstrating the importance of the installation to employment opportunities in the ROI. With fewer opportunities for employment, the ROI would likely not be able absorb many of the displaced forces, with additional adverse impacts.

Additionally, non-federal investments have been made by private companies and local communities to support Army installations. With decreased population, employment, spending, and economic activity within the ROI, additional financial burden may be placed on companies, communities, and institutions, with implications for the provision of services and viability of operations. In addition, adverse impacts to multiple regional community services and schools are anticipated because they receive funding, support, time, donations, and tax revenue directly related to the number of military authorizations and the number of Family members. These cumulative adverse impacts to the regional economy would contribute to more significant, adverse impacts under Alternative 1.

Stationing changes would affect regional economic conditions through the loss or gain of jobs and income within the region. Military personnel spend their money in the ROI economy, supporting additional jobs, income, taxes, and sales impacts. Under Alternative 1, the loss of 16,000 Soldiers, in conjunction with other reasonably foreseeable actions, would have significant impacts to population, employment, income, tax receipts, housing values, and schools in the ROI.

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4.24 Fort Wainwright, Alaska

4.24.1 Introduction

Fort Wainwright was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population, is discussed in Section 4.21.1 of the 2013 PEA.

Fort Wainwright's 2011 baseline permanent party population was 7,430. In this SPEA, Alternative 1 assesses a potential population loss of 5,800, including approximately 5,485 permanent party Soldiers and 326 Army civilians.

4.24.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Wainwright; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.24-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.24-1. Fort Wainwright Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Minor	Beneficial
Cultural Resources	Significant, but Mitigable	Significant, but Mitigable
Noise	Minor	Beneficial
Soils	Minor	Negligible
Biological Resources	Minor	Minor
Wetlands	Minor	Minor
Water Resources	Minor	Minor
Facilities	Negligible	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	Negligible	Beneficial
Hazardous Materials and Hazardous Waste	Negligible	Negligible
Traffic and Transportation	Minor	Beneficial

4.24.3 Air Quality

4.24.3.1 Affected Environment

The air quality affected environment of the Fort Wainwright ROI remains the same as described in Section 4.21.2.1 of the 2013 PEA. A portion of the Fairbanks North Star Borough (FNSB) has been designated a nonattainment area for the 2006 fine particulate matter ($PM_{2.5}$) standard. The Fort Wainwright area has not been designated as a nonattainment area for any other criteria pollutants (EPA, 2013).

4.24.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source emissions at current levels would result in minor, short- and long-term, adverse impacts to air quality. Air quality impacts of the No Action Alternative for this SPEA remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Wainwright would result in beneficial impacts to air quality due to reduced operations and maintenance activities and reduced vehicle miles travelled associated with the facility. Impacts to air quality from the further force reductions proposed under Alternative 1 would continue to be beneficial assuming a corresponding decrease in operations and vehicle travel to and from Fort Wainwright. The size of this beneficial impact under Alternative 1 would be slightly larger than at the time of the 2013 PEA.

As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with air quality regulations. Even if the full end-strength reductions were to be realized at Fort Wainwright, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.24.4 Airspace

4.24.4.1 Affected Environment

The airspace affected environment for Fort Wainwright remains the same as described in Section 4.21.3.1 of the 2013 PEA; restricted airspace is sufficient to meet the current airspace requirements.

4.24.4.2 Environmental Effects

No Action Alternative

Impacts to Fort Wainwright under the No Action Alternative remain minor, as described in Section 4.17.3.2 of the 2013 PEA. Fort Wainwright would maintain existing airspace operations.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to airspace would occur on Fort Wainwright. Under Alternative 1, implementation of proposed further force reductions would increase the beneficial impacts. Beneficial impacts are anticipated to occur as a result of a slightly lower utilization and requirements for airspace use, including the requirement for SUA from training involving the use of munitions, weapons systems, and ranges that would occur at reduced levels and subsequently adverse impactions associated with closures of certain SUA would be reduced and would result in beneficial impacts.

4.24.5 Cultural Resources

4.24.5.1 Affected Environment

The affected environment for cultural resources at Fort Wainwright has not changed since 2013, as described in Section 4.21.4 of the 2013 PEA. However, an updated management plan has been drafted since the 2013 PEA and is currently being implemented.

4.24.5.2 Environmental Effects

No Action Alternative

Section 4.21.4.2 of the 2013 PEA describes the effects of the No Action Alternative as significant but mitigable. There has been no change in the affected environment since the publication of the 2013 PEA that would result in a different impact to cultural resources. All activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures.

Alternative 1—Implement Force Reductions

Alternative 1 of this SPEA would have a significant but mitigable impact on cultural resources as similarly described in Section 4.21.4.2 of the 2013 PEA. The effects of this alternative are similar to the No Action—the reduction of forces at Fort Wainwright would not result in a change to the existing conditions, which are analyzed in the no action. Therefore, if current operations are having a significant but mitigable impact on cultural resources, the potential reduction in forces proposed in Alternative 1 would not alter those impacts.

Additionally, the Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to

be realized at Fort Wainwright, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic structures from these activities are not analyzed. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of force reductions, the installation would comply with applicable laws, such as the NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects.

This alternative could result in some beneficial effects as a decrease in training activities could reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources.

4.24.6 Noise

4.24.6.1 Affected Environment

The noise affected environment of the Fort Wainwright installation remains the same as described in Section 4.21.5.1 of the 2013 PEA. Primary sources of noise at Fort Wainwright include aviation activity and small arms live-fire training and qualification as well as large caliber weapon systems training.

4.24.6.2 Environmental Effects

No Action Alternative

The 2013 PEA anticipated minor impacts from noise, which would represent no change to current frequencies or intensities of noise generating activities. Under the No Action Alternative, minor impacts to noise at Fort Wainwright are expected to continue.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Wainwright would result in beneficial noise impacts, since there would be a reduction in the frequency of noise generating events. The beneficial impacts under Alternative 1 would be similar to those described under the 2013 PEA.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with noise ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Wainwright, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including noise ordinances and regulations.

4.24.7 Soils

4.24.7.1 Affected Environment

The soils affected environment on the installation remains the same as was discussed in Section 4.21.6.1 of the 2013 PEA.

4.24.7.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to soils were anticipated from continuing training, to include impacts to soils from removal of or damage to vegetation, digging activities, ground disturbance from vehicles, and ammunition or explosives used in training events. Impacts under the No Action Alternative on Fort Wainwright remain the same as those discussed in Section 4.21.6.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, minor, adverse impacts to soils were anticipated as a result of demolition of no longer needed facilities leading to temporary exposure of bare soils and their subsequent erosion from wind and rain. As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed. Further forces reductions (Alternative 1 of this SPEA) would result in less erosion, soil compaction, and loss of vegetation; thus impacts under Alternative 1 would be negligible.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Wainwright, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations. Therefore, impacts under Alternative 1 at Fort Wainwright would be beneficial and remain the same as those discussed in Section 4.21.6.2 of the 2013 PEA.

4.24.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.24.8.1 Affected Environment

The affected environment on Fort Wainwright is characterized by four dominant vegetation types: moist tundra; treeless bogs and fens; open, low-growing spruce forests; and closed spruce-hardwood forests which is home to variety of mammals and avian species. No federally listed threatened and endangered species are present on Fort Wainwright although a number of species of concern have been identified. A detailed description of the affected environment on Fort Wainwright and a complete list of species of concern are presented in Section 4.21.7.1 of the

2013 PEA. No changes have occurred to the affected environment since 2013. However, an updated management plan has been drafted since the 2013 PEA and is currently being implemented (Fort Wainwright, 2013).

4.24.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in minor, adverse impacts to biological resources. Biological resources on Fort Wainwright would continue to be managed in accordance with the current installation INRMP to further minimize and monitor any potential impacts (Fort Wainwright, 2013).

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that minor, adverse impacts to biological resources would occur on Fort Wainwright as the proposed reduction in staff would change the types of activities conducted on Fort Wainwright, but would only reduce the frequency and intensity. Therefore, disturbances to the biological environment as a result of current activities would continue to some degree. Fort Wainwright anticipates that further proposed reduction in forces (Alternative 1 of this SPEA) would not change this finding. However, a reduction in personnel and training activities would further reduce scheduling conflicts and increase the ease of conducting resource monitoring and proactive conservation activities. The Army is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Wainwright, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.24.9 Wetlands

4.24.9.1 Affected Environment

The wetlands affected environment on the installation remains the same as was discussed in Section 4.21.8.1 of the 2013 PEA.

4.24.9.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to wetlands were anticipated from continued training schedules, sedimentation, and construction. Potential wetland impacts would be reviewed and managed to be avoided, to the extent practicable, or mitigated. Impacts under the No Action Alternative on Fort Wainwright remain the same as those discussed in Section 4.21.8.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, minor, adverse impacts to wetlands were anticipated as a result of facilities deconstruction and the potential to create sedimentation into wetlands. RVs would continue to create impacts to wetlands. Training ranges were designed to avoid significant wetland impacts; therefore, a reduction in training would not have any change on the impacts to wetlands on the installation. Impacts to wetlands could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Wainwright, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met. Impacts under Alternative 1 at Fort Wainwright would remain the same as those discussed in Section 4.21.8.2 of the 2013 PEA.

4.24.10 Water Resources

4.24.10.1 Affected Environment

The affected environment for water resources on Fort Wainwright remains the same as that described in Section 4.21.9.1 of the 2013 PEA. There are no changes to the watershed and surface water, groundwater, water supply, wastewater, and stormwater resources.

4.24.10.2 Environmental Effects

No Action Alternative

In the 2013 PEA, minor, adverse impacts to water resources were anticipated from the No Action Alternative due to disturbance and pollution of surface waters and groundwater from continued training activities and exceedance of several secondary drinking water quality standards. Surface water, water supply, and groundwater impacts under the No Action Alternative would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

Minor impacts to water resources were anticipated from implementation of force reductions in the 2013 PEA Alternative 1 because of adverse effects on surface waters from ongoing demolition and training activities. Although reduction in maneuver training from force reductions on Fort Wainwright was expected to potentially reduce existing impacts caused by disturbance to surface waters, it would not eliminate the impacts completely. Fort Wainwright was expected to continue to implement pollution and stormwater control plans with associated BMPs. Additionally, it was anticipated that Alternative 1 would reduce wastewater treatment requirements and water demand. Increased force reductions under Alternative 1 of this SPEA would continue to have these same minor impacts to surface waters, water supplies, and wastewater.

Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Fort Wainwright, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented.

4.24.11 Facilities

4.24.11.1 Affected Environment

The facilities affected environment of the Fort Wainwright installation remains the same as was discussed in Section 4.21.10.1 of the 2013 PEA.

4.24.11.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be no impacts to facilities at Fort Wainwright. For the current analysis, Fort Wainwright would continue to use its existing facilities to support its tenants and missions so impacts to facilities would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that minor impacts to facilities would occur on Fort Wainwright. Under Alternative 1, implementation of proposed further force reductions would also have an overall minor, adverse impact to facilities. Minor, adverse impacts would include construction or expansion projects that had been programmed in the future may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities to newer facilities may require modification of existing facilities; and more buildings within the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demands for utilities and reduced demands for training facilities and support services. Some facilities may be re-designated to support units remaining at Fort Wainwright to provide more space and facilities that are better able to meet tenant and Army needs. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.24.12 Socioeconomics

4.24.12.1 Affected Environment

Fort Wainwright is located in the Fairbanks, Alaska, Metropolitan Statistical Area. The ROI for this installation includes only FNSB, which is generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, and contractor personnel and their Families reside. It is likely that the economic impacts stated below would be concentrated in the city of Fairbanks because of size of FNSB (7,400 square miles).

Population and Demographics

Using 2011 as a baseline, Fort Wainwright had a total working population of 9,454 consisting of active component Soldiers and Army civilians, students and trainees, other military services, civilians and contractors. Of the total working population, 7,430 were permanent party Soldiers and Army civilians. The population that lives on Fort Wainwright consists of 3,759 Soldiers and their 5,706 Family members, for a total resident population of 9,465 (TeVrucht, 2014). The portion of Soldiers, Army civilians, and their Family members living off the installation is estimated to be 9,244.

In 2012, the population in the ROI was 100,141 and increased by 2.6 percent between 2010 and 2012 (Table 4.24-2). Table 4.24-3 displays racial breakdown of the ROI (U.S. Census Bureau 2012a).

Table 4.24-2. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Fairbanks North Star Borough, Alaska	100,141	+2.6

Table 4.24-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of Alaska	67.5	3.7	14.8	5.7	7.1	6.1	63.1
Fairbanks North Star Borough, Alaska	77.7	5.3	7.2	2.9	6.4	6.8	72.5

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Income

Between 2000 and 2012, total employment increased in the state of Alaska and in FNSB (Table 4.24-4). The percentage of the population living below poverty in FNSB is 2 percent lower than for the state of Alaska. Additionally, the median household income of FNSB is less than 1 percent lower than median household income at the state level. Employment, median home value and household income, and poverty levels are presented in Table 4.24-4 (U.S. Census Bureau, 2012b).

Information regarding the workforce by industry for each county within the ROI was obtained from the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for the employed labor force.

Table 4.24-4. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000-2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Alaska	358,521	+20	$237,900	$69,917	10
Fairbanks North Star Borough, Alaska	51,715	+25	$213,500	$69,485	8

Fairbanks North Star Borough, Alaska

Education services and health care and social assistance sectors accounts for the greatest share of the total workforce in FNSB (22 percent). Retail trade is the second largest employment sector (11 percent), followed by the Armed Forces (10 percent). Public administration also accounts for a significant share of the total workforce in the borough (10 percent). The remaining 10 sectors account for 47 percent of total employment.

Housing

Housing resources at Fort Wainwright were described in the 2013 PEA and include 1,976 permanent military Family units. Fort Wainwright is able to meet approximately 69 percent of its Family housing requirements on the installation (Larson, 2014). Due to the age of facilities, the installation has begun to revitalize Family housing to upgrade and/or replace substandard facilities through the Army Family Housing Privatization program. Housing requirements for accompanied Soldiers at Fort Wainwright were privatized in January of 2009, and are managed by the RCI program. An estimated 524 units would be constructed and an estimated 321 units would be revitalized under the RCI program.

Schools

As described in the 2013 PEA, total enrollment in the FNSB School District for the 2011–2012 school years was nearly 14,300 students, approximately one-third of whom were in elementary schools attended by children living on Fort Wainwright. Elementary school students living on Fort Wainwright attend Arctic Light Elementary School located on Fort Wainwright, Ticasuk Brown Elementary School located in North Pole, or Ladd Elementary School located in Fairbanks. Children living on Fort Wainwright attend Tanana Middle School and Lathrop High School, which are predominantly civilian schools. Other FNSB schools located near Fort Wainwright, where military Families living off the installation are most likely to reside, include Denali, Hunter, Joy, Nordale (all elementary schools) and Barnette (kindergarten through grade 8).

Public Health and Safety

Police Services

The Fort Wainwright Police Department oversees police operations, patrols, gate security, training, traffic accident, and criminal investigations.

Fire and Emergency Services

The Fort Wainwright Fire Department responds to emergencies involving structures, facilities, transportation equipment, hazardous materials, and natural and man-made disasters, and directs fire prevention activities; and conducts public education programs. The Fort Wainwright Fire and Emergency Services Division has a mutual aid agreement with FNSB and the cities of Fairbanks and North Pole. City, borough, and state police departments provide law enforcement in the ROI.

Medical Facilities

Health care services are provided by two hospitals and several clinics, and from Bassett Army Community Hospital on Fort Wainwright.

Family Support Services

The Fort Wainwright ACS, which is a division of the Directorate of FMWR, assists Soldiers and their Families with programs that include Army Emergency Relief, Army Family Action Plan, Army Volunteer Corps, Employment Readiness, Exceptional Family Member, Family Advocacy, Financial Readiness, Information & Referral, and Relocation Readiness. The Fort Wainwright CYSS, also under FMWR, provides recreational and learning programs for children and teens at Fort Wainwright.

Recreation Facilities

Fort Wainwright FMWR provides its military community, Families, and civilians sport and fitness programs, leisure activities (a bowling center, golf course, tennis club, and group hiking trips) and skills development opportunities (including an auto repair center).

4.24.12.2 Environmental Effects

No Action Alternative

Fort Wainwright's continuing operations represent a beneficial source of regional economic activity. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of 5,811[30] Army positions (5,485 Soldiers and 326 Army civilians), each with an average annual income of $60,735 and $62,379, respectively. In addition, this alternative would affect an estimated 3,243 spouses and 5,579 children for a total estimated potential impact to 8,822 Family members. The total population of Army employees and their Family members directly affected under Alternative 1 would be projected to be 14,633.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative range. Table 4.24-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, changes in employment and population in the ROI under Alternative 1 fall outside the historical range and are categorized as a significant impact. However, there would not be a significant impact to sales and income because the estimated percentage change is within the historical range of these economic parameters.

[30] This number was derived by assuming the loss of one BCT, 60 percent of Fort Wainwright's non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 5,811. The 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 4,900.

Table 4.24-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	50.1	40.1	23.4	6.8
Economic contraction significance value	-32.2	-15.5	-6.6	-1.8
Forecast value	-7.7	-9.8	-15.7	-15.0

Table 4.24-6 summarizes the predicted impacts to income, employment, and population of the reductions against the 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

Table 4.24-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$ 413,485,400	-6,651 (Direct)	-14,633
		-748 (Induced)	
		-7,399 (Total)	
Total 2012 ROI economic estimates	$4,555,544,000	51,715	100,141
Percent reduction of 2012 figures	-9.1	-14.3	-14.6

Note: Sales estimates are not consistently available from public sources for all counties in the United States; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from EIFS is described in the paragraphs below.

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. With a loss of 5,811 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 840 direct contract service jobs would also be lost. An additional 748 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. The total reduction in employment is estimated to be 7,399, a significant 14.3 percent reduction of the total employed labor force in the ROI of 51,715. Income is estimated to fall by $413.5 million, a 9.1 percent decrease in income in 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $339.9 million. There would also be a loss in sales tax receipts to local and state governments. The average local sales tax rate for Alaska is 1.7 percent (Tax Foundation, 2014). To estimate sales tax reductions, information was utilized on the proportion of sales that would be subject to sales tax on average

across the country. According to the U.S. Economic Census, an estimated 16 percent sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $339.9 million resulting in an estimated sales tax receipts decrease of $925,000 under Alternative 1.

Of the approximately 100,141 people (including those residing on Fort Wainwright) who live within the ROI, 5,811 Army employees and their estimated 8,822 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 14.6 percent. This number could overstate potential population impacts because some of the people no longer employed by the military could continue to live and work within the ROI, finding employment in other industry sectors. However, because Fort Wainwright is a dominant employer and economic driver of the ROI, many displaced personnel may move out of the area to seek other opportunities elsewhere. There are few employing sectors in the ROI to absorb displaced military employees. A small number of displaced personnel may seek and find work within the ROI; however, others may not be able to find new employment with possible implications for the unemployment rate.

Housing

As stated in the 2013 PEA, a reduction in troop strength would impact the local housing community, installation support services, the barracks program, and associated Army civilian staffing requirements. A troop reduction may also cause a reduction in the rental market available to the RCI program. As a result, the private partner associated with the RCI program could open the installation military housing to the local population. Fort Wainwright is expected to have a housing surplus by 2018 without these force reductions (U.S. Army, 2014). Alternative 1 would increase the housing surplus on the installation and in the ROI with further reductions in the demand for housing, potentially impacting home values.

Schools

Reduction of 5,811 Soldiers and Army civilians would result in a reduction of 8,822 Family members, of which 5,579 would be children. It is anticipated that school districts that provide education to Army children would be significantly adversely impacted by this action. Schools on and off the installation are expected to experience a decline in enrollment.

The reduction of Soldiers on Fort Wainwright would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal Impact Aid a district receives is based on the number of students who are considered “federally connected” and attend district schools. Actual projected dollar amounts cannot be determined at this time due to the variability of appropriated dollars from year to year, and the actual number of affected school-age children for military and civilian Families. School districts in the ROI would likely need fewer teachers and materials as enrollment drops, which would partially offset the reduced Federal Impact Aid.

As described in the 2013 PEA, the state of Alaska is allowed to take Federal Impact Aid funding into account when distributing public education foundation dollars, possibly lessening the impact from the reduction in Federal Impact Aid to the FNSB School District. However, as the proportion of Family members that would be removed from the FNSB school system accounts for approximately 40 percent of total enrollment for the 2011-2012 school year, it is anticipated that a significant, adverse impact to schools would occur under Alternative 1.

Public Services

Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements. Minor impacts to public services are expected to occur because the existing service level for the installation and the ROI would still be available.

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. As a result, the installation anticipates minor impacts to Family Support Services and recreation facilities under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, states that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). In general, Alternative 1 would not have a disproportionate adverse impact to minorities, economically disadvantaged populations or children in the ROI. Job losses would be experienced across all income levels and economic sectors and spread geographically throughout the ROI.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of the people associated with the installation, including children. Therefore, it is not anticipated under Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation

that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.24.13 Energy Demand and Generation

4.24.13.1 Affected Environment

The energy demand and generation affected environment of the Fort Wainwright installation remains the same as was discussed in Section 4.21.12.1 of the 2013 PEA.

4.24.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be negligible impacts to energy demand and generation at Fort Wainwright. For the current analysis, Fort Wainwright would continue to draw similar amounts of energy from its utility provider with the same requirements for energy and maintenance of infrastructure so impacts to energy demand and generation would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy demand and generation would occur on Fort Wainwright. Under Alternative 1, minor, beneficial impacts to energy are anticipated due to a further reduction in energy consumption associated with the additional force reductions. The installation would also be better positioned to meet energy and sustainability goals.

4.24.14 Land Use Conflicts and Compatibility

4.24.14.1 Affected Environment

The land use affected environment of the Fort Wainwright installation remains the same as described in Section 4.21.13.1 of the 2013 PEA.

4.24.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative no changes to land use conditions would occur and no impacts are anticipated, as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Wainwright would result in minor, beneficial impacts to land use because a reduction in training activities would allow more

opportunities for other land uses such as ecosystem management or recreational activities. Under Alternative 1, impacts to land use at Fort Wainwright would be similar to those described in the 2013 PEA.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with land use ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Wainwright, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including land use ordinances and regulations.

4.24.15 Hazardous Materials and Hazardous Waste

4.24.15.1 Affected Environment

As described in the 2013 PEA, hazardous materials are used on Fort Wainwright. Fort Wainwright is registered with EPA as a Large Quantity Generator of hazardous waste in accordance with RCRA. There is no treatment facility on-site and all hazardous waste generated at the installation is stored and removed from the installation within 90 days. Hazardous waste at Fort Wainwright is primarily generated from vehicle maintenance and facilities operations. Hazardous materials include petroleum-contaminated absorbent pads, batteries, light ballasts, mercury containing bulbs, oils and fuels, compressed gas, LBP, paint thinners, pesticides, solvents and degreasers, and non-recyclable transmission fluid. No substantial changes have occurred to the affected environment since 2013; however an updated management plan has been drafted since the 2013 PEA and is currently being implemented.

4.24.15.2 Environmental Effects

No Action Alternative

As stated in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative. Use of hazardous materials and generation of hazardous wastes would continue on Fort Wainwright in accordance with all applicable laws, regulations and plans.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts from hazardous materials and hazardous waste would occur on Fort Wainwright. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on Fort Wainwright, therefore impacts would continue to be negligible. Because of the reduced numbers of people, it is likely that the potential for spills would be reduced further during training and maintenance activities. The volume of waste generated and material requiring storage would increase slightly because deactivating units would turn in hazardous material for storage to avoid transportation risks. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling,

management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Fort Wainwright, the Army would ensure that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.24.16 Traffic and Transportation

4.24.16.1 Affected Environment

The transportation affected environment of the Fort Wainwright ROI remains the same as described in Section 4.21.15.1 of the 2013 PEA with three primary roads that lead onto the installation, three ACPs, and four main roads and numerous secondary roads used for transportation on the installation.

4.24.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated minor, adverse impacts. Surveys and studies determined the existing transportation system is sufficient to support the current traffic load, so minor, adverse impacts would continue to be expected under the No Action Alternative.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that beneficial impacts are anticipated from the decrease in military and privately-owned vehicles, likely alleviating the traffic flow issues at the Main Gate entrance to the installation. With the implementation of Alternative 1, the Soldier population would decrease and there would be less traffic competing with seasonal (spring and summer) tourist traffic. Impacts to local highways associated with military convoys would also be reduced. The size of this beneficial impact under Alternative 1 would be larger than anticipated at the time of the 2013 PEA.

4.24.17 Cumulative Effects

As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Wainwright consists of FNSB. Section 4.21.16 of the 2013 PEA noted numerous planned or proposed actions within the ROI that reasonably could be initiated within the next 5 years and would have the potential to cumulatively add impacts to Alternative 1. A number of the Army's proposed projects have been previously identified in the installation's Real Property Master Planning Board and are programmed for future execution.

Reasonably Foreseeable Future Projects on Fort Wainwright

No reasonably foreseeable future projects on Fort Wainwright were identified by the installation beyond those noted in the 2013 PEA.

Reasonably Foreseeable Future Projects outside Fort Wainwright

The basing action that would have involved moving one squadron of F-16s from Eielson AFB to Joint Base Elmendorf-Richardson, identified in the 2013 PEA, is no longer a reasonably foreseeable future project and is no longer analyzed as a cumulative action. Additionally, beyond those mentioned in the 2013 PEA, there is a potential for the stationing of F-35 Joint Strike Fighter and accompanying personnel at Eielson AFB, located just outside Fairbanks. It is not known at this time if one or two squadrons would be stationed at Eielson AFB, if the installation were to be selected for the F-35 stationing. An estimate for one squadron of F-35 aircraft (24 planes) would add approximately 1,449 military personnel (3,200 total if including dependents). For two squadrons (48 planes), the addition would be approximately 1,959 military (4,300 total including dependents). In addition, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, smaller, less diversified economies will be more vulnerable to force reductions and provide fewer opportunities to displaced Army employees.

No Action Alternative

Cumulative effects as a result of the No Action Alternative are essentially the same as determined in the 2013 PEA, ranging from negligible to minor and adverse, with the exception of cultural resources. Cumulative effects of the No Action Alternative on cultural resources are anticipated to be significant but mitigable. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reductions

The cumulative effects of Alternative 1 would be essentially the same as was determined in the 2013 PEA. Overall, the potential cumulative impacts of Alternative 1 at Fort Wainwright are anticipated to be significant and adverse for socioeconomics and significant but mitigable for cultural resources. Cumulative impacts for the other resources would range from minor and adverse to beneficial.

The socioeconomic impact under Alternative 1, as described in Section 4.24.12.2 with the loss of 5,811 Soldiers and Army civilians, could lead to significant impacts to the population, employment, and schools in the ROI, notably in the city of Fairbanks. Fort Wainwright has long been a key component of the Fairbank's economy employing several thousand Soldiers and civilian employees within the ROI. The relatively smaller, rural economy of the ROI depends on the installation's employment and economic activity. With fewer opportunities for employment,

the ROI would likely not be able absorb many of the displaced forces. In FNSB, the Armed Forces account for 10 percent of the workforce, demonstrating the importance of installation to employment opportunities in the region.

Stationing changes would also affect regional economic conditions through the jobs and income they bring (or lose) within the region. Although other services have not finalized their stationing changes, increases in military and civilian personnel at Eielson AFB could be anticipated. It is not known at this time whether one or more squadron of F-35 Joint Strike Fighters would be stationed at Eielson AFB or even whether the installation would be selected for the stationing. If the stationing of F-35 were to occur, an increase in military and civilian personnel would have a cumulative beneficial impact to Fairbank's economy.

Other infrastructure improvements and construction and development activity would also benefit the regional economy through additional economic activity, jobs, and income in the ROI. Oil and gas activities would also affect regional economic conditions. However, these potential benefits would not offset the adverse impacts under Alternative 1 and other adverse cumulative actions. Under Alternative 1, the loss of approximately 5,800 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have significant impacts to population, employment, tax receipts, and schools in the ROI.

4.25 Joint Base Elmendorf-Richardson, Alaska

4.25.1 Introduction

Joint Base Elmendorf-Richardson was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population is discussed in Section 4.10.1 of the 2013 PEA. Potential impacts resulting from any reductions in staffing levels other than Army staff at this Air Force managed joint base could be analyzed in separate, future NEPA analyses, as appropriate, although these reductions would not be related to the Army 2020 reductions analyzed herein.

Joint Base Elmendorf-Richardson's 2011 baseline permanent party population was 6,861. In this SPEA, Alternative 1 assesses a potential population loss of 5,300, including approximately 5,169 permanent party Soldiers and 164 Army civilians.

4.25.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment no significant, adverse environmental impacts are anticipated for Joint Base Elmendorf-Richardson; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.25.2-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.25-1. Joint Base Elmendorf-Richardson Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Less than Significant	Beneficial
Airspace	Negligible	Beneficial
Cultural Resources	Significant but Mitigable	Significant, but Mitigable
Noise	Minor	Beneficial
Soils	Less than Significant	Minor
Biological Resources	Significant, but Mitigable	Minor
Wetlands	Less than Significant	Beneficial
Water Resources	Minor	Beneficial
Facilities	Minor	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Minor	Beneficial
Land Use Conflict and Compatibility	Minor	Minor
Hazardous Materials and Hazardous Waste	Less than Significant	Less than Significant
Traffic and Transportation	Less than Significant	Beneficial

4.25.3 Air Quality

4.25.3.1 Affected Environment

The air quality affected environment of the Joint Base Elmendorf-Richardson ROI remains the same as described in Section 4.10.2.1 of the 2013 PEA. The Joint Base Elmendorf-Richardson area has not been designated as a nonattainment area for any criteria pollutants (EPA, 2013).

4.25.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source emissions at current levels, as well as controlled burns for vegetation management, would result in less than significant impacts to air quality. Air quality impacts of the No Action Alternative for this SPEA remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Joint Base Elmendorf-Richardson would result in minor, beneficial impacts to air quality because of reduced operations and maintenance activities and reduced vehicle miles travelled associated with the facility. Impacts to air quality from the further force reductions proposed under Alternative 1 would continue to be beneficial assuming a corresponding decrease in operations and vehicle travel to and from Joint Base Elmendorf-Richardson. The size of this beneficial impact under Alternative 1 would be slightly larger than at the time of the 2013 PEA.

As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in Army non-compliance with air quality regulations. However, management at Joint Base Elmendorf-Richardson is under the authority of the Air Force, so measures to maintain compliance regarding overall air quality regulations would continue to be met by the Air Force.

4.25.4 Airspace

4.25.4.1 Affected Environment

The airspace affected environment for Joint Base Elmendorf-Richardson remains the same as described in Section 4.10.3.1 of the 2013 PEA; restricted airspace is sufficient to meet the current airspace requirements.

4.25.4.2 Environmental Effects

No Action Alternative

Impacts to Joint Base Elmendorf-Richardson under the No Action Alternative remain negligible, as described in Section 4.10.3.2 of the 2013 PEA. Joint Base Elmendorf-Richardson would maintain existing airspace operations.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to airspace would occur on Joint Base Elmendorf-Richardson. Under Alternative 1, implementation of proposed further force reductions would increase the beneficial impacts. While there would not be a decreased requirement for airspace, a force reduction would result in slightly lower utilization and requirements for airspace use.

4.25.5 Cultural Resources

4.25.5.1 Affected Environment

The affected environment for cultural resources at Joint Base Elmendorf-Richardson has not changed since 2013, as described in Section 4.10.4 of the 2013 PEA.

4.25.5.2 Environmental Effects

No Action Alternative

Section 4.10.4.2 of the 2013 PEA describes the effects of the No Action Alternative at as significant but mitigable. There has not been a change in the affected environment since the publication of the 2013 PEA that would result in a reduction of impacts to cultural resources. Ongoing and new construction and demolition would continue in some areas of the installation. Live-fire and maneuver training would also continue, allowing for the possibility of inadvertent damage to cultural resources. All activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures.

Alternative 1—Implement Force Reductions

Alternative 1 would have a significant but mitigable impact on cultural resources as described in Section 4.10.4.2 of the 2013 PEA. Effects under Alternative 1 would be similar to those under the No Action Alternative—the reduction of forces at Joint Base Elmendorf-Richardson would not result in a change in the existing conditions. Therefore, if current operations are having a significant but mitigable impact on cultural resources, the potential reduction in forces proposed under Alternative 1 would not alter those impacts. Additionally, the Army is committed to ensuring that personnel cuts will not result in Army non-compliance with cultural resources regulations.

This alternative could result in some beneficial effects as a decrease in training activities could reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources.

As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of Army force reductions is not reasonably foreseeable and not part of the scope of this SPEA. Therefore, potential impacts to cultural resources from these activities are not analyzed. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of Army force reductions, potential impacts could be analyzed in separate, future NEPA analyses and consultation conducted, as appropriate, by Joint Base Elmendorf-Richardson to avoid, minimize, and/or mitigate these effects.

4.25.6 Noise

4.25.6.1 Affected Environment

The noise affected environment of Joint Base Elmendorf-Richardson remains the same as described in Section 4.10.5.1 of the 2013 PEA. Primary sources of noise at Joint Base Elmendorf-Richardson include traffic, live fire from small and large caliber weapons, and demolition exercises.

4.25.6.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, minor impacts from noise are anticipated, which would represent no change to current frequencies or intensities of noise generating activities, as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Joint Base Elmendorf-Richardson would result in beneficial noise impacts because there would be a reduction in the frequency of noise generating events. The beneficial impacts under Alternative 1 would be similar to those described in the 2013 PEA.

The Army is committed to ensuring that personnel cuts will not result in Army non-compliance with noise ordinances and regulations. However, management at Joint Base Elmendorf-Richardson is under the authority of the Air Force; therefore, health and safety requirements, including noise compliance, would continue to be met by the Air Force.

4.25.7 Soils

4.25.7.1 Affected Environment

The soils affected environment on the installation remains the same as was discussed in Section 4.10.6.1 of the 2013 PEA.

4.25.7.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, less than significant impacts to soils were anticipated from continuing training, to include impacts to soils from removal of or damage to vegetation, digging activities, ground disturbance from vehicles, and ammunition or explosives used in training events. Impacts under the No Action Alternative on Joint Base Elmendorf-Richardson remain the same as those discussed in Section 4.10.6.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, minor, adverse impacts to soils were anticipated as a result of less use of weapons ranges and maneuvering ranges. Further forces reductions (Alternative 1 of this SPEA) would result in less erosion, soil compaction, and loss of vegetation.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed. The Army is committed to ensuring that personnel cuts will not result in Army non-compliance with regulations affecting soils. However, environmental compliance at Joint Base Elmendorf-Richardson is under the authority of the Air Force, so measures to maintain compliance regarding soils management would continue to be met by the Air Force. Impacts under Alternative 1 at Joint Base Elmendorf-Richardson would be beneficial and remain the same as those discussed in Section 4.10.6.2 of the 2013 PEA.

4.25.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.25.8.1 Affected Environment

As described in Section 4.10.7.1 of the 2013 PEA, the affected environment on Joint Base Elmendorf-Richardson provides habitat for various species of birds, mammals, and fish. Three federally listed threatened and endangered species are known exist on Joint Base Elmendorf-Richardson along with two ESA candidate species and four species of marine mammals which are federally protected under the Marine Mammal Protection Act. No changes have occurred to the affected environment since 2013.

4.25.8.2 Environmental Effects

No Action Alternative

The analysis of alternatives in the 2013 PEA concluded that implementation of the No Action Alternative would result in significant but mitigable impacts to biological resources due to ongoing training and maintenance activities on Joint Base Elmendorf-Richardson. Under the No Action Alternative, adverse impacts to biological resources would persist at their current rate. Biological resources on Joint Base Elmendorf-Richardson would continue to be managed in accordance with the current installation INRMP (Joint Base Elmendorf-Richardson, 2011).

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that minor impacts to biological resources would occur on Joint Base Elmendorf-Richardson because that Alternative 1 does not involve major changes to the installation operations or types of activities conducted on Joint Base Elmendorf-Richardson, only a decrease in the frequency of training and/or maintenance activities. The Army anticipates that further proposed reduction in forces (Alternative 1 of this SPEA) would not change this finding. However, further reduction in personnel is likely to partially relieve current pressures on biological resources due to a reduction in scheduling conflicts which would increase the ease of conducting biological resource monitoring and proactive conservation activities. The Army is committed to ensuring that personnel cuts will not result in Army non-compliance with natural resources regulations. However, environmental compliance at Joint Base Elmendorf-Richardson is under the authority of the Air Force, so measures to maintain compliance regarding natural resource management would continue to be met by the Air Force.

