Supplemental
Programmatic Environmental Assessment for Army 2020 Force Structure Realignment

June 2014

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4.21 Fort Rucker, Alabama

4.21.1 Introduction

Fort Rucker is located in southeastern Coffee and southwestern Dale counties, approximately 20 miles northwest of Dothan, Alabama, surrounded by the cities of Daleville, Enterprise, and Ozark (Figure 4.21-1). The Fort Rucker reservation encompasses approximately 63,072 acres. Fort Rucker serves as the headquarters for Army Aviation and is home to the U.S. Army Aviation Center of Excellence (USAACE). The airspace used to accomplish the training mission spans over 29,590 square miles in southeast Alabama, northwest Florida, and southwest Georgia. An approximately 2,180-acre cantonment area is in the southern portion of Fort Rucker and provides temporary and permanent living quarters for Soldiers and their Families. The cantonment area includes residential areas, support facilities, retail centers, restaurants, and health care facilities.

Fort Rucker was established in 1942 as a part of the U.S. War Department's base expansion effort following the onset of World War II. Fort Rucker was situated on 58,000 acres of sub-marginal farmland that the federal government was originally acquiring as a wildlife refuge. South of Daleville, Alabama, an additional 1,259 acres were acquired for the construction of an airfield to support the training camp. Troops were first stationed for training on Fort Rucker in 1943. The installation was primarily used for a variety of training activities and was used to house foreign prisoners during World War II. Camp Rucker was inactive between 1946 and 1950, and again for a brief period in 1954.

The primary mission of USAACE, headquartered on Fort Rucker, is to train, educate and develop Army aviation professionals and integrate Aviation capabilities across war fighting functions in support of commanders and Soldiers on the ground. Five basefields, 17 stagefields, and 73 government-owned remote training (landing) sites, on and off the installation, are used to accomplish flight training.

Fort Rucker's 2013 baseline permanent party population was 4,957. In this SPEA, Alternative 1 assesses a potential population loss of 2,500, including approximately 1,754 permanent party Soldiers and 736 Army civilians.

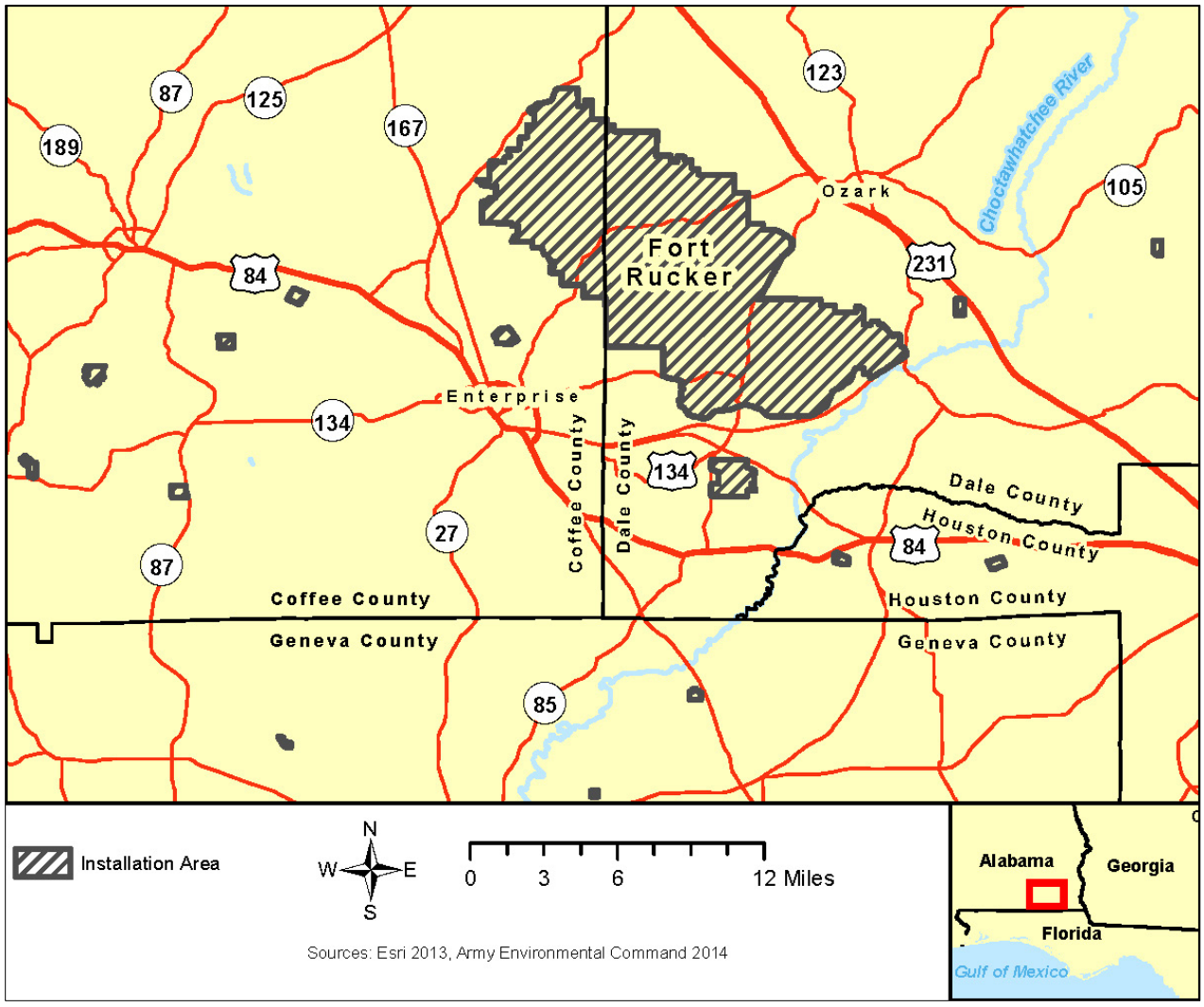

Figure 4.21-1. Fort Rucker, Alabama

4.21.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Rucker; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.21-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.21-1. Fort Rucker Valued Environmental Component Impact Ratings

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

4.21.3 Air Quality

4.21.3.1 Affected Environment

Fort Rucker is located in an area in attainment for all the criteria pollutants (EPA, 2013). Primary stationary air pollution sources at Fort Rucker include fossil fuel boilers and water heaters, woodworking shops, paint booths, incinerators, USTs and ASTs, and any other source that might release pollutants into the atmosphere. Other potential major sources of air pollutants are military equipment, aircraft and vehicles (Fort Rucker, 2008). Fort Rucker (facility number 604-0008) emissions are in compliance with the Title V Permit from the Alabama Department of Environmental Management (Alabama DEM, 2010). The current Title V permit expires on April 25, 2015.

4.21.3.2 Environmental Effects

No Action Alternative

Continuation of existing levels of emissions under the No Action Alternative would result in minor, adverse impacts to air quality. Emissions would remain at levels well below the maximum allowed under existing permits.

Alternative 1—Implement Force Reductions

Force reductions proposed at Fort Rucker under Alternative 1 would result in minor, long-term, beneficial air quality impacts because of reduced demand for heating/hot water and reduced operation of mobile sources to and from the facility. Additional beneficial impacts would occur from the potential reduction in training flights, reducing emissions from aircraft. Emissions from civilian aircraft are not expected to change.

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

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

4.21.4 Airspace

4.21.4.1 Affected Environment

Airspace at Fort Rucker is highly regulated due to the high density of civilian airports adjacent to Fort Rucker and its outlying aviation facilities. Twelve public use airports are located in the seven-county southeast Alabama region. Fort Rucker uses many of these airports and others outside the region. Caused by the high demand of airspace due to the volume of military training, civilian air traffic may impact aircraft operations (e.g., approaches/departures and traffic patterns). As a result, the entirety of Fort Rucker is considered an alert area A-211 to inform pilots that airspace contains a high volume of pilot training or activity (FAA, 2012). In addition, much of Fort Rucker lies within the Rose Hill MOA, in which airspace is restricted from 8,000 feet msl to 18,000 feet msl. Nearby restricted airspace includes Moody MOA to the east which similarly restricts airspace from 8,000 feet msl to 18,000 feet msl and the Eglin C MOA which restricts airspace from 1,000 feet msl to 3,000 feet msl (FAA VFRMAP, 2013).

Airspace at Fort Rucker is managed by USACE G3 Air. Currently, airspace interactions between Fort Rucker and civilian air interests are healthy throughout the region. The Cairns Army Radar Approach Control directs airspace throughout the area capably managing the high volume of air traffic. Fort Rucker also provides technical assistance to many of the small airport operations within the region (Fort Rucker, 2009a).

4.21.4.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

Airspace restrictions and classifications around Fort Rucker are sufficient to meet current airspace requirements and a force reduction, while potentially altering and reducing current airspace use, would not be projected to require additional airspace restrictions. Negligible, adverse impacts could occur in the event that force reductions impact aircraft and airspace management personnel (i.e., air traffic controllers). In the event that aircraft and airspace management personnel area are reduced, Fort Rucker would maintain staff levels to meet current airspace requirements.

4.21.5 Cultural Resources

4.21.5.1 Affected Environment

The affected environment for cultural resources at Fort Rucker is the installation footprint. All of Fort Rucker has been surveyed for archaeological resources with the exception of impact areas. These areas have been excluded because of the presence of UXO and continued use of explosives. A total of 315 sites have been identified within the installation and an additional 26 sites have been identified on leased lands in Alabama, Florida, and Georgia (Fort Rucker, 2010). Of the 315 sites, 6 have been determined eligible for listing in the NRHP and 1 requires additional research. Eight of the sites located on leased lands are considered potentially eligible.

Architectural surveys at the installation have identified and evaluated all architectural resources constructed prior to 1965. All of the resources present at Fort Rucker date from World War II to the Cold War Era. Of these resources, only one is eligible for listing on the NRHP, the Chapel of Wings (Building 109) constructed in 1942. Although the building itself is identical to others from the same period, the interior furnishings were constructed by German Prisoners of War during World War II.

In addition to these resources, there are 5 cemeteries and 15 former church locations within the installation. These are managed by the installation but are considered separate from archaeological and architectural resources.

Fort Rucker has identified 21 federally recognized tribes with an interest in this area of Alabama. The installation initiated consultation with these tribes in 2002 and will continue to work with

tribes that express an interest in the resources present at Fort Rucker. No TCPs or sacred areas have been identified within the installation.

The ICRMP for USAACE and Fort Rucker Garrison was completed in 2010. The ICRMP establishes the priorities and standards for the management of cultural resources at Fort Rucker and outlines a 5-year schedule for accomplishing objectives.

4.21.5.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, cultural resources would continue to be managed in adherence with all applicable federal laws and the ICRMP. The cultural resource management staff at the installation would continue to consult with the SHPO and applicable tribes on the effects of undertakings that may affect cultural resources. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures. The effects of the No Action Alternative would be negligible as there are few archaeological sites and only one historic architectural resource present on the installation. Existing protocols and procedures should prevent adverse impacts to these resources.

Alternative 1—Implement Force Reductions

Alternative 1 would have a negligible impact on cultural resources. Currently, there is only one historic architectural resource present on the installation that could be impacted in the future by the force reductions proposed in this alternative. The effects of this alternative are considered to be similar to the No Action Alternative –future activities with the potential to affect cultural resources would continue to be monitored and the impacts reduced through preventative and minimization measures. This alternative could result in some beneficial effects as a decrease in training activities could reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources.

As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic structures from these activities are not analyzed. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of force reductions, the installation would comply with applicable laws, such as NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort

Rucker, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.21.6 Noise

4.21.6.1 Affected Environment

Training and operational activities are the primary sources of noise at Fort Rucker. Training typically occurs 24 hours per day. Operational noise on Fort Rucker is generated through small arms fire, demolition and large caliber weapons, simulators, and rotary-wing (helicopter) aircraft training. Helicopter flights are a major component of military training and operations, and helicopter flight training represents the largest operational source of noise. Helicopter corridors extend from airfields and heliports to training areas. Numerous rotary-wing aircraft are stationed at Fort Rucker and are used extensively throughout the installation and adjacent areas. Heavy weapons and small arms firing are conducted in the impact area on the northern portion of the installation. Other noise sources include routine construction and demolition activities and military and civilian motor vehicle operations (U.S. Army Public Health Command, 2011).

According to the Fort Rucker RPMP, land use patterns within the installation are such that sensitive noise receptors like Family housing, community areas, and recreational uses are generally well buffered from more intensive activities by open space (Fort Rucker, 2008). Because of the nature of operations at Fort Rucker and the character of development in adjacent communities, noise contours associated with aviation and weapons training extend into surrounding areas not normally recommended for the siting of noise-sensitive land uses. Areas within NZ II extend northeast, northwest, and southwest from Fort Rucker into the unincorporated parts of Coffee and Dale counties. In Dale County, these areas are located along County Road 36 and County Road 38. In Coffee County, these areas are along Alabama Highway 27 (Ozark Highway), Alabama Highway 51, County Road 143, and east of County Road 156. These areas are predominantly forested, but several single family residences along with a few businesses and agricultural operations exist within the NZ II contours, especially along Alabama Highway 51 (Fort Rucker, 2009a). There are two areas within the NZ III contour for large-caliber weapons that extend outside Fort Rucker boundaries. One area is in an unincorporated part of Coffee County, east of Alabama Highway 51 and northeast of Tabernacle Stagefield. This area is mostly forested with an isolated residence. The other area is in an unincorporated part Dale County southeast of Molinelli Forward Area Refueling Point with primarily undeveloped forest land. All areas within the NZ III contour for small-caliber weapons are located within the Fort Rucker boundaries (Fort Rucker, 2009a).

Fort Rucker receives a relatively small number of noise complaints annually, given the number of aircraft movements and types of training activities. According to complaint records, the majority of these complaints stem from aircraft operations occurring in the extensive Fort Rucker airspace, as well as the air-to-ground weapons training at the Matteson, Kilo, and Golf run and

dive ranges (U.S. Army Public Health Command, 2011). The city of Enterprise and, to a lesser extent, the city of Ozark are growing closer to areas affected by weapons training and there have been many complaints in adjacent off-installation areas of these communities, especially along Alabama Highway 27, generated by the effects of nightly weapons training (Fort Rucker, 2009a). Each complaint is fielded by the Noise Mitigation Officer, USAACE G-3 Air, and is addressed promptly. The aviation mission at Fort Rucker and its subsequent operations are not expected to change in the near future (U.S. Army Public Health Command, 2011).

Fort Rucker implements an IONMP for current and future noise management. The IONMP fosters communication between Fort Rucker and its civilian neighbors and provides a method for responding to civilian issues related to noise generated by Fort Rucker training activities. Other goals of the IONMP include education of both installation personnel and surrounding residents, management of noise complaints, mitigation of noise and vibration, and noise abatement procedures. Noise monitoring systems and data management are also included in the plan (U.S. Army Public Health Command, 2011; USACE, 2013).

According to federal guidelines used to assess noise and land use compatibility, the overall impact of Fort Rucker's current training activities would be characterized as moderate (U.S. Army Public Health Command, 2011). The Zone III noise contours for small arms operations, aircraft large caliber operations, and basefield/stagefield helicopter operations all remain relatively localized to the installation and/or satellite facility boundary. Few, if any, sensitive land uses are contained within the majority of the Zone III noise contours. The Zone II noise contours for arms and aircraft operations routinely extend beyond the installation or satellite facility boundary. In several instances, the Zone II contours contain noise sensitive land uses, primarily which are low-density residential in nature (U.S. Army Public Health Command, 2011).

4.21.6.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, units stationed at Fort Rucker would remain in place at existing levels. There would be no change from existing operations and no changes in associated noise levels. NZ II and III contours would continue to extend into areas outside the installation containing noise-sensitive land uses. Because of the character of existing operations, existing noise levels and contours, and frequency of complaints, less than significant noise (moderate, adverse) impacts are anticipated to continue under the No Action Alternative.

Alternative 1—Implement Force Reductions

Under Alternative 1, it is anticipated that there would be a reduction in noise occurrences from aircraft, which are the main contributor to installation noise complaints. There would likewise be a reduction in other training exercises with reduction in forces. Fort Rucker would likely see the

current level of noise complaints remain the same or decrease, with the frequency of these complaints decreasing. Overall, with implementation of Alternative 1, it is expected that noise impacts would be reduced, resulting in beneficial impacts to noise. Given the character of ongoing operations at Fort Rucker, however, no significant changes in noise levels or noise contours are expected.

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

4.21.7 Soils

4.21.7.1 Affected Environment

Fort Rucker lies within the Atlantic Coastal Plain Physiographic Province, characterized by low hills, shallow valleys, and flat plains. Major portions of Fort Rucker are within the 100-year floodplain (FEMA, 2007). Most slopes on the installation occur within the 0 to 10 percent range, with few areas exceeding 5 percent (NRCS, 2013). The soils of the Atlantic Coastal Plain Province on Fort Rucker are underlain by unconsolidated sediments such as clay, silt, and sand.

The predominant uplands soils on Fort Rucker are generally very deep, nearly level to gently rolling, and moderately well drained to somewhat excessively well drained. Upland soils are underlain by sandy, loamy, and fluvial marine deposits from sedimentary rock. Predominant floodplain and swamp soils on Fort Rucker are generally deep to very deep, smooth and nearly level, poorly to somewhat poorly drained, and underlain by loamy marine deposits from sedimentary rocks. Predominant soil series on Fort Rucker include Angie, Cuthbert, Eustis, Lakeland, Lucy, Luverne, Orangeburg, and Shubata (NRCS, 2013).

Soils on Fort Rucker have been physically affected by training activities (Fort Rucker, 2009b), as well as from natural forces such as wind and water. Activities associated with training include utilizing and maintaining range roads, operating tracked vehicles, and firing ordnances. The soils on Fort Rucker are low to moderately erodible based on their high sand content and sparse vegetative cover (NRCS, 2013); therefore, training activities can have a detrimental impact to soils. Fort Rucker has implemented an erosion/sediment control project to minimize and mitigate for impacts to soils on the installation (Fort Rucker, 2009b).

4.21.7.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, minor, adverse impacts to soils are anticipated at Fort Rucker. Although Fort Rucker would continue to maintain its erosion/sediment control projects, training

activities would occur under the current schedule which would lead to continued minor, adverse impacts to soil resources.

Alternative 1—Implement Force Reductions

Under Alternative 1, beneficial impacts to soils are anticipated. Force reductions would likely result in decreased use of the training ranges which could have beneficial impacts to soils because there would be an anticipated decrease in soil compaction, and vegetation loss, and accelerated erosion. Over time, less sediment would discharge in to waters and wetlands.

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

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

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

4.21.8.1 Affected Environment

Vegetation

Five major habitat types occur on Fort Rucker: upland forested areas, pine plantations, agricultural lands, developed areas, and lowland areas. Within these larger habitat types, some areas are considered severely eroded (Fort Rucker, 2009b). The vegetation species common to these habitat types are summarized below.

Upland Forest

Upland forested areas include mixed forests with both pine and hardwood species on moderately well-drained, mesic sites where mesophytic species predominate. Such forests are abundant on the installation in uplands with clay subsoils. They occur throughout the installation and are the dominant community type on the western half of Fort Rucker. This type of forest has developed naturally through regrowth on much of the formerly cultivated upland areas. On the tops of hills and ridges where conditions are drier, the forest vegetation typically includes more xeric-adapted dominant species and tends to be more open than the more widespread forest vegetation.

Pines in the overstory of these mixed pine-hardwood forests include loblolly, shortleaf (*Pinus echinata*), and longleaf (*Pinus palustris*) in decreasing order of frequency. Common large hardwood species include southern red oak (*Quercus falcata*), water oak (*Quercus nigra*), diamond-leaf oak (*Quercus laurifolia*), sweetgum (*Liquidambar styraciflua*), and yellow poplar

(*Liriodendron tulipifera*). Post oak (*Quercus stellata*), black oak (*Quercus velutina*), and hickory (*Carya* spp.) are less common. Southern magnolia (*Magnolia grandiflora*), American beech (*Fagus grandifolia*), white oak (*Quercus alba*), and spruce pine (*Pinus glabra*) may occur on flats on lower slopes. Predominant small trees include sassafras (*Sassafras albidum*), flowering dogwood (*Cornus florida*), sourwood (*Oxydendron arboretum*), hawthorn (*Crataegus* spp.), persimmon (*Diospyros virginiana*), and wild cherry (*Prunus serotina*). Blackjack oak (*Quercus marilandica*), fringe tree (*Chionanthus virginicus*), eastern red cedar (*Juniperus virginiana*), yaupon holly (*Ilex vomitoria*), and devilwood (*Osmanthus americana*) may also occur. American holly (*Ilex opaca*) is scarce.

