Supplemental
Programmatic Environmental Assessment for Army 2020 Force Structure Realignment

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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).

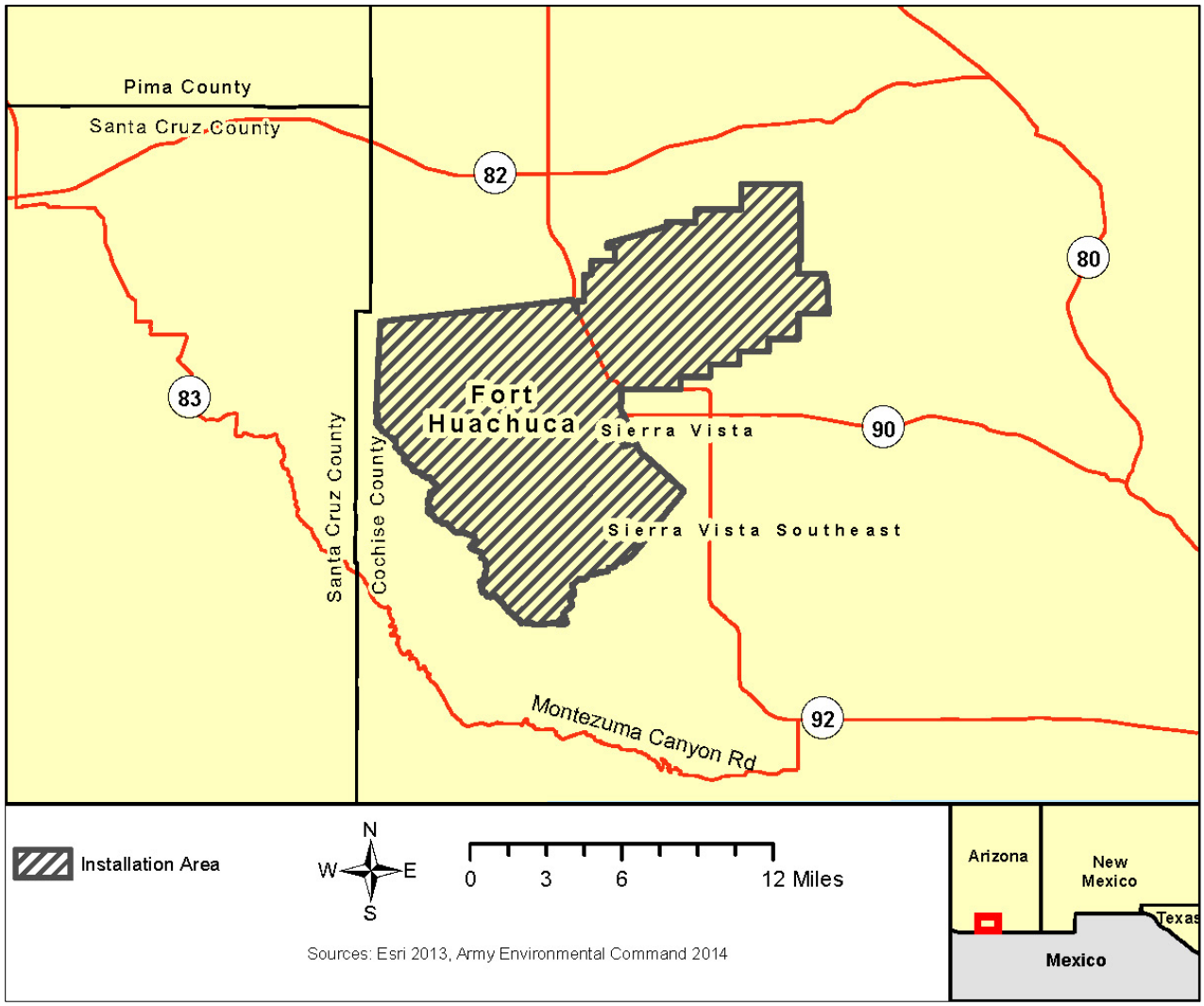

Figure 4.11-1. Fort Huachuca, Arizona

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" (tons per year)	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) -568 (Induced) -3,820 (Total)	-6,897
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) -700 (Induced) -4,545 (Total)	-8,873
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.