4.25.9 Wetlands

4.25.9.1 Affected Environment

The wetlands affected environment on the installation remains the same as was discussed in Section 4.10.8.1 of the 2013 PEA.

4.25.9.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, less than significant impacts to wetlands were anticipated from continued training schedules. Potential wetland impacts would be reviewed and managed to be avoided, to the extent practicable, or mitigated for. Impacts under the No Action Alternative on Joint Base Elmendorf-Richardson remain the same as those discussed in Section 4.10.8.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, beneficial impacts to wetlands were anticipated as a result of decreased maneuvers and training. Less sedimentation and vegetation loss were anticipated, and degraded wetlands were expected to restore towards their reference functions and values. Impacts to wetlands could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. However, environmental compliance at Joint Base Elmendorf-Richardson is under the authority of the Air Force, so measures to maintain compliance regarding wetland regulations would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with wetland regulations. Therefore, impacts under Alternative 1 of this SPEA at Joint Base Elmendorf-Richardson would be beneficial and remain the same as those discussed in Section 4.3.7.2 of the 2013 PEA.

4.25.10 Water Resources

4.25.10.1 Affected Environment

The affected environment for water resources on Joint Base Elmendorf-Richardson remains the same as that described in Section 4.10.9.1 of the 2013 PEA. There are no changes to surface water, groundwater, water quality, drinking water supply, wastewater, and stormwater resources.

4.25.10.2 Environmental Effects

No Action Alternative

In the 2013 PEA, minor, adverse impacts to water resources were anticipated from the No Action Alternative due to the disturbance and pollution of surface waters from ongoing construction, maintenance activities, and erosion. Surface water impacts to water resources under the No Action Alternative would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

Beneficial impacts to water resources were anticipated from implementation of force reductions in the 2013 PEA Alternative 1 because of an overall reduction in the potential to affect water resources. Specifically, force reductions were anticipated to result in a reduction in the demand on the water supply and a decrease in indirect construction related impacts to multiple water resources. Reduction in maneuver training from force reductions on Joint Base Elmendorf-Richardson was also anticipated to potentially reduce impacts to surface waters due to disturbance and spills. Increased force reductions under Alternative 1 of this SPEA would continue to have the same beneficial impacts to surface water quality and water usage and supply.

Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. However, environmental compliance at

Joint Base Elmendorf-Richardson is under the authority of the Air Force, so measures to maintain compliance regarding water resource regulations would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with water quality regulations.

4.25.11 Facilities

4.25.11.1 Affected Environment

The facilities affected environment of the Joint Base Elmendorf-Richardson installation remains the same as was discussed in Section 4.10.10.1 of the 2013 PEA.

4.25.11.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be minor impacts to facilities at Joint Base Elmendorf-Richardson. For the current analysis, Joint Base Elmendorf-Richardson would continue to pursue funding to consolidate existing facilities and already programmed construction projects to replace non-standard and aging facilities. As noted in the 2013 PEA, the installation has an adequate quantity of facilities to support the existing units' requirements for living, operations, and maintenance. Impacts to facilities would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that minor, adverse impacts to facilities would occur on Joint Base Elmendorf-Richardson. Under Alternative 1, implementation of proposed further force reductions would also continue to have overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demands for utilities and reduced demands for training facilities and support services. The force reductions would also provide the installation the opportunity to reduce reliance on aging facilities that are not up to current standards. Some facilities could be re-purposed to support tenant unit requirements. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

If Army reductions result in impacts to the utilization of facilities and/or training areas at this Air Force-managed joint base, the Air Force could conduct any required site-specific NEPA analyses, as appropriate, and make the final determinations regarding disposition of these affected facilities and/or training areas.

4.25.12 Socioeconomics

4.25.12.1 Affected Environment

Joint Base Elmendorf-Richardson is located to the east of the city of Anchorage in south-central Alaska. The ROI for Joint Base Elmendorf-Richardson in this analysis includes those areas that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, contractor personnel, and their Families reside, which includes the Municipality of Anchorage, a consolidated city-borough.

Population and Demographics

Using 2011 as a baseline, Joint Base Elmendorf-Richardson has a total working population of 8,924 consisting of active component Soldiers and Army civilians, students and trainees, other military services, civilians and contractors. Of the total working population, 6,861 were permanent party Soldiers and Army civilians. The population that lives on Joint Base Elmendorf-Richardson consists of 1,729 Soldiers and their estimated 2,625 Family members, for a total on-installation resident population of 4,354 (TeVrucht, 2014). The portion of Soldiers and Army civilians living off the installation is 12,922 and consists of Soldiers, Army civilians, and their Families. Additionally, there are 62 students and trainees associated with the installation.

In 2012, the population of the ROI was 298,294 and increased by 2.2 percent between 2010 and 2012 (Table 4.25-2) (U.S. Census Bureau 2012a). The racial and ethnic composition of the ROI is presented in Table 4.25-3.

Table 4.25-2. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Consolidated borough and city of Anchorage, Alaska	298,294	+2.2

Table 4.25-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of Alaska	67.5	3.7	14.8	5.7	7.1	6.1	63.1
Consolidated borough and city of Anchorage, Alaska	67.0	6.2	8.1	8.7	7.8	8.2	61.2

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Income

Total employment increased by 16 percent in Anchorage between 2000 and 2012 (Table 4.25-4). Median household income is 8 percent higher in Anchorage than median household income in the state of Alaska as a whole. Employment, median home value, median household income, and poverty levels are summarized in Table 4.25-4 below (U.S. Census Bureau, 2012b).

Table 4.25-4. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000-2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Alaska	358,521	+20	$237,900	$69,917	10
Consolidated borough and city of Anchorage, Alaska	156,248	+16	$277,100	$76,495	8

Information regarding the workforce by industry for each county within the ROI was obtained from the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for the employed labor force.

Consolidated Borough and City of Anchorage, Alaska

The primary source of employment in Anchorage County is the educational services, and health care and social assistance sector (20 percent). Retail trade; public administration; and the professional, scientific, and management, and administrative and waste management services sectors each account for 10 percent of the total workforce. The arts, entertainment, and recreation, and accommodation and food services sector accounts for 8 percent of the total

workforce while the Armed Forces account for 5 percent of the total workforce. The remainder of the sectors account for 37 percent of the total workforce in Anchorage.

Housing

Housing resources at Joint Base Elmendorf-Richardson were described in the 2013 PEA and include 3,262 permanent military Family units (TeVrucht, 2014).

Schools

As described in the 2013 PEA, Joint Base Elmendorf-Richardson children attend Ursa Major Elementary School, Ursa Minor Elementary School, Gruening Middle School, and Eagle River High School, which are part of the Anchorage School District. Elementary, middle, high, and charter schools are located close to the installation, within 1 mile of the Joint Base Elmendorf-Richardson border. Generally, elementary schools, middle schools, and charter schools are experiencing under-enrollment. Between fall 2010 and fall 2011, there was a decrease in total enrollment by 0.54 percent, or 263 students. Only one of the schools is operating at over the school's capacity.

Public Health and Safety

Police Services

Police services include two state trooper posts, a Federal Bureau of Investigation center, a district office for the U.S. Marshal Service, and Ted Stevens Anchorage International Airport Police and Fire Department. One military police station is located within the main cantonment, north of the Fireweed neighborhood.

Fire and Emergency Services

Fire services include Joint Base Elmendorf-Richardson Fire Department, Anchorage Fire Department, and Ted Stevens Anchorage International Airport Police and Fire Department. The Anchorage Fire Department operates out of 13 fire stations.

Medical Facilities

There are several health care options in Anchorage, including Alaska Regional Hospital and Providence Alaska Medical Center, both with emergency room capabilities. Many other healthcare clinics and private practice offices are located within the city of Anchorage, and a Department of Veterans Affairs Hospital is located near the Muldoon entrance of Joint Base Elmendorf-Richardson and an Anchorage Veterans Center is located in the community of Tudor, south of Joint Base Elmendorf-Richardson. Military healthcare facilities include the U.S. Army medical clinic at Joint Base Elmendorf-Richardson, the Air National Guard Medical Squadron, and the 673rd Medical Group.

Family Support Services

As described in the 2013 PEA, child development centers, childcare centers, schools, and playgrounds are generally located within close proximity to the residential areas. Children and youth programs are offered within the cantonment area at Joint Base Elmendorf-Richardson as part of FMWR. Joint Base Elmendorf-Richardson also has a theater and running trails for use.

Recreation Facilities

As described in the 2013 PEA, recreation facilities are primarily located within the cantonment area, including a large physical fitness center, a theater, golf course, cross country skiing and running trails, and a small ski hill.

4.25.12.2 Environmental Effects

No Action Alternative

Joint Base Elmendorf-Richardson's continuing operations represent a beneficial source of regional economic activity and any increase from Soldier relocations would beneficially affect socioeconomics in the region. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of 5,333[31] military positions (5,169 Soldiers and 164 Army civilians), each with an average annual income of $53,989 and $62,379, respectively. In addition, Alternative 1 would affect an estimated 2,976 spouses and 5,120 dependent children for a total estimated potential impact to 8,096 Family members. The total population of Army employees and their Family members directly affected under Alternative 1 would be projected to be 13,428.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative range. Table 4.25-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the

[31] This number was derived by assuming the loss of one BCT, 60 percent of Joint Base Elmendorf-Richardson's non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 5,333. The 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 4,300.

estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, changes in employment and population in the ROI under Alternative 1 fall outside the historical range and are categorized as a significant impact. However, there would not be a significant impact to sales or income because the estimated percentage change is within the historical ranges for these economic parameters.

Table 4.25-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	25.4	17.0	10.3	5.6
Economic contraction significance value	-12.4	-7.7	-3.5	-2.0
Forecast value	-1.8	-2.4	-4.5	-4.7

Table 4.25-6 summarizes the predicted impacts to income, employment, and population of the reductions against the 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

Table 4.25-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$355,047,800	-5,968 (Direct)	-13,428
		-968 (Induced)	
		-6,936 (Total)	
Total 2012 ROI economic estimates	$16,295,189,000	156,248	298,294
Percent reduction of 2012 figures	-2.2	-4.4	-4.5

Note: Sales estimates are not consistently available from public sources for all counties in the United States; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from EIFS is described in the paragraphs below.

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Due to the loss of 5,333 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 635 direct contract service jobs would be also lost. An additional 968 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. Total reduction in employment is estimated to be 6,936, a significant

4.4 percent reduction of the total employed labor force in the ROI of 156,248. Income is estimated to reduce by $355.1 million, a 2.2 percent decrease in income from 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $366.1 million. There would also be a loss in sales tax receipts to local and state governments. The average local sales tax rate for Alaska is 1.69 percent (Tax Foundation, 2014). To estimate sales tax reductions, information on the proportion of sales that would be subject to sales tax on average across the country was utilized. According to the U.S. Economic Census, an estimated 16 percent of sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $366.1 million resulting in an estimated sales tax receipts decrease of $989,900 under Alternative 1.

Of the 298,294 people (including those residing on Joint Base Elmendorf-Richardson) who live within the ROI, 5,333 Army employees and their 8,095 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 4.5 percent. This number likely overstates potential population impacts, as some of the people would no longer employed by the military would continue to live and work within the ROI, finding employment in other industry sectors.

Housing

The population reduction would lead to a decrease in demand for housing and could lead to an increase in housing availability on the installation and in the region, potentially leading to a slight reduction in median home values. As stated in the 2013 PEA, this reduction would also have a beneficial impact to housing availability because it would likely resolve concerns of housing shortages both on and off the installation. However, minor, adverse impacts to housing in the Anchorage area could occur as a result of the potential decline in home values; however, there are many other factors that affect housing prices in Anchorage as well.

Schools

Reduction of 5,333 Soldiers and Army civilians would result in a reduction of 8,095 Family members, of which 5,120 would be children. It is anticipated that school districts that provide education on the installation to Army children would be impacted under Alternative 1. Schools with larger portions of military children in proximity to Joint Base Elmendorf-Richardson, including Ursa Major and Ursa Minor Elementary Schools, would be affected by these enrollment reductions, which would adversely contribute to recent trends in decreasing enrollment. As stated in the 2013 PEA, it is likely that these schools have a large population of military children, but specific numbers of military-connected students are not readily available.

The reduction of Soldiers on Joint Base Elmendorf-Richardson would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal Impact Aid a district receives is based on the number of students who are considered “federally connected” and attend district

schools. Actual projected dollar amounts cannot be determined at this time due to the variability of appropriated dollars from year to year, and the uncertainty of the actual number of affected school-age children. School districts in the ROI would likely need fewer teachers and materials as enrollment drops, which would partially offset the reduced Federal Impact Aid. Overall, adverse impacts to schools associated with Alternative 1 would be minor to significant depending on the number of military-connected students attending specific schools.

Public Services

A reduction in personnel would have minor impacts to emergency services, fire, police, and medical services because the reduction is anticipated to decrease the need for these services. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements. Many of the public services provided on Joint Base Elmendorf-Richardson are under the authority of the Air Force; these health and safety requirements would continue to be met by the Air Force. The impacts to public services are not expected to be significant because the existing service level for the installation and the ROI would still be available.

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding. Many of the Family Support Services and all of the recreational facilities provided on Joint Base Elmendorf-Richardson are under the authority of the Air Force, so measures for meeting those needs would be met at the discretion of the Air Force. As a result, minor impacts to Family Support Services and recreational facilities would occur under Alternative 1. As described in the 2013 PEA, less than significant impacts are anticipated to Family Support Services and recreation facilities under this alternative.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, provides: “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations” (EPA, 1994). In general, Alternative 1 would not have a disproportionate adverse impact to minorities, economically disadvantaged populations or children in the ROI. Job losses would be experienced across all income levels and economic sectors and spread geographically throughout the ROI. Minority populations and the percentage of the total population living below poverty in the ROI are proportionally smaller than in the

state as a whole, so there would be no disproportionate effect to environmental justice populations.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of the people associated with the installation, including children, where it is appropriate for them to do so on this Air Force managed joint base. Therefore, it is not anticipated that implementing Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and could be evaluated in future, separate, site-specific NEPA analysis by Joint Base Elmendorf-Richardson as appropriate.

4.25.13 Energy Demand and Generation

4.25.13.1 Affected Environment

The energy demand and generation affected environment of the Joint Base Elmendorf-Richardson installation remains the same as was discussed in Section 4.10.12.1 of the 2013 PEA.

4.25.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be minor impacts to energy demand and generation at Joint Base Elmendorf-Richardson. For the current analysis, Joint Base Elmendorf-Richardson would continue to consume similar types and amounts of energy so impacts to energy demand and generation would remain the same as for the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy demand and generation would occur on Joint Base Elmendorf-Richardson. Under Alternative 1, minor, beneficial impacts to energy are anticipated due to a further reduction in energy consumption associated with the additional force reductions. The installation would also be better positioned to meet energy and sustainability goals.

4.25.14 Land Use Conflicts and Compatibility

4.25.14.1 Affected Environment

The land use affected environment of Joint Base Elmendorf-Richardson remains the same as described in Section 4.10.13.1 of the 2013 PEA.

4.25.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, no changes to land use conditions would occur and therefore continuing minor impacts to land use are anticipated, as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Joint Base Elmendorf-Richardson would result in minor impacts to land use, since a reduction in training activities would occur. Under Alternative 1, impacts would be similar to those described under the 2013 PEA.

The Army is committed to ensuring that personnel cuts will not result in Army non-compliance with land use ordinances and regulations. Installation management at Joint Base Elmendorf-Richardson is under the authority of the Air Force, so measures to maintain compliance regarding land use ordinances and regulations would continue to be met by the Air Force.

4.25.15 Hazardous Materials and Hazardous Waste

4.25.15.1 Affected Environment

As described in the 2013 PEA, hazardous materials are used on Joint Base Elmendorf-Richardson. Joint Base Elmendorf-Richardson is registered with EPA as a Large Quantity Generator of hazardous waste in accordance with RCRA. Hazardous materials and wastes include ammunition, UXO, petroleum products, LBP, asbestos-containing materials, PCBs, pesticides, radon, and contamination found at IRP sites. The Joint Base Elmendorf-Richardson Environmental Management Plan governs the use, generation, accumulation, storage, transport, and disposal of hazardous wastes and hazardous materials on the installation. No substantial changes have occurred to the affected environment since 2013.

4.25.15.2 Environmental Effects

No Action Alternative

As stated in the 2013 PEA, less than significant impacts are anticipated under the No Action Alternative. Use of hazardous materials and generation of hazardous wastes would continue on Joint Base Elmendorf-Richardson in accordance with all applicable laws, regulations and plans.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that less than significant impacts from hazardous materials and hazardous waste would occur on Joint Base Elmendorf-Richardson. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on the installation. Because of the reduced numbers of people, it is likely that the potential for spills would be reduced further during training and maintenance activities. The volume of waste generated and material requiring storage would increase slightly because deactivating units would turn in hazardous material for storage to avoid transportation risks. Under Alternative 1 in this SPEA, Joint Base Elmendorf-Richardson would continue to implement its hazardous waste management in accordance with its HWMP and applicable regulations and therefore impacts would be less than significant.

Under Alternative 1, adverse impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. However, installation management at Joint Base Elmendorf-Richardson is under the authority of the Air Force, so measures to maintain compliance regarding hazardous waste management would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste.

As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.25.16 Traffic and Transportation

4.25.16.1 Affected Environment

The transportation affected environment of the Joint Base Elmendorf-Richardson ROI remains the same as described in Section 4.10.15.1 of the 2013 PEA. As noted in the 2013 PEA, the installation periodically experiences traffic flow issues at the main gate due to the morning and especially evening commute. Congestion during peak hours was also noted at the Glenn Highway and D Street Interchange. In addition to the main gate, the intersection of Vandenberg Avenue and the Richardson Highway and Davis Avenue experience traffic congestion.

4.25.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated less than significant, adverse impacts. While the existing transportation system is sufficient to support the current traffic load, traffic and congestion within and at major traffic control points leading into and away from the

installation, in particular the main gate, would persist at current levels. Thus, there would continue to be adverse impacts, but they would be less than significant.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Joint Base Elmendorf-Richardson would result in beneficial impacts to traffic and transportation systems, due to the decrease in military fleet vehicles and private vehicles. The 2013 PEA noted that with force reductions the Soldier and Army civilian population would decrease and reduce the competition with seasonal traffic conditions associated with tourism. Impacts to local highways associated with military convoys would also be considerably reduced. These beneficial impacts would also occur under Alternative 1, but with the proposed increase in force reductions the size of the beneficial impact under Alternative 1 would be larger than anticipated at the time of the 2013 PEA.

4.25.17 Cumulative Effects

As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020 realignment at Joint Base Elmendorf-Richardson encompasses the Municipality of Anchorage (consolidated city-borough) in the state of Alaska. Section 4.10.16 of the 2013 PEA noted numerous planned or proposed actions within the ROI that reasonably could be initiated within the next 5 years and would have the potential to cumulatively add impacts to Alternative 1.

Reasonably Foreseeable Future Projects on Joint Base Elmendorf-Richardson

No additional actions have been identified by the installation beyond those noted in the cumulative effects analysis of the 2013 PEA.

Reasonably Foreseeable Future Projects outside Joint Base Elmendorf-Richardson

The Army is not aware of any reasonably foreseeable future projects outside Joint Base Elmendorf-Richardson which would be appropriate for inclusion in the cumulative impacts analysis. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, larger economies with more job opportunities could absorb some of the displaced Army workforce, lessening adverse effects of force reductions.

No Action Alternative

The cumulative effects of the No Action Alternative would be the same as determined in the 2013 PEA. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reductions

Cumulative impacts from the proposed implementation of Alternative 1 would be essentially the same as determined in the 2013 PEA. Cumulative impacts from the proposed implementation of Alternative 1 would be beneficial, negligible, or minor in most cases with the exception of socioeconomics, which are anticipated to be significant.

The socioeconomic impact under Alternative 1, as described in Section 4.25.12.2 with a loss of 5,333 Soldiers and Army civilians, could lead to significant impacts to the population, employment, and schools. Joint Base Elmendorf-Richardson is an important part of the economy in the Anchorage metropolitan area with total employment on the installation of almost 7,000. In the Municipality of Anchorage, the Armed Forces account for 5 percent of the workforce. The Municipality of Anchorage could likely absorb some of the displaced workers, depending on the economy and labor market in the region. The oil and gas industry plays an important role in the economy of Anchorage, and its fluctuations (e.g., activities driven by oil and gas prices among other factors) can considerably affect regional economic conditions in the area. If the majority of the displaced forces are not absorbed into the local labor force, there would be additional adverse impacts to the ROI.

Stationing changes would also affect regional economic conditions through the jobs and income they bring (or lose) within the region. The Army force reductions would be compounded by any losses or reductions in service members by the U.S. Air Force, Coast Guard, Navy or Marine Corps within the ROI. Future cuts in federal spending in Alaska may also cause adverse economic impacts within the ROI.

Other infrastructure improvements and construction and development activity would benefit the regional economy through additional economic activity, jobs, and income in the ROI; however, these benefits would not offset the adverse impacts under Alternative 1 and other adverse cumulative actions. Under Alternative 1, the loss of approximately 5,300 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have significant impacts to population, employment, tax receipts, and schools in the ROI.

4.26 Joint Base Langley-Eustis, Virginia

4.26.1 Introduction

Joint Base Langley-Eustis was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population is discussed in Section 4.11.1 of the 2013 PEA. Potential impacts resulting from any reductions in staffing levels other than Army staff at this Air Force managed joint base could be analyzed in separate, future NEPA analyses, as appropriate, although these reductions would not be related to the Army 2020 reductions analyzed herein.

Joint Base Langley-Eustis's 2011 baseline permanent party population was 7,382. In this SPEA, Alternative 1 assesses a potential population loss of 4,200, including approximately 3,410 permanent party Soldiers and 753 Army civilians.

4.26.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Joint Base Langley-Eustis; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.26-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.26-1. Joint Base Langley-Eustis Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Minor	Minor
Noise	Negligible	Beneficial
Soils	Negligible	Beneficial
Biological Resources	Minor	Minor
Wetlands	Minor	Beneficial
Water Resources	Negligible	Negligible
Facilities	Minor	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Minor	Beneficial
Land Use Conflict and Compatibility	No Impacts	No Impacts
Hazardous Materials and Hazardous Waste	Minor	Minor
Traffic and Transportation	Less than Significant	Beneficial

4.26.3 Air Quality

4.26.3.1 Affected Environment

The air quality affected environment of the Joint Base Langley-Eustis ROI remains the same as described in Section 4.11.2.1 of the 2013 PEA. Hampton and Newport News, Virginia, are maintenance areas for the 1997 O_3 standard. The Joint Base Langley-Eustis area has not been designated as a nonattainment area for any criteria pollutants (EPA, 2013).

4.26.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source emissions at current levels would result in minor, adverse impacts to air quality. Air quality impacts of the No Action Alternative for this SPEA remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that force reductions at Joint Base Langley-Eustis would result in minor, beneficial impacts to air quality because of reduced operations and maintenance activities and reduced vehicle miles travelled associated with the facility. Impacts to air quality from the further force reductions proposed under Alternative 1 would continue to be beneficial assuming a corresponding decrease in operations and vehicle travel to and from Joint Base Langley-Eustis. The size of this beneficial impact under Alternative 1 would be roughly double that anticipated at the time of the 2013 PEA. The Army is committed to ensuring that personnel cuts will not result in Army non-compliance with air quality regulations. However, management at Joint Base Langley-Eustis is under the authority of the Air Force, so measures to maintain compliance regarding overall air quality regulations would continue to be met by the Air Force.

4.26.4 Airspace

4.26.4.1 Affected Environment

Airspace is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.11.1.1 because of lack of significant, adverse environmental impacts from implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013. As described in the 2013 PEA, airspace at Joint Base Langley-Eustis is primarily from Felker AAF, which contains a 3,020 foot by 75 foot asphalt runway. It services various military rotor-wing aircraft from the U.S. Army and U.S. Navy. Additionally, according to the 2013 PEA, certain U.S. Army fixed-wing aircraft (twin engine turbo propeller) utilize the airfield.

4.26.4.2 Environmental Effects

No Action Alternative

The 2013 PEA VEC dismissal statement concluded that there would be negligible impacts to airspace at Joint Base Langley-Eustis under the No Action Alternative. For the current analysis, Joint Base Langley-Eustis would continue to maintain current airspace operations and current airspace classifications and restrictions are sufficient to meet current airspace requirements, and impacts to airspace would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that negligible impacts to airspace would occur at Joint Base Langley-Eustis. Under Alternative 1, implementation of proposed further force reductions would continue negligible, adverse impacts to airspace. Reductions at Joint Base Langley-Eustis would not result in changes to airspace classifications nor would it change the frequency or intensity of activities at Joint Base Langley-Eustis that require the use of airspace.

4.26.5 Cultural Resources

4.26.5.1 Affected Environment

The affected environment for cultural resources at Joint Base Langley-Eustis has not changed since 2013, as described in Section 4.11.3 of the 2013 PEA.

4.26.5.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in minor impacts to cultural resources as described in Section 4.11.3.2 of the 2013 PEA. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures.

Alternative 1—Implement Force Reductions

As described in Section 4.11.3.2 of the 2013 PEA, Alternative 1 would have a minor impact on cultural resources. The effects of this alternative are considered to be similar to the No Action Alternative –future activities with the potential to effect cultural resources would continue to be monitored and the impacts reduced through preventative and minimization measures. This alternative could result in some beneficial effects as a decrease in training activities could reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources.

As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of Army force reductions is not reasonably foreseeable and not part of the scope of this SPEA. Therefore, potential impacts to cultural resources from these activities are not analyzed. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of Army force reductions, potential impacts could be analyzed in separate, future NEPA analyses and consultation conducted, as appropriate, by Joint Base Langley-Eustis to avoid, minimize, and/or mitigate these effects.

4.26.6 Noise

4.26.6.1 Affected Environment

Noise is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.11.1.1. Existing noise sources and noise contours have not changed from the 2013 PEA.

4.26.6.2 Environmental Effects

No Action Alternative

The 2013 PEA anticipated no substantial changes in noise sources at Joint Base Langley-Eustis. Under the No Action Alternative, there would be no expected changes and impacts to noise would continue to be negligible.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Joint Base Langley-Eustis would result in a slight beneficial noise impact since there would be a decreased use of firing ranges and a reduction in noise from military vehicles but no changes in aviation. The beneficial impact under Alternative 1 would be similar to that described in the 2013 PEA. Installation management at Joint Base Langley-Eustis is under the authority of the Air Force; therefore, health and safety requirements, including noise compliance, would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in the Army's non-compliance with noise ordinances and regulations.

4.26.7 Soils

4.26.7.1 Affected Environment

Soils are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.11.1.2 due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

4.26.7.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to soils and the affected environment would remain in its present state.

Alternative 1—Implement Force Reductions

Per Section 4.11.1.2 of the 2013 PEA, there would be negligible, beneficial impacts to soils under Alternative 1. The installation would continue to manage its resources in accordance with the installation INRMP. Under Alternative 1 of this SPEA, impacts to soils could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. However, environmental compliance at Joint Base Langley-Eustis is under the authority of the Air Force, so measures to maintain compliance regarding soils management would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with regulations affecting soils. Therefore, impacts under Alternative 1 at Joint Base Langley-Eustis would be beneficial and remain the same as those discussed in Section 4.3.7.2 of the 2013 PEA.

4.26.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.26.8.1 Affected Environment

The affected environment on Joint Base Langley-Eustis is described in Section 4.11.4.1 of the 2013 PEA. No threatened or endangered species are known to be present on the installation; however, six bald eagle nesting sites, which are protected under the Migratory Bird Treaty Act, are present on the installation. No changes have occurred to the affected environment since 2013.

4.26.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in minor, adverse impacts to biological resources. Biological resources on Joint Base Langley-Eustis would continue to be managed in accordance with the current installation INRMP to further minimize and monitor any potential impacts.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that minor, adverse impacts to biological resources would occur on Joint Base Langley-Eustis. The Army anticipates that further proposed reduction in forces (Alternative 1 of this SPEA) would not change this finding because Alternative 1 does not involve major changes to the installation operations or types of

activities conducted on Joint Base Langley-Eustis, only a decrease in the frequency of training activities. However, environmental compliance at Joint Base Langley-Eustis is under the authority of the Air Force, so measures to maintain compliance regarding natural resource management would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with natural resources regulations.

4.26.9 Wetlands

4.26.9.1 Affected Environment

The wetlands affected environment on the installation remains the same as was discussed in Section 4.11.7.1 of the 2013 PEA.

4.26.9.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to wetlands were anticipated from continued training schedules. Potential wetland impacts would be reviewed and managed to be avoided, to the extent practicable, or mitigated for. Impacts under the No Action Alternative on Joint Base Langley-Eustis remain the same as those discussed in Section 4.11.7.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, beneficial impacts to wetlands were anticipated as a result of less use of roads, ranges, and training areas. Less sedimentation and vegetation loss were anticipated, and degraded wetlands were expected to restore towards their reference functions and values. Impacts to wetlands could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. However, environmental compliance at Joint Base Langley-Eustis is under the authority of the Air Force, so measures to maintain compliance regarding wetland management and compliance would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with wetland regulations Therefore, impacts under Alternative 1 of this SPEA at Joint Base Langley-Eustis would be beneficial and remain the same as those discussed in Section 4.11.7.2 of the 2013 PEA.

4.26.10 Water Resources

4.26.10.1 Affected Environment

Water resources are among the VECs excluded from detailed analysis as described in Section 4.11.1.1 of the 2013 PEA due to lack of significant, adverse environmental impacts resulting

from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

4.26.10.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to water resources similar to those described in Section 4.11.1.1 of the 2013 PEA. The water supply and wastewater systems on the installation are adequate to support water resources needs and there would be no change to the water resources as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts to water resources, including water demand and treatment, wastewater flow, and unpermitted discharges would occur on Joint Base Langley-Eustis. Although available water and wastewater treatment capacity would increase these impacts would be negligible. Reductions in training activities would decrease surface water impacts from sedimentation and stormwater runoff. Joint Base Langley-Eustis anticipates that further proposed reduction in forces under Alternative 1 of this SPEA would not change this finding because this alternative does not involve major changes to installation operations or types of activities conducted on Joint Base Langley-Eustis, only a decrease in the frequency of training activities. The installation would continue to manage its water resources in accordance with applicable federal and state water quality criteria, drinking water standards, and stormwater and floodplain management requirements.

Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. However, environmental compliance at Joint Base Langley-Eustis is under the authority of the Air Force, so measures to maintain compliance regarding water resource regulations would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with water quality regulations.

4.26.11 Facilities

4.26.11.1 Affected Environment

The facilities affected environment of the Joint Base Langley-Eustis installation remains the same as was discussed in Section 4.11.6.1 of the 2013 PEA.

4.26.11.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be minor, adverse impacts to facilities at Joint Base Langley-Eustis. For the current analysis, Joint Base Langley-Eustis would continue to operate their current facilities and upgrade and remove facilities as funds become available so impacts to facilities would remain the same as for the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to facilities would occur at Joint Base Langley-Eustis. Under Alternative 1, implementation of the proposed further force reductions would result in overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demands for utilities and reduced demands for training facilities and support services. The force reductions would also provide the installation the opportunity to reduce reliance on relocatable facilities and some older buildings not up to current standards. Some permanent facilities may be re-designated to support units remaining at Joint Base Langley-Eustis to provide more space and facilities that are better able to meet tenant and Army needs. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

If Army reductions result in impacts to the utilization of facilities and/or training areas at this Air Force-managed joint base, the Air Force could conduct any required site-specific NEPA analyses, as appropriate, and make the final determinations regarding disposition of these affected facilities and/or training areas.

4.26.12 Socioeconomics

4.26.12.1 Affected Environment

The Joint Base Langley-Eustis was established as a result of the 2005 BRAC, during which time Air Force and Army installation management functions were combined into the new installation. The installation is located near the cities of Hampton and Newport News, Virginia. The ROI for this analysis includes those areas that are generally considered the geographic extent to which the majority of installation's Soldiers, Army civilians, and contractor personnel, and their Families reside. The Joint Base Langley-Eustis ROI for this analysis includes the cities of Hampton,

Newport News, Poquoson, and Williamsburg, and the counties of Gloucester, James City, and York.

This section provides a summary of demographic and economic characteristics within the ROI. These indicators are described in greater detail in Section 4.11.7 of the 2013 PEA. However, some demographic and economic indicators have been updated where more current data are available.

Population and Demographics

Using 2011 as a baseline, Joint Base Langley-Eustis has a total working population of 12,842 consisting of active component Soldiers and Army civilians, students and trainees, and other military services, civilians, and contractors. Of the total working population, 7,382 were permanent party Soldiers and Army civilians. The population that lives on Joint Base Langley-Eustis consists of 2,041 Soldiers and their estimated 2,327 Family members, for a total on-installation resident population of 4,368 (Joint Base Langley-Eustis, n.d.). The portion of Soldiers and Army civilians living off the installation in 2011 was estimated to be 13,449 and consists of Soldiers, Army civilians, and their Family members.

Joint Base Langley-Eustis provides Aviation Maintenance training for Soldiers. Students are based at Joint Base Langley-Eustis for the expected length of their assigned curriculum, which may range from 5 weeks to 7 months. Joint Base Langley-Eustis averages approximately 2,500 students assigned for training and can accommodate up to 2,258 in on-installation housing. On-installation housing includes 1,791 spaces for IET, 175 spaces for AIT, and 192 for the NCO Academy (Joint Base Langley-Eustis, 2014a). Any remaining students would be accommodated in local lodging facilities or rental units.

In 2012, the ROI had a population of 516,882. Between 2010 and 2012, total population increased in the counties of Gloucester, James City and York and the city of Williamsburg. The cities of Hampton, Newport News, and Poquoson experienced a slight decline in population during this period (Table 4.26-2). As shown in Table 4.26-3, the racial and ethnic composition of geographies within the ROI varies significantly. In the city of Hampton, more than 49 percent of residents are African American while in the city of Poquoson more than 90 percent of the population is non-Hispanic White alone (U.S. Census Bureau, 2012a).

Table 4.26-2. Population and Demographics, 2012

Region of Influence Counties/Cities	Population	Population Change 2010–2012 (percent)
Gloucester County, Virginia	36,905	0.1
James City County, Virginia	69,061	3.1
York County, Virginia	66,090	1.4
City of Hampton, Virginia	136,836	-0.5
City of Newport News, Virginia	180,726	-0.1
City of Williamsburg, Virginia	15,167	7.8
City of Poquoson, Virginia	12,097	-0.5

Table 4.26-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties / Cities	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
State of Virginia	71.1	19.7	0.5	6.0	2.6	8.4	64.1
Gloucester County, Virginia	88.0	8.5	0.4	0.9	2.2	2.7	85.8
James City County, Virginia	81.3	13.5	0.4	2.3	2.4	5.1	76.9
York County, Virginia	77.4	13.4	0.5	5.3	3.2	5.1	73.4
City of Hampton, Virginia	42.7	49.6	0.4	2.2	3.7	4.5	41.0
City of Newport News, Virginia	49.0	40.7	0.5	2.7	4.3	7.5	46.0
City of Williamsburg, Virginia	74.0	14.0	0.3	5.7	3.5	6.7	70.7
City of Poquoson, Virginia	95.1	0.6	0.3	2.1	1.4	1.8	93.8

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Income

Information presented in Table 4.26-4 represents an update from the 2013 PEA, which provided employment and income data from 2009. Between 2000 and 2012, total employment increased the most significantly in James City County. The only geographic area in the ROI that

experienced a decline in employment was the city of Hampton (U.S. Census Bureau, 2000; 2012b).