Shrub understory plants are mostly members of the blueberry/huckleberry complex (*Vaccinium* spp.), wax myrtle (*Myrica cerifera*), and occasionally, piedmont azalea (*Rhododendron canescens*) and red buckeye (*Aesculus pavia*), along with small individuals of the overstory species described above. Blackberry (*Rubus* spp.) and wild plum (*Prunus americana*) may be common in forest openings. Ground cover includes a wide variety of grasses and forbs, including numerous species of legumes, but no particular species are especially characteristic of this habitat type (Fort Rucker, 2009b).

Pine Plantations

Even-aged pine plantations are common on Fort Rucker. Most are comparatively small, encompassing 25 acres or less. Loblolly pine has been planted on most sites having heavy soils and mesic conditions. Younger stands planted on lighter, more xeric soils within recent years consist of longleaf pine. In younger plantations, old field plant species are typically present. These include blackberry, wild plum, and numerous grasses and forbs (Fort Rucker, 2009b).

Agricultural Lands

Fort Rucker has substantial cleared acreage devoted to agricultural production through an outlease program. Typically, agricultural lands are planted with grain, legumes, or grass, or are intentionally fallow. Early successional woody invaders of abandoned fields are determined by nearby species of seed trees and seed dispersal capability. In most cases, loblolly pine and/or sweetgum are the dominant invaders. Oaks (especially water oak), flowering dogwood, and yellow poplar are common in marginal areas adjacent to forests with mature trees. Sassafras and persimmon also are common woody invaders. Blackberries are common around field edges. Among the most conspicuous, persistent, herbaceous invaders of interiors of abandoned fields are broomsedge (*Andropogon virginicus*) and goldenrod (*Solidago* spp.) (Fort Rucker, 2009b).

Developed Areas

Developed areas include residential properties, golf courses, and similar open areas. These areas cover approximately 5,000 acres and include a mix of ornamental grasses, shrubs, and trees (Fort Rucker, 2009b).

Lowland Areas

Lowland areas include floodplain forests, wetlands, ponds, and lakes. Floodplain forests occur along larger streams on Fort Rucker, such as Claybank and Steep Head creeks. Deciduous hardwood species such as green ash (*Fraxinus pennsylvanica*), tupelo gum (*Nyssa aquatic*), red maple (*Acer rubrum*), and river birch (*Betula nigra*) typically dominate. Coniferous trees common in this type of forest include spruce pine and bald cypress (*Taxodium distichum*). Characteristic shrubs and herbs include palmetto (*Sabal minor*), Sebastian bush (*Ditrysinia fruticosa*), mountain laurel (*Kalmia latifolia*), Atamasco lily (*Zephyranthes atamasco*), spider lily (*Hymenocallis occidentalis*), and partridge berry (*Mitchella repens*).

Wetland vegetation varies by wetland type. Bay swamps contain thick evergreen forests dominated by sweet bay (*Magnolia virginiana*), with tupelo gum and yellow poplar also present. Common shrubs and vines include white titi (*Cyrilla racemiflora*), sweet pepper bush (*Clethra alnifolia*), gallberry (*Ilex glabra*), and Jackson brier (*Smilax* spp.). Characteristic herbs of this habitat include golden club (*Orontium aquaticum*), green arum (*Peltandra virginica*), and reinorchid (*Platanthera clavellata*). Bogs and wet meadows typically are dominated by various grasses and sedges, but some bogs are dominated by woody vegetation. Characteristic plant species in these habitats include white titi, wax myrtle, gallberry, yellow poplar, alder (*Alnus serrulata*), and blueberries. Various grasses, sedges, and rushes are common, as well as yellow-eyed grass (*Xris* spp.), meadow beauty (*Rhexia* spp.), rattlebox (*Crotalaria* spp.), St. John's wort (*Hypericum* spp.), pipewort (*Eriocaulon* spp.), sundew (*Drosera* spp.), lobelia (*Lobelia* spp.), narrow-leafed sunflower (*Helianthus angustifolius)*, and clubmosses (*Lycopodium* spp.). Sphagnum moss (*Sphagnum* spp.) also is often abundant in these habitats.

Seeps and intermittent streams may contain plants such as mosses and liverworts. Perennial streams are often vegetated with green arum, golden club, yelloweyed grass, duck potato (*Sagittaria* spp.), and alder. Beaver ponds and other small ponds often support abundant floating, rooted-floating, and emergent aquatic vegetation (Fort Rucker, 2009b).

Wildlife

Fort Rucker has a rich and diverse fauna. Some common species that may occur in an upland forests include eastern chipmunk, eastern cottontail rabbit, cotton mouse (*Peromyscus gossypinus*), Virginia opossum (*Didelphis marsupialis*), eastern garter snake, and southern leopard frog, as well as a variety of songbirds such as blue jay (*Cyanocitta cristata*) and northern cardinal (*Cardinalis cardinalis*). Natural animal communities in the area have been affected by urbanization. Two large mammals present at the time of settlement, the panther (*Puma concolor coryi*) and black bear (*Ursus americanus*), have been extirpated from the area. White-tailed deer, wild turkey, and the introduced feral hog (*Sus scrofa*) are common, as are many smaller mammals that have been relatively undisturbed by urbanization.

Threatened and Endangered Species

The Choctaw bean (*Villosa choctawensis*) and fuzzy pigtoe (*Pleurobema strodeanum*) have been recorded on Fort Rucker, in recent surveys. While the other bivalve species have the potential to occur on Fort Rucker they have not been found in recent surveys. No portion of Fort Rucker has been designated as critical habitat for these species (Fort Rucker, 2013).

The American alligator (*Alligator mississippiensis*), which is listed as threatened only due to its similarity in appearance to the endangered American crocodile (*Crocodylus acutus*), also has been recorded on Fort Rucker. The wood stork (*Mycteria americana*) could occur on Fort Rucker. Though not recorded, it is possible that the eastern indigo snake (*Drymarchon corais couperi*) and RCW could occur on Fort Rucker. The eastern population of the gopher tortoise (*Gopherus polyphemus*) is a candidate species for federal listing.

Table 4.21-2 shows federally listed threatened or endangered species that could occur at Fort Rucker.

Table 4.21-2. Federally Listed Species with the potential to occur on Fort Rucker

Scientific Name	Common Name	Federal Status
Reptiles		
Alligator mississippiensis	American alligator	Threatened
Drymarchon corais couperi	Eastern Indigo Snake	Threatened
Bivalves		
Fusconaia burkei	Tapered pigtoe	Threatened
Fusconaia Escambia	Narrow pigtoe	Threatened
Fusconaia rotulata	Round ebonyshell	Endangered
Hamiota australis	Southern sandshell	Endangered
Margaritifera marrianae	Alabama pearlshell	Endangered
Pleurobema strodeanum	Fuzzy pigtoe	Threatened
Ptychobranchus jonesi	Southern kidneyshell	Endangered
Villosa choctawensis	Choctaw bean	Endangered
Birds		
Mycteria Americana	Wood Stork	Endangered
Picoides borealis	Red-cockaded woodpecker	Endangered

State-protected species that have confirmed populations, or have been sighted on the installation, are the gopher tortoise, osprey (*Pandion haliaetus*), bald eagle, common ground dove (*Columbina passerine*), Cooper's hawk (*Accipiter cooperi*), Choctaw bean, Eastern coachwhip (*Masticophis flagellum flagellum*), and southeastern pocket gopher (*Geomys pinetis*). There is a

historical record of the Florida pine snake (*Heterodon simus*) occurring on Fort Rucker. Though not recorded, it is likely that the Alligator snapping turtle (*Macroclemys temmincki*), wood stork, Southeastern myotis, and Rafinesque's big-eared bat occur on Fort Rucker (Fort Rucker, 2009b).

No plant species listed as endangered or threatened by USFWS are currently known to occur on Fort Rucker based an onsite flora survey conducted by Mount and Diamond (1992), although 18 federally listed species are known to exist in the state of Alabama. Several former federal Category 2 species, the incised groovebur (*Agrimonia incisa*), Flyr's nemesis (*Brickellia cordifolia*), Baltzell's sedge (*Carex baltzellii*), and Alabama anglepod (*Matelea alabamensis*), may occur on Fort Rucker but have not been confirmed. The state of Alabama has no official list of threatened or endangered plants.

4.21.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in no significant impacts to biological resources, and the affected environment would remain in its current state. Management of biological resources on Fort Rucker would continue as outlined in the current INRMP (Fort Rucker, 2009b).

Alternative 1—Implement Force Reductions

The Army anticipates that the reduction of installation personnel outlined in Alternative 1 could result in beneficial impacts to biological resources and habitat. Implementation of Alternative 1 would result in reduction of training activities potentially allowing land currently used for training exercises to transition into viable habitat with reduced frequency of disturbances. The Army is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Rucker, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.21.9 Wetlands

4.21.9.1 Affected Environment

A review of NWI maps identified approximately 3,588 acres of palustrine, lacustrine, and riverine wetlands within the Fort Rucker (USFWS, 2010). NWI mapping is an educated delineation based upon interpreting USGS topographic data, the USGS National Hydrography Dataset, NRCS soil data, and aerial imagery. No formal wetland delineation of the installation was performed.

The majority of the wetlands identified through NWI were palustrine forested wetlands; however, palustrine scrub-shrub, palustrine emergent, palustrine open water, and riverine

wetlands were also identified (USFWS, 2010). After forested wetlands, Lake Tholocco, a 655-acre mostly recreational lake in the east-central portion of the installation is the next largest wetland area. Table 4.21-3 identifies the acres of each wetland type on Fort Rucker.

Table 4.21-3. Acres of Wetland Types on Fort Rucker

Wetland Type	Acres
Palustrine forested	2,497
Palustrine scrub-shrub	293
Palustrine emergent	30
Palustrine open water	74
Lacustrine	656
Riverine lower perennial	38
Total acres	**3,588**

Source: USFWS (2010)

4.21.9.2 Environmental Effects

No Action Alternative

Minor, adverse impacts to wetlands at Fort Rucker are anticipated under the No Action Alternative. Training activities on the ranges and air fields would continue to occur under current schedules and impacts to wetlands from these activities would continue. Current management of wetlands to minimize impacts to wetlands would also continue under the No Action Alternative.

Alternative 1—Implement Force Reductions

Beneficial impacts to wetlands are anticipated from the implementation of Alternative 1. A force reduction at Fort Rucker would mean that airfields and training ranges would be less used. As a result, there would be less sedimentation from runoff entering wetland areas, fewer instances of vegetation becoming denuded, and wetland functions and values would remain intact. Adverse impacts to wetlands could conceivably occur if force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Rucker, the Army would ensure that adequate staffing remains so mandated environmental requirements would continue to be met.

4.21.10 Water Resources

4.21.10.1 Affected Environment

Surface Water/Watersheds

The rivers, streams, lakes, and ponds within the Fort Rucker boundaries are part of the Choctawhatchee River Basin (USACE, 2013). Flowing southwest, the Choctawhatchee River passes the installation boundary on the southeast and the Pea River, a Choctawhatchee River tributary, passes the installation on the northwest (Fort Rucker, 2009b, as cited by USACE, 2013). Several tributaries feed the Choctawhatchee River in the southeastern portion of Fort Rucker. Claybank Creek, another Choctawhatchee River tributary, flows through the center of the installation in a southerly direction from its headwaters to the north of the installation. Eighty-two percent of the surface area of Fort Rucker drains to Claybank Creek and its tributaries (USACE, 2013). Specifically, the Blacks Mill Creek and Bowles Creek/Steep Head Creek tributaries receive drainage from the northwestern part of the installation (Fort Rucker, 2009b, as cited by USACE, 2013).

Surface water quality characteristics observed in the vicinity of Fort Rucker include moderate turbidity and hardness for the Choctawhatchee River and tributaries (USACE, 2013). Except for high iron concentrations, Clean Water Act ambient water quality criteria are met (USACE, 2013). Claybank Creek and Choctawhatchee River are classified as “Fish and Wildlife” waters, meaning they are suitable for fish, aquatic life, and wildlife propagation (Alabama DEM, 2012).

Groundwater

Fort Rucker, within the Southeastern Coastal Plain, is underlain by several aquifers in addition to being connected hydraulically to the Floridian aquifer system (Fort Rucker, 2009b, as cited by USACE, 2013). The aquifers immediately under the installation are the Lisbon and Tuscahoma Formation aquifers. The Lisbon aquifer extends 10 to 140 feet deep and has surface extents in the uplands present in the northwestern portion of the installation. The Tuscahoma aquifer has surficial extents in the northern portion of the installation in addition to the low areas associated with the Claybank, Steep Head, and Bowles creeks. The hydrologically connected Nanafalia and Clayton Formation aquifers are beneath the Lisbon and Tuscahoma Formations and are characterized by thicknesses of 400 to 500 feet (USACE, 2013). Even though these aquifers are not present in the surface layers within installation boundaries, they are the main groundwater sources for the installation (USACE, 2013; Fort Rucker, 2009b, as cited by USACE, 2013). Groundwater withdrawal has resulted in cones of depression at pumping sites in addition to a 50 to 60 foot decrease in the aquifer water level at Fort Rucker (USACE, 2013). The groundwater in these aquifers flows to the south.

Water Supply

American Water Enterprises, Inc., a private company, operates and maintains the drinking water system on Fort Rucker (U.S. Army, 2014a). Fort Rucker uses groundwater drawn from the Nanafalia and Clayton aquifers as its main potable water source (USACE, 2013). A collection of seven wells serves as the source of water for the cantonment and several heliport areas. Separate wells provide water for non-potable uses such as fire suppression, training, and recreation. The Cairns AAF and the Shell AHP receive water supplies through the cities of Daleville and Enterprise, respectively (U.S. Army, 2014a).

Water treatment consists of a chlorine disinfection process. Except for exceedances of manganese and iron, primary and secondary drinking water parameters achieve state standards (USACE, 2013). Fort Rucker instituted a Source Water Assessment Program to protect drinking water wells and their supply (U.S. Army, 2014a). Protection measures included identification of contaminant sources, source risks, contaminant mapping, and public education.

Wastewater

Fort Rucker has several NPDES permits for compliance and control of wastewater (EPA, 2014). In 2003, the wastewater system on Fort Rucker was contracted to American Water Enterprises, Inc. for 50 years (Fort Rucker, 2008, as cited by USACE, 2013). WWTPs located on the installation service the Main Post and Cairns AAF whereas wastewater from Shell AHP is transferred to and treated at a WWTP in the city of Enterprise (U.S. Army, 2014b; EPA, 2014).

Stormwater

Within developed zones of the installation, such as the cantonment area, the goal of the stormwater management system is to direct the runoff away from use areas, facilities, and infrastructure. In addition to natural drainage ways, the stormwater collection system in these areas consists of storm drains, roadside ditches, culverts, and swales. Surface runoff is channeled to either infiltration or detention systems. Oil/water separators are installed to prevent pollutants from aircraft and vehicle wash areas from draining to surface waters (Fort Rucker, 2008, as cited by USACE, 2013).

Stormwater runoff from construction activity disturbing a land area equal to or greater than 1 acre requires an NPDES permit through the Alabama Department of Environmental Management. Additionally, these construction sites must adhere to guidelines and implement appropriate BMPs detailed in the *Alabama Handbook for Erosion Control, Sediment Control and Stormwater Management on Construction Sites and Urban Area*s (Fort Rucker, 2009b, as cited by USACE, 2013). Fort Rucker has an NPDES Phase I permit (No. AL0002178) for stormwater inlets/outfalls (USACE, 2013).

Floodplains

E.O. 11988, *Floodplain Management*, requires federal agencies to avoid floodplain development and any adverse impacts from the use or modification of floodplains when there is a feasible alternative. Specifically, Section 1 of E.O. 11988 states that an agency is required to "reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities." The 100-year floodplain indicates areas where the flood has a 1 percent chance of being equaled or exceeded in any year. Specific areas designated as 100-year floodplains include areas adjacent to Bowles Creek and its tributaries in the northwestern portion of Fort Rucker (Fort Rucker, 2009b, as cited by USACE, 2013).

4.21.10.2 Environmental Effects

No Action Alternative

Minor, adverse impacts to water resources are anticipated from the No Action Alternative. Ongoing groundwater pumping for water supplies would continue to decrease aquifer levels and lead to cones of depression. Fort Rucker would continue to meet federal and state water quality criteria, drinking water standards, and floodplain management requirements. Stormwater management would continue under the existing NPDES Phase I permit as would adherence to state stormwater requirements and BMP guidelines, especially for construction sites. Current water resources management and compliance activities would continue to occur under this alternative.

Alternative 1—Implement Force Reductions

Beneficial impacts to water resources are anticipated as a result of implementing Alternative 1. A reduction in personnel would decrease demand for potable water and would reduce groundwater withdrawals. Reduced use of aircraft and other vehicles would lead to less frequent washings and decreased potential for pollutant discharge as well as provide more non-potable water for other uses. Implementation would lead to additional wastewater treatment capacity for other uses. Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Fort Rucker, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented. Force reduction at Fort Rucker is not anticipated to cause violations of federal and state water quality regulations and discharge permits.

4.21.11 Facilities

4.21.11.1 Affected Environment

Fort Rucker supports upwards of 36 organizations that are multi-command, multi-service, and multi-missioned. To carry out its missions, Fort Rucker supports a daytime population of approximately 15,700 personnel including over 5,000 people in uniform, over 7,000 civilian and contract employees and more than 3,700 Family members on the installation (U.S. Army, 2014c).

The cantonment area is located in the southern portion of Fort Rucker and spans approximately 2,800 acres. Supporting facilities include residential housing, retail centers, restaurants, health care facilities, fitness center, athletic fields and other recreational facilities (Fort Rucker, 2008).

Fort Rucker's training area, airspace and land availability encompass 27 counties in 3 states. Flight training is spread across 5 basefields, 1 forward arming fuel point, 17 stagefields, and 73 remote training sites (U.S. Army, 2014c).

4.21.11.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

Under Alternative 1, implementation of the proposed force reductions would result in overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Additionally, force reductions could require the storage of aircraft not being utilized for training due to reduced training schedules. Adverse impacts could occur if sufficient space is not available. The existing aircraft storage space and utilization would need to be evaluated. Some beneficial impacts are also expected as a result of force reductions as a reduction in the frequency of training exercises would be beneficial for maintaining ranges and training areas, improving sustainability of those facilities. A decrease in training operational tempo and related heavy equipment use would be beneficial for the maintenance and sustainability of roadways and off-road maneuver areas. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.21.12 Socioeconomics

4.21.12.1 Affected Environment

Fort Rucker, located in Dale County, Alabama, comprises approximately 63,072 acres. The ROI includes counties that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, and contractor personnel and their Families reside. The ROI consists of Coffee, Dale, and Houston counties in Alabama. This section provides a summary of demographic and economic characteristics within the ROI.

Population and Demographics

Using 2013 as a baseline, Fort Rucker has a total working population of 15,944, consisting of permanent party Soldiers, Army civilians, students and trainees, other military services personnel, contractor personnel, and other civilians. Of the total working population, 4,957 were active component Soldiers and Army civilians. The population that lives on Fort Rucker consists of 1,474 Soldiers and 2,238 Family members, for a total on-installation resident population of 3,712. The portion of the Soldiers, Army civilians, and Family members living off the installation is estimated to be 8,770.

Fort Rucker is home to USAACE and provides all Army aviation flight training, as well as training helicopter pilots for other armed forces branches and for students from more than 60 foreign countries. Students are based at Fort Rucker for the expected length of their assigned curriculum which may range from a few weeks to over a year (Rohrs, 2014). Fort Rucker averages 3,000 students assigned for training and can accommodate most of these students on the installation. However, students may need to stay in local hotels during times when numerous training sessions overlap.