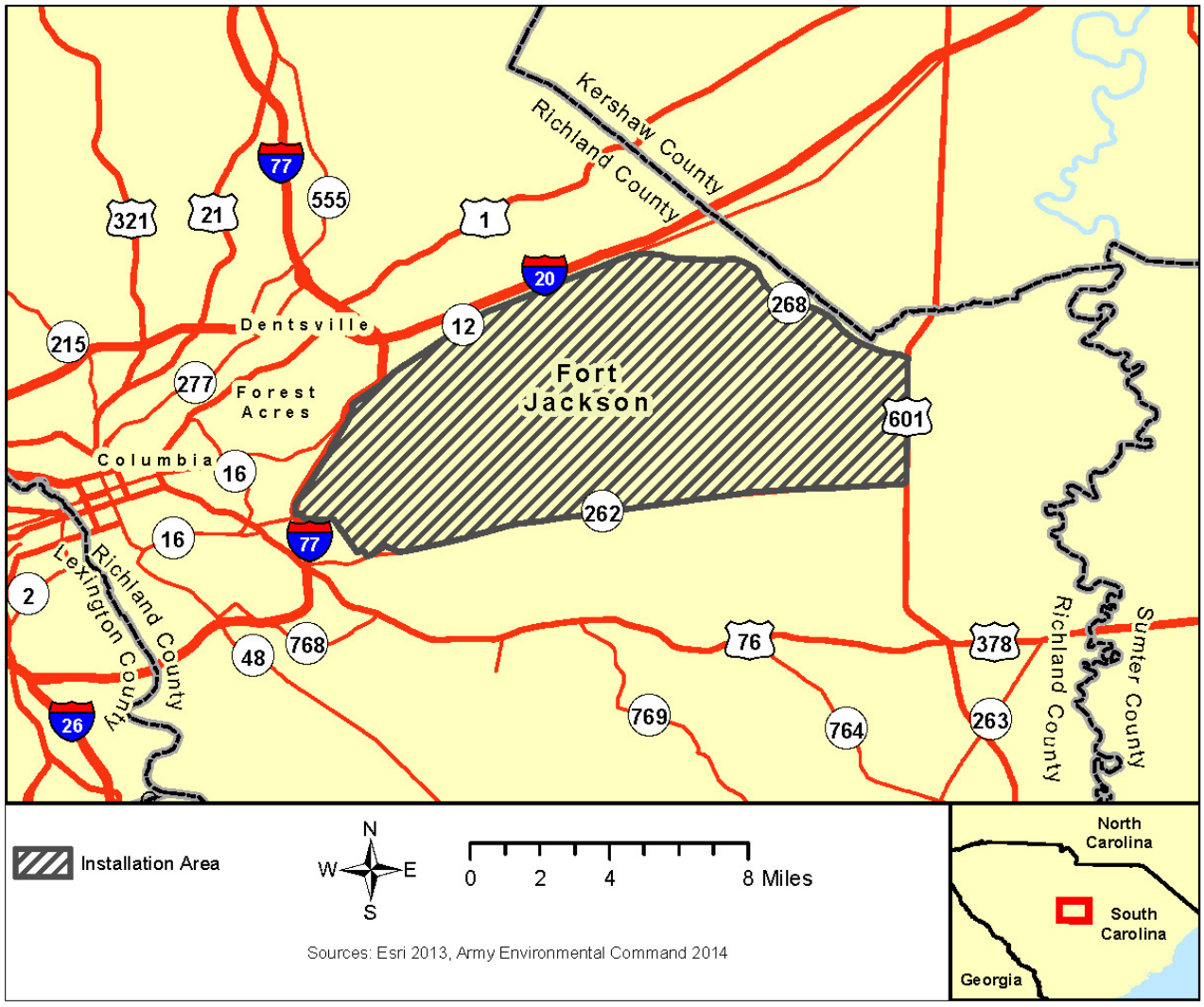

Figure 4.13-1. Fort Jackson, South Carolina

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) -1,017 (Induced) -9,650 (Total)	-19,149
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.