Table 4.26-4. Employment and Income, 2012

State and Region of Influence Counties/Cities	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Virginia	3,989,521	+12.6	249,700	63,636	11.1
Gloucester County, Virginia	18,216	+6.0	229,100	60,752	9.1
James City County, Virginia	31,041	+39.1	336,600	76,767	8.7
York County, Virginia	33,147	+14.6	324,200	82,454	5.4
City of Hampton, Virginia	65,737	-2.6	197,300	51,584	14.7
City of Newport News, Virginia	92,192	+4.8	205,800	50,744	14.5
City of Williamsburg, Virginia	5,727	+32.2	326,200	50,865	18.4
City of Poquoson, Virginia	6,078	+6.1	316,000	85,033	4.1

The median household income in the cities of Hampton, Newport News, and Williamsburg is lower than ROI counties for Joint Base Langley-Eustis and Virginia overall. James City and York counties report a median household income greater than the Virginia average. Gloucester County has a median household income slightly lower than the Virginia average (U.S. Census Bureau, 2012b).

The median home value in ROI counties is greater than that of Virginia and those cities for which income is reported with the exception of Poqouson. The cities of Hampton and Newport News both report median home values lower than the Virginia average (U.S. Census Bureau, 2012b).

The percentage of those living below the poverty line in all ROI counties is lower than the Virginia average. The cities of Hampton, Newport News, and Williamsburg report a greater concentration of those living below the poverty line than ROI counties or Virginia overall (U.S. Census Bureau, 2012b).

Information regarding the workforce by industry for each county and independent city within the ROI was obtained from the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for the employed labor force.

Gloucester County, Virginia

The educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Gloucester County (22 percent). Retail trade is the largest employment sector (13 percent), followed by manufacturing (11 percent). The professional, scientific, and management, and administrative and waste management services also accounts for a notable share of the total workforce in Gloucester County (10 percent). The Armed Forces account for 2 percent of the of the Gloucester County workforce. The nine remaining sectors employ 42 percent of the workforce.

James City County, Virginia

Similar to Gloucester County, the educational services, and health care and social assistance sector accounts for the greatest share of James City County's total workforce (26 percent). The professional, scientific, and management, and administrative and waste management services as well as the arts, entertainment, and recreation, and accommodation and food services both account for 12 percent of the total workforce, followed by retail trade (11 percent). The Armed Forces account for 2 percent of the James City County workforce. The nine remaining sectors account for 37 percent of the workforce.

York County, Virginia

The educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in York County (21 percent). Public administration and the professional, scientific, and management, and administrative and waste management services sectors individually account for 12 percent of the total workforce, followed by the Armed Forces (11 percent). The 10 remaining sectors employ 44 percent of the workforce.

City of Hampton, Virginia

The educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in the city of Hampton (20 percent). Retail trade and manufacturing each individually account for 11 percent of the total workforce, followed by the professional, scientific, and management, and administrative and waste management services sector (10 percent). The Armed Forces account for 8 percent of the city of Hampton workforce. The nine remaining sectors employ 40 percent of the workforce.

City of Newport News, Virginia

Similar to other areas within the ROI, educational services, and the health care and social assistance sector is the primary employment sector in the city of Newport News (19 percent).

Retail trade is the second largest employment sector (12 percent), followed by manufacturing (11 percent). The professional, scientific, and management, and administrative and waste management services and the arts, entertainment, and recreation, and accommodation and food services sectors individually account for 10 percent of the total workforce. The Armed Forces account for 9 percent of city of Newport News' workforce. The eight remaining sectors account for 29 percent of the workforce.

City of Poquoson, Virginia

The educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Poquoson County (20 percent). The professional, scientific, and management, and administrative and waste management services is the second largest employment sector (14 percent), followed by manufacturing (13 percent). The Armed Forces account for 3 percent of the Poquoson County workforce. The 10 remaining sectors employ 50 percent of the workforce.

City of Williamsburg, Virginia

The educational services, and the health care and social assistance sector accounts for the greatest share of the total workforce in the city of Williamsburg (37 percent). The arts, entertainment, and recreation, and accommodation and food services sector is the second largest employment sector (20 percent), followed by retail trade (10 percent). The Armed Forces account for 1 percent of the city of Williamsburg's workforce. The 10 remaining sectors employ 32 percent of the workforce.

Housing

Family housing on the installation is a privatized function under the RCI program. The program falls under a 75-year lease. The housing partner manages 880 homes spread across 26 acres. Approximately 1,800 people to 2,200 people occupy these homes.

The current barrack capacity is 4,248 spaces, which includes 2,732 spaces for permanent party Soldiers and trainees and 1,516 spaces for the Warrior Transition Unit, reserves, and others. The 128th Aviation Brigade can billet up to 2,258, which includes 1,791 spaces for IET Soldiers, 175 spaces for AIT Soldiers, and 192 spaces for those enrolled in the NCO Academy (Joint Base Langley-Eustis, 2014a).

Schools

There is one elementary school located on the installation. The General Stanford Elementary School, which is part of the Newport News School District, has an enrollment of approximately 500 students. The majority of students reside on the installation; however, some non-military connected students living in the ROI attend this school (Sugg, 2014a). As described in the 2013 PEA, approximately 42 percent of those enrolled at Lee Hall Elementary School, the closest elementary school to the installation, are military connected.

Middle and high school age students residing on the installation attend schools in the Newport News Public School District (Sugg, 2014a). Some students may also attend private school or be home schooled.

Public Health and Safety

DES includes the Provost Marshal Office, Fire Department, and Intelligence and Security Office, which provide emergency services on the installation. The fire department has a mutual aid agreement with the city of Newport News (Sugg, 2014b).

Family Support Services

Joint Base Langley-Eustis FMWR and ACS provide programs, services, facilities, and information for Soldiers and their Families. Services range from child care and youth programs to deployment, employment, financial, and relocation readiness, among others.

Recreation Facilities

Joint Base Langley-Eustis FMWR oversees a variety of CYSS as well as recreational opportunities for adults. Available facilities and opportunities include physical fitness centers, golf courses, bowling centers, indoor and outdoor swimming pools, and recreational camp and beach activities areas, among others.

4.26.12.2 Environmental Effects

No Action Alternative

The continuation of operations at Joint Base Langley-Eustis represents a beneficial source of regional economic activity. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of up to 4,163[32] Army positions (3,410 Soldiers and 753 Army civilians), each with an average annual income of $46,760 and $78,963, respectively. In addition, this alternative would affect an estimated 6,319 Family members, including 2,323

[32] This number was derived by assuming the loss of 70 percent of Joint Base Langley-Eustis's Soldiers and 30 percent of the Army civilians to arrive at 4,163. The 2013 PEA assumed the loss of 35 percent of Joint Base Langley-Eustis's Soldiers and 15 percent of the Army civilians to arrive at 2,730.

spouses and 3,996 children. The total population of Army employees and their Family members directly affected by the Alternative 1 would be projected to be 10,482. In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecast value falls outside the historical positive and negative range. Table 4.26-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. The last row summarizes the estimated economic impacts of Alternative 1 to the region as estimated by the EIFS model. Based on the EIFS analysis, there would not be a significant impact to sales and income because the estimate percentage change is within the historical range. However, there would be significant employment and population impacts because the estimated percentage change is outside the historical range.

Table 4.26-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+12.1	+4.2	+3.9	+1.6
Economic contraction significance value	-6.2	-3.9	-2.7	-0.8
Forecast value	-1.4	-2.2	-3.1	-2.5

Table 4.26-6 summarizes the predicted impacts to income, employment, and population of force reductions against 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecasted values, the income and population figures show the same significance determinations as the EIFS predictions in the previous table. The employment percentage shows a change that falls within the historical range that would indicate a less than significant impact. To ensure the potential impacts were captured to the greatest extent possible, this employment loss will be judged significant based on the EIFS forecast value in Table 4.26-5.

With a potential reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the potential loss of 4,163 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 653 direct contract service jobs would also be lost. An additional 960 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. The total reduction in employment is estimated to be 5,776, a reduction of 2.3 percent from the total employed labor force in the ROI of 252,138. Income is estimated to reduce by $283.4 million, a 1.3 percent decrease in income from 2012.

Table 4.26-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impact	-$283,369,100	-4,816 (Direct)	-10,482
		-960 (Induced)	
		-5,776 (Total)	
Total 2012 ROI economic estimates	$22,496,497,000	252,138	516,882
Percent reduction of 2012 figures	-1.3	-2.3	-2.0

Note: Sales estimates are not consistently available from public sources for all counties in the United States; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from EIFS is described in the paragraphs below.

Under Alternative 1, the total reduction in sales within the ROI is estimated to be $312.4 million. There would also be a loss in sales tax receipts to local and state governments. The average state and local sales tax rate for Virginia is 5.6 percent (Tax Foundation, 2014). To estimate sales tax reductions, information on the proportion of sales that would be subject to sales tax on average across the country was utilized. According to the U.S. Economic Census an estimated 16 percent of sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $312.4 million, resulting in an estimated sales tax receipts decrease of $2.8 million under Alternative 1 if all sales occurred in Virginia.

Of the 516,882 people (including those residing on Joint Base Langley-Eustis) who live within the ROI, 4,163 military employees and their estimated 6,319 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a population reduction of 2.0 percent. This number likely overstates potential population impacts because some of the people no longer employed by the military would continue to live and work within the ROI, finding employment in other industry sectors.

In addition, students and trainees at Joint Base Langley-Eustis may have a substantial impact on the local economy through lodging, eating, and shopping expenditures. Additionally, formal graduation ceremonies generate demand for lodging and dining facilities when Family members attend. The impact to Joint Base Langley-Eustis's training missions cannot be determined until after the Army completes its force structure decisions; therefore, analyzing the impact to those missions is beyond the scope of this document.

Housing

Alternative 1 would increase the availability of barracks space for unaccompanied personal and increase the availability of Family quarters. This reduction along with the completion of the new AIT barracks complex would facilitate the demolition of four 1950-era barracks. The reduction would also increase the availability of Family quarters, which are currently running at greater than 96 percent occupancy, as described in the 2013 PEA. These outcomes will likely decrease

the off-installation demand for rentals and purchases of housing, potentially leading to slight reductions in housing values. The city of Newport News would experience the greatest change in housing occupancy and potentially home values. However, other areas within the ROI would experience similar effects but likely not to the same extent as the city of Newport News. Because of the relatively large population of the ROI, the reduced demand for housing associated with the force reductions has the potential to result in minor impacts to housing within the ROI.

Schools

Removal of 4,163 Soldiers and Army civilians would result in a reduction of 6,319 Family members, of which 3,996 would be children. Military-connected students living on Joint Base Langley-Eustis attend schools on the installation and in the city of Newport News. Military-connected students represent a significant share of total school district enrollment in the city of Newport News. Under Alternative 1, enrollment would decrease in the Newport News School District. If enrollment in individual schools is significantly impacted, schools may need to reduce the number of teachers, administrators, and other staff, and potentially close or consolidate with other schools should enrollment fall below sustainable levels. Enrollment information regarding military-connected students who live off Joint Base Langley-Eustis is not presently available.

Some school districts receive sizable Federal Impact Aid funds, the allocation of which is based on the number of military-connected students they support. The actual projected loss of Federal Impact Aid funds cannot be determined at this time due to the variability of appropriated dollars from year to year and the uncertainty regarding the specific impacts to ROI school enrollment. However, it is anticipated that schools in the city of Newport News would likely need fewer teachers and materials as enrollment declines, which would partially offset the reduction in Federal Impact Aid funds. Overall, schools in the city of Newport News school district could experience significant, adverse impacts from the decline in military-connected student enrollment that would result under Alternative 1.

Public Services

The demand for law enforcement, medical care providers, and fire and emergency service providers on the installation would decrease if Soldiers, Army civilians, and their Family members affected under Alternative 1 move to areas outside the ROI. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements where it is appropriate for them to do so on this Air Force managed joint base. Overall, minor impacts to public health and safety would occur under Alternative 1. The impacts to public services are not expected to be significant because the existing service level for the installation and the ROI would still be available.

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding. Many of the Family Support Services and all of the recreation facilities provided on Joint Base Langley-Eustis are under the authority of the Air Force; therefore, measures for meeting those needs would continue to be met by the Air Force. Overall, minor to significant impacts to Family Support Services and recreation facilities could occur under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, states: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA 1994). As shown in Table 4.26-3, the proportion of minority populations is notably higher in Hampton and Newport News than the proportion in other counties within the ROI and Virginia as a whole. Because minority populations are more heavily concentrated in Hampton and Newport News, Alternative 1 has the potential to result in adverse impacts to minority-owned and/or -staffed businesses if Soldiers and Army civilians directly affected under Alternative 1 move to areas outside the ROI. Although environmental justice populations could be adversely impacted under Alternative 1, the impacts are not anticipated to disproportionately affect these populations.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of people associated with the installation, including children, where it is appropriate for them to do so on this Air Force managed joint base. Therefore, it is not anticipated that implementing Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, separate, site-specific NEPA analysis by Joint Base Langley-Eustis, as appropriate.

4.26.13 Energy Demand and Generation

4.26.13.1 Affected Environment

The energy demand and generation affected environment of Joint Base Langley-Eustis remains the same as was discussed in Section 4.11.8.1 of the 2013 PEA.

4.26.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be minor impacts to energy demand and generation at Joint Base Langley-Eustis. For the current analysis, Joint Base Langley-Eustis would continue to consume similar types and amounts of energy so impacts to energy demand would remain the same as for the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy demand and generation would occur on Joint Base Langley-Eustis. Under Alternative 1, minor, beneficial impacts to energy are anticipated due to a further reduction in energy consumption associated with the additional force reductions. The installation would also be better positioned to meet energy and sustainability goals.

4.26.14 Land Use Conflicts and Compatibility

4.26.14.1 Affected Environment

Land Use is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.11.1.1. No changes to land use have occurred since the 2013 PEA.

4.26.14.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that no impacts to land use are anticipated. No impacts to land use would continue to be expected under the No Action Alternative.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Joint Base Langley-Eustis would not result in impacts to land use. Less training would be conducted, which could potentially allow more time for natural resource management or recreational land use. Under Alternative 1, impacts would be similar to those described in the 2013 PEA, resulting in no impacts to land use. Installation management at Joint Base Langley-Eustis is under the authority of the Air Force, so measures to maintain compliance regarding land use ordinances and regulations would continue

to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with land use ordinances and regulations.

4.26.15 Hazardous Materials and Hazardous Waste

4.26.15.1 Affected Environment

As described in the 2013 PEA (Section 4.11.9.1), hazardous materials are used in at Joint Base Langley-Eustis. The installation has a Hazardous Waste Facility and a Solid Waste and Recycling, and Pollution Prevention Center to handle all types of waste from units and facilities. Hazardous materials and wastes are handled, stored and transported in accordance with state and federal regulations as well as the Joint Base Langley-Eustis Instruction 32-101, *Environmental Management*. No substantial changes have occurred to the affected environment since 2013.

4.26.15.2 Environmental Effects

No Action Alternative

As stated in the 2013 PEA, minor, adverse impacts are anticipated under the No Action Alternative. Use of hazardous materials and generation of hazardous wastes would continue on Joint Base Langley-Eustis in accordance with all applicable laws, regulations and plans.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that minor, adverse impacts from hazardous materials and hazardous waste would occur on Joint Base Langley-Eustis. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on Joint Base Langley-Eustis. Because of the reduced numbers of people, it is likely that the potential for spills would be reduced further during training and maintenance activities. The volume of waste generated and material requiring storage would increase slightly because deactivating units would turn in hazardous material for storage to avoid transportation risks. Under Alternative 1 in this SPEA, Joint Base Langley-Eustis would continue to implement its hazardous waste management in accordance with its HWMP and applicable regulations and therefore, adverse impacts would be minor.

Under Alternative 1, adverse impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. However, installation management at Joint Base Langley-Eustis is under the authority of the Air Force, so measures to maintain compliance regarding hazardous waste management would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the reduction in forces is not reasonably

foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.26.16 Traffic and Transportation

4.26.16.1 Affected Environment

The transportation affected environment of the Joint Base Langley-Eustis ROI remains the same as described in Section 4.11.10.1 of the 2013 PEA with a four-lane divided highway providing primary access to and from the installation (Fort Eustis Boulevard/Virginia Route 105), and connecting the installation to Warwick Boulevard (U.S. Route 60), I-64, Jefferson Avenue (Virginia Route 143) and U.S. Route 17. There is also a secondary gate off Warwick Boulevard.

4.26.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated less than significant, adverse impacts. Current traffic conditions would remain the status quo, including increased staffing from Grow the Army and BRAC 2005, resulting in adverse impacts that would continue to be less than significant.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Joint Base Langley-Eustis would result in beneficial impacts to traffic and transportation systems on and off the joint base. With the departure of Soldiers, Army civilians and their Family members, the Army anticipates a decrease in traffic congestion, particularly during peak hours through the main ACP. Under Alternative 1, these beneficial impacts would also occur, although with the proposed further reduction in forces for the installation, the size of this beneficial impact under Alternative 1 would be larger than anticipated at the time of the 2013 PEA.

4.26.17 Cumulative Effects

The ROI for the cumulative impact analysis for Joint Base Langley-Eustis includes the cities of Hampton, Newport News, Poquoson, and Williamsburg, and the counties of Gloucester, James City, and York. As noted in Section 4.11.11 of the 2013 PEA, a number of cumulative actions within the Joint Base Langley-Eustis ROI would have the potential to cumulatively add impacts to Alternative 1.

As determined in the 2013 PEA, cumulative impacts as a result of the implementation of Alternative 1 range from beneficial to significant and adverse. The following VEC areas are anticipated to experience either no impact or beneficial impact under Alternative 1: air quality, noise, soil erosion, wetlands, energy demand and generation, and traffic and transportation.

Minor impacts are expected for cultural resources, biological resources, facilities, and hazardous materials and hazardous waste.

Reasonably Foreseeable Future Projects on Joint Base Langley-Eustis

Beyond those mentioned in the 2013 PEA, the Army is not aware of any reasonably foreseeable future projects outside Joint Base Langley-Eustis which would be appropriate for inclusion in the cumulative impacts analysis

Reasonably Foreseeable Future Projects outside Joint Base Langley-Eustis

No additional reasonably foreseeable future projects outside Joint Base Langley-Eustis were identified by the installation beyond those identified in the 2013 PEA. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, large economies with more job opportunities could absorb some of the displaced Army workforce, lessening adverse effects of force reductions.

No Action Alternative

There would be no cumulative effects of the foreseeable future actions with the No Action Alternative. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reductions

With the exception of socioeconomics, there would be no cumulative effects of the foreseeable future actions under Alternative 1.

The socioeconomic impact within the ROI, as described in Section 4.26.12.2 with a reduction of 4,163 Soldiers and Army civilians, could lead to significant impacts to the population, employment, and schools. Current and foreseeable actions include construction and development activities on and off the installation, which would have beneficial impacts to the regional economy through additional economic activity, jobs, and income in the ROI.

Additionally, stationing changes would also affect regional economic conditions through the loss of jobs and income within the region, although the full extent of military service reductions on the ROI is not known at this time. The Hampton Roads area, in which Joint Base Langley-Eustis is located, has a very large military population that could experience a greater cumulative socioeconomic impact from other military service reductions in the region when combined with the Army's proposed force reductions. It is likely that there would be additional adverse effects on the ROI communities, especially those with high concentrations of military residents.

Joint Base Langley-Eustis is a relatively large employer in the region; the Armed Forces account for 11, 8, and 9 percent of the workforce in York County, city of Hampton, and city of Newport

News, respectively, demonstrating the importance of the joint base to the region. The cities in the ROI could absorb some of the displaced workers, depending on the economy and labor market in the region. If the majority of the displaced forces are not absorbed into the local labor force, there would be additional adverse impacts.

Joint Base Langley-Eustis provides Aviation Maintenance training for Soldiers, averaging approximately 2,500 students assigned for training at a time. Cumulative actions could include reduced training opportunities because of the force reductions on Joint Base Langley-Eustis. This could lead to further adverse impacts to socioeconomic conditions because of reduced temporary population and visitors and the attendant economic activity, spending, and jobs and income they support. Alternative 1 and the loss of approximately 4,200 Soldiers and Army civilians, in combination with current and foreseeable future actions, could have significant impacts to population, employment, tax receipts, housing values, and schools in the ROI.

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4.27 Joint Base Lewis-McChord, Washington

4.27.1 Introduction

Joint Base Lewis-McChord was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population, is discussed in Section 4.12.1 of the 2013 PEA.

Joint Base Lewis-McChord's 2011 baseline permanent party population was 36,222. In this SPEA, Alternative 1 assesses a potential population loss of 16,000, including approximately 14,459 permanent party Soldiers and 1,541 Army civilians.

4.27.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Joint Base Lewis-McChord; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.27-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.27-1. Joint Base Lewis-McChord Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Less than Significant	Beneficial
Airspace	Significant	Negligible
Cultural Resources	Less than Significant	Minor
Noise	Significant	Beneficial
Soils	Negligible	Negligible
Biological Resources	Less than Significant	Beneficial
Wetlands	Negligible	Negligible
Water Resources	Less than Significant	Beneficial
Facilities	Less than Significant	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	Minor	Beneficial
Hazardous Materials and Hazardous Waste	Minor	Less than Significant
Traffic and Transportation	Significant	Beneficial

4.27.3 Air Quality

4.27.3.1 Affected Environment

The air quality affected environment of the Joint Base Lewis-McChord ROI remains the same as described in Section 4.12.2.1 of the 2013 PEA. Portions of Pierce County are designated maintenance areas for CO and PM_{10}. The Joint Base Lewis-McChord area has not been designated as a nonattainment area for any criteria pollutants (EPA, 2013a).

4.27.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source emissions at current levels, as well as controlled burns for vegetation management, would continue to result in less than significant impacts to air quality. Air quality impacts under the No Action Alternative for this SPEA remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that force reductions at Joint Base Lewis-McChord would result in minor, beneficial impacts to air quality because of reduced operations and maintenance activities and reduced vehicle miles travelled associated with the facility. Impacts to air quality from the further force reductions proposed under Alternative 1 would continue to be beneficial assuming a corresponding decrease in operations and vehicle travel to and from Joint Base Lewis-McChord.

As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

The Army is also committed to ensuring that personnel cuts will not result in non-compliance with air quality regulations. Even if the full end-strength reductions were to be realized at Joint Base Lewis-McChord, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.27.4 Airspace

4.27.4.1 Affected Environment

The airspace affected environment for Joint Base Lewis-McChord remains the same as described in Section 4.3.3.1 of the 2013 PEA.

4.27.4.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, impacts to airspace would continue to be significant. As noted in the 2013 PEA, Joint Base Lewis-McChord would maintain existing airspace operations.

Alternative 1—Implement Force Reductions

Force reductions under Alternative 1 are not expected to alter Joint Base Lewis-McChord use of aviation assets or current airspace use. The implementation of Alternative 1 is expected to have no additional adverse impacts; therefore, environmental effects are anticipated to be negligible.

4.27.5 Cultural Resources

4.27.5.1 Affected Environment

The affected environment for cultural resources at Joint Base Lewis-McChord has not changed since 2013, as described in Section 4.12.4 of the 2013 PEA.

4.27.5.2 Environmental Effects

No Action Alternative

Section 4.12.4.2 of the 2013 PEA states that the No Action Alternative would result in less than significant impacts to cultural resources. Existing protocols and procedures outlined in the Joint Base Lewis-McChord ICRMP and other agreements outline the process for managing and protecting cultural resources at the installation. All activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures. Therefore, the No Action Alternative would continue to have less than significant impacts to cultural resources.

Alternative 1—Implement Force Reductions

The effects of force reduction on cultural resources were described as significant but mitigable in Section 4.12.4.2 of the 2013 PEA due to potential impacts to cultural resources from facility demolition or abandonment. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

The Army is committed, however, ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to be realized at Joint Base Lewis-McChord, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations. If future analysis indicates that it is necessary to vacate or demolish structures as a result of troop reductions, the

installation would comply with applicable laws, such as NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects. Therefore, the implementation of this alternative would result in minor impacts to cultural resources.

This alternative could result in minor, beneficial effects as a decrease in training activities could reduce the potential for inadvertent disturbance of archaeological or tribal resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources. However, as noted in Section 4.12.4.2 of the 2013 PEA, there is the potential for future, adverse impacts to historic buildings and districts if troop reduction results in the need to vacate or demolish these resources.

4.27.6 Noise

4.27.6.1 Affected Environment

The noise affected environment of Joint Base Lewis-McChord remains the same as described in Section 4.12.5.1 of the 2013 PEA. Primary sources of noise at Joint Base Lewis-McChord include aviation, munitions detonations, and gunnery.

4.27.6.2 Environmental Effects

No Action Alternative

The 2013 PEA anticipated a significant, adverse noise impact because current operations represent a significant, adverse impact. Under the No Action Alternative, there would be continued significant impacts from existing training and operations.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Joint Base Lewis-McChord would result in a less than significant noise impact since there would be a reduction in the frequency of noise generating activities. The implementation of Alternative 1 of this SPEA is expected to have beneficial noise impacts due to decreases in training pressure and associated noise generating activities when compared to the No Action Alternative, but it is not expected to reduce Joint Base Lewis-McChord below the significance threshold for noise.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with noise ordinances and regulations. Even if the full end-strength reductions were to be realized at Joint Base Lewis-McChord, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including noise ordinances and regulations.

4.27.7 Soils

4.27.7.1 Affected Environment

Soils are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.12.1.2 due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

4.27.7.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to soils and the affected environment would remain in its present state.

Alternative 1—Implement Force Reductions

Per Section 4.12.1.2 of the 2013 PEA, there would be negligible impacts to soils under Alternative 1. Under Alternative 1 of this SPEA, impacts to soils could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Joint Base Lewis-McChord, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at Joint Base Lewis-McChord would be negligible and remain the same as those discussed in Section 4.19.7.2 of the 2013 PEA.

4.27.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.27.8.1 Affected Environment

Biological resources are described in Section 4.12.6.1 of the 2013 PEA. Since the publishing of that document, three species have been listed as threatened or endangered including the streaked horned lark (*Eremophila alpestris strigata*), Taylor's checkerspot butterfly (*Euphydryas editha taylori*), and Mazama pocket gopher (*Thomomys mazama*). The Mardon skipper butterfly (*Polites mardon*) was determined to be not warranted for listing and remains a species of concern. No other changes have occurred to the affected environment since 2013.

4.27.8.2 Environmental Effects

No Action Alternative

The analysis of alternatives in the 2013 PEA concluded that implementation of the No Action Alternative would result in less than significant impacts to biological resources. The analysis

noted that while growth at Joint Base Lewis-McChord under the Grow the Army initiative was expected to result in significant impacts to biological resources, mitigation measures to reduce the impacts had been employed. As a result, the 2013 PEA concluded that the No Action Alternative would result in less than significant impacts to biological resources. These conditions would continue to exist, so under the No Action Alternative of this SPEA less than significant impacts to biological resources would continue to be expected.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the implementation of Alternative 1 of that PEA would result in beneficial impacts to biological resources due to decreased frequency of disturbances to the affected environment caused by vehicle and foot traffic. Reduced frequency of training activities would also allow greater recovery time between disturbances in the affected areas. Implementation of Alternative 1 of this SPEA would also likely benefit biological resources on Joint Base Lewis-McChord by reducing scheduling conflicts which will increase the ease of conducting biological resource monitoring and proactive conservation activities. Beneficial impacts to biological resources on Joint Base Lewis-McChord are expected to continue as a result of the proposed further reduction of personnel.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Joint Base Lewis-McChord, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.27.9 Wetlands

4.27.9.1 Affected Environment

Wetlands are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.12.1.2 due to lack of significant, adverse environmental impacts as a result of implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013.

4.27.9.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible, adverse impacts to wetlands and the affected environment would remain in its present state.

Alternative 1—Implement Force Reductions

Per Section 4.7.1.2 of the 2013 PEA, there would be negligible changes to wetlands under Alternative 1. The installation places a 50 meter buffer around all wetlands and does not allow off-road vehicles, bivouacking, digging, or assembling within the buffer. Impacts to wetlands

could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Joint Base Lewis-McChord, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at Joint Base Lewis-McChord would remain the same as those discussed in Section 4.7.1.2 of the 2013 PEA.

4.27.10 Water Resources

4.27.10.1 Affected Environment

The affected environment for water resources on Joint Base Lewis-McChord remains the same as that described in Section 4.12.7.1 of the 2013 PEA for surface water, water supply and demand, and wastewater resources. However, there has been one change to the affected environment for stormwater resources. An NPDES Permit for Stormwater Discharges, effective October 2013, was issued to Joint Base Lewis-McChord authorizing stormwater discharge from the MS4 outfalls on the installation (EPA, 2013b). This permit requires the development and implementation of a stormwater management program and stormwater control BMPs and details the discharges limits, monitoring, and assessment regulations and guidelines to be followed.

4.27.10.2 Environmental Effects

No Action Alternative

In the 2013 PEA, less than significant impacts to water resources were anticipated from the No Action Alternative. Potential water quality violations from wastewater effluent discharged from the existing WWTP on the installation was anticipated to result in significant but mitigable impacts. However, construction of a planned WWTP will minimize these wastewater impacts. Additional minor impacts were anticipated due to continuing water supply and demand, surface water, and stormwater management as well as training related impacts to surface waters. Adherence to permits, BMPs, and other management programs was anticipated to mitigate these impacts. Surface water, wastewater, and stormwater impacts under the No Action Alternative would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

Beneficial impacts to water resources were anticipated from implementation of force reductions in the 2013 PEA because of reduced potable water supply demand and an increase in additional wastewater treatment capacity for other uses. Reduction in training area use from force reductions on the installation was also anticipated to potentially reduce impacts to surface waters caused by disturbance, sedimentation, and runoff. Reduced use of training and other vehicles was expected to lead to less frequent washings and provide more non-potable water for other uses.

Increased force reductions under Alternative 1 of this SPEA would continue to have the same beneficial impacts surface waters, wastewater, and water consumption and treatment.

Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Joint Base Lewis-McChord, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented.

4.27.11 Facilities

4.27.11.1 Affected Environment

The facilities affected environment of the Joint Base Lewis-McChord installation remains the same as described in Section 4.12.8.1 of the 2013 PEA.

4.27.11.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be less than significant impacts to facilities at Joint Base Lewis-McChord. For the current analysis, Lewis-McChord Communities LLC (the privatized Family housing project) is completing the initial development period of a 50-year development plan with an end state housing inventory of 4,994 units by December 2018. All currently planned new construction thru 2052 is replacement construction to address aged and failing inventory.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to facilities would occur at Joint Base Lewis-McChord. Under Alternative 1, implementation of the proposed further force reductions would result in overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demands for utilities and reduced demands for training facilities and support services. Training areas would also have fewer scheduling conflicts from reduced training load. Remaining units with inadequate facilities could occupy facilities that better support unit administrative requirements. Force reductions would also provide the installation the opportunity to reduce reliance on relocatable facilities and some older buildings not up to current standards. As discussed in Chapter 1, the demolition of existing

buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.27.12 Socioeconomics

4.27.12.1 Affected Environment

Joint Base Lewis-McChord is located approximately 9 miles south-southwest of Tacoma, Washington. The ROI for Joint Base Lewis-McChord in this analysis includes those areas that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, contractor personnel, and their Families reside. The ROI includes Pierce and Thurston counties.

This section provides a summary of demographic and economic characteristics within the ROI. These indicators are described in greater detail in Section 4.12.9 of the 2013 PEA. However, some demographic and economic indicators have been updated where more current data are available.

Population and Demographics

Using 2011 as a baseline, Joint Base Lewis-McChord has a total working population of 50,438 consisting of active component Soldiers and Army civilians, and other military services, civilians, and contractors. Of the total working population, 36,222 were Soldiers and Army civilians. The population that lives on Joint Base Lewis-McChord consists of 9,953 Soldiers and Army civilians and estimated 15,109 Family members, for a total on installation population of 25,062 (Joint Base Lewis-McChord, 2014). Finally, the portion of the Soldiers, Army civilians, and Family members living off the installation in 2011 was estimated to be 66,145.

In 2012, the ROI had a population of 1,070,708, a 2.2 percent increase from 2010. Both counties within the ROI increased in population between 2010 and 2012 (Table 4.27-2). As shown in Table 4.27-3, the racial and ethnic composition of Pierce County is slightly more diverse than either Thurston County or the state of Washington as a whole (U.S. Census Bureau, 2012a).

Table 4.27-2. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012(percent)
Pierce County, Washington	812,055	+2.1
Thurston County, Washington	258,653	+2.5

Table 4.27-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
State of Washington	81.6	3.9	1.8	7.7	4.3	11.7	71.6
Pierce County, Washington	76.8	7.2	1.6	6.3	6.6	9.6	69.5
Thurston County, Washington	83.9	3.1	1.6	5.4	5.1	7.7	77.8

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Income

Information presented below represents an update from the 2013 PEA, which provided employment and income information from 2009. Between 2000 and 2012, total employment in Thurston County grew at a faster rate than Pierce County and the state of Washington as a whole (Table 4.27-4) (U.S. Census Bureau, 2000 and 2012b).

Counties within the ROI had median home values that were similar to the state as a whole. The median household income in Thurston County was greater than median household income in both Pierce County and the state of Washington. The poverty rate in both Pierce and Thurston counties was lower than the Washington average (Table 4.27-4) (U.S. Census Bureau, 2012b).

Table 4.27-4. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Washington	3,202,700	+12.7	272,900	59,374	12.9
Pierce County, Washington	372,536	+12.5	251,400	59,105	11.9
Thurston County, Washington	120,866	+18.0	251,000	63,224	11.1

Information regarding the workforce by industry for each county within the ROI was obtained from the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for the employed labor force.

Pierce County, Washington

The educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Pierce County (21 percent). Retail trade is the second largest employment sector (11 percent), followed by manufacturing (9 percent); professional, scientific, and management, and administrative and waste management services (9 percent); and arts, entertainment, and recreation, and accommodation and food services sectors (9 percent). The Armed Forces account for 5 percent of the Pierce County workforce. The eight remaining sectors account for 36 percent of the workforce.

Thurston County, Washington

Similar to Pierce County, the educational services, and health care and social assistance sector accounts for the greatest share of Thurston County's total workforce (21 percent). Public administration is the second largest employment sector (18 percent), followed by retail trade (11 percent). The Armed Forces account for 3 percent of the Thurston County workforce. The 10 remaining sectors employ 47 percent of the workforce.

Housing

Joint Base Lewis-McChord has approximately 5,000 Family housing units in 22 neighborhoods on the installation. Since 2002, Lewis-McChord Communities LLC has renovated more than 3,000 homes and constructed more than 1,000 new homes on the installation (Lewis-McChord Communities, 2014). Joint Base Lewis-McChord has approximately 12,000 barracks and dormitory spaces for unaccompanied personnel. Additional housing information is provided in the 2013 PEA.

Schools

Military-connected students attend schools throughout the ROI. The Clover Park School District operates the 5 elementary schools on the joint base and an additional 20 schools (elementary, middle, and high) in the city of Lakewood, which is adjacent to the joint base. Joint Base Lewis-McChord and the DoD's Office of Economic Adjustment are in the process of replacing the five elementary schools on the installation.

As described in the 2013 PEA, during the 2008-2009 academic year, approximately 36.0 percent of the district's total enrollment was attributable to military-connected students. In addition, military-connected students represent a notable share of total enrollment in the Steilacoom Historical and Yelm schools districts, 17.0 percent and 7.0 percent, respectively.

Enrollment in regional schools has increased in recent years to such an extent that numerous school districts within the ROI are operating at or over capacity. Additional information on schools is provided in the 2013 PEA.

Public Health and Safety

The Joint Base Lewis-McChord Police and Fire department fall under the auspices of DES. Police protection services to areas within the ROI but city, county, and state police departments provide services to the ROI off the joint base. Because of the joint base's location near I-5, its fire department is often called upon to provide first responder assistance for accidents on the interstate.

A variety of medical services are provided both on the joint base and in the larger ROI. The Madigan Healthcare System, a network of Army medical facilities located throughout Washington, Oregon, and California, is headquartered at the Madigan Army Medical Center on the installation. The medical center is the Army's second largest Military Treatment Facility, which includes a Level II Trauma Center and 240 inpatient beds. Non-military people are also treated at the center, as needed. Additional public health and safety information is provided in the 2013 PEA.

Family Support Services

The Joint Base Lewis-McChord FMWR and ACS, a human service organization, provides services and programs designed to assist Soldiers and their Families. Services include but are not limited to child care and youth programs to deployment, employment, financial, and relocation readiness. Additional information about Family Support Services is provided in the 2013 PEA.