In 2012, the population of the ROI was 204,922. Compared to 2010, the 2012 population increased in all of the ROI counties, with the largest increase in Coffee County (Table 4.21-4). The racial and ethnic composition of the ROI is presented in Table 4.21-5 (U.S. Census Bureau, 2012a).

Table 4.21-4. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Coffee County, Alabama	51,276	+2.7
Dale County, Alabama	50,348	+0.2
Houston County, Alabama	103,298	+1.7

Table 4.21-5. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic (percent)	White Alone, not Hispanic or Latino (percent)
State of Alabama	70.0	26.5	0.7	1.5	4.1	1.2	66.6
Coffee County, Alabama	76.8	17.5	1.4	1.4	2.5	6.4	71.8
Dale County, Alabama	75.2	19.8	0.8	1.2	2.8	5.81.2	70.6
Houston County, Alabama	70.4	26.4	0.5	0.9	1.7	3.2	67.8

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

Employment and Income

In 2012, the total employed labor force in the ROI was 88,214, including people employed through the Armed Forces (U.S. Census, 2012b). Between 2000 and 2012, total employed labor force (including Soldiers and Army civilians) increased in the state of Alabama and all of the counties in Fort Rucker's ROI, with the largest increases in Coffee and Houston counties (Table 4.21-6) (U.S. Census Bureau, 2000 and 2012b). Employment, median home value, household income, and poverty levels are presented in Table 4.21-6.

Table 4.21-6. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000-2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Alabama	2,034,230	+5.2	122,300	43,160	18.1
Coffee County, Alabama	21,197	+10.2	126,400	44,626	17.1
Dale County, Alabama	22,375	+2.9	96,100	45,247	16.0
Houston County, Alabama	44,642	+10.2	122,000	41,828	17.7

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

Coffee County, Alabama

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of total workforce in Coffee County (22 percent). Retail trade is the second largest employment sector (15 percent) followed by the manufacturing sector (11 percent). The Armed Forces account for 5 percent of the county's workforce. The remaining 10 industries employ 52 percent of the workforce.

Major employers in Coffee County include Army Fleet Support, Wayne Farms, Enterprise City School System, and Pilgrim's Pride (Economic Development Partnership of Alabama, 2012).

Dale County, Alabama

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of total workforce in Dale County (19 percent). Transportation, warehousing, and utilities industry is the second largest employment sector (12 percent), followed by retail trade (11 percent). The Armed Forces account for 6 percent of the county's workforce. The remaining 10 industries employ 58 percent of the workforce.

Major employers in Dale County include Fort Rucker, Army Fleet Support, Michelin North America, Inc., and Dale Medical Center (Economic Development Partnership of Alabama, 2012).

Houston County, Alabama

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of total workforce in Houston County (23 percent). Retail trade is the second largest employment sector (14 percent), followed by manufacturing (10 percent) and the arts, entertainment, and recreation, and accommodation and food services sector (10 percent). The Armed Forces account for less than 1 percent of the county's workforce. The remaining 10 industries employ 43 percent of the workforce.

Major employers in Houston County include Southeast Alabama Medical Center, Dothan City and Houston County School Systems, Flowers Hospital, and the City Government of Dothan (Economic Development Partnership of Alabama, 2012).

Housing

The U.S. Military partnered with Corvias Military Living in 2004 to create privatized military housing for Fort Rucker. Corvias Military Living has past experience with privatized military housing at Fort Meade, Fort Bragg, and Fort Polk. Fort Rucker's privatized military housing is divided into three separate neighborhoods: Allen Heights; Bowden Terrace; and Munson Heights (Corvias Military Living, 2014).

Allen Heights houses a mixture of Families and single Soldiers in the Company Grade Officer and Junior NCO armed forces and is home to the first Neighborhood Center at Fort Rucker. Two-story homes are located for the Field Grade Officer armed forces in Munson Heights. Homes in Bowden Terrace accommodate Families of various armed forces rank bands (Corvias Military Living, 2014). In total, the 3 neighborhoods make up approximately 1,500 total housing units and are generally located in the western half of the cantonment (USACE, 2013).

Schools

Fort Rucker has two schools, a primary school (pre-kindergarten through grade 1) and an elementary school (grade 2 through grade 6). The current enrollment is 331 students at the primary school and 414 students at the elementary school. The majority of military Family members that go to school off the installation are attending school in the communities of Enterprise, Daleville, Ozark, and Dothan. In addition, some children attend school in the states of Florida and Georgia due to proximity of the installation to communities in these states.

Public Health and Safety

Police and Fire Services

According to the INRMP, the Director of Public Safety is responsible for providing military police and fire protection support to the installation. Military police responsibilities of the Director of Public Safety include enforcing laws and regulation on Fort Rucker (Fort Rucker, 2009b).

Fire and Emergency Services

According to the Integrated Wildland Fire Management Plan, the Fire Department (Director of Public Safety), has the primary responsibility for prevention and suppression of wildfires. The DPW Environmental and Natural Resources Division, Natural Resources Branch is the primary backup for wildfires.

Medical Facilities

Lyster Army Health Clinic is located on Fort Rucker and is co-located with the Veterans Affairs clinic (VA Wiregrass Clinic). Other services are available in Dothan (Flowers Hospital and SE Alabama Medical Center), Enterprise (Medical Center Enterprise), Ozark (Dale Medical Center), or other specialty clinics. Services are also provided in Birmingham (University of Alabama), as well as at the Navy facilities in Pensacola, and the Air Force facilities at Eglin AFB.

Family Support Services

Fort Rucker assists Soldiers and their Families with programs that include Army Emergency Relief, Army Family Action Plan, Army Family Team Building, Army Volunteer Corps, Exceptional Family Member Program, Family Advocacy Program, Financial Readiness Program, Information and Referral Program, Mobilization and Deployment, Relocation Readiness

Program, Survivor Outreach Services, Victim Advocate Program, and Fort Rucker B.E.S.T. (a Mentorship program for strengthening Soldiers) (U.S. Army, 2014c). There are three chapels on the installation, and Fort Rucker offers religious services programs that directly support Soldiers, Families, and civilians.

Fort Rucker provides child development centers, The Edge Program, family child care, the Hired Program, Parent Central Services, school age services, school liaison services, a youth center, and youth sports and fitness (U.S. Army, 2014c).

Recreation Facilities

Fort Rucker provides its military community, Families, and civilians with indoor and outdoor aquatic centers, arts and crafts center, automotive skills center, center library, Lake Tholocco lodging, outdoor recreation, physical fitness centers, riding stables, Rucker Lanes Bowling Center, Silver Wings Golf Course, and Wounded Warrior Recreation (U.S. Army, 2014c).

4.21.12.2 Environmental Effects

No Action Alternative

The operations at Fort Rucker would continue to benefit regional economic activity. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

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

Population and Economic Impacts

Alternative 1 would result in the loss of 2,490[27] Army positions (1,754 Soldiers and 736 Army civilians), each with an average annual income of $46,760 and $64,730, respectively. In addition, Alternative 1 would affect an estimated 3,780 Family members (1,389 spouses and 2,390 children). The total population of Army employees and their Families affected under Alternative 1 is projected to be 6,270.

Based on the EIFS analysis, a significant impact is defined as a situation when the forecast economic impact value falls outside the historical positive or negative ranges. Table 4.21-7 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the

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

estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, there would be significant impacts to population in the ROI because the forecast change falls outside historical range of population variation. However, there would not be significant impacts to sales, income, and employment in the ROI under Alternative 1 because the estimated percentage change is within the historical range.

Table 4.21-7. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+10.9	+5.8	+2.9	+2.3
Economic contraction significance value	-9.8	-3.3	-4.8	-1.8
Forecast value	-1.8	-2.2	-3.7	-2.3

Table 4.21-8 summarizes the predicted impacts to income, employment, and population of force reductions against 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

Table 4.21-8. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$157,026,600	-2,854 (Direct)	-6,270
		-534 (Induced)	
		-3,389 (Total)	
Total 2012 ROI economic estimates	$7,406,840,000	88,214	204,922
Percent reduction of 2012 figures	-2.1	-3.8	-3.1

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

With a potential reduction of the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 2,490 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 364 direct contract service jobs would also be lost. An additional 534 induced jobs would be lost due to the reduction in demand for goods and services within the ROI. The total reduction in employment is estimated to be 3,389, a 3.8 percent reduction of the total employed labor force in the ROI in 2012. Income is estimated to reduce by $157 million, a 2.1 percent decrease in the ROI in 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $194.7 million. Sales tax receipts to local and state governments would also decrease. The state and average local sales tax for Alabama is 8.5 percent (Tax Foundation, 2014). To estimate sales tax reductions, information was utilized on the proportion of sales that would be subject to sales taxes on average across the county. According to the U.S. Economic Census, an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). Therefore, with an estimated reduction of $194.7 million in sales, there would be an estimated decrease in sales tax receipts of $2.7 million.

Of the 204,922 people (including those residing on Fort Rucker) who live within the ROI, 2,490 military employees and their estimated 3,780 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a population reduction of 3.1 percent. This number could overstate potential population impacts because some of the people no longer employed by the Army could continue to live and work within the ROI, finding employment in other industry sectors. However, because of the relatively rural nature of the ROI and that Fort Rucker serves as a primary employer and economic driver within the ROI, the majority of displaced personnel are likely to move out of the area to seek other opportunities with the Army or elsewhere. A small number of displaced personnel may seek and find work within the ROI; however, others may not be able to find new employment, with possible implications for the unemployment rate.

Students and trainees at Fort Rucker may have a substantial impact on the local economy through lodging, eating, and shopping expenditures. Additionally, formal graduation ceremonies generate demand for lodging and dining facilities when Family members attend. The impact to Fort Rucker's training missions cannot be determined until after the Army completes its force structure decisions; therefore, analyzing the impact to those missions is beyond the scope of this document.

Housing

The population reduction that would result under Alternative 1 would decrease the demand for housing and increase housing availability on the installation and in the region, potentially leading to a reduction in median home values. With an expected decrease in population within the ROI of 3.1 percent along with the considerable number of Army personnel and Family members living off the installation, housing impacts under Alternative 1would be adverse and could range from minor to significant.

Schools

Reduction of 2,490 Soldiers and Army civilians under Alternative 1 would result in a reduction of 3,780 Family members, of which 2,390 would be children. It is anticipated that school districts that provide education to Army children on the installation would be impacted by this action. The schools on Fort Rucker, with current enrollment of 745 students, as well as school districts off the installation in Dale, Coffee, and Houston counties where Fort Rucker Army,

civilians, and their Families reside would be most affected under Alternative 1. If enrollment in individual schools is severely affected, schools may need to reduce the number of teachers, administrators, and other staff, and potentially close or consolidate with other schools within the same school district should enrollment fall below sustainable levels.

The reduction of Soldiers on Fort Rucker would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal Impact Aid a district receives is based on the number of students who are considered "federally connected" and attend district schools. Actual projected dollar amounts cannot be determined at this time due to the variability of appropriated dollars from year to year, and the uncertainty of the actual number of affected school-age children for Army and civilian Families. School districts in the ROI would likely need fewer teachers and materials as enrollment drops, which could partially offset the reduced Federal Impact Aid.

Overall, adverse impacts to schools associated with Alternative 1 would be minor to significant depending on the reduction in the number of military-connected students attending specific schools.

Public Services

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

Family Support Services and Recreation Facilities

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

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, states: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). In general, Alternative 1 would not have a

disproportionate adverse impact to minorities, economically disadvantaged populations or children in the ROI. Job losses would be experienced across all income levels and economic sectors and spread geographically throughout the ROI. As shown in Tables 4.21-5 and 4.21-6, the proportion of minority and poverty populations in the ROI are similar to those in the state as a whole, resulting in no disproportionate effect to environmental justice populations.

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

4.21.13 Energy Demand and Generation

4.21.13.1 Affected Environment

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

Electricity

The Fort Rucker electrical utility system was privatized in 2003 and is managed under a 20-year contract by Alabama Power Company. The installation is served by three distribution substations (Fort Rucker, 2008 as cited by USACE, 2013).

Natural Gas

The natural gas system at Fort Rucker was privatized in 2003 and is managed by Southeast Alabama Gas District. Natural gas is delivered to the Fort Rucker distribution system via a single point on the main installation (Fort Rucker, 2008 as cited by USACE, 2013).

4.21.13.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

4.21.14 Land Use Conflicts and Compatibility

4.21.14.1 Affected Environment

Regional Setting

Fort Rucker encompasses approximately 63,072 acres in southeastern Coffee and southwestern Dale counties, Alabama. Land within Fort Rucker is broadly divided into a cantonment area and an operations area. The installation includes the 57,772-acre main reservation and multiple off-installation areas totaling 5,143 acres that are used primarily for aviation training. Of this acreage, approximately 1,674 acres consist of leased land. Fort Rucker is located in the Wiregrass region of southeast Alabama, approximately 70 miles north of the Florida state line and 35 miles west of the Georgia state line. The communities of Enterprise, Daleville, and Ozark are located west, south, and east of the installation, respectively, and the roadways to those communities serve as the installation's three main gates. The nearest civilian community is Daleville, Alabama, located adjacent to the cantonment area on the southern boundary of the installation. The city of Dothan, Alabama, is the largest city in the region and is located approximately 25 miles to the southeast of the installation (Fort Rucker, 2008).

Fort Rucker serves as the headquarters for U.S. Army Aviation and is the location of USAACE, providing all Army aviation flight training and training helicopter pilots for other armed forces

branches including the Air Force as well as students from over 60 foreign countries. The current mission of USAACE at Fort Rucker is to develop the Army's aviation force for its worldwide mission. This includes developing concepts, doctrine, organization, training, leader development, materials and Soldier requirements. USAACE provides resident and nonresident aviation maintenance, logistics and leadership training support of the total force and foreign nations for the sustainment of joint and combined aviation operations (Fort Rucker, 2008; Fort Rucker, 2009a).

Land Use at Fort Rucker

Land use within the installation is generally divided into a cantonment area and an operations area. The approximately 2,800-acre cantonment area is in the southern portion of Fort Rucker and consists of administrative buildings, simulators and classrooms, medical facilities, housing, recreational facilities, commissary, and post exchange. The cantonment area also includes streets, parking, and utilities infrastructure to support the installation. The operations area is largely undeveloped and includes range and training areas and aviation facilities. The current training area consists of 5 Army basefields; 1 Forward Arming Refuel Point; 17 stagefields, including 1 test site; and 73 remote training sites. Development within the area is concentrated on the various airfields, with approximately 51,000 acres of commercial forest occupying most of the area. Cairns AAF is located approximately 3 miles south of the Daleville Gate and includes property south of Route 84 and east of Route 85. Lowe AHP is located adjacent to the base boundary on the west side of Fort Rucker, approximately 3 miles northwest of the Daleville gate. Hanchey AHP is located north of Hatch Road, approximately 4 miles northeast of the Daleville gate. Shell AHP is located approximately 11 miles west of Fort Rucker and 5 miles north of Enterprise, Alabama. Knox AHP is located adjacent to the installation's southern boundary, approximately 2 miles east of the Daleville gate (Fort Rucker, 2008).

According to the Fort Rucker RPMP, land use patterns on the installation exhibit limited incompatibilities. Virtually all land uses are either compatible or closely linked to neighboring uses. Family housing areas are well buffered from more intensive activities by open space, and housing is located adjacent to community and recreational uses. The installation's administrative center is flanked by supporting classroom and training functions, while industrial activities are segregated and surrounded by open space and recreational areas. The medical clinic is appropriately located near the standby medical training site and is buffered to the north and south by open space (Fort Rucker, 2008).

Surrounding Land Use

Land use within the region surrounding Fort Rucker can be classified as a mix of urban, suburban and agricultural uses. As Fort Rucker has expanded in training scope and size, the communities adjacent to Fort Rucker have also grown. Civilian area growth has been aided by Fort Rucker, due to opportunities for housing, retail, and other opportunities for Soldiers, other employees, and Families that are locating in the area. This increased development and

encroachment toward the installation has also created more opportunities for operational conflicts, due to noise and safety effects created by aviation and weapons training. Varying levels of incompatible development currently exist in the areas around Fort Rucker (Fort Rucker, 2009a). Communities, such as the city of Enterprise and to a lesser extent the city of Ozark, continue to grow closer to areas affected by weapons training (U.S. Army Public Health Command, 2011).

Fort Rucker and several local government officials recognized the need to study land use compatibility issues around the installation and its outlying aviation facilities through participating in the JLUS program. These interested partners engaged the Southeast Alabama Regional Planning and Development Commission to facilitate the study (Fort Rucker, 2009a). The Commission is a regional council of governments representing seven counties, including Coffee and Dale counties, and provides community planning, land use planning, and economic development planning services to its constituent government agencies (Southeast Alabama Regional Planning and Development Commission, 2014). The 2009 Fort Rucker/Wiregrass JLUS sets forth a set of goals and objectives, and proposes a number of conservation, compatible land use and regulatory tools for directing growth in such a way to increase future land use compatibility in the region and to strengthen the relationship between Fort Rucker and surrounding communities (Fort Rucker, 2009a).

4.21.14.2 Environmental Effects

No Action Alternative

Less than significant (minor to moderate), adverse impacts to surrounding land use are expected under the No Action Alternative. These impacts would result from operational conflicts related to noise and safety as growth and development continue to take place adjacent to the installation. Cooperation between Fort Rucker and surrounding governments and planning agencies through the JLUS process is expected to mitigate these impacts through the development of strategies to ensure compatible land use and development in the future. There would be no impacts to existing land use on the installation.

Alternative 1—Implement Force Reductions

The configuration of existing training and operations areas is expected to remain unchanged under Alternative 1. Land uses within the cantonment areas on the installation would likewise remain the same. Reductions in training associated with force reductions would lead to reduced land use conflicts between installation operations and adjacent land uses, since noise and safety concerns would be somewhat diminished. Force reductions under Alternative 1 may lead to decreased population growth in communities surrounding the installation, which in turn could reduce demand for buildable land and possibly slow the encroachment of incompatible development and land uses on the installation boundaries. Overall, existing installation operations and surrounding land development patterns are expected to continue under

Alternative 1, albeit at a reduced pace; therefore, Alternative 1 is expected to have beneficial impacts to land use.

4.21.15 Hazardous Materials and Hazardous Waste

4.21.15.1 Affected Environment

Hazardous Materials

Hazardous materials acquisition, use, handling, and disposition are managed by the Fort Rucker Hazardous Materials Control Center. The Fort Rucker Logistics Readiness Center, Supply and Services Branch, is responsible for overseeing the Hazardous Materials Control Center and coordinating hazardous materials supply requirements for installation-wide activities. Central visibility and tracking of hazardous materials by the Hazardous Materials Control Center provides a way to redistribute excess but serviceable items, thus helping to reduce expenditures and avoid hazardous waste disposal. Since its establishment in 1998, the Hazardous Materials Control Center process has saved over $1.5 million through efficient procurement and redistribution (Fort Rucker, 2014a).

Hazardous Waste Treatment, Storage and Disposal

Fort Rucker hazardous waste streams result from site operations such as cleaning and maintenance of aircraft, vehicles, and buildings, as well as grounds maintenance and various other equipment operations at the installation. Also incorporated into the hazardous waste stream is the management of hospital wastes, LBP, pesticides, herbicides, and UXO (Fort Rucker, 2014a).

Hazardous Waste Investigation and Remediation Sites

Fort Rucker has an IRP that tracks and monitors sites on Fort Rucker that may require restoration and remediation due to contamination. These areas are commonly referred to as SWMUs and Areas of Concern. All IRP sites on Fort Rucker are considered to be low risk, with relatively low potential to affect the natural environment or public. None of the IRP sites have extensive groundwater contamination (USACE, 2013).

Other Hazards

Other hazards present at Fort Rucker are controlled, managed, and removed through specific programs and plans and include UXO, LBP, asbestos-containing materials, hospital wastes, herbicides, and pesticides.