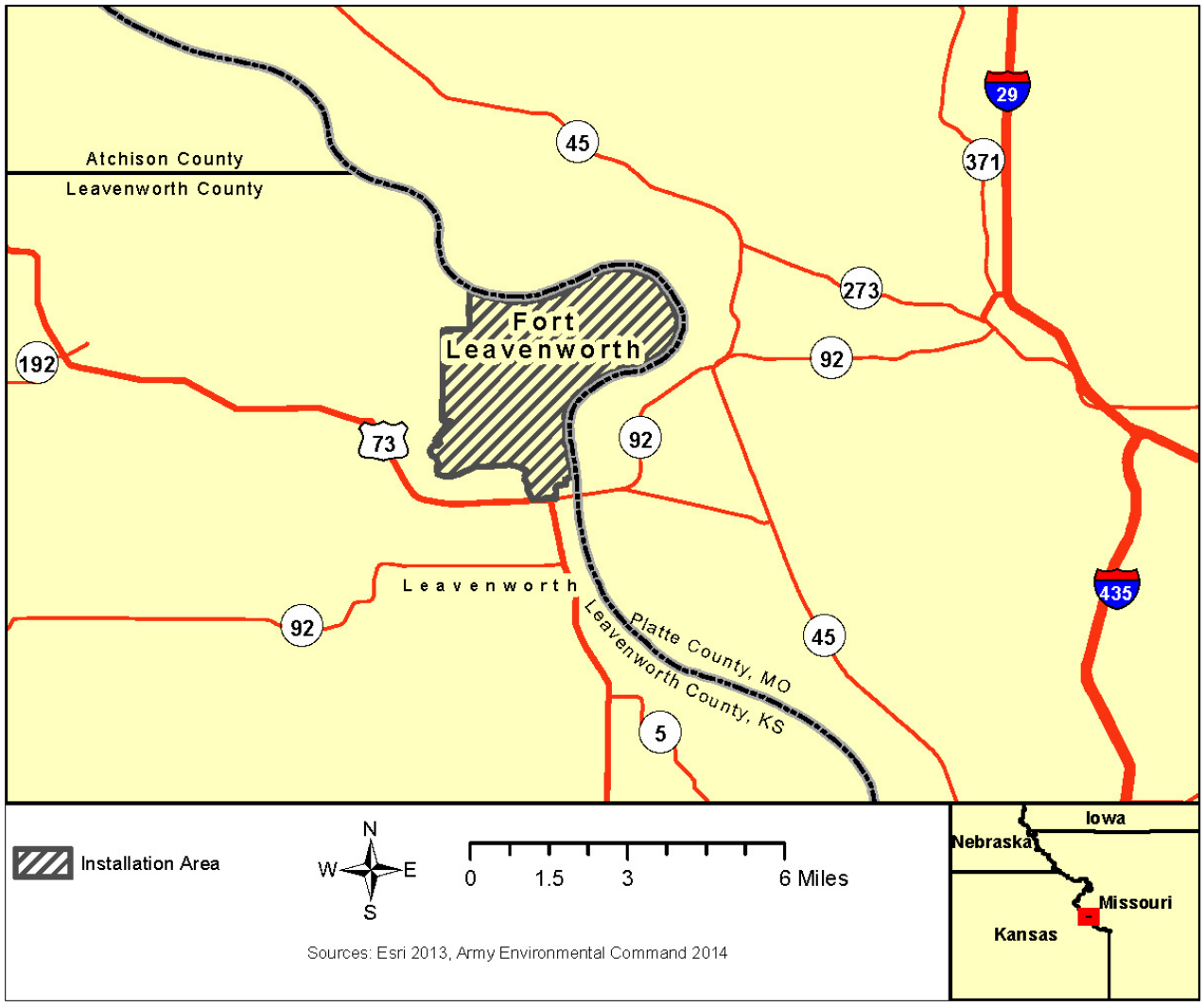

Figure 4.15-1. Fort Leavenworth, Kansas

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) -312 (Induced) -3,213 (Total)	-6,355
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) -867 (induced) -6,857 (total)	-13,388
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.