Recreation Facilities

Joint Base Lewis-McChord offers a variety of recreation and leisure programs to military personnel, civilians, and their Families. Facilities include but are not limited to a golf course, bowling center, fitness centers, and outdoor recreation opportunities. Additional information about recreation facilities is provided in the 2013 PEA.

4.27.12.2 Environmental Effects

No Action Alternative

The operations at Joint Base Lewis-McChord would continue to provide beneficial effects on regional economic activity. Presently, an initiative to build two new elementary schools on the joint base is underway, which should help to mitigate school crowding within the ROI. These new schools would have approximately double the capacity of existing on-base schools. Several school districts in the ROI outside Joint Base Lewis-McChord are coping with the influx of the additional school-aged children as a result of the Grow the Army initiative. No additional impacts to housing, public and social services, public safety, recreation facilities, or environmental justice are anticipated.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of up to 16,000[33] Army positions (14,459 Soldiers and 1,541 Army civilians), with an average annual income of $46,760 and $57,361, respectively. In addition, this alternative would affect an estimated 24,288 Family members, including 8,928 spouses and 15,360 children. The total population of Army employees and their Family members who may be directly affected by Alternative 1 is projected to be 40,288.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecast value falls outside the historical positive and negative range. Table 4.27-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. The last row summarizes the estimated economic impacts of Alternative 1 to the region as estimated by the EIFS model. Based on the EIFS analysis, there would not be significant impacts to sales, income, or employment because the estimated percentage change is within the historical range. However, there would be significant population impacts because the estimated percentage change is outside the historical range.

Table 4.27-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+6.1	+4.0	+2.8	+1.9
Economic contraction significance value	-7.3	-4.5	-7.1	-2.6
Forecast Value	-2.4	-2.2	-5.1	-3.6

Table 4.27-6 summarizes the predicted impacts to income, employment, and population of force reductions against 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact

[33] This number was derived by assuming the loss of two BCTs, 60 percent of Joint Base Lewis-McChord's non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 16,000. The 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 8,000.

agreement with the EIFS forecasted values, these figures show the same significance determinations as the EIFS predictions in the previous table.

Table 4.27-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impact	-$971,551,600	-17,757 (Direct)	-40,288
		-3,587 (Induced)	
		-21,344 (Total)	
Total 2012 ROI economic estimates	$46,593,600,000	493,402	1,070,708
Percent reduction of 2012 figures	-2.1	-4.3	-3.8

Note: Sales estimates are not consistently available from public sources for all counties in the United States; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from the EIFS is described in the paragraphs below.

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the loss of 16,000 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 1,757 direct contract service jobs would also be lost. An additional 3,587 induced jobs would be lost due to the reduction in demand for goods and services within the ROI. Total reduction in employment is estimated to be 21,344, a reduction of 4.3 percent from the total employed labor force in the ROI of 493,402. The reduced workforce could affect unemployment rates, which in 2012, were 10.3 percent and 8.6 percent in Pierce and Thurston counties, respectively (U.S. Census Bureau, 2012b). Income is estimated to fall by $971.55 million, a 2.1 percent decrease in income from 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $1.2 billion. There would also be a loss in sales tax receipts to local and state governments. The state and average local sales tax for Washington is 8.88 percent (Tax Foundation, 2014). To estimate sales tax reductions, information on the proportion of sales that would be subject to sales taxes on average across the country was utilized. According to the U.S. Economic Census, an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). The percentage and applicable tax rate was applied to the estimated decrease in sales of $1.2 billion resulting in an estimated sales tax receipts decrease of $17.4 million under Alternative 1.

Of the approximately 1.1 million people (including those residing on Joint Base Lewis-McChord) who live within the ROI, 16,000 military employees and their estimated 24,288 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 3.8 percent. This number likely overstates potential population impacts because some of the people no longer employed by the Army would continue to live and work within the ROI, finding employment in other industry sectors.

Housing

The population reduction that would result under Alternative 1 would decrease housing demand and increase housing availability on Joint Base Lewis-McChord and across the larger ROI. Increased vacancy across the region may result in a slight decrease in median home values. These effects would likely be experienced to the greatest extent in the cities of Olympia, Lacey, Yelp, DuPount, Lakewood, Puyallup, and Tacoma, and potentially recognized to a lesser extent in some smaller municipalities within the ROI. However, the ROI is currently experiencing population growth and housing values are likely to be driven by numerous contributing factors. Overall, because the Joint Base Lewis-McChord population is distributed in a number of municipalities across the ROI, the installation reduction that would occur under Alternative 1 has the potential to result in minor, less than significant impacts to the housing market.

Schools

As reported in the 2013 PEA, regional schools have experienced adverse effects from crowding and large class sizes, particularly those in the Clover Park and Steilacoom Historical School Districts. Under Alternative 1, the potential reduction of 16,000 Soldiers and Army civilians would decrease the number of children within the ROI by approximately 15,360. Therefore, under Alternative 1, it is anticipated that the reduction of school-aged children would decrease enrollment in some schools where crowding and large class sizes have been an issue, resulting in beneficial impact. Alternative 1 is not anticipated to change plans to replace the five elementary schools on the joint base.

Under Alternative 1, enrollment would decrease across individual school districts within the ROI, particularly the Clover Park and Steilacoom Historical School Districts. School districts within the ROI receive Federal Impact Aid funds, the allocation of which is based on the number of military-connected students they support. The actual projected loss of Federal Impact Aid funds cannot be determined at this time due to the variability of appropriated dollars from year to year and the uncertainty regarding the specific impacts to ROI school enrollment. It is anticipated that schools across the ROI, particularly in the Clover Park and Steilacoom Historical School Districts, would likely need fewer teachers and materials as enrollment declines, which would partially offset the reduction in Federal Impact Aid. However, the reduction in Federal Impact Aid funds would make it more difficult for some school districts to retain teachers and other staff necessary to effectively run schools within affected districts. Overall, the implementation of Alternative 1 would result in adverse impacts to schools due to reduction of Federal Impact Aid funds associated with the enrollment of military-connected students, ranging from minor to significant depending on the reduction in the number of military-connected students attending specific schools.

Public Services

A reduction in personnel would have minor impacts to emergency services, fire, police, and medical services because the reduction is anticipated to decrease the need for these services. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the joint base. These scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements. These impacts are not expected to be significant because the existing service level for the joint base and the ROI would still be available.

Family Support Services and Recreation Facilities

Under Alternative 1, Joint Base Lewis-McChord would experience a significant population reduction. Family Support Services and recreation facilities on the installation would experience a minor decrease in demand if Soldiers, Army civilians, and their Family members affected under Alternative 1 move to areas outside the ROI. These services and facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, states: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). As shown in Table 4.27-3, the proportion of minority populations is slightly higher in Pierce County than in Thurston County or Washington as a whole. Under Alternative 1, adverse economic impacts would result across the ROI. The extent to which these impacts are recognized by individual businesses, both minority and non-minority owned, would depend on the consumer base in which they serve. Overall, adverse impacts to minority-owned and/or -staffed businesses as well as non-minority-owned and/or -staffed businesses could potentially occur in Pierce County. However, these impacts are not expected to be disproportionate because they would be experienced across all populations.

Populations living below the poverty level in both Pierce and Thurston counties are lower than in Washington overall. Therefore, Alternative 1 would not cause disproportionate adverse impacts to populations living below the poverty level.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks,* federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions

were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of people associated with the installation, including children. Therefore, it is not anticipated that implementing Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.27.13 Energy Demand and Generation

4.27.13.1 Affected Environment

Energy demand and generation is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.12.1.2 due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

4.27.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be negligible impacts to energy demand and generation at Joint Base Lewis-McChord. For the current analysis, Joint Base Lewis-McChord would continue to draw similar amounts of energy from its utility provider with the same requirements for energy and maintenance of infrastructure so impacts to facilities would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy demand and generation would occur on Joint Base Lewis-McChord. Under Alternative 1, minor, beneficial impacts to energy are anticipated due to a further reduction in energy consumption associated with the additional force reductions. The installation would also be better positioned to meet energy and sustainability goals.

4.27.14 Land Use Conflicts and Compatibility

4.27.14.1 Affected Environment

The land use affected environment of Joint Base Lewis-McChord remains effectively the same as described in Section 4.12.10.1 of the 2013 PEA.

4.27.14.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that no changes to land use would occur and impacts would be minor. Under the No Action Alternative, minor impacts to land use would continue to occur.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Joint Base Lewis-McChord would result in a beneficial impact to land use. A reduction in troops would eliminate a need for additional Family housing and allow Joint Base Lewis-McChord to selectively demolish outdated buildings and clear land for best use. Under Alternative 1, beneficial impacts would be similar to those described in the 2013 PEA.

The Army is also committed to ensuring that personnel cuts will not result in non-compliance with land use ordinances and regulations. Even if the full end-strength reductions were to be realized at Joint Base Lewis-McChord, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including land use ordinances and regulations.

4.27.15 Hazardous Materials and Hazardous Waste

4.27.15.1 Affected Environment

As described in the 2013 PEA (Section 4.12.11.1), hazardous materials are used and hazardous waste generated on Joint Base Lewis-McChord. This includes hazardous materials and waste from USTs and ASTs, pesticides, LBP, asbestos-containing materials, PCBs, radon, and UXO. Units and activities on Joint Base Lewis-McChord typically use hazardous materials such as fuels, paints, solvents, lubricants, coolants, and sanitation chemicals. Hazardous waste is generated as a result of facility and equipment maintenance, medical care activities, and Soldier training. Joint Base Lewis-McChord operates as a large quantity hazardous waste generator under RCRA and has several plans in place to help manage hazardous materials and waste, including a Pollution Prevention Plan, ISC Plan, SPCC Plan, and Pest Management Plan. No substantial changes have occurred to the affected environment since 2013.

4.27.15.2 Environmental Effects

No Action Alternative

As stated in the 2013 PEA, minor, adverse impacts are anticipated under the No Action Alternative. Use of hazardous materials and generation of hazardous wastes would continue on Joint Base Lewis-McChord in accordance with all applicable laws, regulations and plans. Joint Base Lewis-McChord would continue to manage hazardous materials and hazardous waste in accordance with the HWMP.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that less than significant impacts from hazardous materials and hazardous waste would occur on Joint Base Lewis-McChord. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on the installation and therefore impacts would remain less than significant. Because of the reduced numbers of people, it is likely that the potential for spills would be reduced further during training and maintenance activities. The volume of waste generated and material requiring storage would increase slightly because deactivating units would turn in hazardous material for storage to avoid transportation risks.

Under Alternative 1, adverse impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Joint Base Lewis-McChord, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.27.16 Traffic and Transportation

4.27.16.1 Affected Environment

The transportation affected environment of the Joint Base Lewis-McChord ROI remains the same as described in Section 4.12.12.1 of the 2013 PEA, including the fact that along with non-military related growth in the ROI over the last decade, Joint Base Lewis-McChord traffic (military and civilian) negatively affects traffic flow on I-5 and LOS ratings at numerous intersections both on and off the installation.

4.27.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated significant, adverse impacts to traffic and transportation along the I-5 corridor. The Grow the Army proposal determined that there would be significant impacts to traffic flows and increased delays at key intersections on and near the installation. Since the affected environment has not changed since 2013, these significant, adverse impacts would continue.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Joint Base Lewis-McChord would result in beneficial impacts to traffic and transportation systems. With the departure of Soldiers, Army civilians and their Family members, the Army anticipates a decrease in traffic congestion and improvements in LOS on the installation and neighboring communities, particularly during peak periods. Under Alternative 1, these same beneficial impacts would occur, however, with the proposed further reductions in force, the size of this beneficial impact under Alternative 1 would be larger than anticipated at the time of the 2013 PEA.

4.27.17 Cumulative Effects

As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020 realignment at Joint Base Lewis-McChord encompasses Pierce and Thurston counties in Washington. Section 4.12.13 of the 2013 PEA noted numerous planned or proposed actions within the ROI that reasonably could be initiated within the next 5 years. A number of the Army's proposed projects have been previously identified in the installation's Real Property Master Planning Board and are programmed for future execution.

Reasonably Foreseeable Future Projects on Joint Base Lewis-McChord

No additional actions have been identified by the installation beyond those noted in the cumulative effects analysis of the 2013 PEA.

Reasonably Foreseeable Future Projects outside Joint Base Lewis-McChord

Beyond those mentioned in the 2013 PEA, the Army is not aware of any reasonably foreseeable future projects outside Joint Base Lewis-McChord which would be appropriate for inclusion in the cumulative impacts analysis. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, larger economies with more job opportunities could absorb some of the displaced Army workforce, lessening adverse effects of force reductions.

No Action Alternative

There would be no cumulative effects of the foreseeable future actions with the No Action Alternative. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reductions

As determined in the 2013 PEA, cumulative impacts as a result of the implementation of force reduction range from beneficial to minor, adverse impacts. The following VEC areas are anticipated to experience either no impact or beneficial impact as a result of the implementation of the previous proposed action: biological resources, water resources, energy demand and

generation, and land use conflict and compatibility. Minor impacts are expected on cultural resources and facilities. The additional force reductions with Alternative 1 of the SPEA would not result in any changes from that determination.

The socioeconomic impact within the ROI, as described in Section 4.27.12 with a reduction of 16,000 Soldiers and Army civilians, would result in a significant reduction in population, with minor, adverse effects on the regional economy, schools, and housing. Joint Base Lewis-McChord is located between the cities of Olympia and Tacoma in Washington with an ROI population of over 1.1 million. Because of the large employment base and diverse economy in the region, the ROI would be less vulnerable to these force reductions because other industries and considerable economic activity occurs within the ROI.

Other construction and development activities on the installation and in the ROI would benefit the regional economy through additional economic activity, jobs, and income in the ROI. Other services on the installation have not finalized military end-strength reduction plans, but these additional reductions are anticipated to add to adverse impacts to socioeconomics conditions. Under Alternative 1, the loss of 16,000 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have a minor, adverse impact on population, employment, income, housing, and schools in the ROI.

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4.28 Joint Base San Antonio-Fort Sam Houston, Texas

4.28.1 Introduction

Joint Base San Antonio-Fort Sam Houston includes both Fort Sam Houston and Camp Bullis, as well as several other sites mainly populated by the Air Force.[34] Fort Sam Houston is located in the city of San Antonio, Texas (Figure 4.28-1). Loop 410 circles the city center and encloses a densely populated urban environment. Fort Sam Houston is located within Loop 410 to the northeast of the city center. The 2,940-acre installation is surrounded by developed property, widely used highways and arterial roadways. Fort Sam Houston is bordered on the east by Salado Creek. There is no room for land expansion, and additional development is confined within the installation's borders.

Fort Sam Houston was established in 1845 and has performed important roles for the Army serving as a headquarters, logistical base, mobilization and training site, garrison, and medical provider. After construction of the Quadrangle in 1876, the Army began to move facilities to the current site of Fort Sam Houston. Fort Sam Houston is one of the oldest installations and has more than 800 historic buildings in various historic zones. Camp Bullis, which serves as a training site for troops stationed at Fort Sam Houston, was established in 1917 approximately 18 miles northwest of Fort Sam Houston. During World War II, the camp was an important venue for training troops stationed at Fort Sam Houston.

After World War II, Fort Sam Houston was designated as the principal Army medical training facility and Brooke General Hospital was developed into a premier Army medical center. The installation's prominence in medical training and research advancement has led to significant tactical and organizational innovations. Medical treatment of casualties evacuated by air was performed at Fort Sam Houston as early as 1917.

Potential impacts resulting from any reductions in staffing levels other than Army staff at this Air Force managed joint base could be analyzed in separate, future NEPA analyses, as appropriate, although these reductions would not be related to the Army 2020 reductions analyzed herein.

Joint Base San Antonio-Fort Sam Houston's 2013 baseline permanent party population was 12,256. In this SPEA, Alternative 1 assesses a potential population loss of 5,900, including approximately 3,949 permanent party Soldiers and 1,985 Army civilians.

[34] In this document, Joint Base San Antonio-Fort Sam Houston refers to the combined Fort Sam Houston and Camp Bullis installations. Each installation is identified as either Fort Sam Houston or Camp Bullis where the information applies only to that installation.

Figure 4.28-1. Joint Base San Antonio-Fort Sam Houston, Texas

4.28.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental or socioeconomic impacts are anticipated for Joint Base San Antonio-Fort Sam Houston. Table 4.28-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.28-1. Joint Base San Antonio-Fort Sam Houston Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	No Impacts	Negligible
Cultural Resources	Minor	Minor
Noise	Negligible	Beneficial
Soils	Minor	Beneficial
Biological Resources	No Impacts	Beneficial
Wetlands	Minor	Beneficial
Water Resources	Minor	Beneficial
Facilities	No Impacts	Minor
Socioeconomics	Beneficial	Less than Significant
Energy Demand and Generation	Minor	Beneficial
Land Use Conflict and Compatibility	No Impacts	No Impacts
Hazardous Materials and Hazardous Waste	Minor	Minor
Traffic and Transportation	Negligible	Beneficial

4.28.3 Air Quality

4.28.3.1 Affected Environment

Joint Base San Antonio-Fort Sam Houston is located in an area in attainment for criteria pollutants (EPA, 2013). There are various sources on the installation that emit criteria and hazardous air pollutants, including emergency generators, boilers, hot water heaters, fuel storage tanks, gasoline service stations, surface coating, and miscellaneous chemical usage (Fort Sam Houston, 2009).

4.28.3.2 Environmental Effects

No Action Alternative

Continuation of existing levels of emissions under the No Action Alternative would result in minor, adverse impacts to air quality. Emissions would remain at levels well below the maximum allowed under existing permits.

Alternative 1—Implement Force Reductions

Force reductions at Joint Base San Antonio-Fort Sam Houston under Alternative 1 would result in minor, long-term, beneficial air quality impacts because of reduced demand for heating/hot water and reduced operation of mobile sources to and from the facility.

The relocation of personnel outside of the area relocation of personnel outside of the area because of force reductions could result in negligible, short-term effects on air quality associated with mobile sources. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in Army non-compliance with air quality regulations. However, management at Joint Base San Antonio-Fort Sam Houston is under the authority of the Air Force, so measures to maintain compliance regarding overall air quality regulations would continue to be met by the Air Force.

4.28.4 Airspace

4.28.4.1 Affected Environment

Joint Base San Antonio-Fort Sam Houston is not an Army aviation facility, and it does not include range facilities for launching or firing weapons that would restrict airspace use. Nevertheless, San Antonio Military Medical Center (SAMMC) has a heliport that supports medical evacuation flights and occasional transport within the San Antonio area. The heliport is located on the southeast perimeter of the SAMMC campus, previously known as the Brooke Army Medical Center (BAMC) campus.

Airspace use in San Antonio is controlled by FAA and the Joint Base San Antonio-Fort Sam Houston area is regulated as Class C airspace ranging from 2,000 feet to 4,800 feet msl and Class D airspace in portions to 3,100 feet msl. There are major flight activities north, east, south and southeast of Joint Base San Antonio-Fort Sam Houston from San Antonio International Airport, Stinson Field, Joint Base San Antonio-Randolph and the Kelly Field Annex to Joint Base San Antonio-Lackland. The aviation activity associated with Joint Base San Antonio-Fort Sam Houston is helicopter operations for local area medical evacuation and transport. Takeoffs and approaches generally follow the major adjacent roadways, more specifically IH-35. The centerline of Runway 30L on approach/12R on departure for San Antonio International Airport is close to the SAMMC site. Turns to and from centerline are approximately 4,000 feet north of the SAMMC site (U.S. Army, 1988–89).

Camp Bullis has an airport located near its northern boundary in MA 2. No aircraft are based there; instead, it is a training area used occasionally by C-130/C-17 aircraft to practice combat assault operations, during which aircraft land under simulated tactical conditions and on-load or off-load troops, supplies or mock casualties. A Camp Bullis heliport is located in the cantonment area of the installation. The heliport lies in uncontrolled airspace. The cantonment area is approximately 6 miles northwest of the threshold of Runway 12R at San Antonio International

Airport. Medical combat routes also are used by helicopters at Camp Bullis in support of medical training to evacuate casualties under simulated combat conditions.

4.28.4.2 Environmental Effects

No Action Alternative

Airspace restrictions and classifications around Joint Base San Antonio-Fort Sam Houston are sufficient to meet current airspace requirements. A reduction in force would not alter the current airspace use and would not be projected to require additional airspace restrictions. In addition, because the Army does not conduct air operations or training at Joint Base San Antonio-Fort Sam Houston, no impacts to airspace would occur.

Alternative 1—Implement Force Reductions

Airspace restrictions and classifications around Joint Base San Antonio-Fort Sam Houston are sufficient to meet current airspace requirements and the implementation of Alternative 1 would not result in a decreased requirement for airspace but could result in a slightly lower use of and requirements for airspace use. The potential decrease in airspace use would result in negligible impacts to airspace at Joint Base San Antonio-Fort Sam Houston.

4.28.5 Cultural Resources

4.28.5.1 Affected Environment

The affected environment for cultural resources at Joint Base San Antonio-Fort Sam Houston is the installation footprint. Surveys of the installation have identified 12 archaeological sites, none of which are eligible for listing in the NRHP (Clow et al., 2008).

The built environment is an important component of the installation; as the installation grew and changed over time, care was taken to create an aesthetic environment that was both functional and livable (Clow et al., 2008). The installation has completed architectural surveys of all resources over 50 years of age as well as Cold War Era resources. These surveys have identified 723 historic architectural resources, all of which are considered eligible for listing in the NRHP. Of these, 257 are included in the Fort Sam Houston NHL District. Buildings associated with this NHL District date from the establishment of the installation in 1875 through 1924.

In addition, the New Post area of the installation is eligible for listing as a district in the NRHP and could be included within the NHL District in the future. The area is currently designated a Conservation District. There is one building within the New Post area, the former BAMC (old BAMC, Building 1000), that is individually listed in the NRHP. Four other architectural resources are individually listed in the NRHP: the Quadrangle (Building 16); Clock Tower (Building 40); Pershing House (Building 6); and the Gift Chapel (Building 2200).

Four federally recognized tribes and one non-federally recognized tribe are culturally affiliated with resources managed by Joint Base San Antonio-Fort Sam Houston (Clow et al., 2008). Consultation requirements for NHPA, Section 106 have been satisfied through the development of the alternative procedures described below (Clow et al., 2008). However, comments are sometimes requested from the tribes during the NEPA process or when cultural resource laws are involved such as Archaeological Resources Protection Act or Native American Graves Protection and Repatriation Act. Three of the federally recognized tribes have signed standard operating procedures with Joint Base San Antonio-Fort Sam Houston; these are included in the ICRMP. Currently, no TCPs or sacred areas have been identified within the installation.

Joint Base San Antonio-Fort Sam Houston has developed alternative procedures for compliance with Section 106 of the NHPA. These procedures were developed and agreed upon by the Army and ACHP in 2001 and revised in 2004, before joint basing. These procedures allow for cultural resources management without outside involvement (ACHP/SHPO/others) in case-by-case review (Clow et al., 2008). These procedures do not replace consultation required under other cultural resource management–related laws such as the Native American Graves Protection and Repatriation Act. In addition to the alternative procedures, the installation has implemented two programmatic agreements for cultural resources compliance. The first implements the alternative procedures. The second, titled *Programmatic Agreement for the Privatization of Family Housing at Fort Sam Houston, Texas*, provides for the consideration and treatment of resources that may be affected by the RCI program (Clow et al., 2008). The Fort Sam Houston Military Reservation ICRMP and EA, completed in 2008, detail the procedures for management of cultural resources in accordance with applicable laws.

4.28.5.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, cultural resources would continue to be managed in adherence with all applicable federal laws and the ICRMP. The cultural resource management staff at the installation would continue to consult with the SHPO and applicable tribes on the effects of undertakings that may affect cultural resources. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures. The effects of the No Action Alternative would be minor and would come from the continuation of undertakings that have the potential to affect archaeological and architectural resources (e.g., training, maintenance of historic buildings and new construction).

Alternative 1—Implement Force Reductions

Alternative 1 would have a minor, adverse impact on cultural resources. As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to subsurface

archaeological sites and historic structures are not analyzed. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of Army force reductions, potential impacts could be analyzed in separate, future NEPA analyses and consultation conducted, as appropriate, by Joint Base San Antonio[35] to avoid, minimize, and/or mitigate these effects. Additionally, the Army is committed to ensuring that personnel cuts will not result in Army non-compliance with cultural resources regulations.

The effects of this alternative are considered to be similar to the No Action Alternative. Future activities with the potential to effect cultural resources would continue to be monitored and the impacts reduced through preventative and minimization measures.

4.28.6 Noise

4.28.6.1 Affected Environment

Noise sources common to Joint Base San Antonio-Fort Sam Houston include helicopters, automobiles and other nontactical vehicles, and routine operation of equipment and machinery such as generators; heating, ventilation and air conditioning; and construction equipment. Life Flight operations using the SAMMC helipad represent another intermittent noise source. Life Flight operations have neither established routes into and out of the helipad nor altitude restrictions, but the general directions of the flight routes are to the northeast, southeast and southwest. The low number of helicopter operations is not sufficient to generate significant, adverse noise impacts.

Major sources of noise at Camp Bullis include small arms ranges, the use of explosive simulators in training areas and ranges, the use of explosives during quarrying and training exercises, and aircraft noise. A sound system with outside speakers is used at Camp Bullis to provide exercise inputs at the medical training facility. Medical trainers have direct control over the exercise speaker volume, and sounds from these speakers cannot be heard beyond 100 meters. Several generators may also be in use at any time during field medical training activities. Noise sources are interspersed throughout the installation, and noise, including that from ground combat blast simulators and small- and large-caliber weapons, is generally confined to the installation. Limited helicopter flights and occasional fixed wing operations on a Combat Assault Landing Strip project noise into the surrounding areas.

Noise-sensitive areas at Fort Sam Houston include SAMMC and the three schools in the Fort Sam Houston ISD. The ISD schools include the Robert G. Cole Junior/Senior High School, the Fort Sam Houston Elementary School and an alternative education school. Noise effects on

[35] Joint Base San Antonio includes all Army and Air Force installations under this joint base. Management activities, including environmental compliance, are under the authority of the Air Force.

occupants of these facilities are not expected. No sensitive noise areas are present at Camp Bullis.

4.28.6.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, no force reductions would take place at Joint Base San Antonio-Fort Sam Houston. Existing operations and personnel levels would remain the same as under existing conditions, and existing noise sources and intensity would remain unchanged. Given the generally low overall noise levels at the installations, minimal presence of noise-sensitive areas, limited frequency of higher-intensity noise events, and general confinement of noise to areas within the installation, adverse impacts associated with the No Action Alternative would be negligible.

Alternative 1—Implement Force Reductions

Under Alternative 1, force reductions would be implemented at Joint Base San Antonio-Fort Sam Houston. Existing operations and personnel levels would be reduced from existing conditions. Existing noise sources and intensity would remain similar in character; however, noise events would occur less frequently. Noise-sensitive areas surrounding the installation would remain similar in character to those currently present. Overall, noise impacts associated with force reductions would be similar in nature to impacts from the No Action Alternative, but with fewer personnel. Alternative 1 would therefore have slight beneficial impacts to noise. Installation management at Joint Base San Antonio-Fort Sam Houston is under the authority of the Air Force; therefore, health and safety requirements, including noise compliance, would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in the Army's non-compliance with noise ordinances and regulations.

4.28.7 Soils

4.28.7.1 Affected Environment

Joint Base San Antonio-Fort Sam Houston consists of several installations; however, most Army activities and personnel stationed at Joint Base San Antonio-Fort Sam Houston are concentrated at Fort Sam Houston and Camp Bullis. Fort Sam Houston lies within the West Gulf Coastal plain physiographic province; whereas, Camp Bullis lies within the Edwards Plateau Great Plains physiographic province. The two physiographic provinces are separated by the Balcones fault zone (Stein and Ozuna, 1995). Fort Sam Houston is primarily underlain by Cretaceous period calcareous material such as marl and glauconite which are overlain with Quaternary period alluvial deposits (USACE, 2007). The geology of Camp Bullis consists primarily of Cretaceous period limestone from the Edwards Group and Glen Rose formations (U.S. Army, 2001a, as

cited by USACE, 2007). As a result of the underlying limestone, Camp Bullis contains many features associated with karst topography such as sinkholes, springs, and caves.

Upland soils on Fort Sam Houston are primarily from the Heiden and Houston Black soil series. These soils are characterized as deep to very deep, moderately well drained to well drained, and gently rolling. Floodplain and stream terrace soils on Fort Sam Houston are primarily from the Loire, Lewisville, and Sunev soil series. These soils are characterized as flat to gently rolling, deep to very deep and well drained. All of the soils on Fort Sam Houston are comprised primarily of heavy clay (NRCS, 2013).

Upland soils on Camp Bullis are primarily from the Brackett and Eckrant soil series. These soils are characterized as moderately steep to steep, very shallow, and well drained. Floodplain and stream terrace soils on Camp Bullis are primarily from the Crawford, Krum, and Lewisville soil series, and are characterized as deep to very deep, well drained and flat to gently rolling. All of the soils on Camp Bullis are comprised of clay and clay loam (NRCS, 2013).

Soils on both installations are moderately to highly erodible. The high clay content can cause surface crusting which can decrease the rate of infiltration and increase the rate of surface runoff. BMPs to minimize soil erosion are utilized on both installations (USACE, 2007).

4.28.7.2 Environmental Effects

No Action Alternative

Minor, adverse impacts to soils on Joint Base San Antonio-Fort Sam Houston are anticipated under the No Action Alternative. Range training activities at Camp Bullis would continue under the current schedule, resulting in minimal impacts from ground disturbance and removal of vegetation. Management of soils to minimize erosion would continue. There would be negligible impacts to soils at Fort Sam Houston.

Alternative 1—Implement Force Reductions

Beneficial impacts to soils on Joint Base San Antonio-Fort Sam Houston are anticipated under Alternative 1. Force reductions at Camp Bullis would likely result in decreased use of the training ranges, which could have beneficial impacts to soils because there would be an anticipated decrease in soil compaction and vegetation loss. Because there are no active ranges on Fort Sam Houston, a force reduction would not lead to fewer impacts from these types of activities.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed.

Environmental compliance at Joint Base San Antonio-Fort Sam Houston is under the authority of the Air Force, so measures to maintain compliance regarding soils management would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with regulations affecting soils.

4.28.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.28.8.1 Affected Environment

Vegetation

Fort Sam Houston is located within the city of San Antonio in Bexar County, Texas. Camp Bullis is located north of San Antonio in Comal County, Texas. About 70 percent of the affected environment on Fort Sam Houston consists of developed urban areas. The remaining 30 percent is not developed and lies within the floodplain of Salado Creek (USACE, 2007). Camp Bullis is mostly undeveloped. Fort Sam Houston is situated within the Northern Blackland Prairie ecoregion of Texas and Camp Bullis lies within the Balcones Canyonlands ecoregion (Griffith et al., 2004).

The vegetation on Fort Sam Houston was historically dominated by little bluestem, big bluestem, yellow indiangrass and tall dropseed (*Sporobolus composites*), but it is now primarily maintained grasslands with vegetation typical of the urbanized, anthropomorphically altered Blackland Prairies (USACE, 2007). Vegetation along the undeveloped portion of Salado Creek includes asters (*Asteraceae* spp.), prairie bluet (*Coenagrion angulatum*), prairie clovers (*Petalostemum purpureum*), and black-eyed Susan (*Rudbeckia hirta*). Trees along the undeveloped Salado Creek include bur oak (*Quercus macrocarpa*), Shumard's oak (*Quercus shumardii*), sugar hackberry (*Celtis laevigata*), elm, ash, eastern cottonwood (*Populus deltoides*), pecan, juniper (*Juniperus ashei*) evergreen sumac (*Rhus virens*), common sotol (*Dasylirion wheeleri*), acacia (*Acacia* spp.), honey mesquite (*Prosopis glandulosa*), and ceniza (*Agave colorata*) (Fort Sam Houston, 2009).

Vegetation on Camp Bullis consists of more than 500 plant species that can be grouped into five distinct plant communities: woodland plant communities of intermittent streams and adjacent floodplains, wetland plant communities, grassland savanna plant communities, upland wood plant communities and plant succession on disturbed ground. Woodland plant communities comprise over half of the environment on Camp Bullis while grassland savannahs dominant the majority of the remaining land (USACE, 2007).

Wildlife

Wildlife on Fort Sam Houston is primarily characterized by species which are especially tolerant of urbanization. Urban species found on Fort Sam Houston include fox squirrel, house sparrow, grackle (*Quiscalus* spp.) and American robin. The small portion of the installation in the Salado

Creek floodplain houses a greater diversity of wildlife including birds, mammals, and fish. Habitat use on Fort Sam Houston varies seasonally, particularly with regard to migratory birds. Common species observed during winter months include the white-winged dove (*Zenaida asiatica*) and northern cardinal, while waterfowl species are expected to use the Salado Creek floodplain throughout the year. Mammal species found in and around Salado Creek include mammals such as beaver, armadillo (*Dasypus novemcinctus*) and opossum. Fish species in the creek include bluegill, largemouth bass, and Rio Grande perch (*Cichlasoma cyanoguttatum*). Camp Bullis contains at least 57 mammal species, 157 bird species, 92 species of reptiles and amphibians, and 14 species of fish (USACE, 2007).

Threatened and Endangered Species

According to USFWS, 19 species protected under the ESA potentially occur or imminently are affected by actions in Bexar County, and 10 species potentially occur or imminently are affected by actions in Comal County. Neither Fort Sam Houston nor Camp Bullis contain critical habitat for any federally listed species. However, several threatened and endangered bird species could use portions of the installations during annual migration, including the whooping crane) and Arctic peregrine falcon (*Falco peregrine tundrius*) (USACE, 2007). Two species listed as threatened by the state of Texas, the widemouth blindcat (*Satan eurystomus*) and the toothless blindcat (*Trogloglanis pattersoni*), may be present on Fort Sam Houston. Both of these species are blind catfish that live entirely in the dark parts of caves in the Edwards Aquifer and are endemic to five artesian wells in the San Antonio pool of the Edwards Aquifer, in the southern and eastern portions of San Antonio, Bexar County (Fort Sam Houston, 2009). Camp Bullis contains habitat and current populations of five federally endangered species: golden-cheeked warbler (*Dendroica chrysoparia*), black-capped vireo (*Vireo atricapilla*), Madla's Cave meshweaver (*Cicurina madla*) and two unnamed beetles (*Rhadine exilis* and *R. ewersi*). Camp Bullis is also home to two state-listed threatened species—Cascade Caverns salamander (*Eurycea latitans*) and Comal blind salamander (*Eurycea tridentifera*) (USACE, 2007). Camp Bullis also manages seasonal nesting habitat for the golden-cheeked warbler.

4.28.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in no impacts to biological resources and the affected environment would remain in its current state.

Alternative 1—Implement Force Reductions

Implementation of Alternative 1 would result in slight beneficial impacts to biological resources including vegetation, wildlife, or threatened and endangered species. The potential for disturbances to the affected environment on Joint Base San Antonio-Fort Sam Houston are minimal because the majority of the land cover is anthropogenically altered habitat. The proposed reduction in personnel under Alternative 1 could further alleviate any existing pressure

to biological resources on Joint Base San Antonio-Fort Sam Houston. Environmental compliance at Joint Base San Antonio-Fort Sam Houston is under the authority of the Air Force, so measures to maintain compliance regarding natural resource management would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with natural resources regulations.

4.28.9 Wetlands

4.28.9.1 Affected Environment

A review of NWI maps identified approximately 278 acres of palustrine, lacustrine, riverine, and freshwater pond wetlands within Fort Sam Houston and Camp Bullis at Joint Base San Antonio-Fort Sam Houston (USFWS, 2010). Of the 278 acres identified, approximately 261 acres are on Camp Bullis and approximately 17 acres are on Fort Sam Houston. NWI mapping is an educated delineation based upon interpreting USGS topographic data, the USGS National Hydrography Dataset, NRCS soil data, and aerial imagery. No formal wetland delineation of the installation was performed.

The majority of the wetlands identified through NWI were open water systems, including ponds and lakes; however, riverine, palustrine forested, scrub-shrub, and emergent wetlands were also identified (USFWS, 2010). Table 4.28-2 identifies the acres of each wetland type on Fort Sam Houston and Camp Bullis.