4.21.15.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

Minor, adverse impacts are anticipated as a result of the implementation of Alternative 1. Remediation activities are not expected to be impacted by Alternative 1. Because of the reduced numbers of people, it is likely that the potential for spills would be reduced during training and maintenance activities. Waste collection, storage, and disposal processes would remain mostly unchanged, although the quantities may be reduced. No violation of hazardous waste regulations or the Fort Rucker hazardous waste permit is anticipated as a result of active forces reduction. Volumes of generated waste are expected to decline depending on the specific units affected.

Under Alternative 1, adverse impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Fort Rucker, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

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

4.21.16 Traffic and Transportation

4.21.16.1 Affected Environment

Fort Rucker is located on the East Gulf Coastal Plain in southeastern Coffee and southwestern Dale counties, Alabama, approximately 25 miles northwest of Dothan between the cities of Daleville, Enterprise, and Ozark (USAPHC, 2011). It is approximately 90 miles due north of Panama City, Florida, approximately 90 miles southeast of Montgomery, Alabama, and approximately 120 miles northwest of Tallahassee, Florida (Mapquest, 2014). Fort Rucker and the communities in the seven-county region are served by an adequate regional transportation system, with the road and rail networks being the most accessible. Although no interstate

highways pass through the 7-county area, 6 federal highways, more than 30 state routes and county roads, and 5 rail companies serve the area. In addition, commercial airports, river transportation, and deep-water port facilities are all available within a reasonable distance from Fort Rucker (Rust Environment and Infrastructure, 1999, as cited by Fort Rucker, 2009b).

Off-Installation Roadways

The road system is the most important transportation system in the seven-county region. North-south movement is generally easier in the region than east-west movement, primarily because highways serving the former alignment are wider and less circuitous. North-south movement is facilitated by a principal arterial system consisting of U.S. Highways 231 and 431, and Alabama Highway 167. These arterials provide linkage between the main urban centers of southeastern Alabama and access to the cities of Montgomery, Alabama, and Columbus, Georgia, to the north and Florida to the south. U.S. Highway 84 and Alabama Highway 134, though generally narrower and more circuitous, provide the only adequate direct movement from east to west. To the north, U.S. Highway 82 through Barbour County provides east-west movement between Montgomery, Alabama and Brunswick, Georgia. In addition, Alabama Highway 52 between Geneva and Columbia provides through access from Florida to Georgia, connecting with highways in both states (Rust Environment and Infrastructure, 1999, as cited by Fort Rucker, 2009b).

The closest U.S. highways to Fort Rucker are U.S. Highway 231 (a four-lane highway) to the north and east of the installation and U.S. Highway 84 to the west and south of Fort Rucker. Numerous Alabama state roads and county roads extend between the two U.S. highways and provide access to Fort Rucker (Mapquest, 2014).

Access Control Points and Installation Roadways

Ozark, Enterprise and Daleville Gates are open 24/7. Newton and Faulkner Gates are open from 4:30 a.m. to 8:30 p.m. Monday through Friday and closed on weekends and holidays (Fort Rucker, 2014c).

The internal road network of Fort Rucker provides motor access to all areas of the installation and is capable of handling all types of highway vehicles. There are 198 miles of road on Fort Rucker, of which 136 miles are paved (DPW, 2004, as cited by Fort Rucker, 2009b). The street network of the cantonment area is a curvilinear grid system. Outside this area, the street network follows no distinguishable pattern. All roadways are hard surfaced and generally in good condition (Rust Environment and Infrastructure, 1999, as cited by Fort Rucker, 2009b).

Alabama State Road 248 (Rucker Boulevard) enters the southwest portion of the installation at the Enterprise Gate, connects to Alabama State Road 249 (Andrews Avenue) and crosses the center of the cantonment area. Alabama State Road 27 enters the Range on the western side of the installation, passing by Range Control and the impact area. Alabama State Road 85 crosses

and connects with U.S. Highway 84 south of Fort Rucker and traverses the city of Daleville. It enters the main cantonment area in the southeastern section of the installation through the Daleville Gate, proceeds north through the cantonment, and merges with Alabama State Road 249. Alabama State Road 249 (also known as Andrews Avenue) provides access from U.S. Highway 231 to the Ozark Gate (Mapquest, 2014; Fort Rucker, 2014c).

Roadways from the period prior to Fort Rucker's ownership of the property service the outlying training areas, with some roads crossing from military to private land and back to military land (Fort Rucker, 2009b).

Commercial Air Service

Montgomery, Alabama is approximately 90 miles to the north-northwest (Fort Rucker, 2014c). Civilian air transportation facilities in the Fort Rucker region are limited. The only commercial airport located in the Southeast Alabama Regional Planning and Development district is the Dothan-Houston County Municipal Airport, approximately 25 miles east-southeast of Fort Rucker. This airport serves most of the district and adjacent areas in Alabama, Florida, and Georgia. Commercial passenger service to this facility is provided by Express Jet, affiliated with Delta Airlines, and providing service to Atlanta. The nearest commercial jet service currently is located at Montgomery, Alabama and some regional airports in the Florida panhandle. In addition to the Dothan-Houston County Airport, there are 12 general aviation airports located in the district (Rust Environment and Infrastructure, 1999, as cited by Fort Rucker, 2009b).

Freight Rail Service

There are about 2.3 miles (3.7 kilometers) of railroad tracks at Fort Rucker (Fort Rucker, 2014d). The nearest Strategic Rail Corridor Network is the Louisville and Nashville Railroad main line through Montgomery, Alabama. The Seaboard Coast Line track between Fort Rucker and Montgomery is the Federal Railroad Administration Class 2 connector to Strategic Rail Corridor Network (Rust Environment and Infrastructure, 1999, as cited by Fort Rucker, 2009b).

Ancillary, Non-contiguous Airfield Training Support Services

Fort Rucker also uses 78 leased sites to support its military mission. These sites total 1,488 acres and are located in Alabama and Florida (Fort Rucker, 2014d). Satellite airfields are served by county and state roads (Fort Rucker, 2009b). The non-contiguous facilities are not considered in this EA.

4.21.16.2 Environmental Effects

No Action Alternative

The No Action Alternative would result in the continuation of current traffic congestion on and near the installation. No documentation has been identified to indicate that traffic congestion is considered a problem. The impact would therefore be a less than significant adverse impact.

Alternative 1—Implement Force Reductions

Implementing force reductions would result in a beneficial impact to traffic congestion, assuming all current ACPs remain open. If the maximum reduction were to be implemented, reducing the staffing level by more than 50 percent, the beneficial impact to traffic on and near the installation would be noticeable. However, if the reduction in personnel also results in the closure of convenience gates, or limited hours at current 24/7 operations gates, traffic impacts, detours and increases in some costs (such as re-fueling contracts) might occur (Fort Rucker, 2014b). Gate closure actions would require further study to determine consequences and potential mitigation.

4.21.17 Cumulative Effects

The ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Rucker consists of Coffee, Dale, and Houston counties in Alabama.

Reasonably Foreseeable Future Projects on Fort Rucker

The only reasonably foreseeable future project on Fort Rucker is the construction of a consolidated elementary school for FY 2016. Implementation of the Aviation Restructure Initiative could result in additional effects.

Reasonably Foreseeable Future Projects outside Fort Rucker

The Army is not aware of any reasonably foreseeable future projects outside Fort Rucker which would be appropriate for inclusion in the cumulative impacts analysis. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities.

No Action Alternative

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

Alternative 1—Implement Force Reductions

Overall, the potential cumulative impacts of Alternative 1 at Fort Rucker are anticipated to be significant and adverse for socioeconomics, with generally beneficial impacts for the other resources. The cumulative socioeconomic impact within the ROI, in addition to impacts described in Section 4.21.12.2 with a reduction of 2,490 Soldiers and Army civilians could lead to significant impacts to the regional economy, schools, and housing. Current and foreseeable actions include construction and development activities on and off the installation, which would have beneficial impacts to the regional economy through additional economic activity, jobs, and income in the ROI. Additionally, the Aviation Restructure Initiative has the potential to change

installation populations, which would affect regional economic conditions through the jobs and income they bring (or lose) within the region. Military personnel spend their money in the ROI economy, supporting additional jobs, income, taxes, and sales impacts.

Fort Rucker is a notable employer in the region; the Armed Forces account for 5 and 6 percent of the workforce in Coffee and Dale counties, respectively. The cities of Enterprise and Ozark could likely absorb some of the displaced workers, depending on the economy and labor market in the region. If the majority of the displaced forces are not absorbed into the local labor force, there would be additional adverse impacts.

Fort Rucker has many Soldiers in a student status due to flight school. Cumulative actions could include reduced training opportunities because of the force reductions on Fort Rucker. This could lead to further adverse impacts to socioeconomic conditions because of reduced temporary population and visitors and the attendant economic activity, spending, and jobs and income they support. Alternative 1 and the loss of approximately 2,500 Soldiers, in combination with current and foreseeable future actions, could have significant impacts to employment, income, tax receipts, and housing values, and schools and in the ROI.

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4.22 Fort Sill, Oklahoma

4.22.1 Introduction

Fort Sill was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population is discussed in Section 4.19.1 of the 2013 PEA.

Fort Sill's 2011 baseline permanent party population was 11,337. In this SPEA, Alternative 1 assesses a potential population loss of 6,800, including approximately 6,022 permanent party Soldiers and 820 Army civilians.

4.22.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Sill; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.22-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.22-1. Fort Sill Valued Environmental Component Impact Ratings

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

4.22.3 Air Quality

4.22.3.1 Affected Environment

Air quality is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.19.1.2 because there were no significant, adverse environmental impacts from implementing alternatives included in the analysis. No changes have occurred to the affected environment since 2013. The Fort Sill area has not been designated as a nonattainment area for any criteria pollutants (EPA, 2013).

4.22.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, continuation of mobile and stationary source emissions at current levels would result in minor**,** adverse impacts to air quality.

Alternative 1—Implement Force Reductions

Force reductions at Fort Sill would result in minor, long-term, and beneficial impacts to air quality because of reduced operations and training activities and reduced vehicle miles traveled associated with the facility.

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

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

4.22.4 Airspace

4.22.4.1 Affected Environment

Airspace is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.19.1.2 due to lack of significant, adverse environmental impacts as a result of implementing alternatives included in that analysis. The affected environment described in the above-reference section remains essentially the same with only slight changes. Fort Sill is in the process of finalizing an additional airspace expansion, with a completion of the Rule Making Process being estimated for August 1, 2014 (Hafen, 2014).

4.22.4.2 Environmental Effects

No Action Alternative

The 2013 PEA VEC dismissal statement concluded that there would be negligible impacts to airspace at Fort Sill under the No Action Alternative. For the current analysis, Fort Sill would continue to maintain current airspace operations. No airspace conflicts are anticipated and impacts to airspace would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that negligible impacts to airspace would occur at Fort Sill. Under Alternative 1, implementation of proposed further force reductions would continue negligible, adverse impacts to airspace. The use of airspace would not change substantially with the loss of ground units as a result of this alternative and general aviation would continue to require airspace to support training. The implementation of Alternative 1 would not result in a decreased requirement for airspace.

4.22.5 Cultural Resources

4.22.5.1 Affected Environment

The affected environment was described in Section 4.19.2 of the 2013 PEA. Since 2013, Fort Sill has completed an ICRMP that will be implemented in 2014. No other changes to the affected environment have occurred.

4.22.5.2 Environmental Effects

No Action Alternative

Section 4.19.2.2 of the 2013 PEA states that the No Action Alternative would result in less than significant impacts to cultural resources. Since the publication of the 2013 PEA, the installation has completed an ICRMP which details the processes and procedures for the management and preservation of cultural resources. Given this new information, the effects of the No Action Alternative are consistent with other installations analyzed in this document. Continuation of the No Action Alternative would have negligible impacts to cultural resources.

Alternative 1—Implement Force Reductions

The effects of troop reduction on cultural resources were described as significant but mitigable in Section 4.19.2.2 of the 2013 PEA due to potential impacts to cultural resources from facility demolition or abandonment. However, the Proposed Action analyzed in this document varies from that in the 2013 PEA. While various vacated older buildings on the installation may be programmed for demolition, as discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably

foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

Additionally, the Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort Sill, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of force reductions, the installation would comply with applicable laws, such as NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects. Therefore, the implementation of this alternative would result in minor impacts to cultural resources.

This alternative could result in some beneficial effects as a decrease in training activities could reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources.

4.22.6 Noise

4.22.6.1 Affected Environment

The affected environment for noise at Fort Sill remains effectively the same as described in Section 4.19.3.1 of the 2013 PEA. The primary sources of noise at Fort Sill are blast noise from artillery and impacting artillery rounds, fixed and rotary-wing aircraft, close air support training, general personnel activities, and roadway noise.

4.22.6.2 Environmental Effects

No Action Alternative

The 2013 PEA anticipated that noise would continue to be a potentially significant impact that is mitigated to less than significant through the management and scheduling of training activities. Under the No Action Alternative, impacts would remain as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Sill would result in minor, beneficial noise impacts because a reduction in personnel would decrease the frequency of noise generating training events and the amount of noise created. The beneficial impact under Alternative 1 would be similar to that described in the 2013 PEA.

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

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

4.22.7 Soils

4.22.7.1 Affected Environment

Soils are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.19.1.2 due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

4.22.7.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to soils and the affected environment would remain in its present state.

Alternative 1—Implement Force Reductions

Per Section 4.19.1.2 of the 2013 PEA, there would be negligible impacts to soils under Alternative 1. Soils on Fort Sill are naturally highly erodible and erode regardless of man-made activities. The installation would continue to manage its resources in accordance with the installation INRMP. Under Alternative 1 of this SPEA, impacts to soils could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Sill, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at Fort Sill would be beneficial and remain the same as those discussed in Section 4.19.7.2 of the 2013 PEA.

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

4.22.8.1 Affected Environment

Biological Resources are among the VECs excluded from detailed analysis as described in Section 4.19.1.2 of the 2013 PEA due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

Vegetation

Fort Sill lies in an ecological transition area where tall-grass prairie merges with short-grass prairie, and soil variation has created diverse plant communities. Grassland communities constitute more than 70 percent of Fort Sill. There are three major grassland types. Tall grasses like big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), switchgrass (*Panicum virgatum*), and indiangrass (*Sorghastrum nutans*) dominate sites with deep soils. Native legumes and other forbs are also numerous in these areas. Medium and short grasses like blue grama (*Bouteloua gracilis*) and sideoats grama (*Bouteloua curtipendula*) occupy more droughty hardland and slickspot soils. Medium and short grasses like hairy (*Bouteloua hirsuta*) and sideoats grama and fall witchgrasses (*Leptoloma cognatum*) are abundant on very shallow rocky soils. No federally protected plant species occur on the installation. Oklahoma does not have a law that protects rare plant species, so no official list of state rare plants exists (Fort Sill, 2003).

Wildlife

The diversity of natural environments at Fort Sill provides suitable habitat for a wide variety of animal species. Frequently encountered animal life includes a wide range of common invertebrates, birds, fish, reptiles, amphibians, and rodents. Large herbivores and large carnivores, although present, are less frequently encountered.

Game species found at Fort Sill include bobwhite quail (*Colinus virginianus*), white-tailed deer, mourning dove (*Zenaida macroura*), pheasant (*Phasianus colchicus*), elk (*Cervus elaphus*), raccoon, various waterfowl species, and coyote (*Canis latrans*). Common mammals inhabiting the installation include bobcat (*Lynx rufus*), striped skunk, cottontail rabbit, fox squirrel (*Sciurus niger*), beaver, opossum, prairie vole (*Microtus ochrogaster*), deer mouse (*Peromyscus maniculatus*), white-footed mouse (*P. leucopus*), and several bat species. Fish species commonly found on Fort Sill include largemouth bass, bluegill, redear sunfish (*L. microlophus*), green sunfish (*L. cyanellus*), and channel catfish.

Threatened and Endangered Species

Federally listed species that may occur in Comanche County are the black-capped vireo (*Vireo atricapillus*), least tern, piping plover, and whooping crane (*Grus americana*). The black-capped vireo is the only federally listed species documented to occur at Fort Sill. Habitat for the black-capped vireo is scattered within the training areas north and west of the cantonment area (Fort Sill, 2003).

4.22.8.2 Environmental Effects

No Action Alternative

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

biological resources on Fort Sill would continue in accordance with the current installation INRMP (Fort Sill, 2003).

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts to biological resources including, vegetation, wildlife, and threatened or endangered species would occur on Fort Sill. The Army anticipates that further proposed reduction in forces would not change this finding due to a decrease in the frequency of land usage in the Fort Sill training areas, which would limit potential Soldier disturbance of sensitive species and habitats. The Army is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Sill, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.22.9 Wetlands

4.22.9.1 Affected Environment

Wetlands are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.19.1.2 due to lack of significant, adverse environmental impacts as a result of implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013.

4.22.9.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

Per Section 4.19.1.2 of the 2013 PEA, there would be negligible changes to wetlands under Alternative 1. The installation would continue to manage its wetlands in accordance with the installation INRMP. Impacts to wetlands could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Sill, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at Fort Sill would remain the same as those discussed in Section 4.19.1.2 of the 2013 PEA.

4.22.10 Water Resources

4.22.10.1 Affected Environment

Water resources are among the VECs excluded from detailed analysis as described in Section 4.19.1.2 of the 2013 PEA due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. The affected environment remains essentially the same with the exception of one change. East Cache Creek is impaired for dissolved oxygen, sulfates, and pH, not for lead and turbidity (Leland, 2014). Blue Beaver Creek is impaired for pathogens (Fort Sill, 2014b).

4.22.10.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to water resources similar to those described in Section 4.19.1.2 of the 2013 PEA. There would be no change to the existing surface waters and water supply as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 in the 2013 PEA, beneficial impacts to water resources, including reduction in water demand and stormwater runoff, would occur on Fort Sill. Reduction in training area use from force reductions on the installation would also potentially reduce impacts to surface waters due to disturbance and spills. The Army anticipates that further proposed reduction in forces would not change this finding because Alternative 1 of this SPEA does not involve major changes to installation operations or types of activities conducted on Fort Sill, only a decrease in the frequency of training activities. The installation would continue to manage its water resources in accordance with applicable federal and state water quality criteria, drinking water standards, and stormwater and floodplain management requirements.

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

4.22.11 Facilities

4.22.11.1 Affected Environment

Facilities is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.19.1.2 due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in the analysis. No changes have occurred to the affected

environment since 2013, though some corrections to information are noted. As described in the 2013 PEA, Fort Sill is composed of 7,800 acres of cantonment area and 85,608 acres of rangeland. Rangeland includes 37,306 acres of impact area and 48,302 acres of training areas. In addition, about 5,000 acres of land are available for agricultural use (this is a correction from the 3,000 acres noted in the 2013 PEA). The facilities within the cantonment area include housing, industrial, administrative, medical, and recreation. Approximately 2,400 buildings and other structures are located on the installation. Henry Post Airfield has one paved runway and two sod runways. Other airfield facilities on Fort Sill include an UAS strip, three sod airstrips, and five paved helicopter landing pads. Something that was not noted in the 2013 PEA, Fort Sill has established seven adaptable use zones to assist in future project planning. Adaptable use zones are identified areas of likely future development or redevelopment in the cantonment and range areas. This allows the installation to maximize existing compatible land use while minimizing environmental degradation. All actions occurring within the adaptable use zones conform to local environmental laws, regulations, and associated permitting requirements (Fort Sill, 2013).

4.22.11.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the VEC dismissal statement in the 2013 PEA concluded there would be negligible impacts to facilities at Fort Sill. For the current analysis, Fort Sill would continue to operate and maintain its existing facilities in accordance with its current requirements, resulting in negligible impacts.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA VEC dismissal statement concluded that beneficial impacts to facilities would occur on Fort Sill; concluding that the reduction in forces would allow for the removal and release of temporary, relocatable, buildings and the demolition of some older, energy inefficient buildings. It also noted that with the implementation of force reduction, some permanent facilities may be able to be redesignated to support units remaining at Fort Sill to provide more space and facilities better able to meet tenant unit needs. However, full implementation of the Proposed Action would likely affect the ability of Fort Sill's privatized housing to fill all on-installation housing units. Additional actions would be programmed under the Facility Reduction Program to increase installation building performance and energy efficiency to save on installation operating costs and utilities.