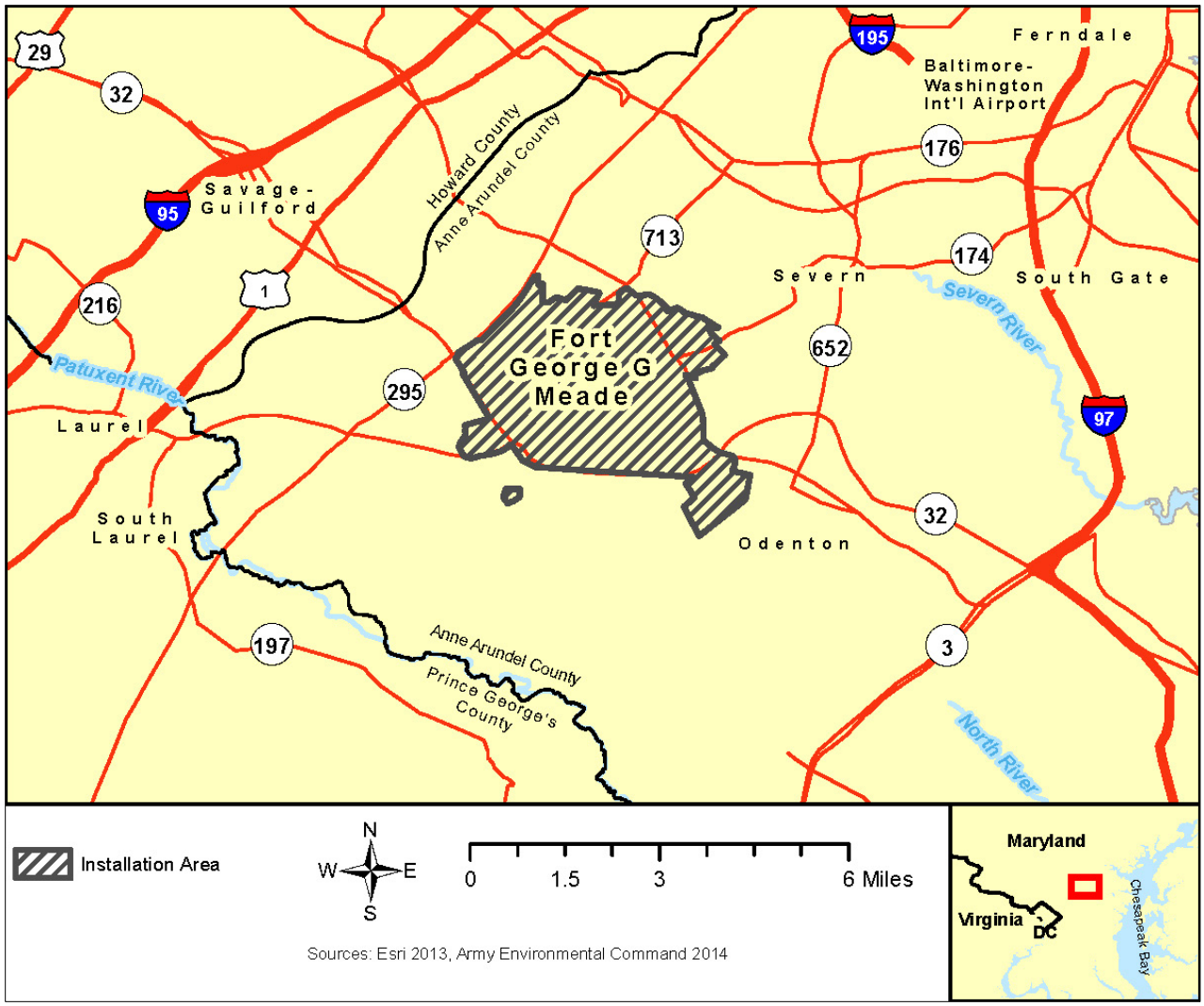

Figure 4.18-1. Fort Meade, Maryland

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) -1,164 (Induced) -8,425 (Total)	-16,367
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) -1,854 (Induced) -19,633 (Total)	40,288
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.