Table 4.28-2. Acres of Wetland Types on Fort Sam Houston and Camp Bullis

Wetland Type	Acres
Fort Sam Houston	
Palustrine forested	14
Palustrine open water	3
Camp Bullis	
Palustrine Forested	11
Palustrine Scrub-shrub	12
Palustrine Emergent	40
Palustrine Open Water	82
Lacustrine	89
Riverine	27
Total acres for Fort Sam Houston and Camp Bullis	**278**

Source: USFWS (2010)

4.28.9.2 Environmental Effects

No Action Alternative

Minor, adverse impacts to wetlands on Joint Base San Antonio-Fort Sam Houston are anticipated under the No Action Alternative. Training activities on the ranges would continue to occur under current schedules and impacts to wetlands from these activities would continue. Additionally, impacts to wetlands from any current projects under construction would have already been assessed and, if required, been properly permitted and mitigated. Current management of wetlands would continue under the No Action Alternative. Current management of recreational facilities, such as golf courses, would also continue under the No Action Alternative and could contribute to pollutants entering adjacent wetlands and ponds.

Alternative 1—Implement Force Reductions

Beneficial impacts to wetlands on Joint Base San Antonio-Fort Sam Houston as a result of the implementation of Alternative 1 are anticipated. A force reduction at Joint Base San Antonio-Fort Sam Houston would mean that training ranges would be used less frequently. As a result, there would be less sedimentation from runoff entering wetland areas, fewer instances of vegetation becoming denuded, and wetland functions and values would remain intact. Adverse impacts to wetlands could conceivably occur if force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. Environmental compliance at Joint Base San Antonio-Fort Sam Houston is under the authority of the Air Force, so measures to maintain compliance regarding wetland management and compliance would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with wetland regulations.

4.28.10 Water Resources

4.28.10.1 Affected Environment

Surface Water/Watersheds

The main surface water draining Fort Sam Houston is Salado Creek, an intermittent stream flowing south through the eastern portion of the installation. Flow is predominantly precipitation driven with recharge from local artesian springs. The western portion of the installation is drained by Alamo Ditch, a small tributary of the San Antonio River. The city of San Antonio MS4 covers the highly impervious southern and central portions of the installation eventually draining to the Salado River.

Camp Bullis, to the north of Fort Sam Houston, is also drained by upper reaches of Salado Creek, and tributary Lewis Creek, as well as Cibolo Creek, Meusebach Creek, and Panther Springs Creek. The smaller surface waters are intermittent and dry for most of the year except during and following rain events. Salado Creek, located on the western portion of Camp Bullis,

runs southeast. Two constructed stormwater control structures hold and attenuate smaller amounts of stormwater runoff. Groundwater surfaces as springs along Lewis Creek and Panther Springs Creek before eventually disappearing into streambed fractures, caves, and sinkholes (U.S. Army, 2005, as cited by USACE, 2007).

The Salado Creek designated uses are contact recreation, high aquatic life, public water supply, and aquifer protection (Texas NRCC, 2001). The Salado Creek reaches within both Fort Sam Houston and Camp Bullis borders are impaired due to inability to meet bacteria water quality standards (Texas CEQ, 2013). Immediately north of Fort Sam Houston, Salado Creek is impaired for depressed dissolved oxygen (Texas CEQ, 2013). Sources for potential surface water quality issues include former landfills within the Salado Creek floodplain, golf course runoff, and other nonpoint sources (USACE, 2007).

Groundwater

The artesian zone of Edwards Aquifer is the major groundwater source under Fort Sam Houston. The groundwater in this area is confined between the Del Rio clay layer and the Glen Rose Formation. The aquifer is recharged by surface waterbodies and precipitation. In general, water flow within the aquifer is west to east however variations in porosity and permeability as well as aquifer faults determine specifics of water movement.

Contamination of groundwater within the Edwards Aquifer has occurred due to unnatural and natural sources. Dense, less permeable rock impedes groundwater movement causing natural contamination from dissolution of mineral solids. Total dissolved solid concentrations of up to 1,000 parts per million have been observed leading to saline, non-potable waters (USACE, 2007). Five wells draw groundwater from depths of 728 to 1,106 feet below the surface for water supply (U.S. Army, 2001b, as cited by USACE, 2007). Because of a hydrologic connection between aquifer and spring levels, too much pumping of aquifer water for water supplies could reduce spring flows (USACE, 2007).

Both Trinity and Edwards Aquifers occur under Camp Bullis. Surface waters and precipitation on Camp Bullis lands recharge both aquifers. Trinity Aquifer occurs under a majority of the Camp although Edwards Aquifer recharge areas occur in small portions of the northern and southeast areas of Camp Bullis. Camp Bullis wells draw water from the upper Trinity Aquifer further north of Edwards Aquifer (U.S. Army, 2006, as cited by USACE, 2007).

Water Supply

Joint Base San Antonio-Fort Sam Houston draws water from the Edwards and Trinity aquifers for water supply (U.S. Army, 2001b, as cited by USACE, 2007; USACE, 2007). In addition to the installations, San Antonio and 16 other cities use the Edwards Aquifer for their water supply (U.S. Army, 2001b, as cited by USACE, 2007). Estimations predict that this aquifer can provide regional water supplies for an additional 200 to 300 years; however, only 5 to 10 percent of

spring or artesian waters are able to be withdrawn (U.S. Army, 1996, as cited by USACE, 2007). Pumping limits are required for the installation so that water withdrawal will not exceed USFWS-recommended limits set to protect threatened and endangered species.

Five Fort Sam Houston wells draw water from the Edwards Aquifer for water supply (U.S. Army, 2001b, as cited by USACE, 2007). Total production capacity of the five Fort Sam Houston potable water wells is 14 mgd. Two elevated storage tanks have a capacity of 2.05 million gallons. There are two WWTPs on Fort Sam Houston, located in the southwest and northeast, which chemically treat well water before storage. The water is treated with chlorine, fluoride, and corrosion inhibitors.

Three Camp Bullis wells draw water from the Trinity Aquifer for water supply. Two of the three wells have a capacity of 0.19 mgd, while the third is restricted to 40 gallons per minute to control aquifer drawdown (USACE, 2007). Two elevated storage tanks have a capacity of 0.45 million gallons. The water is treated with chlorine, fluoride, and corrosion inhibitors before it is pumped to the storage tanks.

The installation has instituted a water use reduction and conservation program. Measures include upgrades to the water distribution system, an irrigation and landscaping policy, car washing restrictions, water reuse, and water recycling (U.S. Army, 2001c, as cited by USACE, 2007; USACE, 2007). Recycled water is used for irrigation and tower cooling on Fort Sam Houston. Camp Bullis uses treated wastewater effluent for range irrigation through a zero discharge permit.

Wastewater

Approximately 262,000 linear feet of pipelines of varying diameters and materials collect wastewater on Fort Sam Houston relying mainly on gravity to move the flow to sewer mains. One lift station assists with wastewater movement in the northeast of Fort Sam Houston. San Antonio Water System receives the wastewater when it leaves the installation. Fort Sam Houston has wastewater discharge permits.

Approximately 43,000 linear feet of pipelines collect wastewater on Camp Bullis with the assistance of six lift stations for transport to the WWTP. This treatment plant uses a conventional, activated-sludge process before off-installation disposal (U.S. Army, 2001b). The design capacity for the treatment plant is 0.68 mgd daily flow and 2.38 mgd 2-hour peak flow (USACE 2007). Treated wastewater effluent is reused for firing range irrigation under a zero discharge permit.

Stormwater

Portions of the installation are developed and contain impervious surfaces; approximately 20 percent of Fort Sam Houston is impervious land (USACE, 2007). In addition to greater amounts of stormwater runoff, these impervious surfaces also lead to more pollutants entering surface waters. The impervious southern and central areas of Fort Sam Houston are drained by the city of San Antonio MS4, which discharges to Salado Creek (USACE, 2007). In other areas the Salado Creek and Alamo Ditch receive surface stormwater runoff. Issues resulting from stormwater runoff within Fort Sam Houston include erosion, sedimentation, and infrastructure damage (USACE, 2007). Natural channels receive the overland stormwater runoff throughout Camp Bullis eventually discharging this flow into the San Antonio River.

The NPDES General Permit for Stormwater Discharge Associated with Industrial Activities (TXR05M458) for the installation requires implementation of BMPs and preparation of an SWPPP (USACE, 2007). Monitoring for the permit includes collecting stormwater runoff samples along Salado Creek. Past years have shown no exceedances of the permit guidelines except for chemical oxygen demand, iron, and total suspended solids (USACE, 2007).

Floodplains

E.O. 11988, *Floodplain Management*, requires federal agencies to avoid floodplain development and any adverse impacts from the use or modification of floodplains when there is a feasible alternative. Specifically, Section 1 of E.O. 11988 states that an agency is required to “reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities.” The 100-year floodplain indicates areas where the flood has a 1 percent chance of being equaled or exceeded in any year. The 500-year floodplain indicates area where the flood has a 0.2 percent chance of being equaled or exceeded in any year.

Within Fort Sam Houston, specific areas designated as 100-year and 500-year floodplains include areas adjacent to Salado Creek, especially the entire eastern portion of the installation (USACE, 2007). Flooding in this area occurs about once every 3 to 4 years (USACE, 2007). Six former landfills are located within the Salado Creek floodplain of Fort Sam Houston (USACE, 2007). Within Camp Bullis, 100-year floodplain exists adjacent to Salado Creek and small areas along the main stream channels and tributaries running through the installation borders. Two flood control reservoirs, monitored by NRCS and the San Antonio River Authority, store and retain stormwater flows along Salado and Lewis Creeks preventing serious flooding for Camp Bullis land.

4.28.10.2 Environmental Effects

No Action Alternative

Minor, adverse impacts to water resources are anticipated from the No Action Alternative. Training activities would continue to occur at Joint Base San Antonio-Fort Sam Houston ranges as would potential disturbance to and sedimentation of surface water resources. Joint Base San Antonio-Fort Sam Houston would continue to strive to meet federal and state water quality criteria, drinking water standards, and floodplain management requirements. Stormwater management would continue under the existing NPDES permits as would adherence to state stormwater requirements and BMP guidelines. Current water resources management and compliance activities would continue to occur under this alternative.

Alternative 1—Implement Force Reductions

Beneficial impacts to water resources are anticipated as a result of implementing Alternative 1. A force reduction would result in fewer training exercises thereby decreasing the potential for surface water disturbance and sedimentation. A force reduction would decrease demand for potable water and would reduce groundwater withdrawals. Demand for wastewater treatment would also decrease, allowing additional capacity for other users. Adverse impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. Environmental compliance at Joint Base San Antonio-Fort Sam Houston is under the authority of the Air Force, so measures to maintain compliance regarding water resource management would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with water quality regulations. Army force reductions at Joint Base San Antonio-Fort Sam Houston are not anticipated to cause violations of federal and state water quality regulations and discharge permits.

4.28.11 Facilities

4.28.11.1 Affected Environment

Joint Base San Antonio-Fort Sam Houston's facilities support its mission of medical training and practice. Mission facilities are primarily characterized as administrative, classroom, hospital and clinic space. Joint Base San Antonio-Fort Sam Houston is a 2,940-acre installation that does not have an airfield or warfighting maneuver or training ranges. Supporting facilities at Joint Base San Antonio-Fort Sam Houston include Family housing, troop housing, recreational facilities, commercial and community facilities, vehicle and equipment maintenance facilities, and supply distribution facilities (USACE, 2007).

Camp Bullis encompasses 27,987 acres and is primarily used for military training. It is divided into three general areas: the cantonment area (about 600 acres), the impact area (about 6,000 acres), and the maneuver areas (about 21,400 acres). The Camp Bullis cantonment area has most

of the administrative and support facilities including offices, warehouses, classrooms, barracks, munitions and explosives storage, and water and wastewater treatment systems. The other facilities at Camp Bullis include target ranges, training areas, airspace, and outdoor recreation facilities (USACE, 2007).

4.28.11.2 Environmental Effects

No Action Alternative

No impacts are anticipated under the No Action Alternative. Joint Base San Antonio-Fort Sam Houston would continue to use its existing facilities to support its tenants and missions.

Alternative 1—Implement Force Reductions

Under Alternative 1, implementation of the proposed force reductions would result in overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a reduction in the frequency of training exercises at Camp Bullis would be beneficial for maintaining ranges and training areas and thereby improving sustainability of those facilities. A decrease in training operational tempo and related heavy equipment use would be beneficial for the maintenance and sustainability of roadways and off-road maneuver areas. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

If Army reductions result in impacts to the utilization of facilities and/or training areas at this Air Force-managed joint base, the Air Force could conduct any required site-specific NEPA analyses, as appropriate, and make the final determinations regarding disposition of these affected facilities and/or training areas.

4.28.12 Socioeconomics

4.28.12.1 Affected Environment

Joint Base San Antonio-Fort Sam Houston is situated in Bexar County within the city of San Antonio, Texas. The ROI for the joint base in this analysis includes counties that are generally considered the geographic extent to which the majority of the joint base's Soldiers, Army civilians, and contractor personnel and their Families reside. The ROI for Joint Base San Antonio-Fort Sam Houston consists of Atascosa, Bandera, Bexar, Comal, Guadalupe, Kendall,

Medina, and Wilson counties in Texas. This section provides a summary of demographic and economic characteristics within the ROI.

Population and Demographics

Using 2013 as a baseline, Joint Base San Antonio-Fort Sam Houston has a total working population of 37,356 consisting of permanent party Soldiers and Army civilians, students and trainees, other military services, civilians and contractors. Of the total working population, 12,256 were permanent party Soldiers and Army civilians. Joint Base San Antonio-Fort Sam Houston provides medical training for Soldiers and averages approximately 11,800 students assigned on the joint base for training at any given time.

In 2012, the population of the ROI exceeded 2.2 million, a 4.3 percent increase from 2010. Compared to 2010, the 2012 population increased in all of the counties in the ROI, with the greatest increase in Kendall County (Table 4.28-3). The racial and ethnic composition of the ROI is presented in Table 4.28-4 (U.S. Census Bureau, 2012a).

Table 4.28-3. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Atascosa County, Texas	46,423	+3.4
Bandera County, Texas	20,586	+0.5
Bexar County, Texas	1,785,787	+4.1
Comal County, Texas	114,590	+5.6
Guadalupe County, Texas	139,873	+6.3
Kendall County, Texas	35,968	+7.7
Medina County, Texas	46,871	+1.9
Wilson County, Texas	44,396	+3.5

Source: U.S. Census Bureau (2012a)

Table 4.28-4. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic (percent)	White Alone, Not Hispanic or Latino (percent)
State of Texas	80.6	12.3	1	1.7	38.2	4.2	44.5
Atascosa County, Texas	96.0	1.2	1.1	1.1	62.5	0.5	35.4
Bandera County, Texas	96.6	0.6	1.1	1.3	17.3	0.3	80.1
Bexar County, Texas	85.6	8.1	1.2	2.1	59.1	2.7	29.8
Comal County, Texas	94.7	2.0	0.8	1.5	25.8	0.8	70.1
Guadalupe County, Texas	87.5	7.3	1.0	2.3	36.3	1.7	53.5
Kendall County, Texas	96.2	0.8	0.7	1.4	21.3	0.8	75.9
Medina County, Texas	94.3	2.6	1.0	1.2	50.5	0.8	45.7
Wilson County, Texas	95.4	1.8	0.9	1.4	38.9	0.5	58.0

Source: U.S. Census Bureau (2012a)

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Sales

In 2012, the total employed labor force in the ROI was 988,625, the majority of which resides in Bexar County. Between 2000 and 2012, total employed labor force (including Soldiers and Army civilians) increased in all of the ROI counties, with the greatest increase in Kendall, Wilson, and Comal counties (Table 4.28-5). Employment, median home value, household income, and poverty levels are presented in Table 4.28-5 (U.S. Census Bureau, 2012b).

Table 4.28-5. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment 2000-2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Texas	11,546,783	23.6	$128,000	$60,621	13.5
Atascosa County, Texas	18,578	20.2	$83,300	$51,834	14.0
Bandera County, Texas	8,588	9.3	$141,400	$59,797	9.5
Bexar County, Texas	791,377	27.3	$122,600	$58,023	13.8
Comal County, Texas	51,233	40.3	$202,200	$76,326	6.9
Guadalupe County, Texas	63,732	52.2	$154,300	$73,684	7.7
Kendall County, Texas	16,056	46.7	$272,800	$84,630	4.0
Medina County, Texas	18,552	14.1	$109,800	$60,974	14.4
Wilson County, Texas	20,509	45.8	$139,300	$69,731	8.7

Source: U.S. Census Bureau (2012b, 2000)

Information regarding the workforce by industry for each county within the ROI was obtained from the U.S. Census Bureau. Information presented below is for the employed labor force. Information on major employers were not readily available for all counties in the ROI.

Atascosa County, Texas

According to the U.S. Census Bureau, the educational services, health care and social assistance sector accounts for the greatest share of total workforce in Atascosa County (23 percent). Construction is the second largest employment sector (14 percent), followed by retail trade (13 percent). The Armed Forces account for less than 1 percent of the county's workforce. The remaining 10 employment sectors account for a combined 60 percent of total county employment (U.S. Census Bureau, 2010).

Bandera County, Texas

According to the U.S. Census Bureau, the educational services, health care and social assistance sector accounts for the greatest share of total workforce in Bandera County (19 percent). Construction is the second largest employment sector (13 percent), followed by retail trade (12 percent). The Armed Forces account for less than 1 percent of the county's workforce. The

remaining 10 employment sectors account for a combined 56 percent of total county employment (U.S. Census Bureau, 2010).

Bexar County, Texas

According to the U.S. Census Bureau, the educational services, health care and social assistance sector accounts for the greatest share of total workforce in Bexar County (22 percent). Retail trade is the second largest employment sector (12 percent), followed by professional, scientific, and management, and administrative and waste management services (11 percent). The Armed Forces account for 2 percent of the county's workforce. The remaining 10 employment sectors account for a combined 55 percent of total county employment (U.S. Census Bureau, 2010).

Major employers in Bexar County include Joint Base San Antonio, H.E.B. Grocery Company, Northside ISD, and USAA (Bexar County, 2012).

Comal County, Texas

According to the U.S. Census Bureau, the educational services, and health care and social services sector accounts for the greatest share of total workforce in Comal County (20 percent). Retail trade is the second largest employment sector (13 percent), followed by construction (11 percent). The Armed Forces account for less than 1 percent of the county's workforce. The remaining 10 employment sectors account for a combined 56 percent of total county employment (U.S. Census Bureau, 2010).

Major employers in Comal County include Comal ISD, Schlitterbahn Water Park, The Scooter Store, and Walmart Distribution Center (Comal County Auditor's Office, 2012).

Guadalupe County, Texas

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of total workforce in Guadalupe County (21 percent). Retail trade is the second largest employment sector (13 percent), followed by manufacturing (11 percent). The Armed Forces account for 2 percent of the county's workforce. The remaining 10 employment sectors account for a combined 55 percent of total county employment (U.S. Census Bureau, 2010).

Major employers in Guadalupe County include city of Schertz, city of Seguin, CMC Steel Texas, and Continental AG (Guadalupe County Auditor's Office, 2013).

Kendall County, Texas

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of total workforce in Kendall County (21 percent). Professional, scientific, and management, and administrative and waste management services is the second largest employment sector (12 percent), followed by construction (11

percent). The Armed Forces account for less than 1 percent of the county's workforce. The remaining 10 employment sectors account for a combined 56 percent of total county employment (U.S. Census Bureau, 2010).

Major employers in Kendall County include Boerne ISD, H.E.B. Grocery Stores, Walmart Super Center, and Mission Pharmacal (Kendall County, 2014).

Medina County, Texas

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of total workforce in Medina County (24 percent). Construction is the second largest employment sector (10 percent), followed by retail trade (10 percent). The Armed Forces account for less than 1 percent of the county's workforce. The remaining 10 employment sectors account for a combined 56 percent of total county employment (U.S. Census Bureau, 2010).

Wilson County Texas

According to the U.S. Census Bureau, the educational services, and health care and social services sector accounts for the greatest share of total workforce in Wilson County (23 percent). Construction is the second largest employment sector (11 percent), followed by retail trade (10 percent). The Armed Forces account for less than 1 percent of the county's workforce. The remaining 10 employment sectors account for a combined 56 percent of total county employment (U.S. Census Bureau, 2010).

Housing

Housing on Joint Base San Antonio-Fort Sam Houston is privatized. This privatization took effect on March 1, 2005 and is a partnership between the Army and Lincoln Military Housing. There are 925 homes offered to military personnel through Lincoln Military Housing within 8 villages on Fort Sam Houston (Air Force Housing, 2014). This military housing provides many benefits to service members and their Families including, utilities and renters insurance, no credit checks or deposits, and community events and activities (Air Force Housing, 2014).

Benner Barracks is located on Fort Sam Houston and consists of 288 barracks spaces. The new NCO Barracks is located directly across the street from Benner Barracks and consists of 96 Barracks spaces. Located on the Medical Center Annex is Okubo Barracks consisting of 296 barracks spaces (Air Force Housing, 2014).

Schools

An elementary, middle, and high school are located on Fort Sam Houston. This includes Fort Sam Houston Elementary School (serving students pre-kindergarten through grade 5), the Robert G. Cole Middle School (serving students in grades 6 through 8), the Robert G. Cole High School,

and the Military School District's Academy and Special Education (serving special needs students from Joint Base San Antonio-Fort Sam Houston) (Fort Sam Houston ISD, 2014).

Public Health and Safety

Police Services

The Fort Sam Houston Police Department responds to calls at Fort Sam Houston (Fort Sam Houston, 2014a).

Fire and Emergency Services

Fire Emergency Services on Joint Base San Antonio-Fort Sam Houston provides fire prevention, structural firefighting, technical rescue, hazardous materials response, aircraft rescue firefighting, and emergency medical services to prevent the loss of life, property, and the environment for all Joint Base San Antonio-Fort Sam Houston locations (Joint Base San Antonio-Fort Sam Houston, 2014a).

Medical Services

The San Antonio Military Health System oversees the healthcare delivery of 230,000 DoD beneficiaries in the San Antonio metropolitan region. Health care services are provided by the SAMCC, which includes a Level 1 trauma center and DoD's largest inpatient hospital, Wilford Hall Ambulatory Surgical Center; 19 primary care clinics; and more than 100 specialty services (Joint Base San Antonio-Fort Sam Houston, 2014b).

Family Support Services

Joint Base San Antonio-Fort Sam Houston offers Families Exceptional Family Life Consultants, Emergency Financial Aid, Employment readiness, Family Life Education, Unit Service Coordinator/information and referral service, Relocation Readiness, Mobilization and Deployment Readiness, Personal and Family readiness, Transition Assistance Program, Survivor Benefit Plan and Outreach Services, Casualty Affairs, and Air Force Aid Society. Joint Base San Antonio-Fort Sam Houston also offers Families Marriage, Family, and individual counseling at the Family Life center, welfare and Recreation Programs, a Commissary, and an Exchange (an Army and Air force exchange service) (Joint Base San Antonio-Fort Sam Houston, 2014c).

Recreation Facilities

Joint Base San Antonio-Fort Sam Houston provides its military community an aquatic center, bowling center, gym, child development center, equestrian center, Family child care center, golf club, two fitness centers (on the Medical Education and Training Campus and Jimmy Brought Fitness Center), Hacienda Recreation Center, the Harlequin Dinner Theatre, Keith A Campbell Memorial Library, Middle School Teen Center, outdoor equipment center, Sam Houston Community Center, and Salado Park (Joint Base San Antonio-Fort Sam Houston, 2014c).

4.28.12.2 Environmental Effects

No Action Alternative

Under the No Action Alternative the operations at Joint Base San Antonio-Fort Sam Houston would continue to benefit regional economic activity. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a less than significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of 5,934[36] Army positions (3,949 Soldiers and 1,985 Army civilians), each with an average annual income of $46,760 and $56,913, respectively. In addition, this alternative would affect an estimated 9,008 Family members (3,311 spouses and 5,697 dependent children). The total population of Army employees and their Families directly affected under Alternative 1 is projected to be 14,942.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecast economic impact value falls outside the historical positive or negative ranges. Table 4.28-6 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, there would not be significant impacts to sales, income, employment, and population in the ROI under Alternative 1 because the estimated percentage changes are within the historical range.

Table 4.28-7 summarizes the predicted impacts to income, employment, and population of the reductions against the 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

[36] This number was derived by assuming the loss of 70 percent of Joint Base San Antonio-Fort Sam Houston's Soldiers and 30 percent of the Army civilians.

Table 4.28-6. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+7.2	+4.6	+2.6	1.5
Economic contraction significance value	-6.4	-3.9	-3.5	-1.0
Forecast value	-0.5	-0.5	-0.9	-0.5

Table 4.28-7. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$392,672,500	-6,620 (Direct)	-14,942
		-1,864 (Induced)	
		-8,485 (Total)	
Total 2012 ROI economic estimates	$87,169,022,000	988,625	2,234,494
Percent of total ROI figures	-0.5	-0.9	-0.7

Note: Sales estimates are not consistently available from public sources for all counties in the U.S.; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from EIFS is described in the paragraphs below.

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts are likely to occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 5,934 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 686 direct contract service jobs would also be lost. An additional 1,864 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. The total reduction in employment is estimated to be 8,485, a 0.9 percent reduction of the total employed labor force in the ROI. Income is estimated to fall by $392.7 million, a 0.5 percent decrease in income in 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $678 million. Sales tax receipts to local and state governments would also decrease. The state and average local sales tax for Texas is 8.15 percent (Tax Foundation, 2014). To estimate sales tax reductions, information was utilized on the proportion of sales that would be subject to sales taxes on average across the county. According to the U.S. Economic Census, an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). Therefore, with an estimated reduction of $677.7 million in sales would result in an estimated decrease in sales tax receipts of $8.8 million.

Of the approximately 2.2 million people (including those residing on Joint Base San Antonio-Fort Sam Houston) who live within the ROI, 5,934 Army employees and an estimated 9,008 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a

population reduction of 0.7 percent. This number likely overstates potential population impacts because some of the people no longer employed by the Army would continue to live and work within the ROI, finding employment in other industry sectors.

Joint base trainees and students may have a substantial impact on the local economy through lodging, eating, and shopping expenditures. Additionally, formal graduation ceremonies generate demand for lodging and dining facilities when Family members attend. The impact to Joint Base San Antonio-Fort Sam Houston's training mission(s) cannot be determined until after the Army completes its force structure decisions; therefore, analyzing the impact to those mission(s) is beyond the scope of this document.

Housing

Alternative 1 is expected to result in a decline in population in the ROI of 0.7 percent. While the force reductions may result in a decreased demand for housing on and off the joint base, it is not expected that this would result in significant, adverse impact to the housing sector given the size of the ROI.

Schools

Under Alternative 1, the reduction of 5,934 Army personnel would decrease the number of children by 5,697 in the ROI. It is anticipated that school districts that provide education to Army children on the joint base would be impacted by this action. The schools on Joint Base San Antonio-Fort Sam Houston, as well as school districts in Bexar County and neighboring counties where joint base children attend school would be most affected under Alternative 1. If enrollment in individual schools is significantly affected, schools may need to reduce the number of teachers, administrators, and other staff and potentially close or consolidate with other schools within the same school district if enrollment falls below sustainable levels.

The reduction of Soldiers on Joint Base San Antonio-Fort Sam Houston would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal Impact Aid a district receives is based on the number of students who are considered "federally connected" and attend district schools. Actual projected dollar amounts cannot be determined at this time due to the variability of appropriated dollars from year to year and the uncertainty of the actual number of affected school-age children for Soldier and Army and civilian Families. School districts in the ROI would likely need fewer teachers and materials as enrollment drops, which would partially offset the reduced Federal Impact Aid. Overall, adverse impacts to schools associated with Alternative 1 would be minor to significant depending on the number of military-connected students attending each school.

Public Services

The demand for law enforcement, medical care providers, and fire and emergency service providers on the joint base may decrease if Soldiers, Army civilians, and their Family members,

affected under Alternative 1 move off the joint base. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the joint base. These scenarios are not reasonably foreseeable and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements where it is appropriate for them to do so on this Air Force managed joint base. Many of the public services provided on Joint Base San Antonio-Fort Sam Houston are under the authority of the Air Force; these health and safety requirements would continue to be met by the Air Force. Overall, minor impacts to public health and safety would occur under Alternative 1; these impacts are not expected to be significant because the existing service level for the joint base and the ROI would still be available.

Family Support Services and Recreational Facilities

Family Support Services and recreational facilities would experience reduced demand and use and, subsequently, would require fewer personnel and/or reduced funding. Many of the Family Support Services and all of the recreational facilities provided on Joint Base San Antonio-Fort Sam Houston are under the authority of the Air Force, so measures for meeting those needs would continue to be met by the Air Force. Minor impacts to Family Support Services and recreational facilities are anticipated under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, states: “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations” (EPA, 1994). In general, Alternative 1 would not have a disproportionate adverse impact to minorities, economically disadvantaged populations or children in the ROI. Job losses would be experienced across all income levels and economic sectors and spread geographically throughout the ROI. As shown in Table 4.28-3, minority populations in all of the ROI counties are proportionally smaller than in Texas as a whole, so there would be no disproportionate effect to environmental justice populations.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of the people associated with the joint base, including children, where it is appropriate for them to do so on this Air Force managed joint base. Therefore, it is not anticipated that Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the joint base that may

require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and could be evaluated in future, separate, site-specific NEPA analysis by Joint Base San Antonio, as appropriate.

4.28.13 Energy Demand and Generation

4.28.13.1 Affected Environment

The installation's energy needs are currently met by a combination of electric power and natural gas. During the past decade, Congress has enacted major energy bills, and the President has issued Executive Orders that direct federal agencies to address energy efficiency and environmental sustainability. The federal requirements for energy conservation that are most relevant to Joint Base San Antonio-Fort Sam Houston include the Energy Policy Act of 2005, E.O. 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, issued January 2007; Energy Independence and Security Act of 2007; and E.O. 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, issued October 2009. Joint Base San Antonio-Fort Sam Houston is striving to comply with these requirements.

Electricity

The electrical power systems at Joint Base San Antonio-Fort Sam Houston were privatized in September 2000. Electrical power is provided by City Public Service. Power is distributed to various facilities via lines owned by City Public Service and metered at each individual facility. In addition to the electrical power provided by City Public Service, Joint Base San Antonio-Fort Sam Houston has several auxiliary generators to supply power to critical mission facilities during emergencies (U.S. Army, 2001b, as cited by USACE, 2007).

Natural Gas

Natural gas supply at Fort Sam Houston was privatized in September 1999. City Public Service owns and maintains the gas distribution lines throughout the installation. Propane gas is used at Camp Bullis for heating. Storage tanks are located near the facilities that use the propane. The gas is supplied by local vendors (USACE, 2007).

4.28.13.2 Environmental Effects

No Action Alternative

Minor, adverse impacts are anticipated on energy demand. The continued use of outdated, energy inefficient facilities could hinder Joint Base San Antonio-Fort Sam Houston's requirement to reduce energy consumption. Some older facilities may require renovations to improve energy efficiency to achieve federal mandate requirements.

Alternative 1—Implement Force Reductions

Minor, beneficial impacts to energy demand are anticipated because force reductions would reduce the installation's overall demand for energy. The installation would also be better positioned to meet energy and sustainability goals. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on energy demand are not analyzed.

4.28.14 Land Use Conflicts and Compatibility

4.28.14.1 Affected Environment

Regional Setting

Fort Sam Houston is located in south-central Texas, in the city of San Antonio, approximately 2.5 miles northeast of the central downtown area. Joint Base San Antonio-Fort Sam Houston is located within Loop 410, which circles the city center and encloses a densely populated urban environment. The 2,940-acre installation is surrounded by developed property, widely used highways and arterial roadways. The installation roughly comprises the land area enclosed on the south by IH-35, on the west-northwest by the Old Austin Highway and Harry Wurzbach Highway, on the north by Rittiman Road and Holbrook Road, and by IH-35 on the east-southeast.

Camp Bullis is located north of San Antonio, in Bexar and Comal counties, Texas, and is a sub-installation to Joint Base San Antonio. It encompasses 27,987 acres approximately 18 miles northwest of Fort Sam Houston. The installation runs approximately 10 miles from north to south and 4 miles from east to west. The surrounding area is primarily rural but has become increasingly urbanized as the San Antonio suburbs have radiated outward to extend closer to Camp Bullis.

The Fort Sam Houston mission is focused on medical training and practice, and its activities and facility requirements are primarily characterized as administrative, classroom, hospital and clinic space. Camp Bullis is used as a field training site for medics and medical students. Fort Sam Houston does not have an airfield or warfighting maneuver or training ranges. Camp Bullis provides target ranges and field training areas for the Army, Air Force, Marine Corps, and the Armed Forces reserve units in the San Antonio area, as well as serving as an exercise site for many military units from outside the region.

Land Use on the Installation

There is no room for land expansion at Fort Sam Houston, and additional development is confined within the installation's borders. The Fort Sam Houston master plan layout and the associated land uses are characterized by four mission-related subareas: patient care; medical

training; medical and other RDTE; and headquarters and administration. Additionally, housing, recreational, commercial and community facilities are located throughout the installation. Older, more developed areas occur in the southwestern and south-central portions of the installation, and contain most of the headquarters/administrative, housing, community support and training facilities. The Arthur McArthur Field, a long contiguous tract of land, is used as parade grounds and athletic fields. The central core of Fort Sam Houston contains a variety of land uses, including Family housing, troop housing and bachelor officers' quarters, intermingled with HQ/administrative, community support, educational, and smaller recreation facilities. The south-central part of the installation is an industrial area primarily dedicated to logistics, facilities services, vehicle and equipment maintenance, supply distribution and warehousing. The north end of Fort Sam Houston is less densely developed, with Family housing, schools, outdoor recreation and a national cemetery. There are two 18-hole golf courses, picnic and camping areas and a riding stable in this area. Other smaller recreation areas can be found throughout the installation. The easternmost area houses greater than 1 million square feet of SAMMC and support facilities.

The Camp Bullis master plan divides the installation into three general areas. The cantonment area (about 600 acres) in the southwest part of the reservation, the impact area (about 6,000 acres) in the southeast and the maneuver areas (about 21,400 acres) comprise the bulk of the land area. Each area is used for a variety of functions. The Camp Bullis cantonment area has most of the administrative and support functions and facilities, including offices, warehouses, classrooms, barracks, munitions and explosives storage and water and wastewater treatment systems. The impact area for the firing ranges occupies most of the southeast part of the reservation. Other areas provide a variety of features and facilities supporting different missions and training activities. These include four drop zones used for air missions and several special training areas with constructed obstacles, natural features and facilities to support specific training needs. Tracked vehicle training is performed on trails in the southern, eastern and central portion of the installation.

Camp Bullis supports activities of other entities, mostly governmental, that will not impede or inhibit the military mission, on about 80 percent of the land through easements, grants or permits. The San Antonio River Authority and NRCS monitor and maintain two flood control reservoirs on 700 acres (FAA operates radar and air traffic control equipment on leased land north of the cantonment area). Several borrow pits and quarrying operations are dispersed throughout Camp Bullis. One commercial oil and gas license is in effect. Camp Bullis provides recreational opportunities for military and civilian personnel. Soccer, softball and volleyball facilities are available for military personnel. Personnel also have access to about 21,000 acres for deer, dove and quail hunting during state-designated hunting seasons, as well as a sportsman's shooting range. The entire Camp Bullis land area is used for conservation and restoration of natural resources, consistent with the Army's peacetime mission and federal policy.

Surrounding Land Use

Fort Sam Houston lies within the city of San Antonio. The San Antonio Planning Department oversees master planning efforts in the city as well as compliance with existing ordinances. The Alamo Area Council of Governments is a voluntary association of local governments and organizations that provides technical planning assistance and coordination within the region. Although Fort Sam Houston does not fall under the jurisdiction of the city of San Antonio, land use changes on Fort Sam Houston may have impacts to the surrounding community.