Under Alternative 1, implementation of the proposed further force reductions would result in overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on

overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demands for utilities and reduced demands for training facilities and support services. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.22.12 Socioeconomics

4.22.12.1 Affected Environment

Fort Sill is located near Lawton, Oklahoma, about 90 miles southwest of Oklahoma City. The ROI for Fort Sill in this analysis includes those areas that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, contractor personnel, and their Families reside. The ROI consists of Comanche County, Oklahoma.

This section provides a summary of demographic and economic characteristics within the ROI. These indicators are described in greater detail in Section 4.19.4 of the 2013 PEA. However, some demographic and economic indicators have been updated where more current data are available.

Population and Demographics

Using 2011 as a baseline, Fort Sill has a total working population of 29,052 consisting of active component Soldiers, Army civilians, Reservists, other military services, and contractors. Of the total working population, 11,337 were permanent party Soldiers and Army civilians. Additionally, Fort Sill has a daily population of more than 9,500 temporary trainees and students. In FY 2011, the population that lived on Fort Sill consisted of 3,400 Soldiers and an estimated 2,240 Family members, for a total on-installation resident population of 5,640 (Fort Sill, 2014a). Finally, the portion of Soldiers and Army civilians living off the installation in 2011 was estimated to be 19,985 and consists of Soldiers, Army civilians, and their Family members.

Fort Sill is home to the Fires Center of Excellence, which includes the Air Defense Artillery School, the Field Artillery School, the Basic Officer Leaders Course, and the Noncommissioned Officers Academy. The Fires Center of Excellence also includes Basic Combat Training, Captains Career Course, Warrant Officer Basic Course, and numerous functional courses including the Joint Forward Air Controller and Joint Forward Observer courses, and also supports the Electronic Warfare School and the Ordnance Training Detachment. Basic and the majority of AIT trainees live on the installation in barracks during their training. Students in advanced schoolhouses are based at Fort Sill for the expected length of their assigned curriculum which may range from 4 weeks to 51 weeks. In addition to the barracks, students may also be housed in Army lodging or in facilities off the installation. Barracks and off installation facilities are also heavily used for ARNG/U.S. Army Reservist training. In 2013, 11,049 students and trainees were assigned to Fort Sill for TDY training (Fort Sill, 2014b).

In 2012, the ROI had a population of 126,546, a 2.0 percent increase from 2010 (Table 4.22-2). As shown in Table 4.22-3, Comanche County has more African American and Hispanic residents than Oklahoma as a whole (U.S. Census Bureau, 2012a).

Table 4.22-2. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Comanche County, Oklahoma	126,546	2.0

Table 4.22-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
State of Oklahoma	75.5	7.6	9.0	1.9	5.8	9.3	67.9
Comanche County, Oklahoma	66.9	17.7	6.2	2.4	6.2	12.0	58.1

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

Employment and Income

Information presented below represents an update from the 2013 PEA, which provided employment and income data from 2009. Between 2000 and 2012, total employment in Comanche County increased by 10.6 percent (Table 4.22-4) (U.S. Census Bureau, 2000 and 2012b). The median household and home value in Comanche County is relatively similar to the Oklahoma average. In Comanche County, the percentage of people living below the poverty line is slightly lower than in Oklahoma overall (U.S. Census Bureau, 2012b).

Information regarding the workforce by industry for Comanche County was obtained from the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for the employed labor force.

Table 4.22-4. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Oklahoma	1,711,480	+9.1	110,800	44,891	16.6
Comanche County, Oklahoma	58,803	+10.6	110,900	46,320	16.5

The primary employment sector is educational services, and health care and social assistance (21 percent). The Armed Forces is the second largest employment sector (18 percent), followed by public administration and retail trade (9 percent individually). The remaining 10 sectors employ 43 percent of the workforce.

Housing

Fort Sill currently has 1,811 Family housing units on the installation, which are managed through a partnership with Corvias Military Living through the RCI (Vogt, 2014). Permanent party Soldiers occupy all available installation housing units. Fort Sill has barracks space for 2,546 unaccompanied permanent personnel. Permanent party Soldiers are allotted 118 square feet of living space while trainee Soldiers are allotted 72 square feet. Currently, approximately 26.9 percent of the 4,837 barrack spaces are available (Fort Sill, 2014a). Approximately 5,000 off-installation Family housing units support Fort Sill Soldiers. Additional housing information is provided in the 2013 PEA.

Schools

Military-connected students residing on the installation attend Lawton Public Schools. Two elementary schools are located on Fort Sill, serving a combined 1,004 military-connected students. All middle and high school students residing on Fort Sill attend schools off the installation and in the larger ROI. More than 8,000 military-connected students attend regional public schools (Murray, 2014). Military-connected students living off the installation attend various public schools across the ROI. Total enrollment and the number and percent of military-connected students enrolled in schools across the ROI is shown in Table 4.22-5.

Table 4.22-5. School Capacity Data for Schools Serving Military-Connected Students, 2012–2013 Academic Year

District Name	Total Enrollment	Military–Connected Students (number)	Military-Connected Students (percent)
Bishop	490	229	46.7
Boone-Apache	591	45	7.6
Cache	1,672	339	20.3
Central High	418	34	8.1
Chattanooga	271	0	0.0
Cyril	343	26	7.56
Duncan	3,933	0	0.0
Elgin	1,839	733	39.9
Fletcher	465	71	15.3
Flower Mound	336	130	38.7

District Name	Total Enrollment	Military–Connected Students (number)	Military-Connected Students (percent)
Frederick	882	0	0.0
Geronimo	372	102	27.4
Indiahoma	203	22	10.8
Lawton	16,216	6,439	39.7
Marlow	1,355	0	0.0
Sterling	413	55	13.3
Snyder	530	9	1.7
Walters	698	86	12.3
TOTAL	**31,027**	**8,320**	**26.8**

Public Health and Safety

The Fort Sill Police Department oversees police protection services on the installation while city, county, and state police departments provide law enforcement in the ROI. The Fort Sill Fire and Emergency Services Division has mutual aid agreements with Comanche, Cotton, Grady, and Tillman counties, the city of Lawton, Reynolds Army Community Hospital, Wichita Mountains National Wildlife Refuge, Great Plains Technology Center, the city of Lawton Emergency Communications Center, and the state of Oklahoma/city of Tulsa.

Medical services on the installation are administered at Reynolds Army Community Hospital. The hospital and a Troop Medical Clinic, also located on the installation, provide healthcare services to basic trainees, AIT students, reservists, active component personnel, retirees, and their Family members residing within a 40-mile radius of Fort Sill (Rhodes, 2014). The installation also has a Warrior Transition Unit which takes care of Soldiers with long-term or complex health issues. Additional information regarding public health and safety is provided in the 2013 PEA.

Family Support Services

Fort Sill ACS, a human service organization, has a number of programs and services in place to assist Soldiers and their Families under FMWR. CYSS, a Division of FMWR, provides facilities and child care for children 6 weeks to 18 years of age. Sports and instructional classes are provided to children of active component military and DoD civilian and contractor personnel. Children of retired military are eligible to participate in the middle school and teen, youth sports and SKIES programs. Additional information on Family Support Services is provided in the 2013 PEA.

Recreation Facilities

There are a variety of recreation facilities that can be used by members of the Fort Sill community. These services are provided by the Fort Sill FMWR. Facilities and activities include but are not limited to a recreation center with an outdoor adventure center, fitness center, racquetball courts, swimming pools, summer bowling camp, camping, and special events, such as Fort Sill's Western Heritage Days (Fort Sill, 2014c).

4.22.12.2 Environmental Effects

No Action Alternative

The continuation of operations at Fort Sill represents a beneficial source of regional economic activity. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

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

Population and Economic Impacts

Alternative 1 would result in the loss of up to 6,842[28] Army positions (6,022 Soldiers and 820 Army civilians), with an average annual income of $46,760 and $53,179, respectively. In addition, this alternative would affect an estimated 10,386 Family members, including 3,818 spouses and 6,568 children. The total number of Army employees and their Family members who may be directly affected by Alternative 1 is projected to be 17,228.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecast value falls outside the historical positive and negative range. The range of values that would represent a significant economic impact in the Fort Sill ROI are summarized in Table 4.22-6. The last row summarizes the estimated economic impacts of Alternative 1 to the region as estimated by the EIFS model. Based on the EIFS analysis, there would significant impacts to sales, income, employment, and population because the estimated percentage change is outside the historical range.

[28] This number was derived by assuming the loss of 70 percent of Fort Sill's Soldiers and 30 percent of the Army civilians to arrive at 6,842. The 2013 PEA assumed the loss of 35 percent of Fort Sill's Soldiers and 15 percent of the Army civilians to arrive at 4,714.

Table 4.22-6. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+15.9	+7.2	+6.8	+7.6
Economic contraction significance value	-6.4	-4.0	-5.3	-3.9
Forecast value	-6.9	-8.0	-14.2	-12.8

Table 4.22-7 summarizes the predicted impacts to income, employment, and population of force reductions against 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecasted values, these figures show the same significance determinations as the EIFS predictions in the previous table.

Table 4.22-7. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$373,991,900	-7,690 (Direct)	-17,228
		-792 (Induced)	
		-8,482 (Total)	
Total 2012 ROI economic estimates	$4,664,387,000	58,803	126,546
Percent reduction of 2012 figures	-8.0	-14.4	-13.6

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

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 6,842 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 848 direct contract service jobs would also be lost. An additional 792 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. The total reduction in employment is estimated to be 8,482, a significant reduction of 14.4 percent from the total employed labor force in the ROI of 58,803. Income is estimated to fall by $374.0 million, a 8.0 percent decrease in income from 2012.

Under Alternative 1, the total reduction in sales within the ROI is estimated to be $335.3 million. There would also be a loss in sales tax receipts to local and state governments. The average state and local sales tax rate for Oklahoma is 8.72 percent (Tax Foundation, 2014). To estimate sales tax reductions, information on the proportion of sales that would be subject to sales tax on

average across the country was utilized. According to the U.S. Economic Census, an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). The percentage and applicable tax rate was applied to the estimated decrease in sales of $335.3 million resulting in an estimated sales tax receipts decrease of $4.7 million under Alternative 1 if all sales occurred in Oklahoma. The actual sales tax impact may be higher due to additional local tax rates that have not been estimated here.

Of the 126,546 people (including those residing on Fort Sill) who live within the ROI, 6,842 military employees and their estimated 10,386 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 13.6 percent. To ensure the potential impacts were captured to the greatest extent possible, this population loss was assessed against the EIFS threshold of -3.9 percent and determined to be a significant impact. This number could overstate potential population impacts because some people no longer employed by the military may continue to live and work within the ROI, finding employment in other industry sectors. However, because of the rural nature of the ROI and the fact that Fort Sill serves as a primary employer and as an economic driver within the ROI, the majority of displaced personnel are likely to move out of the area to seek other opportunities with the Army or elsewhere. There are few employment sectors in the ROI to absorb the number of displaced military employees. A small number of displaced personnel may seek and find work within the ROI; however, others may not be able to find new employment.

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

Housing

The population reduction under Alternative 1 would lead to a decreased demand for housing and increased housing availability on the installation and across the ROI, potentially resulting in a decrease in median home values. Because of the relatively small population of the ROI, the reduced demand for housing associated with the force reductions under Alternative 1 has the potential to result in minor to significant impacts to the housing market in the ROI.

Schools

Military-connected students living on Fort Sill attend Lawton Public Schools, both on and off the installation. Military-connected students living off the installation attend various public schools across the ROI. As shown in Table 4.22-5, military-connected students represent a significant share of total school district enrollment in the Bishop, Cache, Elgin, Flower Mound, Geronimo, and Lawton schools. Under Alternative 1, the reduction of 6,800 Army personnel would decrease

the number of children in the ROI by 6,568, a portion of whom attend schools in these districts. Subsequently, enrollment would decrease in public school districts across the ROI. If enrollment in individual schools is significantly impacted, schools may need to reduce the number of teachers, administrators, and other staff, and potentially close or consolidate with other schools should enrollment fall below sustainable levels.

School districts receive sizable Federal Impact Aid funds, the allocation of which is based on the number of military-connected students they support. The actual projected loss of Federal Impact Aid funds cannot be determined at this time due to the variability of appropriated dollars from year to year and the uncertainty regarding the specific impacts to ROI school enrollment. However, it is anticipated that schools across the ROI, particularly in those in the districts mentioned above, would likely need fewer teachers and materials as enrollment declines, which would partially offset the reduction in Federal Impact Aid. Overall, schools within the ROI could experience significant, adverse impacts from the decline in military-connected student enrollment that would result under Alternative 1.

Public Services

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

Family Support Services and Recreation Facilities

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

Environmental Justice

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, states: “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations” (EPA, 1994). As shown in Table 4.22-3 the proportion of minority populations is higher in Comanche County than the proportion in Oklahoma as a whole. The proportion of Comanche County residents living below the poverty line is slightly lower

than in Oklahoma as a whole. Because minority populations are more heavily concentrated in Comanche County, the implementation of Alternative 1 has the potential to result in adverse impacts to minority-owned and/or -staffed businesses if Soldiers and Army civilians directly affected under Alternative 1 move to areas outside the ROI. However, it is not anticipated that Alternative 1 would have disproportionate adverse impacts to minorities, economically disadvantaged populations or children in the ROI. Job losses would be experienced across all income levels and economic sectors and spread geographically throughout the ROI.

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

4.22.13 Energy Demand and Generation

4.22.13.1 Affected Environment

Energy demand and generation is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.19.1.2 due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013. As described in the 2013 PEA, American Electric Power supplies all the primary electric power to Fort Sill from two different substations. The electric distribution system on the installation is owned by the government and is currently being upgraded and converted to an underground distribution system. Fort Sill's natural gas system has been privatized and is currently owned and operated by Oklahoma Natural Gas. Geothermal wells have been installed across the installation for heating and cooling purposes. New constructions, as well as older structures, are being outfitted with solar panels to supplement energy usage.

4.22.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA VEC dismissal statement concluded that there would be negligible impacts to energy demand and generation at Fort Sill. For the current analysis, maintenance of existing utility systems would continue and Fort Sill would continue to consume similar types and amounts of energy so impacts to energy demand and generation would remain the same as for the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy demand and generation would occur on Fort Sill. Under Alternative 1, minor, beneficial impacts to energy are anticipated due to a further reduction in energy consumption associated with the additional force reductions. The installation would also be better positioned to meet energy and sustainability goals.

4.22.14 Land Use Conflicts and Compatibility

4.22.14.1 Affected Environment

Land Use is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.19.1.2, due to beneficial or no impacts as a result of implementing alternatives included in that analysis.

4.22.14.2 Environmental Effects

No Action Alternative

Similar to the 2013 PEA, under the No Action Alternative, there would be no changes to land use conditions, and no impacts are anticipated.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Sill would result in beneficial impacts to installation land use, since a minor decrease in training land use would have the potential to reduce noise and military training across the installation. Under Alternative 1, impacts would be similar to those described in the 2013 PEA.

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

4.22.15 Hazardous Materials and Hazardous Waste

4.22.15.1 Affected Environment

As described in the 2013 PEA, hazardous materials are used on Fort Sill. Numerous maintenance activities, such as vehicle operation and maintenance, hospital services, and grounds maintenance, require the use and storage of regulated and non-regulated hazardous materials. Fort Sill has developed a Hazardous Materials and Waste Management Plan that prescribes responsibilities, policies, and procedures for managing hazardous materials and waste on the installation. The plan was written to ensure compliance with applicable federal, state, and local laws and regulations. Fort Sill's SPCC Plan addresses the prevention of unintentional pollutant discharges from the bulk storage and handling of petroleum products and other hazardous materials. The plans detail the specific storage locations, the amount of material in potential spill sites throughout Fort Sill, and spill countermeasures that must be taken to minimize hazards from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste. In addition, Fort Sill has incorporated hazardous waste reduction and pollution prevention into its hazardous waste management operations. Examples of hazardous wastes generated at the installation are waste paint, spent solvents, photographic waste, contaminated fuel, battery waste, pharmaceutical waste, aerosols, alcohols, acids, pesticides, and paint thinners. No substantial changes have occurred to the affected environment since 2013.

4.22.15.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that temporary and less than significant impacts from hazardous materials and hazardous waste would occur on Fort Sill. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on Fort Sill. Because of the reduced numbers of people, it is likely that the potential for spills would be reduced further during training and maintenance activities. The volume of waste generated and material requiring storage would increase slightly because deactivating units would turn in hazardous material for storage to avoid transportation risks. Under Alternative 1 in this SPEA, Fort Sill would continue to implement its hazardous waste management in accordance with its Hazardous Materials and Waste Management Plan and applicable regulations and the impacts would be less than significant.

Under Alternative 1, adverse impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that

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

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

4.22.16 Traffic and Transportation

4.22.16.1 Affected Environment

The transportation affected environment of the Fort Sill ROI remains the same as described in Section 4.19.6.1 of the 2013 PEA with an estimated daily traffic volume through the Fort Sill gates being approximately 24,554 vehicles, and an average daily traffic volume on weekends and holidays through the gates being approximately 11,673 vehicles.

4.22.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated minor, adverse impacts and these impacts would not change. Traffic volume on the installation would not change and the number of Soldiers, Army civilians, and Family members using the Fort Sill transportation system would not change. Minor delays at ACPs would continue. Overall, LOS on major roadways and access points would remain acceptable.

Alternative 1—Implement Force Reductions

As noted in the 2013 PEA, the Army anticipated minor, beneficial impacts to traffic and transportation as a result of the implementation of force reductions. Traffic volume on the installation would decrease, and traffic volume in the local community would decrease to a minor extent. Minor delays at major ACPs would decrease in duration. These beneficial impacts would also occur under Alternative 1 though with greater force reductions, the beneficial impacts would be larger than anticipated at the time of the 2013 PEA.

4.22.17 Cumulative Effects

As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Sill includes Comanche County in Oklahoma. Section 4.19.7 of the 2013 PEA noted numerous planned or proposed actions within the ROI that reasonably could be initiated within the next 5 years and would have the potential to cumulatively add impacts to Alternative 1. A number of the Army's proposed projects have been previously identified in the

installation's Real Property Master Planning Board and are programmed for future execution. Additional actions have been identified beyond those noted in the cumulative effects analysis of the 2013 PEA and are shown below.

Reasonably Foreseeable Future Projects on Fort Sill

Fort Sill is in process of changing the Category Code for 1,201 acres of buffer area for use as maneuver area. Fort Sill is also in process of designating areas on the installation for use of prototype electronic warfare systems.

Reasonably Foreseeable Future Projects outside Fort Sill

Beyond those mentioned in the 2013 PEA, the Army is not aware of any reasonably foreseeable future projects outside Fort Sill that would be appropriate for inclusion in the cumulative impacts analysis. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, smaller, less diversified economies will be more vulnerable to force reductions and provide fewer opportunities to displaced Army employees.

No Action Alternative

The cumulative effects due to the No Action Alternative are essentially the same as was determined in the 2013 PEA. Cumulative impacts of the No Action Alternative will range from beneficial to minor and adverse for all resources except noise, which is anticipated to be significant but mitigable. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reductions

The cumulative effects of Alternative 1 would be essentially the same as was determined in the 2013 PEA. Overall, the potential cumulative impacts of Alternative 1 at Fort Sill is anticipated to be significant and adverse for socioeconomics, with impacts ranging from less than significant to beneficial for the other resources.

The socioeconomic impact under Alternative 1, as described in Section 4.22.12.2 with a loss of 6,842 Soldiers and Army civilians, could lead to significant impacts to population, the regional economy, schools, and housing, specifically in the ROI city of Lawton, Oklahoma. Fort Sill has been an economic driver of the region, employing over 11,000 Soldiers and civilian employees within the ROI. The relatively smaller economy of the ROI depends on the installation's employment and economic activity. Specifically, in Comanche County, the Armed Forces account for 18 percent of the workforce, demonstrating the importance of the installation to employment opportunities in the ROI. With fewer opportunities for employment, the ROI would likely not be able absorb many of the displaced forces. If the majority of the displaced forces are not absorbed into the local labor force, there would be additional adverse impacts.

Fort Sill went through a recent realignment, which resulted in a decrease of 900 permanent personnel. Recent Army garrison management decisions have led to reductions in the Army civilian employee population at Fort Sill. These stationing changes would affect regional economic conditions through the loss of jobs and income within the region. The loss of additional military personnel would result in less spending in the ROI economy, with the loss of additional jobs, income, taxes, and sales impacts. The recent closure of two large call centers in Lawton, Oklahoma, may also contribute to a decline in employment within the ROI.

Fort Sill is home to the Fires Center of Excellence, which includes the Air Defense Artillery School, the Field Artillery School, the Basic Officer Leaders Course, and the Noncommissioned Officers Academy. The Fires Center of Excellence also includes Basic Combat Training, Captains Career Course, Warrant Officer Basic Course, and numerous functional courses. Approximately 11,049 students and trainees were assigned to Fort Sill at any given time in 2013. Cumulative actions could include reduced training opportunities because of the force reductions on Fort Sill. This could lead to further adverse impacts to socioeconomic conditions because of reduced temporary population and visitors and the attendant economic activity, spending, and jobs and income they support.

Under Alternative 1, the loss of approximately 6,800 Soldiers, in conjunction with other reasonably foreseeable actions, would have significant impacts to employment, income, tax receipts, housing values, and schools in the ROI.

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4.23 Fort Stewart, Georgia

4.23.1 Introduction

Fort Stewart was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population is discussed in Section 4.20.1 of the 2013 PEA.

Fort Stewart's 2011 baseline permanent party population was 18,647. In this SPEA, Alternative 1 assesses a potential population loss of 16,000, including approximately 15,317 permanent party Soldiers and 683 Army civilians.

4.23.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Stewart; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.23-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.23-1. Fort Stewart Valued Environmental Component Impact Ratings

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

4.23.3 Air Quality

4.23.3.1 Affected Environment

The air quality affected environment of the Fort Stewart ROI remains the same as described in Section 4.20.2.1 of the 2013 PEA. The Fort Stewart area has not been designated as a nonattainment area for any criteria pollutants (EPA, 2013).

4.23.3.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Stewart would result in minor, beneficial impacts to air quality because of reduced operations and maintenance activities and reduced vehicle miles travelled associated with the facility. Impacts to air quality from the further force reductions proposed under Alternative 1 would continue to be beneficial assuming a corresponding decrease in operations and vehicle travel to and from Fort Stewart. The size of this beneficial impact under Alternative 1 would be roughly double that anticipated at the time of the 2013 PEA.

As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

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

4.23.4 Airspace

4.23.4.1 Affected Environment

The airspace affected environment for Fort Stewart remains the same as described in Section 4.20.3.1 of the 2013 PEA; restricted airspace is sufficient to meet the current airspace requirements.

4.23.4.2 Environmental Effects

No Action Alternative

Force reductions under Alternative 1 are not expected to significantly alter Fort Stewart's use of aviation assets or current airspace use. Restricted airspace would continue to be sufficient to meet airspace requirements. Adverse impacts to airspace under Alternative 1 would be negligible.

Alternative 1—Implement Force Reductions

The implementation of Alternative 1 would result in negligible impacts in line with those presented in Section 4.20.3.2 of the 2013 PEA. However, there would be a slight change in impacts in that the installation would require less activation of the SUA in support of ground live-fire training activities; however, due to a growth in the fielding of UAS, there is an increasing requirement for activation of airspace for UAS use. While Fort Stewart's ground training activities still might require a less frequent activation of the existing SUA, this may be offset by more frequent activation for UAS activity.

4.23.5 Cultural Resources

4.23.5.1 Affected Environment

The affected environment for Fort Stewart has changed since the completion of the 2013 PEA. Since 2013, Fort Stewart has completed a revised ICRMP (Maggioni et al., 2014). The affected environment for cultural resources, described below, was updated to be consistent with the information provided in the ICRMP.

The Fort Stewart region has been occupied for at least 12,000 years by Native Americans, Europeans, and the military (Maggioni et al., 2014). Most prehistoric sites at Fort Stewart consist of habitation sites, base camps, small villages, seasonal use camps, hunting stations, and isolated artifact scatters. Most historic period sites at Fort Stewart consist of homesites, agri-industrial related activities, naval stores production and collection sites, and isolated artifact scatters.

Approximately 207,000 of the 280,000 acres of Fort Stewart have been surveyed for cultural resources (Maggioni et al., 2014). As a result of these archaeological surveys, 3,966 archaeological sites and isolated finds have been recorded at Fort Stewart, of which 54 have been recommended eligible and 274 potentially eligible for the NRHP. In addition to these archaeological sites, 60 historic period cemeteries, 1 sacred site and 2 TCPs have been identified.

Fort Stewart has completed an architectural survey and evaluation of all buildings and structures constructed before 1990 (to include Cold War Era buildings eligible under Criteria G of the NRHP). As a result of this building survey, five buildings that have been determined eligible for listing in the NRHP have been identified at Fort Stewart (Glisson's Mill Pond Store and four Fire Towers).

A revised Programmatic Agreement between the 3rd ID (Mechanized), Fort Stewart, and the SHPO was executed in 2011 and provides a streamlined process for Section 106 of the NHPA compliance by the Army at Fort Stewart (Maggioni et al., 2014). The Programmatic Agreement states that Fort Stewart will conduct archaeological surveys (if not previously conducted) to identify any historic properties that could be affected by a project, activity, or undertaking. It also provides a listing of undertakings excluded from evaluation under Section 106 (e.g.,

undertakings in severely disturbed special use and bivouac areas, most areas within the cantonment, and impact areas that are highly likely to be contaminated with UXO). Standard consultation under 36 CFR 800 is completed for all undertaking that have the potential to affect historic properties.

4.23.5.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to cultural resources as described in Section 4.19.2.2 of the 2013 PEA. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures. No changes in effects are warranted as a result of new information presented in the affected environment.

Alternative 1—Implement Force Reductions

As described in Section 4.17.4.2 of the 2013 PEA, Alternative 1 would have a minor impact on cultural resources. No changes in effects are warranted as a result of new information presented in the affected environment. The Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort Stewart, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic structures from these activities are not analyzed. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of force reductions, the installation would comply with applicable laws, such as NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects.

This alternative could result in some beneficial effects as a decrease in training activities could reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources.

4.23.6 Noise

4.23.6.1 Affected Environment

The noise affected environment of the Fort Stewart installation remains the same as described in Section 4.20.5.1 of the 2013 PEA. Primary sources of noise at Fort Stewart include small arms and large-caliber weapons firing.

4.23.6.2 Environmental Effects

No Action Alternative

The 2013 PEA anticipated negligible impacts from noise, because noise generating activities at the installation would continue at the same levels and intensity as historically experienced. Under the No Action Alternative, negligible impacts to noise would continue.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Stewart would result in beneficial noise impacts, since there would be a reduction in the frequency of noise generating events. The beneficial impacts to noise under Alternative 1 would be similar to those described in the 2013 PEA.

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

4.23.7 Soils

4.23.7.1 Affected Environment

The soils affected environment on the installation remains the same as was discussed in Section 4.20.6.1 of the 2013 PEA.

4.23.7.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to soils were anticipated from continuing training, to include impacts to soils from removal of or damage to vegetation, digging activities, ground disturbance from vehicles, and ammunition or explosives used in training events. Impacts under the No Action Alternative on Fort Stewart remain the same as those discussed in Section 4.20.6.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, negligible, potentially beneficial impacts to soils were anticipated as a result of less use of training areas. A force reduction would result in less erosion, soil compaction, and loss of vegetation, and allow for natural rest and recovery of the landscape.

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

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Stewart, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory regulations. Therefore, impacts under Alternative 1 at Fort Stewart would be negligible and remain the same as those discussed in Section 4.20.6.2 of the 2013 PEA.

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

4.23.8.1 Affected Environment

Fort Stewart is home to 11 special status plant species and 22 special status fauna species (Fort Stewart, 2007). Among these species, seven ESA-listed fauna species are currently recorded as occurring on the installation. This includes the West Indian manatee (*Trichechus manatus*), which has only rarely been recorded in the Ogeechee River. Table 4.23-2 lists the threatened or endangered species found on Fort Stewart. Two additional species, smooth coneflower and Atlantic sturgeon (*Acipenser oxyrinchus*), have been added since 2013. Smooth coneflower was a previously listed species but was only recently discovered on Fort Stewart. In contrast, Atlantic sturgeon was known to exist on Fort Stewart, but the status was only recently changed to endangered. These changes are reflected in Table 4.23-2.

Fort Stewart has an active forestry program, one of the largest in DoD. The forestry program is responsible for timber thinning operations and regular application of prescribed fire on live-fire ranges and training lands. Fort Stewart contains about 158,578 acres of upland forest, 82,148 acres of forested wetlands, and 38,253 acres of clearings. The installation contains Georgia's largest remaining stand of longleaf pine forest. The longleaf pine/wiregrass ecosystem at Fort Stewart is also highly compatible with military training. This compatibility stems from the ecosystem's tolerance to such factors as fire, mechanical damage, and disease, as well as its characteristic of open, park-like stands which are essential for visibility during maneuver training.

Table 4.23-2. Threatened or Endangered Species Found on Fort Stewart, and Federally Listed or Listed by the State of Georgia

Common Name	Scientific Name	Federal Status	Georgia State Status
Plants			
Purple honeycomb head	*Baldunia atropurpurea*	--	Rare
Georgia plume	*Elliottia racemosa*	--	Threatened
Green-fly orchid	*Epidendrum magnolia*	--	Unusual
Dwarf witch-alder	*Fothergilla gardenia*	--	Threatened
Michaux's spider orchid	*Habenaria quinqueseta*	--	Threatened
Pond spice	*Litsea aestivalis*	--	Rare
Crestless plume orchid	*Pteroglossaspis ecristata*	--	Threatened
Hooded pitcher plant	*Sarracenia minor*	--	Unusual
Swamp buckthorn	*Sideroxylon thornei*	--	Rare
Silky camellia	*Stewartia malacodendron*	--	Rare
Smooth coneflower	*Echinacea laevigata*	Endangered	Endangered
Mammals			
Rafinesque's big-eared bat	*Corynorhinus rafinesquii*	--	Rare
West Indian manatee	*Trichechus manatus*	Endangered	Endangered
Birds			
Bachman's sparrow	*Aimophila aestivalis*	--	Rare
Bald eagle	*Haliaeetus leucocephalus*	--[a]	Threatened
Wood stork	*Mycteria americana*	Endangered	Endangered
Red-cockaded woodpecker	*Picoides borealis*	Endangered	Endangered
Swallow-tailed kite	*Elanoides forficatus*	--	Rare
Peregrine falcon	*Falco peregrinus*	--	Rare
Southeastern kestrel	*Falco sparverius paulus*	--	Rare
Least tern	*Sterna antillarum*	--	Rare
Reptiles and Amphibians			
Frosted flatwoods salamander	*Ambystoma cingulatum*	Threatened	Threatened
Spotted turtle	*Clemmys guttata*	--	Unusual
Eastern indigo snake	*Drymarchon couperi*	Threatened	Threatened
Gopher tortoise	*Gopherus polyphemus*	Candidate	Threatened
Southern hognose snake	*Heterodon simus*	--	Threatened
Diamondback terrapin	*Malaclemys terrapin*	--	Unusual
Striped newt	*Notophthalmus perstriatus*	Candidate	Threatened

Common Name	Scientific Name	Federal Status	Georgia State Status
Mimic glass lizard	*Ophisaurus mimicus*	--	Rare
Gopher frog	*Rana capito*	--	Rare
Fish			
Shortnose sturgeon	*Acipenser brevirostrum*	Endangered	Endangered
Atlantic sturgeon	*Acipenser oxyrinchus*	Endangered	Endangered
Invertebrates			
Say's spiketail	*Cordulegaster sayi*	--	Threatened

[a] As of August 8, 2007, the Bald Eagle is no longer afforded protection under the ESA; however, it is protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. The Eagle Act is the primary law protecting eagles and protection is very similar to the ESA.

4.23.8.2 Environmental Effects

No Action Alternative

The 2013 PEA analysis concluded that implementation of the No Action Alternative would result in negligible adverse impacts to biological resources and the affected environment would remain in its present state. Management of biological resources on Fort Stewart would continue in accordance with the current installation INRMP (Fort Stewart, 2007). Therefore, negligible adverse impacts would continue under the No Action alternative

Alternative 1—Implement Force Reductions

The 2013 PEA analysis concluded that the implementation of Alternative 1 in the 2013 PEA would result in beneficial impacts to biological resources on Fort Stewart. The Army anticipates that further proposed reduction in forces would not change this finding. Fewer personnel on Fort Stewart would result in reduced scheduling conflicts between training exercises and resource monitoring and management activities.

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

4.23.9 Wetlands

4.23.9.1 Affected Environment

The wetlands affected environment on the installation remains the same as was discussed in Section 4.20.8.1 of the 2013 PEA.

4.23.9.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to wetlands were anticipated from continued training schedules. Potential wetland impacts would be reviewed and managed to be avoided, to the extent practicable, or mitigated for. Impacts under the No Action Alternative on Fort Stewart remain the same as those discussed in Section 4.20.8.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, beneficial impacts to wetlands were anticipated as a result of less use of tank roads, ranges, and training areas. Less sedimentation and vegetation loss were anticipated, and degraded wetlands were expected to restore towards their reference functions and values. Impacts to wetlands could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Stewart, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at Fort Stewart would be beneficial and remain the same as those discussed in Section 4.20.8.2 of the 2013 PEA.

4.23.10 Water Resources

4.23.10.1 Affected Environment

The affected environment for water resources on Fort Stewart remains the same as that described in Section 4.20.9.1 of the 2013 PEA. There are no changes to surface water, water supply, and wastewater resources.

4.23.10.2 Environmental Effects

No Action Alternative

In the 2013 PEA, minor, adverse impacts to water resources were anticipated from the No Action Alternative due to the continued disturbance and pollution of surface waters from training activities. Surface water impacts under the No Action Alternative would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

Minor, beneficial impacts to water resources were anticipated from implementation of force reductions in the 2013 PEA Alternative 1 because of reduced demand for potable water supply and an increase in available wastewater treatment capacity. Reduction in training area use from

force reductions on Fort Stewart was also anticipated to potentially reduce impacts to surface waters due to disturbance and spills. Increased force reductions under Alternative 1 of this SPEA would continue to have the same beneficial impacts to water supplies, wastewater capacity, and surface waters.

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

4.23.11 Facilities

4.23.11.1 Affected Environment

The facilities affected environment of the Fort Stewart installation remains the same as described in Section 4.20.9.1 of the 2013 PEA.

4.23.11.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be negligible impacts to facilities at Fort Stewart. For the current analysis, Fort Stewart would continue to use its existing facilities and Fort Stewart's current facility shortfalls have been prioritized and are seeking or have received Army funding. Impacts to facilities would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that minor impacts to facilities would occur on Fort Stewart. Under Alternative 1, implementation of the proposed further force reductions would also result in overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions as facilities may be re-designated to support units remaining at Fort Stewart to provide more space and facilities that are better able to meet tenant and Army needs. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.23.12 Socioeconomics

4.23.12.1 Affected Environment

The Fort Stewart Military Reservation includes approximately 280,000 acres, making it the largest military installation east of the Mississippi River. It is located approximately 41 miles southwest of the city of Savannah. Fort Stewart and Hunter AAF together are the Army's world-class training and military armored power projection combination on the eastern seaboard of the U.S. Tank, field artillery, helicopter gunnery, and small arms ranges operate simultaneously throughout the year with little time lost to bad weather.

Fort Stewart is primarily located in Liberty and Bryan counties, but also extends into smaller portions of Evans, Long, and Tattnall counties. All of these counties are located in the state of Georgia. The ROI for Fort Stewart in this analysis includes those areas that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, contractor personnel, and their Families reside. All of the aforementioned counties are included in ROI. Liberty County, which contains the city of Hinesville adjacent to the installation, is the county that would be most affected by Army stationing actions. There are additional counties, such as Bulloch, Chatham, Effingham, Glynn, McIntosh, and Wayne counties, in which installation populations may also reside; however, the number of residents in these counties is expected to be small. Therefore, these counties are not included in the ROI. The vast majority of the population and economic impacts would be experienced within the ROI.

Population and Demographics

Using 2011 as a baseline, Fort Stewart has a total working population of 25,243 consisting of active component Soldiers and Army civilians, students and trainees, other military services, civilians and contractors. Of the total working population, 18,647 were permanent party Soldiers and Army civilians. The population that lives on Fort Stewart consists of 3,661 Soldiers, 26 Army civilians, and an estimated 5,597 Family members, for a total on-installation resident population of 9,284 (McKain, 2014). Finally, the portion of Soldiers, Army civilians, and Family members living off the installation is estimated to be 37,669. Additionally, there are 159 students and trainees associated with the installation.

In 2012, the population in the ROI was 149,896. The population in Bryan and Liberty counties increased by 6.7 and 3.1 percent, respectively, between 2010 and 2012, while it increased by 11.9 percent during the same period in Long County. The population decreased in Evans and Tattnall counties during this period by 2.8 and 0.8 percent, respectively (Table 4.23-3). The racial and ethnic composition of the ROI is presented in Table 4.23-4 (U.S. Census Bureau 2012a).

Table 4.23-3. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Bryan County, Georgia	32,250	+6.7
Evans County, Georgia	10,691	-2.8
Liberty County, Georgia	65,461	+3.1
Long County, Georgia	16,170	+11.9
Tattnall County, Georgia	25,324	-0.8

Table 4.23-4. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of Georgia	77.9	13.1	1.2	5.1	2.4	16.9	55.1
Bryan County, Georgia	80.1	15.0	0.4	1.8	2.5	5.8	75.4
Evans County, Georgia	66.8	30.4	0.5	1.0	1.0	11.9	57.5
Liberty County, Georgia	51.1	41.0	0.8	2.3	4.3	11.5	43.0
Long County, Georgia	68.4	25.9	0.8	0.8	3.5	12.1	59.1
Tattnall County, Georgia	68.2	29.7	0.6	0.5	0.9	10.8	58.8

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

Employment and Income

Between 2000 and 2012, employment rose in all counties in the ROI with the exception of Liberty County, where employment remained constant. Tattnall County had the lowest median income among the counties in the ROI, approximately $13,000 lower than the median income at the state level. Employment, median home value, household income, and population living below the poverty level are presented in Table 4.23-5 (U.S. Census Bureau, 2012b).

Table 4.23-5. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Change in Employment 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Georgia	4,333,284	+11	$156,400	$49,604	17
Bryan County, Georgia	14,461	+29	$189,100	$63,818	12
Evans County, Georgia	4,345	+2	$89,600	$36,602	26
Liberty County, Georgia	29,472	0	$126,800	$44,295	18
Long County, Georgia	5,780	+28	$102,700	$40,044	21
Tattnall County, Georgia	8,164	+1	$84,200	$36,520	26

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

Bryan County, Georgia

According to the U.S. Census Bureau, the educational services and health care and social assistance sector accounts for the greatest share of the total workforce in Bryan County (20 percent). Retail trade is the second largest employment sector (12 percent), followed by manufacturing (10 percent). The construction and the arts, entertainment, and recreation, and accommodation and food services sectors also account for a significant share of the total workforce in Bryan County (8 percent each). The Armed Forces account for 6 percent of the Bryan County workforce. The remaining sectors account for 36 percent of the workforce in the county.

Evans County, Georgia

The manufacturing sector accounts for the largest share of the total workforce in Evans County (20 percent). The educational services, and health care and social assistance services sector is the second largest source of employment (17 percent). Retail trade is the third largest employment sector (13 percent), followed by the agriculture, forestry, fishing and hunting, and mining services sector (9 percent). The Armed Forces account for less than 1 percent of the Evans County workforce. The remaining nine sectors employ 41 percent the workforce.

Liberty County, Georgia

The primary source of employment in Liberty County is the Armed Forces (22 percent). Public Administration is the second largest employment sector (15 percent), followed by the educational services, and health care and social assistance sector (14 percent). Retail trade also accounts for a significant share of the total workforce in Liberty County (10 percent). The remaining 10 sectors employ 39 percent of the workforce.