Land use surrounding Fort Sam Houston is varied and includes single- and multi-Family residential, lodging, commercial business, light industrial, office space, warehouse/distribution, institutional, religious and recreational uses. The southeast border of the installation runs parallel to IH-35, a major thoroughfare that defines a corridor of various land uses along the service roads. The eastern boundary is largely open, with rural land and sporadic houses. Some industrial use is interspersed, but floodplains constrain further development. To the southeast and south, open land along the boundaries and highways is zoned mostly for industry and is being developed as such. The city's John James Park and the Fort Sam Houston National Cemetery (owned and administered by the Veterans Administration) are contiguous with Joint Base San Antonio-Fort Sam Houston on the northwest end of the installation.

Camp Bullis is located predominantly within Bexar County. A small amount of land (about 2,000 acres) on the north boundary falls within Comal County. Some original rangeland still is found along the northern boundary of Camp Bullis, but most surrounding land is being subdivided and used for suburban development. On the west side, Camp Stanley abuts Camp Bullis. On the southwestern boundary is the 323-acre city of San Antonio Eisenhower Park. Also to the south of the installation are rock quarries and a cemetery. Some commercial and industrial developments are located along the primary highways south of the installation.

4.28.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, no force reductions would take place. Medical training mission activities at Fort Sam Houston and military training activities at Camp Bullis would continue at their current levels. No incompatibilities with land uses within or outside the installation are anticipated. The No Action Alternative is therefore expected to have no impacts to land use.

Alternative 1—Implement Force Reductions

No impacts to land use would occur on Joint Base San Antonio-Fort Sam Houston under Alternative 1. Medical training mission activities at Fort Sam Houston and military training activities at Camp Bullis would continue at similar, though slightly diminished levels from current conditions. No incompatibilities with land uses within or outside the installation are anticipated.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on land use are not analyzed.

Installation management at Joint Base San Antonio-Fort Sam Houston is under the authority of the Air Force, so measures to maintain compliance regarding land use ordinances and regulations would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with land use ordinances and regulations.

4.28.15 Hazardous Materials and Hazardous Waste

4.28.15.1 Affected Environment

Activities and maintenance processes at Joint Base San Antonio-Fort Sam Houston require the use of hazardous materials. The most commonly used hazardous materials include aviation and motor fuels, petroleum products, paints, solvents, thinners, adhesives, cleaners, batteries, acids, bases, refrigerants, compressed gases and pesticides. The management and distribution of hazardous materials at Joint Base San Antonio-Fort Sam Houston are accomplished primarily through the Department of Logistics supply channels based on forecast and immediate needs. Other hazardous materials, including pesticides, medical supplies, and fuels are maintained and distributed through alternative channels. DPW performs hazardous material reporting for compliance with the EPA Emergency Planning and Community Right-to-Know Act and other regulations (USACE, 2007).

Petroleum fuels and products, as well as waste petroleum products, are stored in various tanks throughout Joint Base San Antonio-Fort Sam Houston. Materials stored include No. 2 diesel fuel, gasoline, jet propellant, motor oil and waste oil.

Hazardous Waste Treatment, Storage and Disposal

Hazardous wastes on the installation are handled, transported and stored in accordance with a HWMP. The plan sets forth procedures to achieve and maintain regulatory compliance regarding material management or administrative responsibilities; turn-in procedures; a hazardous material; inventory; training; a waste analysis plan; a tracking system; and hazardous waste storage, packaging, labeling and shipment requirements. In addition to this plan, SPCC Plans and ISC Plans have been developed and implemented for Joint Base San Antonio-Fort Sam Houston. These plans provide prevention and control measures to minimize the potential for spills of hazardous and toxic chemicals, and establish plans and procedures for controlling and managing sudden releases of petroleum products and other hazardous materials.

Joint Base San Antonio-Fort Sam Houston is a RCRA large-quantity hazardous waste generator. In accordance with state and federal waste regulations, hazardous waste is transported offsite for proper disposal within 90 days. No hazardous waste is disposed on either installation. Recycling

efforts and procedural changes, including product substitutions, have been implemented where feasible to reduce the need for hazardous waste disposal from installation activities (USACE, 2007).

Hazardous Waste Investigation and Remediation Sites

Contamination of groundwater and soil is tracked and mitigated by the U.S. Air Force. Prior to joint basing taking effect, these actions had been recorded in the Army Environmental Database for Restoration. Four IRP sites on Joint Base San Antonio-Fort Sam Houston are in varying stages of investigation and remediation (USACE, 2007).

Other Hazards

Other hazards present at Joint Base San Antonio-Fort Sam Houston are controlled, managed, and removed through specific programs and plans and include UXO, radioactive materials, LBP, asbestos-containing materials, PCBs, pesticides, and medical waste.

4.28.15.2 Environmental Effects

No Action Alternative

Minor, adverse impacts are anticipated under the No Action Alternative because there would be continued use and generation of hazardous materials and wastes on Joint Base San Antonio-Fort Sam Houston. The existing types and quantities of hazardous wastes generated on the installation have been accommodated by the existing hazardous waste management system and all materials and waste would continue to be handled accordance with all applicable laws, regulations and plans minimizing potential impacts.

Alternative 1—Implement Force Reductions

Minor, adverse impacts are anticipated as a result of implementing Alternative 1. Remediation activities are not expected to be impacted by Alternative 1. Because of the reduced numbers of people, the potential for spills would be somewhat reduced during training and maintenance activities. Waste collection, storage, and disposal processes would remain mostly unchanged, although the quantities may be reduced. No violation of hazardous waste regulations or the Joint Base San Antonio-Fort Sam Houston hazardous waste permit is anticipated as a result of force reduction. Volumes of generated waste are expected to decline depending on the specific units affected.

Environmental compliance at Joint Base San Antonio-Fort Sam Houston is under the authority of the Air Force, so measures to maintain compliance regarding hazardous waste management would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste.

As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.28.16 Traffic and Transportation

4.28.16.1 Affected Environment

Roadways and Traffic

The Fort Sam Houston installation of Joint Base San Antonio-Fort Sam Houston is located in the city of San Antonio, Texas, and Camp Bullis is north of San Antonio. Loop 410 circles the city center and encloses a densely populated urban environment. Fort Sam Houston is located within Loop 410 to the northeast of the city center. The installation is surrounded by developed property, widely used highways and arterial roadways (USACE, 2007).

The affected environment from a highway transportation perspective primarily includes: 1) the major on-installation roads that provide the corridors for movement of vehicles to and from and within subareas of the installation, and 2) arterial roads that provide direct access to and from the installation and the surrounding areas through ACPs (USACE, 2007). Public transportation and other modes including air and freight transportation are addressed as they pertain to Joint Base San Antonio-Fort Sam Houston.

Camp Bullis is a separate, non-contiguous facility located approximately 18 miles northwest of Fort Sam Houston within the northern San Antonio metropolitan area. Access is through a single ACP.

Joint Base San Antonio-Fort Sam Houston Transportation and ACPs

Most roadways and intersections throughout Fort Sam Houston were operating well prior to the BRAC influx of personnel. All had sufficient capacity to accept the expanded operations. The primary concerns expressed in the 2007 BRAC analysis pertain to peak hour incoming queues at certain ACPs. The ACPs are key elements of the traffic analysis. They represent 100 percent stop-and-check conditions on entry to the installation and slow exiting from the installation (USACE, 2007).

The main concern expressed in the BRAC 2007 study was the BAMC (now SAMMC) area of the installation regarding the morning peak queuing at the ACPs. The SAMMC campus has direct access to IH-35 and Loop 410. This provides convenient access to the major roadway infrastructure on the east side of San Antonio, as well as the downtown area (USACE, 2007). Limiting queues is a safety priority as well as convenience factor. Of greatest concern was the SAMMC/IH-35 ACP queue traffic in the a.m. peak along the access ramp from IH-35 (USACE, 2007).

In addition to the BRAC-related Walters Bridge and IH-35 roadway improvements identified below, Joint Base San Antonio-Fort Sam Houston initiated and completed a comprehensive ACP upgrade and restructuring. The re-built, state-of-the-art Walters Gate was opened in August 2012, with the exception of the Visitor Control Center (Newman, 2012).

New access procedures have been developed and implemented as the gates have been upgraded. Full Visitor Control Center implementation at Joint Base San Antonio-Fort Sam Houston is anticipated for completion April 30, 2014 (Fort Sam Houston, 2014b).

Off-Installation Roadways

Off-installation roadways around Fort Sam Houston comprise a well-developed roadway network system composed of all levels of roads. As noted above, the primary focus of the transportation evaluation is the connection between the roadway network and direct access to the installation at ACPs. The off-installation segments of these direct access roads include the following:

- Walters Street from IH-35 to the ACP
- Harry Wurzbach to the ACPs at Williams Road and Stanley Road along the northwest installation boundary
- Wilson Street ACP at the west end of the installation
- Access road and ramps to the ACP on the IH-35 Service Road along the east installation boundary of the SAMMC subarea at George C. Beach Avenue and a second ACP to this area from Binz-Engleman Road to George C. Beach Road on its south side

The primary access to the main area is through Walters Street, which was a four-lane road, two lanes in each direction in 2007. This roadway was the primary concern related to BRAC implementation (USACE, 2007). Walters Street was widened and reconstructed to six lanes from IH-35 to the Fort Sam Houston entrance gate. The project also included a multi-use path for pedestrians and bicyclists with decorative walls and fence rails (Southside Reporter, 2013).

Public Transportation

The city of San Antonio is serviced by VIA, the metropolitan transit system, with bus routes throughout the metropolitan and surrounding areas. Based on their schedules and routes, they do not provide services on the installation itself, but there are numerous routes in the immediate surrounding off-installation areas. Several routes provide access at the Walters and New Braunfels ACPs. The area adjacent to the northern portion of the installation also has select bus routes with full connectivity and coverage for the entire VIA transit network (USACE, 2007).

Air Transportation

Fort Sam Houston is approximately 8 miles from the San Antonio International Airport. San Antonio International Airport provides commercial airline service for the South Texas region. Over 13 airlines service more than 30 non-stop domestic and international destinations.

There are also at least two general aviation airports in the area, including Stinton Field that serve San Antonio operators of light aircraft, individuals, and private aviation companies (San Antonio, 2014).

Rail Passenger Transportation

Amtrak's Texas Eagle provides daily passenger service between Chicago–St. Louis–Dallas–San Antonio and Los Angeles (Amtrak, 2014).

Freight Rail and Intermodal Freight Services

San Antonio provides good highway and freight rail access via major intersecting highways, railroads, and intermodal systems. I-10, which runs east to west and stretches from Los Angeles, California, to Jacksonville, Florida, intersects in the city, as does north-south-running IH-35, which starts at the border in Laredo, Texas, and continues to Canada, tracing the North American Free Trade Agreement corridor. The rail system also boasts both east-west and north-south rails (Inbound Logistics, 2012). That means Fort Sam Houston has reasonably good access to major rail carriers transporting military materiel and supplies, as well as highway access for such transportation.

4.28.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, current levels of traffic and attendant congestion would continue. Capacity has recently been increased on key roadways and ACPs to accommodate current levels of personnel. Therefore, the No Action Alternative is anticipated to have a negligible impact on the traffic and transportation network.

Alternative 1—Implement Force Reductions

Alternative 1 is anticipated to have a beneficial impact on traffic and transportation resources. If the full reduction of 5,900 personnel were to be implemented, this would result in a 48 percent reduction in Army personnel, without counting the other tenants of the facility. The beneficial impact would likely be minor, perceptible to tenants but not significant. There does not appear to be a traffic congestion problem that needs to be overcome at the ACPs or on the installation. However, there is traffic congestion in the greater San Antonio area. Army personnel contribute to that traffic, and there would be a lessening of the issue under Alternative 1.

4.28.17 Cumulative Effects

The ROI for the cumulative impacts analysis of Army 2020 realignment at Joint Base San Antonio-Fort Sam Houston includes Atascosa, Bandera, Bexar, Comal, Guadalupe, Kendall, Medina, and Wilson counties in Texas.

Reasonably Foreseeable Future Projects on Joint Base San Antonio-Fort Sam Houston)

The Army is not aware of any reasonably foreseeable future projects on Joint Base San Antonio-Fort Sam Houston, which would be appropriate for inclusion in the cumulative impacts analysis.

Reasonably Foreseeable Future Projects outside Joint Base San Antonio-Fort Sam Houston)

No reasonably foreseeable future projects outside Joint Base San Antonio-Fort Sam Houston were identified by the installation. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, larger economies with more job opportunities could absorb some of the displaced Army workforce, lessening adverse effects of force reductions.

No Action Alternative

There were no future proposed actions within the ROI identified that have the potential to cumulatively add impacts to the No Action Alternative. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reductions

With the exception of socioeconomics, there would be no cumulative effects of the foreseeable future actions with Alternative 1. The socioeconomic impact within the ROI, as described in Section 4.28.12.2 with a reduction of 5,934 Soldiers and Army civilians, would be minor and adverse on population, the regional economy, and housing with the potential for significant, adverse impacts to some schools. Joint Base San Antonio is located in the San Antonio, Texas metropolitan area with an ROI population of over 2.1 million. Because of the large employment base and diverse economy in the region, the ROI would be less vulnerable to these force reductions because other industries and considerable economic activity occurs within the ROI. As a result, the region would be able to absorb some of the displaced Army employees, mitigating some of the adverse effects.

Joint Base San Antonio-Fort Sam Houston provides medical training for Soldiers, averaging approximately 11,800 students assigned to the joint base at a time. Cumulative actions could include reduced training opportunities because of the force reductions on Joint Base San Antonio-Fort Sam Houston, which would result in adverse impacts to socioeconomic conditions

because of reduced temporary population and visitors and the attendant economic activity, spending, and jobs and income it supports.

Other construction and development activities on the installation and in the ROI would benefit the regional economy through additional economic activity, jobs, and income in the ROI. Under Alternative 1, the loss of approximately 5,900 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have a minor, adverse impact on socioeconomic conditions in the ROI. However, cumulative impacts could be significant for specific schools on the installation and in the ROI.

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4.29 USAG Hawaii, Hawai'i

4.29.1 Introduction

USAG Hawaii is located on the islands of O'ahu and Hawai'i. The installation encompasses approximately 22 sub-installations, including Schofield Barracks Military Reservation, Schofield Barracks NCO Academy, Helemano Military Reservation, Wheeler AAF, Fort Shafter, Fort Derussy, MSG Earl Kalani U.S. Army Reserve Command, U.S. Army Command Center, and Tripler Army Medical Center. Schofield Barracks was analyzed in the 2013 PEA. The Pohakuloa Training Area is on another island and has very few permanent party Soldiers and Army civilians and is not included in this analysis; however, it was assessed in the 2013 PEA. A detailed overview of background information on Schofield Barracks can found in Section 4.18.1 of the 2013 PEA. While the 2013 PEA was focused on Schofield Barracks, it now appears that Fort Shafter could also experience losses in excess of 1,000. The discussion of both installations is combined in this section because the affected environment for both installations often overlaps. The two installations are about 20 miles apart (Figure 4.29-1).

Fort Shafter, which was not analyzed in the 2013 PEA, is located on the south-central coast of O'ahu, and is the site of the U.S. Army Pacific (USARPAC) command headquarters; IMCOM Pacific; USACE, Pacific Ocean Division; USACE, Honolulu District; and the U.S. Army Reserve Command (9th Mission Support Command). The installation covers 590 acres and extends up the interfluves (ridgeline) between Kalihi and Moanalua valleys, as well as onto the coastal plain (known as Shafter Flats) at Mapunapuna, and is approximately 3 miles northwest of downtown Honolulu. Moanalua Freeway is aligned east-west through the installation, dividing it into two areas. North of the freeway is Main Post and south is Shafter Flats. Fort Shafter is also the oldest military base on O'ahu.

The primary role of Fort Shafter is to support Army organizations that exercise primary command, control, and management of ground defense of the Pacific theater. These organizations include the headquarters of USARPAC; USACE, Pacific Ocean Division; and 9th Mission Support Command Army Reserve. Fort Shafter is also home to engineering, communications, military intelligence, and security units, along with elements of USAG Hawaii.

USAG Hawaii's Fort Shafter 2013 baseline permanent party population was 7,431. In this SPEA, Alternative 1 assesses a potential population loss of 3,800, including approximately 2,725 permanent party Soldiers and 1,061 Army civilians.

USAG Hawaii's Schofield Barracks 2011 baseline permanent party population was 18,441. In this SPEA, Alternative 1 assesses a potential population loss of 16,000, including approximately 15,394 permanent party Soldiers and 606 Army civilians.

Figure 4.29-1. Fort Shafter and Schofield Barracks Military Reservation, Hawai'i

4.29.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for USAG Hawaii; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.29-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.29-1. USAG Hawaii Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Negligible to Minor	Beneficial
Airspace	Minor	Beneficial
Cultural Resources	Minor to Significant, but Mitigable	Minor to Significant, but Mitigable
Noise	Less than Significant to Significant, but Mitigable	Beneficial
Soils	Negligible to Significant, but Mitigable	Beneficial
Biological Resources	No Impacts to Significant, but Mitigable	Beneficial
Wetlands	Minor	Minor to Beneficial
Water Resources	Minor	Minor to Beneficial
Facilities	No Impacts to Minor	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	No Impacts	Beneficial
Hazardous Materials and Hazardous Waste	Minor	Minor
Traffic and Transportation	No Impacts	Beneficial

4.29.3 Air Quality

4.29.3.1 Affected Environment

Two agencies have jurisdiction over the ambient air quality in Hawai'i—EPA and Hawai'i Department of Health, Clean Air Branch. Hawai'i has established significant ambient air concentration thresholds and criteria for hazardous air pollutants and has adopted ambient air quality standards that are in some areas more stringent than the comparable federal standards. Hawai'i also addresses pollutants, such as hydrogen sulfide, that are not covered by federal ambient air quality standards (Hawai'i Department of Health, 2011). These are applied under the permit review process for emission sources that require state or federal air quality permits.

All of Hawai'i, including Fort Shafter and Schofield Barracks, is in attainment for all criteria pollutants. Typical emission sources in Hawai'i include large and small industrial and commercial operations, vehicles, agricultural activities, and natural emission sources, with the major air emissions sources including emissions from volcanic activity and geothermal development. Sources of air emissions in the vicinity of Fort Shafter Flats primarily consist of commercial and industrial operations, as well as exhaust emissions from vehicles using surface

streets and highways (USACE, 2008). However, in general, the air quality in the state of Hawai'i is some of the best in the Nation, primarily due to consistent trade winds, limited emission sources, and the state's small size.

4.29.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the existing levels of emissions would continue to result in negligible to minor impacts to air quality. Emissions would continue to occur from mobile and stationary sources.

Alternative 1—Implement Force Reductions

Force reductions proposed at Fort Shafter and Schofield Barracks under Alternative 1 would result in long-term, beneficial air quality impacts because of reduced demand for heating/hot water and reduced mobile source emissions from vehicle trips to and from the facility.

Short-term, negligible impacts to air quality could result from the relocation of personnel outside of the area due to force reductions. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with air quality regulations. Even if the full end-strength reductions were to be realized, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.29.4 Airspace

4.29.4.1 Affected Environment

USAG Hawaii (Schofield Barracks) was analyzed in the 2013 PEA, and the affected environment for airspace, which can be found in Section 4.18.3, remains the same. There is no military airspace above Fort Shafter. The installation lies within the terminal control area of the Honolulu International Airport, meaning that Fort Shafter is in the vicinity (or in this case the flight path) of one of the airport's runways.

4.29.4.2 Environmental Effects

No Action Alternative

Impacts under the No Action Alternative at USAG Hawaii would remain the same as those discussed in Section 4.18.3.2 of the 2013 PEA, with minor impacts to airspace being anticipated.

USAG Hawaii would maintain existing airspace operations and classifications, and no new airspace conflicts are anticipated to occur.

Alternative 1—Implement Force Reductions

Airspace restrictions and classifications around USAG Hawaii are sufficient to meet current airspace requirements, and force reductions would not alter the current airspace use and would not be projected to require additional airspace restrictions. Some adverse impacts could conceivably occur if force reductions were to affect aircraft and airspace management personnel (i.e., air traffic controllers). The Army, however, is committed to safety issues and would maintain staffing levels to meet current airspace requirements. In the event that force reductions do not impact aircraft and airspace management personnel, impacts to airspace would be consistent with the beneficial impacts as discussed in Section 4.18.3.2 of the 2013 PEA due to reduced utilization of Soldiers and support activities, from the reduced potential for airspace conflicts as a result of reduced training activities.

4.29.5 Cultural Resources

4.29.5.1 Affected Environment

The affected environment for cultural resources at Schofield Barracks has not changed since 2013, as described in Section 4.18.4 of the 2013 PEA.

Fort Shafter

The affected environment for Fort Shafter is the installation footprint. Surveys of the area have identified 32 prehistoric and historic archaeological sites, 21 of which have been determined eligible for listing in the National Register of Historic Places (NRHP), as well as 11 rockshelters that are managed as cultural resources (USAG Hawaii, 2009).

The installation has completed surveys of all architectural resources constructed prior to 1951 (USAEC, 2008). These surveys have identified and evaluated 158 architectural resources. The Palm Circle has been designated an NHL District due to its distinctive architecture and associated landscape that includes rows of royal palms. Outside of this district, 20 architectural resources have been identified as eligible for listing in the NRHP. Currently, there is no proposed development that would impact archaeological sites or NRHP historic buildings.

Fort Shafter is located in an area of traditional significance to Native Hawaiian peoples. The area has been used for traditional religious ceremonies and burials (USAEC, 2008) and continues to be important to these communities (USAG Hawaii, 2009).

4.29.5.2 Environmental Effects

No Action Alternative

Section 4.18.4.2 of the 2013 PEA describes the effects of the No Action Alternative at Schofield Barracks as significant but mitigable. There has not been a change in the affected environment since the publication of the 2013 PEA that would alter impacts to cultural resources. Live-fire training would continue, allowing for the possibility of inadvertent damage to cultural resources. All activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures.

At Fort Shafter, there would be minor impacts to cultural resources as a result of the No Action Alternative. Cultural resources would continue to be managed in adherence with all applicable federal laws and the ICRMP. The cultural resource management staff at the installation would continue to consult with the SHPO and applicable tribes on the effects of undertakings that may affect cultural resources. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures. The effects of the No Action Alternative would come from the continuation of undertakings that have the potential to affect archaeological and architectural resources (e.g., training, maintenance of historic buildings, new construction).

Alternative 1—Implement Force Reductions

At Schofield Barracks, Alternative 1 would have a significant but mitigable impact on cultural resources as described in Section 4.18.4.2 of the 2013 PEA. The effects of this alternative are similar to the No Action—the reduction of forces at this installation would not result in a change in the existing conditions. Therefore, if current operations are having a significant but mitigable impact on cultural resources, the potential reduction in forces proposed under Alternative 1 would not alter those impacts.

At Fort Shafter, Alternative 1 would have a minor, adverse impact on cultural resources. As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to subsurface archaeological sites and historic structures are not analyzed. Additionally, the Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. If future site-specific analyses indicate that it is necessary to vacate or demolish structures as a result of force reductions, the installations would comply with applicable laws, such as the NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects.

The effects of this alternative are considered to be similar to the No Action Alternative—future activities with the potential to effect cultural resources would continue to be monitored and the impacts reduced through preventative and minimization measures. This alternative could result

in some beneficial effects; with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources.

4.29.6 Noise

4.29.6.1 Affected Environment

The noise affected environment of the Schofield Barracks remains the same as was discussed in Section 4.18.5.1 of the 2013 PEA.

Ambient noise at Fort Shafter is generated from intermittent aircraft flybys from Honolulu International Airport, street traffic (predominantly from Interstate H-1 and Moanalua Freeway), and natural sounds such as those typically heard from wind and birds. Since Fort Shafter's role is to serve administrative and command functions, there are no activities at the installation that generate significant noise levels. The primary source of noise generated within the installation is vehicle traffic (U.S. Army 2008a). Sensitive noise receptors located near the installation include civilian housing and a child development center and playground (USAEC, 2008).

Hawai'i has adopted statewide standards related to construction, fixed noise sources, and impulse and non-impulse noise. Each of these noise levels should not be exceeded by more than 10 percent of the time within a 20-minute period (U.S. Army, 2008a). In addition, the Army implements a Hawai'i Statewide Operational Noise Management Plan, which provides a methodology for analyzing exposure to noise associated with military operations, provides guidelines for achieving compatibility between the Army and surrounding communities, and creates a structure for receiving and responding to complaints (U.S. Army, 2010). No maneuver exercises or live-fire training take place at Fort Shafter, as these activities take place on ranges located at other Army installations on O'ahu (USAEC, 2008). Intermittent noise resulting from occasional construction or maintenance activities at Fort Shafter is not expected to exceed statewide community noise standards.

4.29.6.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, as discussed in Section 4.18.5.2, significant but mitigable, impacts to noise were anticipated at Schofield Barracks from continued live-fire and maneuver training and aviation overflights. With no change to the affected environment, impacts under the No Action Alternative on Schofield Barracks would remain the same.

Under the No Action Alternative, no significant noise impacts are expected for Fort Shafter. Fort Shafter would remain the headquarters of the U.S. Pacific Command and the home for units presently stationed there. No additional units or Soldiers would be stationed at Fort Shafter, and no force reductions would take place. Fort Shafter would remain primarily an administrative facility and the Soldier population would remain the same. Ongoing and planned cantonment

projects would proceed as necessary. Regulatory and administrative measures would continue to be implemented to reduce any noise impacts associated with Army activities.

Alternative 1—Implement Force Reductions

Under force reductions in the 2013 PEA, beneficial impacts to noise were anticipated at Schofield Barracks from a reduction in the frequency of noise generating training events, reducing noise contours. Impacts under Alternative 1 on Schofield Barracks would be similar to those discussed in Section 4.18.5.2 of the 2013 PEA, although noise-generating events would be even further reduced.

Under Alternative 1, noise impacts at Fort Shafter would be similar to those described for the No Action Alternative. Force reductions could result in potential reductions in noise from existing conditions. Therefore, impacts from operational noise at the installation resulting from force reductions would range from beneficial to no impacts. Noise sources generated outside the installation are not expected to change as a result of Alternative 1 and would continue to have negligible impacts to sensitive receptors within the installation.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with noise ordinances and regulations. Even if the full end-strength reductions were to be realized at USAG Hawaii, the Army would ensure that adequate staffing remains so that Schofield Barracks and Fort Shafter would comply with all mandatory environmental regulations including noise ordinances and regulations.

4.29.7 Soils

4.29.7.1 Affected Environment

The soils affected environment for Schofield Barracks remains the same as was discussed in Section 4.18.6.1 of the 2013 PEA.

Fort Shafter is underlain by Ko'olau basalts and in some areas by the younger Kalihi basalt member of the Honolulu basalts. Most of Shafter Flats is underlain by artificial fill used to fill two large, former fish ponds. The material overlies fine-grained marine sediments and alluvial and coastal deposits. The southwestern portion of Fort Shafter is within the 100 year flood zone of Moanalua Stream and its tributaries; however, the majority of the installation is in uplands out of the flood zone (FEMA, 2014).

The predominant upland soils on Fort Shafter are from the Honoliuli, Kawaihapai, Makiki, and Manana soil series. These soils are generally characterized as deep to very deep, well drained, and gently rolling. Manana soils are steep and occur on the northeastern portion of the installation. Areas within the floodplain on Fort Shafter are dominated primarily by fill material. The erodibility of the dominant soils on Fort Shafter is low, thus under normal conditions, they are not expected to erode (NRCS, 2013).

4.29.7.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, significant, but mitigable, impacts to soils were anticipated on Schofield Barracks from continued training and ongoing construction. Impacts under the No Action Alternative on Schofield Barracks remain the same as those discussed in Section 4.18.6.2 of the 2013 PEA.

Under the No Action Alternative, impacts to soils on Fort Shafter are anticipated to be negligible to minor due to ongoing construction activities. Any existing BMPs would be adhered to and the installation would continue to minimize erosion.

Alternative 1—Implement Force Reductions

Under Alternative 1 in the 2013 PEA, beneficial impacts to soils were anticipated on Schofield Barracks from reduced use of training ranges. Impacts under Alternative 1 on Schofield Barracks remain the same as those discussed in Section 4.18.6.2 of the 2013 PEA.

Beneficial impacts are anticipated under Alternative 1 on Fort Shafter. As there are no active ranges on the installation, a force reduction would not lead to fewer impacts from these types of activities. However, fewer Soldiers would mean a reduction in the use of roads and unpaved areas, which could reduce the amount of impacts to soils.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reduction is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at USAG Hawaii, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory regulations.

4.29.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

4.29.8.1 Affected Environment

The affected environment of Schofield Barracks, described in Section 4.18.7.1 of the 2013 PEA, provides habitat for a great diversity of flora and fauna species. Schofield Barracks is home to 53 rare plant species, 29 special status wildlife species, and 2 rare vegetation communities. The installation also contains large expanses of Biologically Significant Areas. An additional endangered species, the Hawaiian hoary bat (*Lasiurus cinereus semotus*) was recently discovered on Schofield Barracks. Schofield Barracks plans to consult with USFWS with regard to this

newly discovered endangered species in accordance with ESA Section 7 (USAG Hawaii, 2014a) by the end of 2014. No other changes have occurred to the affected environment since 2013.

The affected environment of Fort Shafter, also located on O'ahu, is similar to that of Schofield Barracks, but has undergone extensive disturbance due to the construction on and operation of the installation. For the most part, native vegetation and habitats are no longer present. Several areas of Fort Shafter are devoid of vegetation such as paved parking lots and equipment storage areas. The vegetated areas of Fort Shafter consist generally of a mixture of landscaped areas and scrub habitat dominated by non-native, weedy species. The majority of the Upper Campus area is maintained as a manicured lawn dominated by invasive grass species including Bermuda grass, with king palms (*Archontopheonix alexandrae*) located around the perimeter. Past disturbances and habitat fragmentation have severely affected the viability of wildlife habitat on Fort Shafter (U.S. Army, 2008a).

4.29.8.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, significant, but mitigable, impacts to biological resources were anticipated on Schofield Barracks from continued training and ongoing construction. Impacts under the No Action Alternative on Schofield Barracks remain the same as those discussed in Section 4.18.7.2 of the 2013 PEA.

Implementation of the No Action Alternative would result in no additional impacts to biological resources and the affected environment would remain in its current highly developed state at Fort Shafter.

Alternative 1—Implement Force Reductions

Under Alternative 1 in the 2013 PEA, beneficial impacts to biological resources were anticipated on Schofield Barracks from reduced use of training ranges by up to 30 percent. Impacts under Alternative 1 on Schofield Barracks remain the same as those discussed in Section 4.18.7.2 of the 2013 PEA. However, with greater reductions of soldiers under Alternative 1, training would be reduced further and possibly increase beneficial impacts to biological resources.

The implementation of Alternative 1 would result in no impacts to biological resources including vegetation, wildlife, or threatened and endangered species on Fort Shafter due to its high development and minimal vegetation or wildlife.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at USAG Hawaii, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.29.9 Wetlands

4.29.9.1 Affected Environment

The wetlands affected environment of Schofield Barracks remains the same as was discussed in Section 4.18.8.1 of the 2013 PEA.

A review of NWI maps identified approximately 10 acres of wetlands on Fort Shafter (USFWS, 2010). NWI mapping is an educated delineation based upon interpreting USGS topographic data, the USGS National Hydrography Dataset, NRCS soil data, and aerial imagery. No formal wetland delineation of the installation was performed.

The majority of the wetlands identified through NWI were palustrine forested wetlands and riverine wetlands; however, palustrine scrub-shrub, palustrine emergent, and estuarine wetlands were also identified (USFWS, 2010). Table 4.29-2 identifies the acres of each wetland type on Fort Shafter.

Table 4.29-2. Acres of Wetland Types on Fort Shafter

Wetland Type	Acres
Estuarine deepwater	0.05
Estuarine wetland	0.22
Palustrine forested	2.33
Palustrine scrub-shrub	1.64
Palustrine emergent	1.72
Riverine tidal	0.64
Riverine lower perennial	3.40
Total acres	**10**

Source: USFWS (2010)

4.29.9.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be minor, adverse impacts to wetlands on Schofield Barracks from continued sedimentation, training and ongoing construction; this impact has not changed.

Minor, adverse impacts to wetlands on Fort Shafter are anticipated under the No Action Alternative. Impacts to wetlands from any current projects under construction would have already been assessed and, if required, been properly permitted and mitigated. Current management of wetlands would continue under the No Action Alternative. Current management

of recreational facilities, such as golf courses, would also continue under the No Action Alternative which could contribute to pollutants entering adjacent wetlands and rivers.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that there would be minor impacts to wetlands on Schofield Barracks under Alternative 1; no new impacts from further force reduction analysis are anticipated.

Beneficial impacts to wetlands on Fort Shafter as a result of the implementation of Alternative 1 are anticipated. As there are no active ranges on the installation, a force reduction would not lead to fewer impacts from these types of activities. Adverse impacts to wetlands could conceivably occur if force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at USAG Hawaii, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met as a result of the Proposed Action.

4.29.10 Water Resources

4.29.10.1 Affected Environment

The affected environment for water resources on USAG Hawaii Schofield Barracks remains the same as that described in Section 4.18.9.1 of the 2013 PEA. There are no changes to surface water and watersheds, water supply, wastewater, and stormwater resources.

Surface Water/Watersheds

The surface waters of Fort Shafter are within the Moanalua watershed. The Moanalua Stream borders the southwestern edge of the installation close to the Shafter Flats area. Kahauiki Stream flows southwest from its headwaters in the Ko'olau Mountains through the installation until its confluence with Moanalua Stream outside the installation borders. The flow regime of the Kahauiki Stream begins as intermittent in the upper reaches and transitions to perennial before crossing into the installation (U.S. Army, 2008a). It receives stormwater runoff and the lower reaches are tidally influenced. Issues associated with dissolved oxygen, pH, turbidity, total suspended solids, and ammonia can affect water quality in Kahauiki Stream (USACE, 2011). The southeastern portion of installation drains to Kalihi Stream which is located south of the installation borders. The Moanalua Stream, a Class 3 perennial stream, and Kalihi Stream are listed as impaired for total nitrogen, turbidity, and trash (Hawai'i Department of Health, 2013).

Groundwater

The Moanalua aquifer is the main groundwater source providing water-bearing layers at 120 to 250 feet below Fort Shafter (USAEC, 2008). Recharge is provided by infiltration and stormwater runoff. In addition, an alluvial caprock aquifer is located above the Moanalua aquifer and is

several to 25 feet below the surface (U.S. Army, 2006b; USAEC, 2008). In the aquifers, depths to groundwater have declined slightly due to regional water withdrawals (U.S. Army, 2006a). Recharge is provided by infiltration, stormwater runoff, and seepage from the main aquifer (U.S. Army, 2006b). Two water supply wells close to Kahauiki Stream pump water from depths of 279 feet and 330 feet (USAEC, 2008). Groundwater in the Fort Shafter Flats area of the installation is brackish and not suitable for water supply (USACE, 2011).

Water Supply

The water supply and distribution system on Fort Shafter is owned and operated by the installation. Water for Fort Shafter is supplied by two 12-inch diameter groundwater wells with a withdrawal capacity of 3.3 mgd (USAEC, 2008; U.S. Army, 2013a). Storage reservoirs in upper, middle, lower service zones hold raw water until movement into the distribution system using pumps. The water is treated with chlorine and fluoride in the supply system and distributed. Demand for water in Fort Shafter area has been increasing and it has been estimated that the existing wells could produce approximately 18 mgd (USAEC, 2008). In addition to the groundwater supply wells, Fort Shafter's water supply system is connected to the city and county of Honolulu's system for potential emergency water supply (U.S. Army, 2013a).

Wastewater

The wastewater system on Fort Shafter is privatized and operated by Aqua Engineers (USAG Hawaii, 2009). The Waste Water Lift Station on Fort Shafter Flats includes multiple pumps with a full capacity of 9.82 mgd. In the mid-2000s the average wastewater flows were 1.7 mgd with peak flows of 7.7 mgd (USAEC, 2008). Wastewater treatment takes place at the Sand Island Treatment Plant operated by the city and county of Honolulu (U.S. Army, 2008b, as cited by USAEC, 2008).

Stormwater

The stormwater collection and distribution system on Fort Shafter consists of storm drains, manholes, pipes, trenches, swales, culverts, and catch basins. The system collects the stormwater runoff, carrying nutrients and sediment, and discharges it to the Kahauiki Stream (USAEC, 2008). Parts of the land on the southern border of the installation drain as surface runoff to the Kalihi Stream which eventually drains to the Ke'ehi Lagoon to the south.

Floodplains

E.O. 11988, *Floodplain Management*, requires federal agencies to avoid floodplain development and any adverse impacts from the use or modification of floodplains when there is a feasible alternative. Specifically, Section 1 of E.O. 11988 states that an agency is required "to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities." The 100-year floodplain indicates areas where the flood has a 1 percent chance

of being equaled or exceeded in any year. The 500-year floodplain indicates areas where the flood has a 0.2 percent chance of being equaled or exceeded in any year. According to FEMA floodplain maps, portions of the installation include 100-year and 500-year floodplain areas. Specific areas of flooding include the Shafter Flats area in the south and areas adjacent to the Moanalua Stream and Kahauiki Stream (FEMA, 2011). Flash flooding is possible in some of these areas. Flooding associated with Kahauiki Stream can be affected by high tides and storm surges (USACE, 2011).

4.29.10.2 Environmental Effects

No Action Alternative

In the 2013 PEA, minor, adverse impacts to water resources on Schofield Barracks were anticipated from the No Action Alternative due to the disturbance and pollution of surface waters and groundwater from stormwater runoff, erosion, and continuing training activities. These minor, adverse impacts to water resources under the No Action Alternative are not expected to change for this SPEA.

Minor, adverse impacts to water resources on Fort Shafter would continue under the No Action Alternative due to continuing surface water quality impairments. Fort Shafter would continue to strive to meet federal and state water quality criteria, drinking water standards, and floodplain management requirements. The installation would continue to comply with all federal and state regulations and guidelines concerning wastewater, stormwater management, and floodplains. Current water resources management and compliance activities would continue to occur under this alternative.

Alternative 1—Implement Force Reductions

Minor impacts to water resources were anticipated from implementation of force reductions in the 2013 PEA because of disturbance, stormwater effects, erosion, and pollution from demolition of older facilities, ongoing construction projects, and continuing training activities on Schofield Barracks. Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Schofield Barracks, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented. Increased force reductions under Alternative 1 would continue to have the same minor impacts to surface waters, groundwater, water supplies, wastewater, and stormwater, although some impacts could be reduced as training decreases.

Beneficial impacts to water resources on Fort Shafter are anticipated as a result of implementing Alternative 1. A force reduction would decrease demand for potable water and would reduce groundwater withdrawals. Demand for wastewater treatment would also decrease allowing

additional capacity for other users. Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in Army non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Fort Shafter, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented. Force reduction at Fort Shafter is not anticipated to cause violations of federal and state water quality regulations and discharge permits.

4.29.11 Facilities

4.29.11.1 Affected Environment

The facilities affected environment of Schofield Barracks remains the same as described in Section 4.18.10.1 of the 2013 PEA.

Fort Shafter is a 590-acre installation and the site of the USARPAC headquarters and USACE, Pacific Ocean Division. The installation has principally administrative and residential support facilities. Shafter Flats, which is the coastal plain area of the installation, has the following facilities: industrial, maintenance, classroom, parking, and Family housing (USAEC, 2008).

4.29.11.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be minor impacts to facilities on Schofield Barracks because USAG Hawaii currently has adequate facilities available to support its Soldiers, Families, and mission.

No impacts to Fort Shafter are anticipated under the No Action Alternative. Fort Shafter would continue to use its existing facilities to support its tenants and mission.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to facilities would occur at Schofield Barracks. Under Alternative 1, implementation of the proposed further force reductions would result in overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demands for utilities and reduced demands for training facilities and support services. Force reductions would also provide

opportunities to reduce reliance on select outdated facilities. Some facilities could be re-purposed to reduce crowding or support other units.

Minor impacts to facilities at Fort Shafter are anticipated under Alternative 1. Force reductions associated with Alternative 1 would reduce requirements for facilities and affect space utilization across the installation. Construction or major expansion projects which had been programmed in the future may not occur or could be downscoped. Occupants of older, underutilized, or excess facilities may be moved to newer facilities; in some cases this could require modification of existing facilities. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.29.12 Socioeconomics

4.29.12.1 Affected Environment

Schofield Barracks, and designated training areas (South Range, East Range, Kahuku Training Area, and Kawailoa Training Area) are located in the central part of the island of O'ahu, near to the town of Wahiawa, while Fort Shafter is located in the southern part of the island near the town of Aiea. The ROI for both Schofield Barracks and Fort Shafter consists of the city and county of Honolulu and covers the entire island of O'ahu in Hawai'i. The city and county of Honolulu is further divided into seven Census County Divisions, including Ewa, Honolulu, Koolauloa, Koolaupoko, Wahaiwa, Waialua, and Waianae. Kahuku Training Area is located within the Koolauloa Census County Division; Dillingham Military Reservation resides within the Waialua Census County Division; and Schofield Barracks resides within the Wahiawa Census County Divisions. Fort Shafter is located in the Honolulu Census County Division. The ROI includes areas in which the majority of the installation's Soldiers, Army civilians, and contractor personnel and their Families reside. This section provides a summary of demographic and economic characteristics within the ROI.

Because of the coincident ROIs for Fort Shafter and Schofield Barracks and their administration under the command of USAG Hawaii, a combined EIFS analysis was deemed the most appropriate. Since Schofield Barracks was assessed in the 2013 PEA, it carries a baseline population from FY 2011. Fort Shafter was not previously assessed and therefore has a FY 2013 baseline population. To present a comprehensive analysis on the potential impacts for the ROI, Schofield Barracks baseline data were adjusted to FY 2013 numbers, in alignment with Fort Shafter baseline data, to enable a single, combined analysis of the potential reductions for Schofield Barracks and Fort Shafter. The FY 2013 population information shown below for Schofield Barracks varies from the FY 2011 data shown in Tables 3.3-1 and 3.3-2 by −531 permanent party Soldiers, −372 Army civilians, and −903 persons total.

Population and Demographics

Using 2013 as a baseline, Schofield Barracks has a total working population of 23,717 consisting of active component Soldiers and Army civilians, students and trainees, other military services, civilians, and contractors. Of the total working population, 17,538 were permanent party Soldiers and Army civilians. The population that lives on Schofield Barracks consists of 11,806 Soldiers and their 25,993 Family members, for a total on-installation resident population of 37,799. The portion of the Soldiers and Army civilians living off the installation is estimated to be 14,433 and consists of Soldier and Army civilians, and their Families. Additionally, there are 113 students and trainees associated with the installation.

Using 2013 as a baseline, Fort Shafter has a total working population of 11,107 consisting of active component Soldiers and Army civilians, students and trainees, other military services, civilians, and contractors. Of the total working population, 7,431 were permanent party Soldiers and Army civilians. The population that lives on Fort Shafter consists of 2,110 Soldiers and their 3,203 Family members, for a total on-installation resident population of 5,313. The portion of the Soldiers and Army civilians living off the installation is estimated to be 13,398 and consists of Soldiers and Army civilians, and their Families. Additionally, there are 75 students and trainees associated with the installation. The total working population at both Schofield and Shafter is 34,824, consisting of 24,969 permanent party Soldiers and Army civilians.

In 2012, the population of the ROI was 974,990, which represented a 2.3 percent increase in population from 2010 (Table 4.29-3). The racial and ethnic composition of the ROI is presented in Table 4.29-4 (U.S. Census Bureau, 2012a).

Table 4.29-3. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Honolulu County, Hawai'i	974,990	+2.3

Source U.S. Census Bureau (2012a)

Table 4.29-4. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Native Hawaiian and Other Pacific Islander (percent)	Asian (percent)	Two or More Races (percent)	Hispanic (percent)	White Alone, Not Hispanic or Latino (percent)
State of Hawai'i	26.1	2.1	0.4	38.3	23.0	9.5	10.1	22.8
Honolulu County, Hawai'i	22.4	2.8	0.3	43.3	21.6	8.8	9.4	19.4

Source: U.S. Census Bureau (2012a)

[a] Includes those who identify themselves as non-Hispanic and Hispanic White.

Employment and Income

In 2012, the total employed labor force in the ROI was 629,391, which was a 15.2 percent increase from 2000 (Table 4.29-5). Employment, median home value, household income, and population living below the poverty level are presented in Table 4.29-5 (U.S. Census, 2012b).

Table 4.29-5. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment 2000-2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Hawai'i	681,504	+18.1	517,000	79,595	7.6
Honolulu County, Hawai'i	629,391	+15.2	557,800	84,638	6.7

Source: U.S. Census Bureau (2012b)

Information regarding the workforce by industry for Honolulu County was obtained from the U.S. Census Bureau. Information presented below is for the employed labor force.

Honolulu County, Hawai'i

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of total workforce in Honolulu County (22 percent). Arts, entertainment, recreation, accommodation, and food services sector is the second largest employment sector (14 percent), followed by retail trade (11 percent). The Armed Forces account for 5 percent of the county's workforce. The remaining 10 categories employ 53 percent of the workforce.

Major employers in Honolulu County include Altres Medical, Kapiolani Medical Center, Kyo-Ya Co, Ltd., DoD, and Navy (InfoGroup, 2014).

Housing

As described in the 2013 PEA, Schofield Barracks can house approximately 40 percent of the permanent Soldier population, with Family members, on USAG Hawaii assigned to the installations. There are 7,254 homes for permanent military Family housing on USAG Hawaii installations that are managed through an RCI partnership that has been in place since 2005. The Privatized Housing is managed by Island Palm Communities. The total permanent military Family housing for Schofield Barracks and Fort Shafter are 2,861 and 276, respectively (Andres, 2014). Occupancy for installation Family housing averages 99 percent annually and the waiting list exceeds 1,000 service members (U.S. Army, 2013b).

Unaccompanied personnel housing on USAG Hawaii installations consist of 6,720 spaces in 60 buildings located on 5 installations. Overall, the occupancy rate without deployments is 95 percent for the unaccompanied personnel housing. Ninety-five percent of unaccompanied Soldiers on USAG Hawaii, and those enlisted Soldiers, grade E-5 and below, are housed in barracks on the installations in unaccompanied housing. Single Soldiers who are grade E-6 and above are authorized to reside off the installations (U.S. Army, 2013b).

Off-installation housing consists of high rise condominiums, multi-family dwellings, duplexes, and single homes. While an adequate supply of one- and two-bedroom apartments and condominiums is available in the local economy, there is a shortfall of affordable three-, four-, and five-bedroom homes (U.S. Army, 2013b).

Schools

As described in the 2013 PEA, Hawai’i is made up of one school district, which makes the island 1 of the 10 largest school districts in the United States with 170,000 students (U.S. Army, 2013b). A total of 2,380 students live on Fort Shafter, and 8,619 students live on Schofield Barracks (Nakasone, 2014). Four schools are located on Schofield Barracks with the following enrollments: Hale Kula Elementary (1,000), Solomon Elementary (1,000), Wheeler Elementary (675), and Wheeler Middle (900). One school on Fort Shafter, Shafter Elementary has an enrollment of 469 students (Nakasone, 2014). The classroom sizes are large for all installation schools, so some students have to be transported to neighboring schools. USAG Hawaii is also beginning to address other issues related to schools on the installations, including lack of funding for school transportation, overcrowded CYSS facilities affecting extracurricular activities, and the possibility of a new school on the installation.

Public Health and Safety

Police Services

The USAG Hawaii DES oversees police operations, physical security, access control, and wildland fire and emergency services at Schofield Barracks and at Fort Shafter. The city and county of Honolulu Police Department also provide law enforcement services since there is concurrent jurisdiction on all USAG Hawaii installations. However, the majority of law enforcement activities on the installations are provided by the USAG Hawaii DES.

Fire and Emergency Services

The Federal Fire Department (U.S. Navy) manages the installations' structural fire programs. The Federal Fire Department responds to emergencies involving structures, facilities, transportation equipment, hazardous materials, and natural and man-made disasters. It also directs fire prevention activities and conducts public education programs. The Federal Fire Department has mutual aid agreements with the city and county of Honolulu.

Medical Facilities

On-installation medical services are administered at installation clinics. These facilities service all permanent active component personnel and their Service members, as well as retirees and their Family members, within a 20-mile radius of the installations. The Schofield Barracks Health Clinic functions as an outpatient treatment facility only. Acute care, specialty services, and long-term medical needs for military Families on O'ahu are provided by the Tripler Army Medical Center next to Fort Shafter. Other medical services include Embedded Behavioral Health units and Soldier Center Medical Homes on Schofield Barracks and at Wheeler AAF. Embedded Behavioral Health provides multidisciplinary behavioral health care to Soldiers in close proximity to their unit's work area and in close coordination with unit leaders. Soldier Center Medical Homes provide integrated medical care at or near the Soldier's brigade. There are plans for a dental clinic at Fort Shafter. Off of the installation, the 18th MEDCOM operates a Patient Center Medical Home for DoD service members and Families only.

Family Support Services

Fort Shafter-Schofield Barracks FMWR assists Soldiers and their Families with programs that include child development centers, child and youth services, the Family child care program, Relocation Readiness Program, tax centers at Schofield Barracks and Fort Shafter, Exceptional Family Member Program, Family Support, Transition Assistance Program, and Family advocacy (U.S. Army FMWR, 2014).

Recreation Facilities

Fort Shafter provides its military community, Families, and civilians with the Walter J. Nagorski Golf Course (9 holes), a library, a bowling alley, an outdoor recreation center, and a fitness center.

Schofield Barracks provides its military community, Families, and civilians with the SGT Yano Library, Army Hawaii Bowling Center, a health and fitness center, Richardson Pool, an auto shop and storage, an arts and crafts center, and a Family and FMWR pet kennel (U.S. Army FMWR, 2014).

4.29.12.2 Environmental Effects

No Action Alternative

The operations at Schofield Barracks and Fort Shafter would continue to benefit regional economic activity. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of 19,786[37] Army positions at USAG Hawaii (18,119 Soldiers and 1,667 Army civilians), each with an average annual income of $55,374 and $63,980, respectively. Approximately 16,000 of the Soldier and Army civilian losses would be associated with Schofield Barracks and the remainder would be associated with Fort Shafter. In addition, this alternative would affect an estimated 30,035 Family members (11,041 spouses and 18,995 children). The total population of Army employees and their Family members directly affected under Alternative 1 is projected to be 49,821.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative ranges. Table 4.29-6 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the

[37] This number was derived by assuming the loss of 70 percent of Fort Shafter's Soldiers, two BCTs from Schofield Barracks, 60 percent of Schofield Barracks' non-BCT Soldiers, and 30 percent of USAG Hawaii's (Schofield Barracks and Fort Shafter) Army civilians to arrive at 19,786. For Schofield Barracks, the 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 8,000. Fort Shafter was not assessed in the 2013 PEA.

estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, changes in employment and population in the ROI under Alternative 1 fall outside the historical range and are categorized as a significant impact. However, there would not be a significant impact to sales and income because the estimated percentage changes are within the historical range, although the decline in income approaches the significance threshold.

Table 4.29-6. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+5.6	+4.4	+3.6	+3.5
Economic contraction significance value	-4.1	-2.8	-2.3	-0.9
Forecast value	-2.4	-2.6	-5.5	-5.0

Table 4.29-7 summarizes the predicted impacts to income, employment, and population of the reductions against the 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

Table 4.29-7. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$1,352,402,000	-22,839 (Direct)	-49,821
		-3,936 (Induced)	
		-26,776 (Total)	
Total 2012 ROI economics estimates	$114,113,630,000	629,391	974,990
Percent of total ROI figures	-1.2	-4.3	-5.1

Note: Sales estimates are not consistently available from public sources for all counties in the U.S.; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from EIFS is described in the paragraphs below.

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 19,786 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 3,053 direct contract service jobs would also be lost. An additional 3,936 induced jobs would be lost due to the reduction in demand for goods and services within the ROI. The total reduction in employment is estimated to be 26,776, a 4.3 percent reduction of the total employed labor force in the ROI of 629,391.

Income is estimated to reduce by $1.4 billion, a 1.2 percent decrease in income in the ROI in 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $1.3 billion. There would also be a loss in sales tax receipts to local and state governments. The average state and local sales tax rate for Hawai'i is 4.4 percent (Tax Foundation, 2014). To estimate sales tax reductions, information was utilized on the proportion of sales that would be subject to sales taxes on average across the county. According to the U.S. Economic Census, an estimated 16 percent of sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated reduction of $1.3 billion, resulting in an estimated sales tax receipts decrease of $9.2 million under Alternative 1.

Of the 974,990 people (including those residing on Fort Shafter and Schofield Barracks) who live within the ROI, 19,786 military employees and their estimated 30,035 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 5.1 percent. This number likely overstates potential population impacts because some of the people no longer employed by the Army would continue to live and work within the ROI, finding employment in other industry sectors.

Housing

The population reduction under Alternative 1 would lead to a decreased demand and increased housing availability on the installations and in the region, alleviating housing shortages on the installations for military personnel. However, with an expected decrease in population within the ROI of 5.1 percent, reduced demand for housing in the ROI could potentially lead to a reduction in housing values, although many factors can affect real estate prices. Additionally, housing that the military purchased with base housing allowance would also become available for local residents, leading to additional homes on the market. As a result, housing impacts under Alternative 1 are likely to be adverse and could range from minor to significant.

Schools

Under Alternative 1, removal of 19,786 Soldiers and Army personnel would decrease the number of children by 18,995 in the ROI. It is anticipated that the school district in the ROI that provides education to Army children on the installation would be affected under the Proposed Action. The schools on Fort Shafter and Schofield Barracks, specifically the schools with greater enrollment such as Hale Kula Elementary, Solomon Elementary, and Wheeler Middle, as well as the school district in Honolulu County would be affected under Alternative 1. Alternative 1 could benefit some of the schools on the installations that are experiencing over-crowding, alleviating issues such as large classrooms and congested schools. Additionally, a new school on Schofield Barracks would likely not need to be constructed if overcrowding pressures are addressed. However, if enrollment in individual schools is significantly impacted, which is likely the case with on-installation schools, the schools may need to reduce the number of teachers,

administrators, and other staff, and potentially close or consolidate with other schools should enrollment fall below sustainable levels.

The reduction of Soldiers on Fort Shafter and Schofield Barracks would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal Impact Aid a district receives is based on the number of students who are considered "federally connected" and attend district schools. Actual projected dollar amounts cannot be determined at this time due to the variability of appropriated dollars from year to year, and the uncertainty of the actual number of affected school-age children. The school district in the ROI would likely need fewer teachers and materials as enrollment drops, which would partially offset the reduced Federal Impact Aid. Overall, impacts to schools associated with Alternative 1 would be minor to significant and adverse depending on the reductions in the number of military-connected students attending specific schools.

Public Services

The demand for law enforcement, medical care providers, and fire and emergency service providers on Fort Shafter and Schofield Barracks would decrease if Soldiers, Army civilians, and their Family members, affected under Alternative 1, move off the installation. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements. Overall, minor impacts to public health and safety would occur under Alternative 1; the impacts to public services are not expected to be significant because the existing service level for the installation and the ROI would still be available.

Family Support Services and Recreational Facilities

Family Support Services and recreational facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. As a result, minor impacts to Family Support Services and recreational facilities would occur under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, states: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). In general, Alternative 1 would not have a disproportionate adverse impact to minorities, economically disadvantaged populations or children in the ROI. Job losses would be experienced across all income levels and economic

sectors and spread geographically throughout the ROI. As shown in Table 4.29-5, the proportion of minority and poverty populations in Honolulu County are similar in proportion to the state as a whole; as a result, no disproportionate impacts to environmental justice populations would occur.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of the people associated with the installation, including children. Therefore, it is not anticipated that implementing Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.29.13 Energy Demand and Generation

4.29.13.1 Affected Environment

The energy demand and generation affected environment of Schofield Barracks remains the same as was discussed in Section 4.18.12.1 of the 2013 PEA.

USAG Hawaii's energy needs are currently met by electric power. During the past decade, Congress has enacted major energy bills, and the President has issued Executive Orders that direct federal agencies to address energy efficiency and environmental sustainability. The federal mandates for energy conservation that are most relevant to Fort Shafter include the Energy Policy Act of 2005, E.O. 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, issued January 2007; Energy Independence and Security Act of 2007; and E.O. 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, issued October 2009. USAG Hawaii tracks its energy use and is striving to comply with these mandates. USAG Hawaii continues efforts to reduce power demand by implementing energy conservation methods, including promoting the use of photovoltaic lighting where feasible, and examining renewable sources of energy production. The Army is analyzing a possible lease of land to Hawaiian Electric at Schofield Barracks for the construction and operation of a 50-megawatt biofuel-capable power generation plant.

Hawaiian Electric Company provides two 46-kV transmission lines to Fort Shafter. Each line has a separate transformer feeding the Fort Shafter distribution system. One line feeds a 10-megavolt

amp, 46-kV-12.47/7.4-kV transformer, and the other line feeds a 5/6.25-megavolt amp, 46-kV-12.47/7.4-kV transformer (USAEC, 2008).

Hawaiian Electric Company owns the electric substations and provides the operations and maintenance support to the distribution system. The overall electrical system is reported as being in good condition with capacity for expansion if required for future development (USAG Hawaii, 2009).

4.29.13.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that there would be negligible impacts to energy demand and generation on Schofield Barracks under the No Action Alternative; no new impacts from the 2013 analysis are anticipated.

Negligible impacts are anticipated on energy demand at Fort Shafter. Energy demand through the use of Army facilities would continue and not change appreciably from existing levels. USAG Hawaii would continue to look for ways to reduce energy use and increase energy efficiency under the No Action Alternative, although the continued use of outdated, energy inefficient facilities could hinder USAG Hawaii's requirement to reduce energy consumption.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that there would be beneficial impacts to energy demand and generation on Schofield Barracks under Alternative 1; further force reductions under Alternative 1 are also anticipated to have a beneficial impact.

Minor, beneficial impacts to energy demand are anticipated because force reductions would reduce the installation's overall demand for energy. The installation would also be better positioned to meet energy and sustainability goals. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on energy demand are not analyzed.

4.29.14 Land Use Conflicts and Compatibility

4.29.14.1 Affected Environment

The land use affected environment of Schofield Barracks remains the same as was discussed in Section 4.18.13.1 of the 2013 PEA.

The primary role of Fort Shafter is to support Army organizations that exercise primary command, control, and management of ground defense of the Pacific theater. These organizations include the headquarters of USARPAC; USACE, Pacific Ocean Division; and 9th

Mission Support Command Army Reserve. Fort Shafter is also home to engineering, communications, military intelligence, and security units, along with elements of USAG Hawaii (USAEC, 2008).

The land uses on Fort Shafter's Main Post are predominantly administrative, residential, and community support. Barracks facilities are centrally located along Bonnie Loop, and Family housing is located in the upper areas of the Main Post. Within Shafter Flats, land uses are generally industrial, maintenance, educational, and parking; this area also includes a Family housing area, Funston Family Housing, in the northwestern portion. Potential future land uses include administrative, maintenance, and housing uses (USAEC, 2008).

Land use surrounding Fort Shafter is largely residential and open space, and the city and county of Honolulu zoning regulations largely designate those areas for single-family, multi-family, and park uses (City and County of Honolulu, 2014). Land remaining available for construction outside the installation is primarily mountainous with high topographic relief (USAEC, 2008) and therefore further encroachment on the installation by surrounding development is unlikely.

4.29.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, no impacts to land use were anticipated on Schofield Barracks. The use of Army lands would continue as they are currently designated and authorized. Impacts under the No Action Alternative on Schofield Barracks remain the same as those discussed in Section 4.18.13.2 of the 2013 PEA.

No impacts are expected at Fort Shafter under the No Action Alternative. Current uses of the affected environment would not change from existing conditions and would continue as they are designed and authorized. The installation has sufficient critical facilities available to support existing operations and satisfy existing units' living and administrative requirements. Some construction renovation may occur on an as-needed basis in the future. The No Action Alternative is not expected to affect land use on or surrounding the installation. The Army would continue to coordinate with the public regarding any issues that may arise.

Alternative 1—Implement Force Reductions

Under Alternative 1 in the 2013 PEA, beneficial impacts to land use were anticipated on Schofield Barracks from a reduction in training land use that roughly correlates with the number of Soldiers inactivated or realigned as a result of this alternative. Impacts under Alternative 1 on Schofield Barracks remain the same as those discussed in Section 4.18.13.2 of the 2013 PEA, though the magnitude of the benefits would be greater due to the greater reduction in forces that would impact training grounds.

No impacts are expected under Alternative 1 at Fort Shafter. Current uses of the affected environment would not change from existing conditions and would continue as they are designed and authorized. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to land use from these activities are not analyzed. Alternative 1 is not expected to affect land use on or surrounding the installation.

4.29.15 Hazardous Materials and Hazardous Waste

4.29.15.1 Affected Environment

As described in the 2013 PEA, hazardous materials are used at Schofield Barracks. The affected environment for hazardous materials and hazardous waste at the installation remains the same as was discussed in the 2013 PEA. This analysis also includes Fort Shafter, a smaller, 590-acre installation and the site of the USARPAC headquarters and USACE, Pacific Ocean Division. Fort Shafter has principally administrative and residential support facilities. Schofield Barracks and Fort Shafter are among 22 sub-installations on the islands of O'ahu and Hawai'i that make up the USAG Hawaii (USAG Hawaii, 2009).

Hazardous materials and waste at these facilities (collectively referred to as USAG Hawaii) are tracked and grouped in the following categories by how they are generated: ammunition, live-fire, and UXO; petroleum, oils, lubricants and storage tanks; IRP sites; LBP; asbestos-containing materials; PCBs; pesticides and herbicides; radon; and hazardous wastes. The Army maintains updated Material Safety Data Sheets for all hazardous materials used.

As noted in the 2013 PEA, most industrial operations for the Army installations in Hawai'i use the "Super Station" centralized motor pool at Building 2805 on Schofield Barracks. All fuel for industrial use is transported from the Hickam AFB Fuel Farm and stored in ASTs at the Super Station. Two filling stations are located on Schofield Barracks at Buildings 80 and 1167. Both USTs and ASTs are used to store petroleum products and fuels at various locations at Hawai'i. There are a number of in-use and permanently out-of-use USTs at Schofield Barracks, and other USAG Hawaii sub-installations.

Facilities containing oil-water separators, grease traps, and wash racks are inspected regularly by the USAG Hawaii Environmental Compliance Office, and DPW is responsible for maintaining these devices.

Hazardous Waste Treatment, Storage, and Disposal

As noted in the 2013 PEA, hazardous wastes generated at USAG Hawaii installations are subject to applicable RCRA regulations. The motor pool facilities at USAG Hawaii have designated waste storage/holding areas with secondary containment for wastes generated by shop and vehicle servicing. The waste is separated into hazardous waste such as lithium batteries or RCRA

chemicals, and non-regulated waste such as recyclable oil. The hazardous waste is brought to the hazardous waste shop storage point, while the recyclable materials are brought to the Recyclable Material Shop Storage Point. Hazardous wastes collected at hazardous waste shop storage points are then transferred to less than 90-day storage point on the installation before being properly disposed of.

At Schofield Barracks, spent ammunition and live-fire are stored at satellite hazardous waste storage facilities. Fort Shafter has no live-fire ranges, impact areas, ammunition storage, or surface danger zones. Therefore, ammunition, live-fire, and UXO are not a hazardous material of concern at Fort Shafter.

Hazardous Waste Investigation and Remediation Sites

The 2013 PEA identified several IPR sites at USAG Hawaii including on Schofield Barracks. Remedial investigations have also been conducted at various sites on Fort Shafter (U.S. Army, 2008a). Soil and groundwater contaminants at USAG Hawaii include explosive compounds, metals, VOCs and semi-VOCs. As noted in the 2013 PEA, Schofield Barracks was previously on the NPL list as a result of a trichloroethylene plume in groundwater; however, that site has since been remediated and was removed from NPL in 2000.

Other Hazards

Other hazards present at USAG Hawaii are controlled, managed, and removed through specific programs and plans and include UXO, radioactive materials, LBP, asbestos-containing materials, PCBs, pesticides, herbicides, and medical waste.

4.29.15.2 Environmental Effects

No Action Alternative

Minor, adverse impacts are anticipated under the No Action Alternative because there would be continued use and generation of hazardous materials and wastes on USAG Hawaii. The existing types and quantities of hazardous wastes generated on the installation have been accommodated by the existing hazardous waste management system and all materials and waste would continue to be handled accordance with all applicable laws, regulations and plans minimizing potential impacts.

Alternative 1—Implement Force Reductions

Minor, adverse impacts are anticipated as a result of the implementation of Alternative 1. Remediation activities are not expected to be impacted by Alternative 1. Because of the reduced numbers of people, it is likely that the potential for spills would be reduced during training and maintenance activities. Waste collection, storage, and disposal processes would remain mostly unchanged, although the quantities may be reduced. No violation of hazardous waste regulations

or the USAG Hawaii hazardous waste permit is anticipated as a result of active forces reduction. Volumes of generated waste are expected to decline depending on the specific units affected.

The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at USAG Hawaii, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.29.16 Traffic and Transportation

4.29.16.1 Affected Environment

Twenty-one of the 22 USAG Hawaii sub-installations are located on the island of O'ahu. The Pohakuloa Training Area is located on the island of Hawai'i. For clarity and simplicity, with regards to this SPEA, and with reference to the 2013 PEA, the transportation analysis focuses on the island of O'ahu generally and Fort Shafter and Schofield Barracks specifically. The ROIs for Fort Shafter and Schofield Barracks include the installations, the transportation facilities on their perimeters, and the ACPs that link the internal and external transportation facilities.

As indicated in the 2013 PEA, traffic on O'ahu extends largely from urban development in southern coastal areas from Ewa on the west of the island to Hawai'i Kai to the east. The island of O'ahu has four freeways—State Road 78, H-1, H-2, and H-3. State Road 78 (Moanalua Road) functions as a bypass for H-1 (Lunalilo Freeway), which spans the south portion of the island connecting the Ewa area with Hawai'i Kai. H-2 connects the Ewa area with the central portion of the island (where Schofield Barracks is located) and connects with H-1 to east of Honolulu. Fort Shafter is located in Honolulu. H-3 connects Pearl Harbor with Kaneohe Bay Marine Corps Airfield at the northeast portion of the island.

The other state highways make up roughly 200 lane-miles of roadway; and the city and county of Honolulu contain approximately 1,200 lane-miles of roadway. Very few roads connect the northern and southern portions of O'ahu (separated by the Koolau Mountains); these are Pali Highway, Likelike Highway, and H-3. The Kalanianaole Highway traverses through the east coastline between Hawai'i Kai and Kailua.

Fort Shafter and Schofield Barracks are about 20 miles apart on the island of O'ahu, Hawai'i.

Fort Shafter

Fort Shafter is in Honolulu, about 4 miles from the Central Business District in the most densely populated part of the island. It is located just off H-201, which branches off H-1 (USAG Hawaii, 2014b). Roadways adjacent to Fort Shafter include Moanalua Freeway, Kaua Street, Notley Street, and Meyers Street. Buckner and Patch Gates are the ACPs for the Fort (USAG Hawaii, 2009). Fort Shafter Flats is an additional gate, open 24/7 (USAG Hawaii, 2014b). Buckner, the main gate, has inadequate stacking lengths and lacks deceleration/pull-off lanes. The close proximity of drives and intersections to the gate contributes to the problem. Identification checks and vehicle searches at Buckner gate cause traffic to back up, creating major traffic congestion on the busiest freeway on O'ahu (H-1) (USAG Hawaii, 2009).

The existing road network and traffic patterns at Fort Shafter make it difficult to get from point A to point B. There is no clear hierarchy to the roadways and no visual clues to help with wayfinding (USAG Hawaii, 2009).

No rail service is available at Fort Shafter. The closest military airfield is Wheeler AAF. Honolulu International Airport is approximately 5 miles from Fort Shafter using city streets and the H-1 freeway (USAG Hawaii, 2009).

City bus service is available to many portions of Honolulu and surrounding communities (USAG Hawaii, 2009).

Schofield Barracks and Wheeler Army Airfield (Schofield Barracks)

Schofield Barracks and Wheeler AAF are located approximately 22 miles northwest of the business district of Honolulu, via interstates H-1 and H-2 (USAG Hawaii, 2009). H-2 and Kamehameha Highway traverses the western portion of the Koolau Range and connects Honolulu with Mililani, Wahiawa, Schofield Barracks, and Haleiwa. The installations are separated by State Highway 750 (Kunia Road) and are bordered by the Kamehameha Highway on the east, Highway 99 to the north, and by mountains and gulches to the west and south (USAG Hawaii, 2009). As indicated in the 2013 PEA, the training areas around Schofield Barracks are primarily accessed through the Kamehameha Highway and Kunia Road (from Ewa), and Kamananui Road and Wilikina Drive (from the North Shore). In addition, military convoys travel from Schofield Barracks along H-2 to Pearl Harbor for deployments or training at the Pohakuloa Training Area on the island of Hawai'i.

There are four authorized ACPs to Schofield Barracks and two to Wheeler AAF. Schofield Barracks gates include Lyman Gate (main gate and visitor gate, 24/7), Foote Gate, Macomb Gate (Monday through Friday), and McNair Gate (24/7). Wheeler AAF gates include Kunia Gate (24/7) and Kawamura Gate (USAG Hawaii, 2014b).

Lyman Gate on Kunia Road became the new main gate in 2012, with access to Wheeler AAF directly opposite the Lyman Gate via the Kunia Gate. Both of these gates were reconfigured to allow additional "stacking space" and to meet required ACP standards (U.S. Military News, 2012). There is a considerable amount of movement between Schofield Barracks and Wheeler AAF during the day based on the fact the Garrison HQ and several Garrison directorates as well as 25th ID organizations are located on Wheeler AAF. Much of the morning and evening Wheeler AAF traffic uses the Kawamura Gate that provides direct access to the Kamehameha Highway and H-2 (USAG Hawaii, 2009).

Vehicle traffic on Schofield Barracks is contained primarily through Trimble and Lyman Roads, and Kolekole Avenue. There is already a reduced LOS on and off installation due to current local and commuter traffic. Morning and afternoon commutes tend to experience the heaviest traffic flow. There is also an increased flow of traffic around noon, when installation personnel travel to various on- and off-installation dining facilities for lunch. As noted in the 2013 PEA, a key existing traffic circulation issue for Schofield Barracks is excessive traffic through housing areas, which degrades the quality of life and increases the risk to pedestrians and cyclists.

Direct access to major portions of Schofield Barracks is inefficient due to the lack of adequate north/south connecting streets. The existing primary and secondary traffic routes are generally short and disjointed requiring an excessively circuitous route to traverse the installation (USAG Hawaii, 2009).

Aside from the Family housing area, vehicle parking is extremely limited and negatively impacts mission readiness (USAG Hawaii, 2009).

No rail service exists at Schofield Barracks or Wheeler AAF (USAG Hawaii, 2009).

Honolulu International Airport is approximately 18 miles south of Schofield Barracks and Wheeler AAF. Most of the drive is interstate along H-2 to H-1 and the terminal (USAG Hawaii, 2009).

4.29.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, no impacts to transportation were anticipated on Schofield Barracks from continued transportation levels. The existing transportation system on O'ahu is extremely stressed and traffic congestion is considerable. LOS in the USAG Hawaii ROI have segments rated D through F (the lowest rating). As noted in the 2013 PEA, that LOS would not get worse as a result of this alternative. Impacts under the No Action Alternative on both Schofield Barracks and Fort Shafter remain the same as those discussed in Section 4.18.15.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 in the 2013 PEA, beneficial impacts to transportation were anticipated on Schofield Barracks from reductions in the severity of traffic flow issues at the Main Gate as well as regionally on O'ahu. Impacts under Alternative 1 of this SPEA on Schofield Barracks remain the same as those discussed in Section 4.18.15.2 of the 2013 PEA, although the magnitude of the beneficial impacts would be greater due to the further reduction in forces.

Under Alternative 1 in this SPEA, beneficial, long-term effects are anticipated from the decrease in military fleet vehicles and privately owned vehicles, likely reducing the severity of the traffic flow issues at the Buckner Main Gate at Fort Shafter and Schofield Barracks and Wheeler AAF entrances to the installations. It would also reduce traffic regionally on O'ahu. With this stationing reduction scenario, the Soldier population would decrease and the reduced traffic would no longer compete as much with seasonal (summertime and spring) traffic conditions associated with tourism. A reduction in military use of range roads or trails within USAG Hawaii training areas would occur. In addition, impacts to local highways associated with military convoys would also drastically reduce. Potential conflicts between civilian use and military use of local roadways would be reduced proportionately with the reduction in overall military population at USAG Hawaii (up to 80 percent decrease).