Long County, Georgia

The public administration sector is the primary source of employment in Long County (15 percent). The educational services, and health care and social assistance services sector is the second largest employment sector (11 percent), followed by the Armed Forces and the arts, entertainment, and recreations, and accommodation and food services (10 percent each). The remaining 10 sectors employ 54 percent of the workforce.

Tattnall County, Georgia

The primary source of employment in Tattnall County is the educational services, and health care and social assistance services sector (18 percent). Manufacturing is the second largest employment sector (12 percent), followed by public administration (11 percent). Retail trade also accounts for a significant share of the total workforce (10 percent). The Armed Forces account for less than 1 percent of the Tattnall County workforce. The remaining sectors employ 51 percent of the workforce.

Housing

There are 3,630 permanent military Family units on Fort Stewart and 6,435 spaces in barracks on the installation. Additionally, there are 334 single NCO and officer quarters on the installation (McKain, 2014).

Schools

As described in the 2013 PEA, DoD schools located on the installation educated 606 students in kindergarten through grade 6, while 4,188 students in kindergarten through grade 6 attended schools off the installation within Liberty, Long, Evans, and Bryan counties (no students attended schools in Tattnall County). DoD schools on the installation included Brittin Elementary, Diamond Elementary, and Kessler Elementary schools. All students in grades 7 to 12 attend schools off the installation.

Public Health and Safety

Police Services

The Fort Stewart Military Police oversee police operations, patrol installation property, provide ACP/gate protection and protection of life and property, conduct investigations, regulate traffic,

provide crowd control, and perform other public safety duties. City, county, and state police departments provide law enforcement in the ROI.

Fire and Emergency Services

The Fort Stewart Fire Department responds to emergencies involving structures, facilities, transportation equipment, hazardous materials, and natural and man-made disasters; directs fire prevention activities; and conducts public education programs. Services include providing fire safety advice and insuring that structures are equipped with adequate fire precautions to ensure that in the event of fire, people can safely evacuate the premises unharmed.

Medical Facilities

Winn Army Community Hospital and Lloyd C. Hawks Troop Medical Hospital serve Fort Stewart. Clinics provide health services for active component and retired military personnel and their Families on Fort Stewart. Dental services are also available at three dental clinics on the installation. These facilities service active component personnel and their Family members, as well as retirees and their Family members. Off the installation, Liberty Regional Medical Center in Hinesville provides the nearest health care facility.

Family Support Services

The FMWR provides a wide range of facilities for promoting social and emotional well-being of military/civilian service personnel and their Families. The Fort Stewart ACS office within FMWR assists in maintaining the readiness of individuals, Families, and communities within the Army by developing, coordinating, and delivering services which promote self-reliance, resiliency, and stability during war and peace. Programs offered include the Army Family Action Plan, Family Advocacy Program, Survivor Outreach Service, and Warriors in Transition.

Recreation Facilities

Recreation facilities on Fort Stewart are managed by the FMWR and include areas for swimming, boating, hiking, hunting, and fishing. Fort Stewart has allowed the public access to installation lands for hunting and fishing since 1959. In general, any hunting or fishing area not closed for military use is open to the public with appropriate permits and restrictions.

4.23.12.2 Environmental Effects

No Action Alternative

Fort Stewart’s operations would continue to benefit regional economic activity. No additional impacts to population, housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

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

Population and Economic Impacts

Alternative 1 would result in the loss of 16,000[29] Army positions (15,317 Soldiers and 683 Army civilians), with an average annual income of $46,760 and $56,723, respectively. In addition, this alternative would affect an estimated 24,288 Family members (8,928 spouses and 15,360 children). The total number of military employees and their Family members who may be directly affected by Alternative 1 is projected to be 40,288.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative ranges. Table 4.23-6 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, changes in sales, income, employment and population in the ROI under Alternative 1 fall outside the historical range and are categorized as a significant impact.

Table 4.23-6. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	8.4	5.7	18.4	4.7
Economic contraction significance value	-8.1	-5.8	-7.4	-2.6
Forecast value	-16.9	-19.7	-36.7	-27.6

Table 4.23-7 summarizes the predicted impacts to income, employment, and population of the reductions against the 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

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

Table 4.23-7. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$853,849,000	-17,757 (Direct)	-40,288
		-1,181 (Induced)	
		-18,938 (Total)	
Total 2012 ROI economic estimates	$4,613,724,000	62,222	149,896
Percent reduction of 2012 figures	-18.5	-30.4	-26.9

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

With a potential reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. The EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 16,000 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 1,757 direct contract service jobs would also be lost. An additional 1,181 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. Total reduction in employment is estimated to be 18,938, a significant reduction of 30.4 percent of the total employed labor force in the ROI of 62,222. Income is estimated to be reduced by $853.9 million, a significant decrease of 18.5 percent from 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $639.6 million. There would also be a loss in sales tax receipts to local and state governments. The state and average local sales tax for Georgia is 7.0 percent (Tax Foundation, 2014). To estimate sales tax reductions, information was utilized on the proportion of sales that would be subject to sales taxes on average across the country. According to the U.S. Economic Census, an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $639.6 million, resulting in an estimated sales tax receipts decrease of $7.2 million under Alternative 1.

Of the 149,896 people (including those residing on Fort Stewart) who live within the ROI, 16,000 military employees and 24,288 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 26.9 percent. This number could overstate potential population impacts because some of the people no longer employed by the military could continue to live and work within the ROI, finding employment in other industry sectors. However, due to the rural nature of the area and Fort Stewart as a dominant employer and economic driver of the ROI, most displaced forces may move out of the area to seek other opportunities with the Army or elsewhere. There are few employing sectors in the ROI to absorb displaced military employees. A small number of displaced personnel may

seek and find work within the ROI; however, others may not be able to find new employment with possible implications for the unemployment rate.

This analysis indicates that Fort Stewart's community, and particularly Liberty, Bryan, Tattnall, Long, and Evans counties, would experience significant, adverse socioeconomic impacts, as the predicted impacts to each economic parameter evaluated are well outside the realm of historical economic fluctuations.

Housing

The population reduction that would result under Alternative 1 would decrease housing demand and increase housing availability on the installation and across the larger ROI, which would likely lead to a reduction in median home values.

Schools

Reduction of 16,000 Soldiers and Army civilians would result in a reduction of 24,288 Family members, of which 15,360 would be children. It is anticipated that both schools on the installation and within school districts in Liberty, Long, Evans, and Bryan counties would be impacted under Alternative 1. School districts with larger portions of military children in proximity to Fort Stewart would be more affected than those with fewer military students. If enrollment in individual schools declines significantly, schools may need to reduce the number of teachers, administrators, and other staff, and potentially close or consolidate with other schools within the same school district should enrollment fall below sustainable levels.

The reduction of Soldiers on Fort Stewart would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal Impact Aid a district receives is based on the number of students who are considered “federally connected” and attend district schools. Actual projected dollar amounts cannot be determined at this time due to the variability of appropriated dollars from year to year, and the uncertainty of actual number of affected school-age children. School districts in the ROI would likely need fewer teachers and materials as enrollment drops, which would partially offset the reduced Federal Impact Aid. The loss of approximately 15,360 children will decrease the amount of Federal Impact Aid dollars being provided to these schools. Overall, adverse impacts to schools under Alternative 1 would be minor to significant depending on the reduction in the number of military-connected students attending specific schools.

Public Services

The demand for law enforcement, medical care providers, and fire and emergency service providers on the installation may decrease if Soldiers, Army civilians, and their Family members affected under Alternative 1 move to areas outside the ROI. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or civilian

personnel, the Army is committed to meeting health and safety requirements. Overall, minor impacts to public health and safety would occur under Alternative 1. The impacts to public services are not expected to be significant because the existing service level for the installation and the ROI would still be available.

Family Support Services and Recreation Facilities

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

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, provides: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). The racial and ethnic composition of the ROI differs from that of the state, with higher proportions of African Americans in Evans, Liberty, Long, and Tattnall counties than in the state as a whole. Additionally, there are higher proportions of poverty populations in all of the ROI counties with the exception of Bryan County when compared to the state's proportions of these populations. Because minority or poverty populations are more heavily concentrated in the ROI, Alternative 1 has the potential to result in adverse impacts to minority or poverty-owned and/or -staffed businesses if Soldiers and Army civilians directly affected under Alternative 1 move to areas outside the ROI. However, these populations would not be disproportionately affected under Alternative 1.

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

4.23.13 Energy Demand and Generation

4.23.13.1 Affected Environment

The energy demand and generation affected environment of the Fort Stewart installation remains the same as described in Section 4.20.12.1 of the 2013 PEA.

4.23.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be negligible impacts to energy demand and generation at Fort Stewart. For the current analysis, Fort Stewart would continue to draw similar amounts of energy from its utility providers with the same requirements for energy and maintenance of infrastructure so impacts would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy demand and generation would occur on Fort Stewart. Under Alternative 1, minor, beneficial impacts to energy are anticipated due to a further reduction in energy consumption associated with the additional force reductions. The installation would also be better positioned to meet energy and sustainability goals.

4.23.14 Land Use Conflicts and Compatibility

4.23.14.1 Affected Environment

Consisting of 262,000 acres, Fort Stewart's range and training land infrastructure support Abrams tanks, Bradley fighting vehicles, aerial gunnery, artillery, and other live-fire training; maneuver training; and individual team tasks and collective tasks. Fort Stewart has not had incompatible development and use conflicts preventing new construction or training. Sensitive environmental areas are marked in the field and Soldiers are briefed on these restrictions prior to entering the field. All warfighting functions tasks can be accomplished to standard on the Fort Stewart training complex with minimal restrictions and workarounds. Range Support Operations estimates about 554,472 Soldier training days are scheduled annually on the range and training areas of Fort Stewart for mounted and dismounted individual weapons, crew qualifications and maneuver training.

Establishment of a conservation buffer through the Fort Stewart ACUB program has reduced the risk of incompatible development near the installation and provides for conservation of natural resources on a regional scale. The installation and its partners have been working to prevent incompatible development on about 127,000 acres surrounding Fort Stewart primarily through the acquisition or donation of conservation easements. Fort Stewart maintains active ACUB and

JLUS programs, working with local community partners to protect natural resources and sustain military operations. Common goals are to minimize rural land conversion to dense residential development around the installation, utilizing a variety of methods (depending on property owners' objectives), and to encourage compatible development. As of February 2013, the Fort Stewart ACUB program has protected more than 22,000 acres.

4.23.14.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that no changes to land use conditions would occur and no impacts are anticipated. Under the No Action Alternative, there would continue to be no impacts to land use at Fort Stewart.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Stewart would result in minor, beneficial impacts to land use, since a reduction in training activities would allow more opportunities for other land uses such as ecosystem management or recreational activities. Under Alternative 1, impacts to land use would be similar to those described in the 2013 PEA.

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

4.23.15 Hazardous Materials and Hazardous Waste

4.23.15.1 Affected Environment

As described in the 2013 PEA, hazardous materials are used on Fort Stewart. This includes hazardous materials and waste from USTs and ASTs, pesticides, LBP, asbestos, PCBs, radon, and UXO. Fort Stewart operates under a HWMP. Army policy is to substitute toxic and hazardous materials for nontoxic and nonhazardous ones; ensure compliance with local, state, and federal hazardous waste requirements; and ensure the use of waste management practices that comply with all applicable requirements pertaining to generation, treatment, storage, disposal, and transportation of hazardous wastes. The program reduces the need for corrective action through controlled management of solid and hazardous waste. No substantial changes have occurred to the affected environment since 2013.

4.23.15.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that minor, adverse impacts from hazardous materials and hazardous waste would occur on Fort Stewart. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on Fort Stewart. Because of the reduced numbers of people, it is likely that the potential for spills would be reduced further during training and maintenance activities. The volume of waste generated and material requiring storage would increase slightly because deactivating units would turn in hazardous material for storage to avoid transportation risks. Under Alternative 1 in this SPEA, Fort Stewart would continue to implement its hazardous waste management in accordance with its HWMP and applicable regulations and therefore, adverse impacts would be minor.

Under Alternative 1, adverse impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Fort Stewart, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

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

4.23.16 Traffic and Transportation

4.23.16.1 Affected Environment

The transportation affected environment of the Fort Steward ROI remains the same as described in Section 4.20.15.1 of the 2013 PEA.

4.23.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated minor, adverse impacts. Although basically adequate, the system is congested. Some delays at main ACPs would continue resulting in continued minor, adverse impacts, though recommended traffic intersection improvements would be implemented to improve operations.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Stewart would result in beneficial impacts to traffic and transportation systems. As fewer Soldiers and their Family members are left on the installation, traffic congestion would diminish and traffic LOS would improve on the installation and in neighboring communities. As noted in the 2013 PEA, delays at ACPs during peak hours would also decrease. These beneficial impacts would continue under Alternative 1, but with a further reduction in forces, the size of this beneficial impact under Alternative 1 would be larger than anticipated at the time of the 2013 PEA.

4.23.17 Cumulative Effects

As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Stewart consist of five counties in Georgia: Liberty, Bryan, Evans, Long, and Tattnall counties. Section 4.20.16 of the 2013 PEA noted numerous planned or proposed actions within the ROI that reasonably could be initiated within the next 5 years and would have the potential to cumulatively add impacts to Alternative 1. A number of the Army's proposed projects have been previously identified in the installation's Real Property Master Planning Board and are programmed for future execution. No additional actions have been identified beyond those noted in the cumulative effects analysis of the 2013 PEA.

Reasonably Foreseeable Future Projects on Fort Stewart

In addition to the reasonably foreseeable future projects disclosed in the 2013 PEA, the Army is also proposing a partnership with Georgia Power Company to install solar photovoltaic arrays at Fort Stewart. Fort Stewart is currently conducting NEPA analysis to evaluate potential impacts of siting, constructing, and operating a photovoltaic array on its lands.

Reasonably Foreseeable Future Projects outside Fort Stewart

Beyond those mentioned in the 2013 PEA, the Army is not aware of any reasonably foreseeable future projects outside Fort Stewart which would be appropriate for inclusion in the cumulative impacts analysis. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, smaller, less diversified economies will be more vulnerable to the force reductions and provide fewer opportunities to displaced Army employees.

No Action Alternative

The cumulative effects due to the No Action Alternative are essentially the same as was determined in the 2013 PEA, and will be negligible through minor and adverse. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reductions

The cumulative effects of Alternative 1 would be essentially the same as was determined in the 2013 PEA. Overall, the potential cumulative impacts of Alternative 1 at Fort Stewart is anticipated to be significant and adverse for socioeconomics with impacts ranging from minor, adverse to beneficial for the other resources.

The socioeconomic impact under Alternative 1, as described in Section 4.23.12.2 with a loss of 16,000 Soldiers and Army civilians, could lead to significant impacts to population, the regional economy, schools, and housing, specifically in the ROI city of Hinesville, Georgia. Fort Stewart has long been an economic driver of the region, employing almost 19,000 Soldiers and civilian employees within the ROI. The relatively smaller economy of the ROI depends on the installation's employment and economic activity. Specifically, in Liberty and Long counties, the Armed Forces account for 22 and 10 percent of the workforce, respectively, demonstrating the importance of the installation to employment opportunities in the ROI. With fewer opportunities for employment, the ROI would likely not be able absorb many of the displaced forces, with additional adverse impacts.

Additionally, non-federal investments have been made by private companies and local communities to support Army installations. With decreased population, employment, spending, and economic activity within the ROI, additional financial burden may be placed on companies, communities, and institutions, with implications for the provision of services and viability of operations. In addition, adverse impacts to multiple regional community services and schools are anticipated because they receive funding, support, time, donations, and tax revenue directly related to the number of military authorizations and the number of Family members. These cumulative adverse impacts to the regional economy would contribute to more significant, adverse impacts under Alternative 1.

Stationing changes would affect regional economic conditions through the loss or gain of jobs and income within the region. Military personnel spend their money in the ROI economy, supporting additional jobs, income, taxes, and sales impacts. Under Alternative 1, the loss of 16,000 Soldiers, in conjunction with other reasonably foreseeable actions, would have significant impacts to population, employment, income, tax receipts, housing values, and schools in the ROI.

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4.24 Fort Wainwright, Alaska

4.24.1 Introduction

Fort Wainwright was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population, is discussed in Section 4.21.1 of the 2013 PEA.

Fort Wainwright's 2011 baseline permanent party population was 7,430. In this SPEA, Alternative 1 assesses a potential population loss of 5,800, including approximately 5,485 permanent party Soldiers and 326 Army civilians.

4.24.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Wainwright; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.24-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.24-1. Fort Wainwright Valued Environmental Component Impact Ratings

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

4.24.3 Air Quality

4.24.3.1 Affected Environment

The air quality affected environment of the Fort Wainwright ROI remains the same as described in Section 4.21.2.1 of the 2013 PEA. A portion of the Fairbanks North Star Borough (FNSB) has been designated a nonattainment area for the 2006 fine particulate matter ($PM_{2.5}$) standard. The Fort Wainwright area has not been designated as a nonattainment area for any other criteria pollutants (EPA, 2013).

4.24.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source emissions at current levels would result in minor, short- and long-term, adverse impacts to air quality. Air quality impacts of the No Action Alternative for this SPEA remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Wainwright would result in beneficial impacts to air quality due to reduced operations and maintenance activities and reduced vehicle miles travelled associated with the facility. Impacts to air quality from the further force reductions proposed under Alternative 1 would continue to be beneficial assuming a corresponding decrease in operations and vehicle travel to and from Fort Wainwright. The size of this beneficial impact under Alternative 1 would be slightly larger than at the time of the 2013 PEA.

As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

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

4.24.4 Airspace

4.24.4.1 Affected Environment

The airspace affected environment for Fort Wainwright remains the same as described in Section 4.21.3.1 of the 2013 PEA; restricted airspace is sufficient to meet the current airspace requirements.

4.24.4.2 Environmental Effects

No Action Alternative

Impacts to Fort Wainwright under the No Action Alternative remain minor, as described in Section 4.17.3.2 of the 2013 PEA. Fort Wainwright would maintain existing airspace operations.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to airspace would occur on Fort Wainwright. Under Alternative 1, implementation of proposed further force reductions would increase the beneficial impacts. Beneficial impacts are anticipated to occur as a result of a slightly lower utilization and requirements for airspace use, including the requirement for SUA from training involving the use of munitions, weapons systems, and ranges that would occur at reduced levels and subsequently adverse impactions associated with closures of certain SUA would be reduced and would result in beneficial impacts.

4.24.5 Cultural Resources

4.24.5.1 Affected Environment

The affected environment for cultural resources at Fort Wainwright has not changed since 2013, as described in Section 4.21.4 of the 2013 PEA. However, an updated management plan has been drafted since the 2013 PEA and is currently being implemented.

4.24.5.2 Environmental Effects

No Action Alternative

Section 4.21.4.2 of the 2013 PEA describes the effects of the No Action Alternative as significant but mitigable. There has been no change in the affected environment since the publication of the 2013 PEA that would result in a different impact to cultural resources. All activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures.

Alternative 1—Implement Force Reductions

Alternative 1 of this SPEA would have a significant but mitigable impact on cultural resources as similarly described in Section 4.21.4.2 of the 2013 PEA. The effects of this alternative are similar to the No Action—the reduction of forces at Fort Wainwright would not result in a change to the existing conditions, which are analyzed in the no action. Therefore, if current operations are having a significant but mitigable impact on cultural resources, the potential reduction in forces proposed in Alternative 1 would not alter those impacts.

Additionally, the Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to

be realized at Fort Wainwright, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic structures from these activities are not analyzed. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of force reductions, the installation would comply with applicable laws, such as the NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects.

This alternative could result in some beneficial effects as a decrease in training activities could reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources.

4.24.6 Noise

4.24.6.1 Affected Environment

The noise affected environment of the Fort Wainwright installation remains the same as described in Section 4.21.5.1 of the 2013 PEA. Primary sources of noise at Fort Wainwright include aviation activity and small arms live-fire training and qualification as well as large caliber weapon systems training.