4.29.17 Cumulative Effects

The ROI for USAG Hawaii includes Honolulu County, which encompasses the island of O'ahu. As noted in the 2013 PEA, the cumulative impact analysis for USAG Hawaii (Schofield Barracks) focused on impacts to the environment resulting from the incremental impact of the action when added to past, present, and reasonably foreseeable future actions. About 40 reasonably foreseeable future actions were identified for the island of O'ahu and approximately 10 were identified for the island of Hawai'i. Some of these actions are ongoing projects that would continue into the future, whereas others are discrete projects that would be conducted in the reasonably foreseeable future. These actions would also pertain to the cumulative impact analysis for USAG Hawaii (Fort Shafter) as both installations are in the same ROI.

Reasonably Foreseeable Future Projects on USAG Hawaii

One reasonably foreseeable future project on USAG Hawaii identified by the installation beyond those identified in the 2013 PEA includes the Schofield Generating Station Project. This source of renewable power would provide energy security for Schofield Barracks, Wheeler AAF, and Field Station Kunia if loss of service occurs from the normal sources of electricity supporting these installations. This project would also benefit the Hawaiian Electric Company and the residents of O'ahu by supplying power to the island-wide grid during normal operations. This project is the subject of a separate NEPA analysis.

Reasonably Foreseeable Future Projects outside USAG Hawaii

In addition to those reasonably foreseeable projects mentioned in the 2013 PEA, the Honolulu Rail project would be appropriate for inclusion in the cumulative impacts analysis. The construction of an elevated rapid transit line serving the city and county of Honolulu on the island of O'ahu would connect Honolulu's urban center with outlying areas.

Additionally, other actions on and off the installation that affect regional economic conditions could include construction and development activities, infrastructure improvements, and business and government projects and activities. In addition, larger economies with more job opportunities may be able to absorb some of the displaced Army workforce, lessening adverse effects from force reductions.

No Action Alternative

Although cumulative effects of the No Action Alternative were not addressed in the 2013 PEA, they are expected to range from beneficial to minor and adverse. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reductions

The cumulative effects of Alternative 1 are essentially the same as was determined in the 2013 PEA. For the following VECs, the Army anticipates a beneficial impact due to force reduction: air quality, airspace, noise, soil erosion, biological resources, energy demand and generation, land use conflict and compatibility, and traffic and transportation. Cumulative impacts to socioeconomics are anticipated to be adverse and significant.

The socioeconomic impact under Alternative 1, as described in Section 4.29.12.2 with a loss of 19,786 Soldiers and Army civilians, could lead to significant impacts to the population, employment, housing values, and schools in the ROI. USAG Hawaii is an important part of the economy on the island with total employment on the two installations of almost 25,000. In Honolulu County, the Armed Forces account for 5 percent of the workforce. Although the island of O'ahu has a high degree of military, DoD contractors, and government jobs, the tourism economy is the primary source of revenue for the island, with O'ahu attracting considerably more visitors than any of the other Hawaiian islands.

It is anticipated that the ARNG, U.S. Army Reserve, Navy, Air Force, and Coast Guard will be making reductions, although the extent of those reductions have not been finalized. Additional stationing of Marines and the Navy Amphibious Group may bring more military presence to the island. These stationing changes would also affect regional economic conditions through the jobs and income they bring (or lose) within the region. The reliance on USAG Hawaii and other DoD presence on the island could lead to reduced USAG Hawaii and supporting activities in the ROI,

additional losses in jobs and income, with fewer job opportunities for displaced Army employees in the ROI.

Other infrastructure improvements and construction and development activity would also benefit the regional economy through additional economic activity, jobs, and income in the ROI; however, these benefits would not offset the adverse impacts under Alternative 1 and other adverse cumulative actions. Under Alternative 1, the loss of approximately 19,800 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, could have significant impacts to population, employment, tax receipts, housing values, and schools in the ROI.

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4.30 Summary of Potential Environmental Impacts

Implementation of the Proposed Action would result in impacts to the natural, cultural, and socioeconomic environment at each of the 30 locations evaluated.

Table 4.30-1 summarizes the intensity of impacts to a variety of VECs that are anticipated under the No Action Alternative. The majority of potential impacts would be negligible to minor, with some less than significant impacts. Significant but mitigable impacts are anticipated to occur at: Fort Bliss for traffic and transportation; Fort Bragg for soils and transportation; Fort Gordon for land use; Fort Sill for noise; Fort Wainwright for cultural resources; Joint Base Elmendorf-Richardson for cultural and biological resources; Joint Base Lewis-McChord for water resources; and USAG Hawaii for cultural resources, noise, and soils. Significant impacts are anticipated under the No Action Alternative at Joint Base Lewis-McChord for airspace, noise and transportation.

Table 4.30-2 summarizes the intensity of impacts to VECs that are anticipated as part of the implementation of Alternative 1. The majority of potential impacts anticipated to VECs would either be beneficial or negligible to minor and adverse with a few less than significant impacts. Significant but mitigable impacts are anticipated to occur at Fort Wainwright, Joint Base Elmendorf-Richardson, and USAG Hawaii for cultural resources. Significant socioeconomic impacts are anticipated at: Aberdeen Proving Ground, Fort Benning, Fort Bliss, Fort Bragg, Fort Campbell, Fort Carson, Fort Drum, Fort Gordon, Fort Hood, Fort Huachuca, Fort Jackson, Fort Knox, Fort Leavenworth, Fort Lee, Fort Leonard Wood, Fort Polk, Fort Riley, Fort Rucker, Fort Sill, Fort Stewart, Fort Wainwright, Joint Base Elmendorf-Richardson, Joint Base Langley-Eustis, Joint Base Lewis-McChord, and USAG Hawaii. Socioeconomic resources are comprised of a number of components such as population and demographics, employment and income, housing, schools, Family Support Services, and recreation. Not all of these socioeconomic components would be significantly impacted by Alternative 1. Table 4.30-3 summarizes population and economic impacts and also provides the impacts relative to ROI baseline conditions. Table 4.30-4 provides an impact rating for a number of socioeconomic components, including sales, income, employment, and population.

No specific mitigation measures are required to reduce any impacts discussed within the VEC environmental effects sections of each of the 30 locations to less than significant. The Army is committed to implementing required environmental compliance and meeting health and safety requirements as it is not reasonable to have cuts result in the elimination of environmental, safety, and health programs on our installations. These commitments would ensure no significant impacts, other than socioeconomics impacts under the Proposed Action.

Some locations, such as the Joint Bases discussed in the SPEA and installations that have major tenants from other service branches, may have personnel reductions in response to other initiatives which are outside the scope of the SPEA. When combined with the Army reductions

described in Alternative 1, these actions could affect the cumulative impacts. As of May 2014, however, the other services did not provide any specific projections that would allow the Army to quantify or describe these cumulative impacts. Consequently, this SPEA analysis may assist the other services in analyzing cumulative impacts of their proposed actions.

Table 4.30-1. Potential Environmental Impacts of the No Action Alternative

Valued Environmental Component	Resource Area													
	Air Quality	Airspace	Cultural Resources	Noise	Soils	Biological Resources	Wetlands	Water Resources	Facilities	Socio-economics	Energy Demand and Generation	Land Use Conflicts and Compatibility	Hazardous Materials and Hazardous Waste	Traffic and Transportation
Aberdeen Proving Ground	M	N	M	M	M	M	M	M	N	B	M	M	M	M
Fort Belvoir	M	N	N	N	M	N	N	M	N	B	M	M	M	LS
Fort Benning	M	M	M	LS	LS	LS	LS	LS	M	B	M	LS	M	M
Fort Bliss	M	M	N	N	M	N	N	M	N	B	N	M	M	SM
Fort Bragg	M	M	N	M	SM	N	M	N	N	B	M	N	N	SM
Fort Campbell	M	N	N	N	M	N	N	M	N	B	N	N	N	N
Fort Carson	LS	N	N	N	LS	N	M	M	M	B	N	N	M	LS
Fort Drum	M	N	M	N	N	M	M	N	N	B	M	N	N	M
Fort Gordon	M	N	N	N	N	N	N	N	LS	B	N	SM	N	N
Fort Hood	M	N	N	N	M	M	N	M	N	B	N	N	N	N
Fort Huachuca	M	N	M	M	M	M	M	M	N	B	M	M	M	N
Fort Irwin	M	N	M	N	M	M	N	LS	M	B	N	M	M	M
Fort Jackson	M	N	N	N	M	M	M	M	N	B	M	M	M	N
Fort Knox	M	N	N	N	M	N	N	M	N	B	N	N	N	N
Fort Leavenworth	M	N	M	N	M	M	N	M	N	B	M	N	M	M
Fort Lee	M	N	M	N	N	N	N	N	N	B	N	N	N	N
Fort Leonard Wood	M	N	N	N	N	N	N	N	N	B	N	N	N	N
Fort Meade	M	N	N	N	N	N	N	N	N	B	M	N	M	M
Fort Polk	N	N	N	N	M	N	N	N	N	B	N	N	N	N
Fort Riley	M	N	N	N	M	N	N	M	N	B	N	N	N	N
Fort Rucker	M	N	N	LS	M	N	M	M	N	B	M	LS	M	LS
Fort Sill	M	N	N	SM	N	N	N	N	N	B	N	N	N	M
Fort Stewart	M	N	N	N	M	N	M	M	N	B	N	N	N	M
Fort Wainwright	M	M	SM	M	M	M	M	M	N	B	N	N	N	M
Joint Base Elmendorf-Richardson	LS	N	SM	M	LS	SM	LS	M	M	B	M	M	LS	LS
Joint Base Langley-Eustis	M	N	M	N	N	M	M	N	M	B	M	N	M	LS
Joint Base Lewis-McChord	LS	S	LS	S	N	LS	N	LS	LS	B	N	M	M	S
Joint Base San Antonio-Fort Sam Houston	M	N	M	N	M	N	M	M	N	B	M	N	M	N
USAG Hawaii—Schofield Barracks and Fort Shafter	N-M	M	M-SM	LS-SM	N-SM	N-SM	M	M	N-M	B	N	N	M	N

Notes: B – beneficial, N – negligible/no impact, M – minor, LS – less than significant, SM – significant but mitigable, S – significant

Table 4.30-2. Potential Environmental Impacts of Alternative 1—Implement Force Reductions

Valued Environmental Component	Resource Area													
	Air Quality	Airspace	Cultural Resources	Noise	Soils	Biological Resources	Wetlands	Water Resources	Facilities	Socio-economics	Energy Demand and Generation	Land Use Conflicts and Compatibility	Hazardous Materials and Hazardous Waste	Traffic and Transportation
Aberdeen Proving Ground	B	N	M	M	B	B	B	B	M	S	B	M	M	B
Fort Belvoir	B	B	M	N	B	B	B	B	M	LS	B	N	M	B
Fort Benning	B	N	M	M	B	B	N	M	M	S	B	M	B	B
Fort Bliss	B	M	M	B	B	B	B	B	M	S	B	M	M	B
Fort Bragg	B	M	M	B	B	B	B	B	M	S	B	N	M	B
Fort Campbell	B	N	N	B	B	N	N	B	M	S	B	N	N	B
Fort Carson	B	B	B	B	B	B	B	B	M	S	B	N	B	B
Fort Drum	B	N	M	N	B	M	B	N	M	S	B	N	N	B
Fort Gordon	B	N	N	B	N	N	N	N	M	S	B	B	N	B
Fort Hood	B	B	M	B	B	B	N	B	M	S	B	N	N	B
Fort Huachuca	B	B	M	B	B	B	B	M	M	S	B	M	M	B
Fort Irwin	B	B	B	B	B	B	N	B	M	LS	B	M	M	M
Fort Jackson	B	B	N	B	B	B	B	B	M	S	B	B	M	B
Fort Knox	B	N	M	B	B	N	N	B	M	S	B	N	M	B
Fort Leavenworth	B	N	M	B	B	B	B	B	M	S	B	N	M	B
Fort Lee	B	N	M	B	N	N	N	N	M	S	B	B	M	B
Fort Leonard Wood	B	N	M	N	N	N	N	N	M	S	B	N	M	B
Fort Meade	B	N	N	N	N	N	N	N	M	LS	B	N	M	B
Fort Polk	B	N	N	N	N	N	B	B	M	S	B	N	M	B
Fort Riley	B	N	M	B	N	B	N	B	M	S	B	N	M	B
Fort Rucker	B	N	N	B	B	B	B	B	M	S	B	B	M	B
Fort Sill	B	N	M	B	N	N	N	B	M	S	B	B	LS	B
Fort Stewart	B	N	M	B	N	B	B	B	M	S	B	B	M	B
Fort Wainwright	B	B	SM	B	N	M	M	M	M	S	B	B	N	B
Joint Base Elmendorf-Richardson	B	B	SM	B	M	M	B	B	M	S	B	M	LS	B
Joint Base Langley-Eustis	B	N	M	B	B	M	B	N	M	S	B	N	M	B
Joint Base Lewis-McChord	B	N	M	B	N	B	N	B	M	S	B	B	LS	B
Joint Base San Antonio-Fort Sam Houston	B	N	M	B	B	B	B	B	M	LS	B	N	M	B
USAG Hawaii—Schofield Barracks and Fort Shafter	B	B	M-SM	B	B	B	M-B	M-B	M	S	B	B	M	B

Notes: B – beneficial, N – negligible/no impact, M – minor, LS – less than significant, SM – significant but mitigable, S – significant

Table 4.30-3. Summary of Population and Economic Impacts

Installation	Fiscal Year of the Baseline Population	Potential Population Loss Analyzed in the SPEA	Baseline Permanent Party Soldier and Army Civilian Population	Population Reduction	Percent of 2012 ROI Population	Employment Reduction	Percent of 2012 ROI Labor Force	Income Reduction	Percent of 2012 ROI Income
Aberdeen Proving Ground	2013	4,272	12,335	10,757	0.9	7,321	1.2	$382.4M	0.6
Fort Belvoir	2013	4,565	9,721	11,495	0.9	6,479	0.5	$358.2M	0.2
Fort Benning	2011	10,767	17,501	27,111	5.9	13,859	7.0	$627.0M	3.7
Fort Bliss	2011	16,000	31,380	40,288	3.6	20,864	4.7	$925.6M	2.8
Fort Bragg	2011	16,000	52,975	40,288	6.9	21,563	8.6	$968.6M	4.1
Fort Campbell	2011	16,000	32,281	40,288	14.0	19,605	16.2	$863.3M	7.7
Fort Carson	2011	16,000	25,702	40,288	4.7	21,331	5.6	$969.5M	2.1
Fort Drum	2011	16,000	19,011	40,288	33.3	19,102	35.2	$877.5M	16.5
Fort Gordon	2011	4,683	8,142	11,792	3.1	6,243	3.9	$282.6M	2.1
Fort Hood	2011	16,000	47,190	40,288	9.6	18,915	10.3	$870.2M	5.2
Fort Huachuca	2013	2,739	5,841	6,897	5.2	3,820	8.1	$193.5M	4.1
Fort Irwin	2011	3,524	5,539	8,873	0.4	4,545	0.6	$210.7M	0.3
Fort Jackson	2013	3,071	5,735	7,733	0.9	4,242	1.0	$189.4M	0.6
Fort Knox	2011	7,605	13,127	19,149	14.0	9,650	16.0	$431.2M	8.1
Fort Leavenworth	2013	2,524	5,004	6,355	8.1	3,213	9.4	$154.2M	5.4
Fort Lee	2011	3,538	6,474	8,909	1.9	4,914	2.3	$242.9M	1.2
Fort Leonard Wood	2011	5,317	9,161	13,388	5.6	6,857	6.5	$299.8M	3.8
Fort Meade	2013	3,500	6,638	8,813	0.5	5,150	0.4	$247.8M	0.2
Fort Polk	2011	6,500	10,836	16,367	5.7	8,425	7.2	$369.4M	3.4
Fort Riley	2011	16,000	19,995	40,288	28.2	19,633	27.9	$865.1M	14.4
Fort Rucker	2013	2,490	4,957	6,270	3.1	3,389	3.8	$157.0M	2.1
Fort Sill	2011	6,842	11,337	17,228	13.6	8,482	14.4	$374.0M	8.0
Fort Stewart	2011	16,000	18,647	40,288	26.9	18,938	30.4	$853.9M	18.5
Fort Wainwright	2011	5,811	7,430	14,633	14.6	7,399	14.3	$413.5M	9.1
Joint Base Elmendorf-Richardson	2011	5,333	6,861	13,428	4.5	6,936	4.4	$355.1M	2.2
Joint Base Langley-Eustis	2011	4,163	7,382	10,482	2.0	5,776	2.3	$283.4M	1.3
Joint Base Lewis-McChord	2011	16,000	36,222	40,288	3.8	21,344	4.3	$971.6M	2.1
Joint Base San Antonio	2013	5,934	12,256	14,942	0.7	8,485	0.9	$392.7M	0.5
USAG Hawaii—Schofield Barracks and Fort Shafter	2013	19,786	25,871	49,821	5.1	26,776	4.3	$1.35B	1.2

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Table 4.30-4. Potential Socioeconomic Impacts—Implement Force Reductions

Installation	Sales	Income	Employment	Population
Aberdeen Proving Ground	LS	LS	LS	S
Fort Belvoir	LS	LS	LS	LS
Fort Benning	LS	LS	LS	S
Fort Bliss	LS	LS	S	S
Fort Bragg	LS	LS	S	S
Fort Campbell	LS	LS	S	S
Fort Carson	LS	LS	S	S
Fort Drum	S	S	S	S
Fort Gordon	LS	LS	LS	S
Fort Hood	LS	LS	S	S
Fort Huachuca	LS	LS	S	S
Fort Irwin	LS	LS	LS	LS
Fort Jackson	LS	LS	LS	S
Fort Knox	LS	S	S	S
Fort Leavenworth	S	S	S	S
Fort Lee	LS	LS	LS	S
Fort Leonard Wood	LS	S	S	S
Fort Meade	LS	LS	LS	LS
Fort Polk	LS	S	S	S
Fort Riley	S	S	S	S
Fort Rucker	LS	LS	LS	S
Fort Sill	S	S	S	S
Fort Stewart	S	S	S	S
Fort Wainwright	LS	LS	S	S
Joint Base Elmendorf-Richardson	LS	LS	S	S
Joint Base Langley-Eustis	LS	LS	S	S
Joint Base Lewis-McChord	LS	LS	LS	S
Joint Base San Antonio-Fort Sam Houston	LS	LS	LS	LS
USAG Hawaii—Schofield Barracks and Fort Shafter	LS	LS	S	S

Notes: LS – less than significant, S – significant

4.31 Conclusion

The SPEA's analysis of the impacts associated with the implementation of the Proposed Action has not identified any significant environmental impacts, other than socioeconomic impacts, for the only action alternative analyzed, Alternative 1–Implement Force Reductions. As discussed in Section 4.30, impacts include effects to air quality, airspace, cultural resources, noise, soils, biological resources, wetlands, water resources, facilities, socioeconomics, energy demand and generation, land use, hazardous materials and hazardous waste, and traffic and transportation. The Army is committed to implementing required environmental compliance and meeting health and safety requirements as it is not reasonable to have cuts result in the elimination of environmental, safety, and health programs on our installations. These commitments would ensure no significant impacts, other than socioeconomics impacts, under the Proposed Action. The SPEA identifies some significant socioeconomic impacts, but these by themselves do not require preparation of an EIS. Under Alternative 1, no specific mitigation measures are needed to reduce the anticipated impacts to less than significant. Therefore, an EIS is not required, and a draft FNSI has been prepared. A Notice of Availability of the SPEA and draft FNSI has been published in the *Federal Register* and *USA Today*. Local announcements in the vicinities of the 30 locations analyzed in the SPEA will also be made, inviting the public and all interested parties to provide comment during the 60-day review period.

4.32 Cumulative Effects

4.32.1 Nationwide Cumulative Impact

In addition to the cumulative impacts discussed under each installation section, there are some resources for which the Army 2020 action as a whole could have a nationwide cumulative effect. Those resources are discussed in this section.

4.32.1.1 Greenhouse Gases and Climate Change

There is broad scientific consensus that humans are changing the chemical composition of Earth's atmosphere. Activities such as fossil fuel combustion, deforestation, and other changes in land use are resulting in the accumulation of GHGs, such as CO_2, in our atmosphere. The increase in GHG emissions correlates to an increase in the average temperature of the Earth's atmosphere and oceans, which is commonly referred to as "global warming." Some of the rise in temperature is due to natural forces (including solar and volcanic activity). The 2014 National Climate Assessment (Melillo et al., 2014) determined that only with the inclusion of human influences can models reproduce the observed temperature changes. The Assessment says that the global warming of the past 50 years is primarily due to human activities. The Assessment then states:

> Lower emissions of heat-trapping gases and particles mean less future warming and less-severe impacts; higher emissions mean more warming and more severe impacts. Efforts to limit emissions or increase carbon uptake fall into a category

> of response options known as mitigation," which refers to reducing the amount and speed of future climate change by reducing emissions of heat-trapping gases or removing carbon dioxide from the atmosphere.

Global warming is expected, in turn, to affect weather patterns, average sea level, ocean acidification, chemical reaction rates, and precipitation rates, which is commonly referred to as climate change. U.S. average temperature has increased by 1.3 degrees Fahrenheit (°F) to 1.9°F since record keeping began in 1895 and is projected to lead to more than 8°F warming by 2100, with a high-end possibility of more than 11°F (Melillo et al., 2014). Large increases in global temperatures could have considerable adverse impacts to natural and human environments.

GHGs include water vapor, CO_2, methane, nitrous oxide, O_3, and several hydrocarbons and chlorofluorocarbons. Water vapor is a naturally occurring GHG and accounts for the largest percentage of the greenhouse effect. Next to water vapor, CO_2 is the second-most abundant GHG. Uncontrolled CO_2 emissions from power plants, heating sources, and mobile sources are a function of the power rating of each source, the fuel consumed, and the source's net efficiency at converting the energy in the feedstock into other useful forms of energy (e.g., electricity, heat, and kinetic). Because CO_2 and the other GHGs are relatively stable in the atmosphere and essentially uniformly mixed throughout the troposphere and stratosphere, the climatic impact of these emissions does not depend upon the source location on the earth (i.e., regional climatic impacts/changes will be a function of global emissions).

Army installations produce GHGs through vehicle use, heating and cooling of buildings, electricity generation, munitions explosions, and other activities. In Alternative 1, the Army would reduce its Soldier strength an additional 70,000 from the 2012 strength of 562,000 to 420,000. It would also reduce employment of civilians and contractor personnel. This reduction would occur over a number of years and its effects would be felt at installations all over the country. It would mean that there would be a net reduction of vehicle engine use, of munitions use, and of energy consumption on each installation. However, the personnel would continue to operate their personal vehicles. People who would have been in the Army in 2020, for instance, would likely continue to live in the U.S. and would continue to be engaged in activities that result in GHG emissions such as commuting to and from locations other than Army installations. Under the No Action Alternative, GHG emissions would likely be marginally higher than if the Army implements Alternative 1, from the continued operation of the larger Army vehicles and equipment used by its Soldiers. That total difference would be hard to quantify, however, and would likely not be noticeable on the larger national scale. In the final analysis, the net effect of the Army 2020 transformation would be very small compared to the Nation's overall GHG emissions and would have no significant cumulative effect on climate change.

4.32.1.2 Cumulative Economic Effects

The loss of approximately 70,000 Soldier jobs and additional Army civilian positions (in addition to the 72,000 similar positions addressed in the 2013 PEA) would have a cumulative economic effect. It is important to remember that the Soldiers in these units would not all be suddenly discharged from the Army when their units are inactivated. Some would leave the Army through the normal course of events, to include retirement. In addition, the Army would also use involuntary separation programs and policies to reduce the size of the force. The Army would also take in fewer new Soldiers. These changes would occur over a period of several years. There would not be a flood of Soldiers and Army civilians entering the job market. Finally, some people would leave the Army and go into retirement and not seek employment in the civilian job market.

Nevertheless, by 2020 there would be 70,000 additional people in the U.S. who otherwise might be employed as Soldiers in the Army, as well as people who otherwise might be Army civilian or contractor employees. These people would be competing in the job market and could mean that the people with whom they compete have lower paying jobs or no job at all. Of course, by the same token, some of the military employees could become entrepreneurs and create businesses that create jobs.

As of 2012, approximately 144,000,000 people were employed in non-farm jobs in the U.S. The reduction of the 70,000 Soldiers represents about 0.05 percent of this total. Taking the consideration of the reduction of the 72,000 Soldiers assessed in the 2013 PEA for a total reduction of 142,000, it represents about 0.1 percent of this total. For this reason alone, the effect would not be significant. In addition, the negative effect on nationwide employment would be offset as people with discipline and skills developed in the military enter the job force and are productively employed.

There are some states with more than one installation that have the potential for substantial losses that have been included in this analysis. These are Alaska (Fort Wainwright and Joint Base Elmendorf-Richardson), Georgia (Fort Stewart, Fort Benning, and Fort Gordon), Kansas (Fort Leavenworth and Fort Riley), Kentucky (Fort Knox and part of Fort Campbell), Maryland (Aberdeen Proving Ground and Fort Meade), Texas (Fort Bliss, Joint Base San Antonio [Fort Sam Houston], and Fort Hood), and Virginia (Fort Belvoir, Fort Lee, and Joint Base Langley-Eustis). In these states, the economic impacts of the loss of employment in the individual ROIs could combine to produce a greater impact statewide. In Georgia, for instance, all three installations could see significant economic impacts, and these could have a cumulative effect on the overall state economy. Forts Stewart and Gordon are close enough that the economic impacts could combine to produce a cumulatively greater regional effect. Both of these sites already could have significant local economic difficulties; the cumulative effect could add to that already-significant impact. Fort Benning is far enough away, however, so that this would not add to that impact. It is, however, in close proximity to Fort Rucker, Alabama where a cumulative

effect could occur. In Maryland, Aberdeen Proving Ground and Fort Meade are close enough to Fort Belvoir, Virginia, that there could be a cumulative effect on the immediate region. Joint Base Langley-Eustis and Fort Lee are close enough that their impacts could combine to produce adverse cumulative impacts. It is possible that this could mean that Fort Lee's less than significant impacts could be amplified by force reductions at Joint Base Langley-Eustis to some extent, though the ROIs of the installations do not overlap. The installations in Alaska, Kansas, Kentucky, and Texas are also distant enough from each other that a regional cumulative effect is not expected.

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5.0 ACRONYMS

Acronym	Definition
AAF	Army Airfield
ABCT	Armored Brigade Combat Team
ACP	Access Control Points
ACS	Army Community Service
ACUB	Army Compatible Use Buffer
AFB	Air Force Base
AHP	Army Heliport
AIT	Advanced Individual Training
APZ	Accident Potential Zones
AQCR	Air Quality Control Region
Army or U.S. Army	United States Department of the Army
ARNG	Army National Guard
AST	aboveground storage tank
BAMC	Brooke Army Medical Center
BCT	Brigade Combat Team
BMP	best management practice
BRAC	Base Realignment and Closure
CASCOM	Combined Arms Support Command
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2	carbon dioxide
CYSS	Child, Youth, and School Services
dB	decibel
dBA	A-weighted decibel
DEQ	Department of Environmental Quality
DES	Directorate of Emergency Services
DoD	Department of Defense
DPW	Directorate of Public Works
EA	environmental assessment
EIFS	Economic Impact Forecast System

Acronym	Definition
EIS	Environmental Impact Statement
E.O.	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESMP	Endangered Species Management Plan
°F	degrees Fahrenheit
FAA	Federal Aviation Administration
FBNA	Fort Belvoir North Area
FEMA	Federal Emergency Management Agency
FMWR	Family Morale Welfare and Recreation
FNSB	Fairbanks North Star Borough
FNSI	Finding of No Significant Impact
FORSCOM	Forces Command
FY	Fiscal Year
GHG	greenhouse gas
HQDA	Headquarters, Department of the Army
HWMP	Hazardous Waste Management Program/Plan
I-	Interstate
IAP	Installation Action Plan
IBCT	Infantry Brigade Combat Team
ICRMP	Integrated Cultural Resources Management Plan
ICUZ	Installation Compatible Use Zone
ID	Infantry Division
IET	initial entry training
IMCOM	Army Installation Management Command
INRMP	Integrated Natural Resources Management Plan
IONMP	Installation Operational Noise Management Plan
IRP	Installation Restoration Program
ISC	Installation Spill Contingency
ISD	Independent School District
JCC	Jefferson Community College
JLUS	Joint Land Use Study
JRTC	Joint Readiness Training Center
kV	kilovolt

Acronym	Definition
LBP	lead-based paint
LOS	Level of Service
MARC	Maryland Rail Commuter
mgd	million gallons per day
MILCON	Military Construction
MOAs	Military Operations Areas
MS4	Municipal Separate Storm Sewer System
msl	mean sea level
MTA	Maryland Transit Administration
NAAQS	National Ambient Air Quality Standards
NCO	Noncommissioned Officer
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NHL	National Historic Landmark
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRHP	National Register of Historic Places
NRCS	Natural Resources Conservation Service
NSA	National Security Agency
NWI	National Wetlands Inventory
NZ	Noise Zone
O_3	ozone
PCBs	polychlorinated biphenyls
PCS	permanent change of station
2013 PEA	2013 Programmatic Environmental Assessment
PEIS	Programmatic Environmental Impact Statement
PM2.5	particulate matter whose diameter is less than or equal to 2.5 micrometers
PM10	particulate matter whose diameter is less than or equal to 10 micrometers
PRS	petroleum release site
PSA	petroleum storage area
QDR	Quadrennial Defense Review
R	Restricted Area

Acronym	Definition
RCI	Residential Communities Initiative
RCRA	Resource Conservation and Recovery Act
RCW	red-cockaded woodpecker
RDTE	Research, Development, Test & Evaluation
RECONS	Regional Economic System
ROI	region of influence
RPMP	Real Property Master Plan
RV	recreational vehicle
SAMMC	San Antonio Military Medical Center
SAV	submerged aquatic vegetation
SCOE	Sustainment Center of Excellence
SHPO	State Historic Preservation Office
SKIES	Schools of Knowledge, Inspiration, and Exploration & Skills
SO_2	sulfur dioxide
SOCOM	U.S. Special Operations Command
SPCC	Spill Prevention, Control, and Countermeasures
SPEA	Supplemental Programmatic Environmental Assessment
SUA	Special Use Airspace
SWMU	Solid Waste Management Unit
SWPPP	Stormwater Pollution Prevention Plan
TCP	Traditional Cultural Property
TDY	Temporary Duty
TLEP	Training Land Expansion Program
UAS	Unmanned Aircraft System
U.S.	United States
USAACE	U.S. Army Aviation Center of Excellence
USACE	U.S. Army Corps of Engineers
USAG	U.S. Army Garrison
USARPAC	U.S. Army Reserve Pacific
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
UXO	unexploded ordnance

Acronym	Definition
VEC	Valued Environmental Component
VOC	volatile organic compound
WMATA	Washington Metropolitan Area Transit Authority
WWTP	wastewater treatment plant

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6.0 LIST OF PREPARERS AND CONTRIBUTORS

Tables 6-1 through 6-3 list the individuals responsible for preparing the SPEA for Army 2020 Force Structure Realignment and their areas of technical expertise.

Table 6-1. Headquarters, Department of the Army

Name	Installation, Affiliation, or Organization	Role	Education	Years of Experience
COL Thomas O'Donoghue	HQDA G-3, Force Management Directorate	HQDA Liaison	LLM, Financial and Securities Regulation JD, General Law MBA, Concentration in Economics MA, International Relations BS, History	26
David Howlett	U.S. Army Legal Services Agency	Environmental Law Attorney	JD LLM, Environmental Law	20
Kevin M. Ward	HQDA G-3, Force Management Directorate	Special Assistant	JD	33

Table 6-2. Army Environmental Command

Name	Installation, Affiliation, or Organization	Role	Education	Years of Experience
Pamela Klinger	AEC	COR/NEPA Project Manager	Master of Planning BS, Geology	26
Roger Paugh	AEC	Support for Socioeconomic Analysis	Graduate Certificate, Cost Estimating and Analysis BS, Earth Science	3
Thomas Bucci	AEC	Environmental Law Attorney	JD LLM, Environmental Law	16

Table 6-3. The Louis Berger Group, Inc., Team

Name	Installation, Affiliation, or Organization	Role	Education	Years of Experience
Lee Swain	Dial Cordy and Associates Inc.	Project Manager	MS, Botany BS, Botany	22
Spence Smith	Louis Berger	Deputy Project Manager	MA, Biology BS, Zoology	17
Allison Anolik	Louis Berger	Geographic Information Systems	BA, Geography Post-graduate Work Geographic and Cartographic Science	7
Steven Bedford	Louis Berger	QA/QC of Cultural Resources	PhD, Architectural History B. Arch. BS, Building Science	34
Holly Bender, PHD	Louis Berger	Co-lead and QA/QC for Socioeconomics	PhD, Mineral Economics BA, Political Science and Economics	16
Dara Braitman	Louis Berger	Socioeconomics	BA, Urban Studies MUP, Urban Planning	8
Rebecca Byron, AICP	Louis Berger	Air Quality	MURP, Environmental Planning BS, Environmental Policy and Politics	9
Timothy Canan, AICP	Louis Berger	Document QA/QC	MURP, Urban and Regional Planning BS, Public Administration	24
Joe Dalrymple	Louis Berger	Biological Resources	MS, Marine Science BS, Environmental Science BS, Marine Biology	6
Anjali Dharan	Louis Berger	Socioeconomics	MA, Development Economics BA, International Studies	7
Christopher Dixon	Louis Berger	Socioeconomics	MURP, Urban and Regional Planning MBA BS, Environmental Economics and Management	3
Christopher Flannagan	Louis Berger	Wetlands and Soils	MS, Soil Science BS, Botany BS, Soil and Water Conservation	15

Name	Installation, Affiliation, or Organization	Role	Education	Years of Experience
Doug Ganey	Louis Berger	Hazardous Materials and Hazardous Waste	MESM, Environmental Science MS, Geosciences BA, Geology	22
Erin Hagan	Louis Berger	Water Resources	MEM, Conservation Science BA, Biology	9
Erin Hudson	Louis Berger	Cultural Resources	MA, Anthropology	8
Coreen Johnson	Louis Berger	Document Preparation and Editorial Review	BA, English Education Post-graduate Work, Technical Communication	21
Patti Kuhn	Louis Berger	QA/QC of Cultural Resources	MA, Historic Preservation BFA, Architectural History	10
Deborah Mandell	Louis Berger	Document Preparation and Editorial Review	MBA, Finance and Marketing BA, Government	26
Brandon Marette, M.S., CWB®, PWS	Louis Berger	Biological Resources	MS, Rangeland Ecology BS, Wildlife Biology	13
Deborah Matherly	Louis Berger	Traffic and Transportation	MBA, Finance BS, Public Administration	33
Lisa McDonald	Louis Berger	Co-lead and QA/QC for Socioeconomics	PhD, Mineral Economics BS, Earth Science	20
Jason Medema	Louis Berger	Land Use and Noise	MS, Environmental Studies Graduate Certificate, Real Estate Development BA, International Affairs	11
Kyle Nixon	Louis Berger	Geographic Information Systems	BS, Geography	4
David Plakorus, LEED Green Associate	Louis Berger	Airspace	MURP, Urban and Regional Planning MBA, Business Administration BA, History	5
Denise Short	Louis Berger	Document Preparation and Editorial Review	MS, Agriculture, Food and the Environment BA, English	26

Name	Installation, Affiliation, or Organization	Role	Education	Years of Experience
Suni Shrestha	Louis Berger	QA/QC of Hazardous Materials/Hazardous Wastes	BS, Environmental Analysis and Planning	16
Leo Tidd, AICP	Louis Berger	Air Quality	BS, Environmental Studies MPA, Environmental Science and Policy	8
Tristyne Youngbluth, P.E.	Louis Berger	Facilities and Energy Demand	BS, Civil/Environmental Engineering	16
Julia Yuan	Louis Berger	Document QA/QC	MPS, Forest and Natural Resources Management BS, Environmental and Forest Biology/Forest Resources Management	12

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