4.24.6.2 Environmental Effects

No Action Alternative

The 2013 PEA anticipated minor impacts from noise, which would represent no change to current frequencies or intensities of noise generating activities. Under the No Action Alternative, minor impacts to noise at Fort Wainwright are expected to continue.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Wainwright would result in beneficial noise impacts, since there would be a reduction in the frequency of noise generating events. The beneficial impacts under Alternative 1 would be similar to those described under the 2013 PEA.

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

4.24.7 Soils

4.24.7.1 Affected Environment

The soils affected environment on the installation remains the same as was discussed in Section 4.21.6.1 of the 2013 PEA.

4.24.7.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to soils were anticipated from continuing training, to include impacts to soils from removal of or damage to vegetation, digging activities, ground disturbance from vehicles, and ammunition or explosives used in training events. Impacts under the No Action Alternative on Fort Wainwright remain the same as those discussed in Section 4.21.6.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, minor, adverse impacts to soils were anticipated as a result of demolition of no longer needed facilities leading to temporary exposure of bare soils and their subsequent erosion from wind and rain. As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed. Further forces reductions (Alternative 1 of this SPEA) would result in less erosion, soil compaction, and loss of vegetation; thus impacts under Alternative 1 would be negligible.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Wainwright, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations. Therefore, impacts under Alternative 1 at Fort Wainwright would be beneficial and remain the same as those discussed in Section 4.21.6.2 of the 2013 PEA.

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

4.24.8.1 Affected Environment

The affected environment on Fort Wainwright is characterized by four dominant vegetation types: moist tundra; treeless bogs and fens; open, low-growing spruce forests; and closed spruce-hardwood forests which is home to variety of mammals and avian species. No federally listed threatened and endangered species are present on Fort Wainwright although a number of species of concern have been identified. A detailed description of the affected environment on Fort Wainwright and a complete list of species of concern are presented in Section 4.21.7.1 of the

2013 PEA. No changes have occurred to the affected environment since 2013. However, an updated management plan has been drafted since the 2013 PEA and is currently being implemented (Fort Wainwright, 2013).

4.24.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in minor, adverse impacts to biological resources. Biological resources on Fort Wainwright would continue to be managed in accordance with the current installation INRMP to further minimize and monitor any potential impacts (Fort Wainwright, 2013).

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that minor, adverse impacts to biological resources would occur on Fort Wainwright as the proposed reduction in staff would change the types of activities conducted on Fort Wainwright, but would only reduce the frequency and intensity. Therefore, disturbances to the biological environment as a result of current activities would continue to some degree. Fort Wainwright anticipates that further proposed reduction in forces (Alternative 1 of this SPEA) would not change this finding. However, a reduction in personnel and training activities would further reduce scheduling conflicts and increase the ease of conducting resource monitoring and proactive conservation activities. The Army is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Wainwright, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

4.24.9 Wetlands

4.24.9.1 Affected Environment

The wetlands affected environment on the installation remains the same as was discussed in Section 4.21.8.1 of the 2013 PEA.

4.24.9.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to wetlands were anticipated from continued training schedules, sedimentation, and construction. Potential wetland impacts would be reviewed and managed to be avoided, to the extent practicable, or mitigated. Impacts under the No Action Alternative on Fort Wainwright remain the same as those discussed in Section 4.21.8.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, minor, adverse impacts to wetlands were anticipated as a result of facilities deconstruction and the potential to create sedimentation into wetlands. RVs would continue to create impacts to wetlands. Training ranges were designed to avoid significant wetland impacts; therefore, a reduction in training would not have any change on the impacts to wetlands on the installation. Impacts to wetlands could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Wainwright, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met. Impacts under Alternative 1 at Fort Wainwright would remain the same as those discussed in Section 4.21.8.2 of the 2013 PEA.

4.24.10 Water Resources

4.24.10.1 Affected Environment

The affected environment for water resources on Fort Wainwright remains the same as that described in Section 4.21.9.1 of the 2013 PEA. There are no changes to the watershed and surface water, groundwater, water supply, wastewater, and stormwater resources.

4.24.10.2 Environmental Effects

No Action Alternative

In the 2013 PEA, minor, adverse impacts to water resources were anticipated from the No Action Alternative due to disturbance and pollution of surface waters and groundwater from continued training activities and exceedance of several secondary drinking water quality standards. Surface water, water supply, and groundwater impacts under the No Action Alternative would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

Minor impacts to water resources were anticipated from implementation of force reductions in the 2013 PEA Alternative 1 because of adverse effects on surface waters from ongoing demolition and training activities. Although reduction in maneuver training from force reductions on Fort Wainwright was expected to potentially reduce existing impacts caused by disturbance to surface waters, it would not eliminate the impacts completely. Fort Wainwright was expected to continue to implement pollution and stormwater control plans with associated BMPs. Additionally, it was anticipated that Alternative 1 would reduce wastewater treatment requirements and water demand. Increased force reductions under Alternative 1 of this SPEA would continue to have these same minor impacts to surface waters, water supplies, and wastewater.

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

4.24.11 Facilities

4.24.11.1 Affected Environment

The facilities affected environment of the Fort Wainwright installation remains the same as was discussed in Section 4.21.10.1 of the 2013 PEA.

4.24.11.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that minor impacts to facilities would occur on Fort Wainwright. Under Alternative 1, implementation of proposed further force reductions would also have an overall minor, adverse impact to facilities. Minor, adverse impacts would include construction or expansion projects that had been programmed in the future may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities to newer facilities may require modification of existing facilities; and more buildings within the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demands for utilities and reduced demands for training facilities and support services. Some facilities may be re-designated to support units remaining at Fort Wainwright to provide more space and facilities that are better able to meet tenant and Army needs. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.24.12 Socioeconomics

4.24.12.1 Affected Environment

Fort Wainwright is located in the Fairbanks, Alaska, Metropolitan Statistical Area. The ROI for this installation includes only FNSB, which is generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, and contractor personnel and their Families reside. It is likely that the economic impacts stated below would be concentrated in the city of Fairbanks because of size of FNSB (7,400 square miles).

Population and Demographics

Using 2011 as a baseline, Fort Wainwright had a total working population of 9,454 consisting of active component Soldiers and Army civilians, students and trainees, other military services, civilians and contractors. Of the total working population, 7,430 were permanent party Soldiers and Army civilians. The population that lives on Fort Wainwright consists of 3,759 Soldiers and their 5,706 Family members, for a total resident population of 9,465 (TeVrucht, 2014). The portion of Soldiers, Army civilians, and their Family members living off the installation is estimated to be 9,244.

In 2012, the population in the ROI was 100,141 and increased by 2.6 percent between 2010 and 2012 (Table 4.24-2). Table 4.24-3 displays racial breakdown of the ROI (U.S. Census Bureau 2012a).

Table 4.24-2. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Fairbanks North Star Borough, Alaska	100,141	+2.6

Table 4.24-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of Alaska	67.5	3.7	14.8	5.7	7.1	6.1	63.1
Fairbanks North Star Borough, Alaska	77.7	5.3	7.2	2.9	6.4	6.8	72.5

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

Employment and Income

Between 2000 and 2012, total employment increased in the state of Alaska and in FNSB (Table 4.24-4). The percentage of the population living below poverty in FNSB is 2 percent lower than for the state of Alaska. Additionally, the median household income of FNSB is less than 1 percent lower than median household income at the state level. Employment, median home value and household income, and poverty levels are presented in Table 4.24-4 (U.S. Census Bureau, 2012b).

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

Table 4.24-4. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000-2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Alaska	358,521	+20	$237,900	$69,917	10
Fairbanks North Star Borough, Alaska	51,715	+25	$213,500	$69,485	8

Fairbanks North Star Borough, Alaska

Education services and health care and social assistance sectors accounts for the greatest share of the total workforce in FNSB (22 percent). Retail trade is the second largest employment sector (11 percent), followed by the Armed Forces (10 percent). Public administration also accounts for a significant share of the total workforce in the borough (10 percent). The remaining 10 sectors account for 47 percent of total employment.

Housing

Housing resources at Fort Wainwright were described in the 2013 PEA and include 1,976 permanent military Family units. Fort Wainwright is able to meet approximately 69 percent of its Family housing requirements on the installation (Larson, 2014). Due to the age of facilities, the installation has begun to revitalize Family housing to upgrade and/or replace substandard facilities through the Army Family Housing Privatization program. Housing requirements for accompanied Soldiers at Fort Wainwright were privatized in January of 2009, and are managed by the RCI program. An estimated 524 units would be constructed and an estimated 321 units would be revitalized under the RCI program.

Schools

As described in the 2013 PEA, total enrollment in the FNSB School District for the 2011–2012 school years was nearly 14,300 students, approximately one-third of whom were in elementary schools attended by children living on Fort Wainwright. Elementary school students living on Fort Wainwright attend Arctic Light Elementary School located on Fort Wainwright, Ticasuk Brown Elementary School located in North Pole, or Ladd Elementary School located in Fairbanks. Children living on Fort Wainwright attend Tanana Middle School and Lathrop High School, which are predominantly civilian schools. Other FNSB schools located near Fort Wainwright, where military Families living off the installation are most likely to reside, include Denali, Hunter, Joy, Nordale (all elementary schools) and Barnette (kindergarten through grade 8).

Public Health and Safety

Police Services

The Fort Wainwright Police Department oversees police operations, patrols, gate security, training, traffic accident, and criminal investigations.

Fire and Emergency Services

The Fort Wainwright Fire Department responds to emergencies involving structures, facilities, transportation equipment, hazardous materials, and natural and man-made disasters, and directs fire prevention activities; and conducts public education programs. The Fort Wainwright Fire and Emergency Services Division has a mutual aid agreement with FNSB and the cities of Fairbanks and North Pole. City, borough, and state police departments provide law enforcement in the ROI.

Medical Facilities

Health care services are provided by two hospitals and several clinics, and from Bassett Army Community Hospital on Fort Wainwright.

Family Support Services

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

Recreation Facilities

Fort Wainwright FMWR provides its military community, Families, and civilians sport and fitness programs, leisure activities (a bowling center, golf course, tennis club, and group hiking trips) and skills development opportunities (including an auto repair center).

4.24.12.2 Environmental Effects

No Action Alternative

Fort Wainwright's continuing operations represent a beneficial source of regional economic activity. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

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

Population and Economic Impacts

Alternative 1 would result in the loss of 5,811[30] Army positions (5,485 Soldiers and 326 Army civilians), each with an average annual income of $60,735 and $62,379, respectively. In addition, this alternative would affect an estimated 3,243 spouses and 5,579 children for a total estimated potential impact to 8,822 Family members. The total population of Army employees and their Family members directly affected under Alternative 1 would be projected to be 14,633.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative range. Table 4.24-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, changes in employment and population in the ROI under Alternative 1 fall outside the historical range and are categorized as a significant impact. However, there would not be a significant impact to sales and income because the estimated percentage change is within the historical range of these economic parameters.

[30] This number was derived by assuming the loss of one BCT, 60 percent of Fort Wainwright's non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 5,811. The 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 4,900.

Table 4.24-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	50.1	40.1	23.4	6.8
Economic contraction significance value	-32.2	-15.5	-6.6	-1.8
Forecast value	-7.7	-9.8	-15.7	-15.0

Table 4.24-6 summarizes the predicted impacts to income, employment, and population of the reductions against the 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

Table 4.24-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$ 413,485,400	-6,651 (Direct)	-14,633
		-748 (Induced)	
		-7,399 (Total)	
Total 2012 ROI economic estimates	$4,555,544,000	51,715	100,141
Percent reduction of 2012 figures	-9.1	-14.3	-14.6

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

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. With a loss of 5,811 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 840 direct contract service jobs would also be lost. An additional 748 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. The total reduction in employment is estimated to be 7,399, a significant 14.3 percent reduction of the total employed labor force in the ROI of 51,715. Income is estimated to fall by $413.5 million, a 9.1 percent decrease in income in 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $339.9 million. There would also be a loss in sales tax receipts to local and state governments. The average local sales tax rate for Alaska is 1.7 percent (Tax Foundation, 2014). To estimate sales tax reductions, information was utilized on the proportion of sales that would be subject to sales tax on average

across the country. According to the U.S. Economic Census, an estimated 16 percent sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $339.9 million resulting in an estimated sales tax receipts decrease of $925,000 under Alternative 1.

Of the approximately 100,141 people (including those residing on Fort Wainwright) who live within the ROI, 5,811 Army employees and their estimated 8,822 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 14.6 percent. This number could overstate potential population impacts because some of the people no longer employed by the military could continue to live and work within the ROI, finding employment in other industry sectors. However, because Fort Wainwright is a dominant employer and economic driver of the ROI, many displaced personnel may move out of the area to seek other opportunities elsewhere. There are few employing sectors in the ROI to absorb displaced military employees. A small number of displaced personnel may seek and find work within the ROI; however, others may not be able to find new employment with possible implications for the unemployment rate.

Housing

As stated in the 2013 PEA, a reduction in troop strength would impact the local housing community, installation support services, the barracks program, and associated Army civilian staffing requirements. A troop reduction may also cause a reduction in the rental market available to the RCI program. As a result, the private partner associated with the RCI program could open the installation military housing to the local population. Fort Wainwright is expected to have a housing surplus by 2018 without these force reductions (U.S. Army, 2014). Alternative 1 would increase the housing surplus on the installation and in the ROI with further reductions in the demand for housing, potentially impacting home values.

Schools

Reduction of 5,811 Soldiers and Army civilians would result in a reduction of 8,822 Family members, of which 5,579 would be children. It is anticipated that school districts that provide education to Army children would be significantly adversely impacted by this action. Schools on and off the installation are expected to experience a decline in enrollment.

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

As described in the 2013 PEA, the state of Alaska is allowed to take Federal Impact Aid funding into account when distributing public education foundation dollars, possibly lessening the impact from the reduction in Federal Impact Aid to the FNSB School District. However, as the proportion of Family members that would be removed from the FNSB school system accounts for approximately 40 percent of total enrollment for the 2011-2012 school year, it is anticipated that a significant, adverse impact to schools would occur under Alternative 1.

Public Services

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

Family Support Services and Recreation Facilities

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

Environmental Justice and Protection of Children

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

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

that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.24.13 Energy Demand and Generation

4.24.13.1 Affected Environment

The energy demand and generation affected environment of the Fort Wainwright installation remains the same as was discussed in Section 4.21.12.1 of the 2013 PEA.

4.24.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be negligible impacts to energy demand and generation at Fort Wainwright. For the current analysis, Fort Wainwright would continue to draw similar amounts of energy from its utility provider with the same requirements for energy and maintenance of infrastructure so impacts to energy demand and generation would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy demand and generation would occur on Fort Wainwright. Under Alternative 1, minor, beneficial impacts to energy are anticipated due to a further reduction in energy consumption associated with the additional force reductions. The installation would also be better positioned to meet energy and sustainability goals.

4.24.14 Land Use Conflicts and Compatibility

4.24.14.1 Affected Environment

The land use affected environment of the Fort Wainwright installation remains the same as described in Section 4.21.13.1 of the 2013 PEA.

4.24.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative no changes to land use conditions would occur and no impacts are anticipated, as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Wainwright would result in minor, beneficial impacts to land use because a reduction in training activities would allow more

opportunities for other land uses such as ecosystem management or recreational activities. Under Alternative 1, impacts to land use at Fort Wainwright would be similar to those described in the 2013 PEA.

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

4.24.15 Hazardous Materials and Hazardous Waste

4.24.15.1 Affected Environment

As described in the 2013 PEA, hazardous materials are used on Fort Wainwright. Fort Wainwright is registered with EPA as a Large Quantity Generator of hazardous waste in accordance with RCRA. There is no treatment facility on-site and all hazardous waste generated at the installation is stored and removed from the installation within 90 days. Hazardous waste at Fort Wainwright is primarily generated from vehicle maintenance and facilities operations. Hazardous materials include petroleum-contaminated absorbent pads, batteries, light ballasts, mercury containing bulbs, oils and fuels, compressed gas, LBP, paint thinners, pesticides, solvents and degreasers, and non-recyclable transmission fluid. No substantial changes have occurred to the affected environment since 2013; however an updated management plan has been drafted since the 2013 PEA and is currently being implemented.

4.24.15.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts from hazardous materials and hazardous waste would occur on Fort Wainwright. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on Fort Wainwright, therefore impacts would continue to be negligible. Because of the reduced numbers of people, it is likely that the potential for spills would be reduced further during training and maintenance activities. The volume of waste generated and material requiring storage would increase slightly because deactivating units would turn in hazardous material for storage to avoid transportation risks. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling,

management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Fort Wainwright, the Army would ensure that the installation would comply with all mandatory environmental regulations.

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

4.24.16 Traffic and Transportation

4.24.16.1 Affected Environment

The transportation affected environment of the Fort Wainwright ROI remains the same as described in Section 4.21.15.1 of the 2013 PEA with three primary roads that lead onto the installation, three ACPs, and four main roads and numerous secondary roads used for transportation on the installation.

4.24.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated minor, adverse impacts. Surveys and studies determined the existing transportation system is sufficient to support the current traffic load, so minor, adverse impacts would continue to be expected under the No Action Alternative.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that beneficial impacts are anticipated from the decrease in military and privately-owned vehicles, likely alleviating the traffic flow issues at the Main Gate entrance to the installation. With the implementation of Alternative 1, the Soldier population would decrease and there would be less traffic competing with seasonal (spring and summer) tourist traffic. Impacts to local highways associated with military convoys would also be reduced. The size of this beneficial impact under Alternative 1 would be larger than anticipated at the time of the 2013 PEA.

4.24.17 Cumulative Effects

As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Wainwright consists of FNSB. Section 4.21.16 of the 2013 PEA noted numerous planned or proposed actions within the ROI that reasonably could be initiated within the next 5 years and would have the potential to cumulatively add impacts to Alternative 1. A number of the Army's proposed projects have been previously identified in the installation's Real Property Master Planning Board and are programmed for future execution.

Reasonably Foreseeable Future Projects on Fort Wainwright

No reasonably foreseeable future projects on Fort Wainwright were identified by the installation beyond those noted in the 2013 PEA.

Reasonably Foreseeable Future Projects outside Fort Wainwright

The basing action that would have involved moving one squadron of F-16s from Eielson AFB to Joint Base Elmendorf-Richardson, identified in the 2013 PEA, is no longer a reasonably foreseeable future project and is no longer analyzed as a cumulative action. Additionally, beyond those mentioned in the 2013 PEA, there is a potential for the stationing of F-35 Joint Strike Fighter and accompanying personnel at Eielson AFB, located just outside Fairbanks. It is not known at this time if one or two squadrons would be stationed at Eielson AFB, if the installation were to be selected for the F-35 stationing. An estimate for one squadron of F-35 aircraft (24 planes) would add approximately 1,449 military personnel (3,200 total if including dependents). For two squadrons (48 planes), the addition would be approximately 1,959 military (4,300 total including dependents). In addition, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, smaller, less diversified economies will be more vulnerable to force reductions and provide fewer opportunities to displaced Army employees.

No Action Alternative

Cumulative effects as a result of the No Action Alternative are essentially the same as determined in the 2013 PEA, ranging from negligible to minor and adverse, with the exception of cultural resources. Cumulative effects of the No Action Alternative on cultural resources are anticipated to be significant but mitigable. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reductions

The cumulative effects of Alternative 1 would be essentially the same as was determined in the 2013 PEA. Overall, the potential cumulative impacts of Alternative 1 at Fort Wainwright are anticipated to be significant and adverse for socioeconomics and significant but mitigable for cultural resources. Cumulative impacts for the other resources would range from minor and adverse to beneficial.

The socioeconomic impact under Alternative 1, as described in Section 4.24.12.2 with the loss of 5,811 Soldiers and Army civilians, could lead to significant impacts to the population, employment, and schools in the ROI, notably in the city of Fairbanks. Fort Wainwright has long been a key component of the Fairbank's economy employing several thousand Soldiers and civilian employees within the ROI. The relatively smaller, rural economy of the ROI depends on the installation's employment and economic activity. With fewer opportunities for employment,

the ROI would likely not be able absorb many of the displaced forces. In FNSB, the Armed Forces account for 10 percent of the workforce, demonstrating the importance of installation to employment opportunities in the region.

Stationing changes would also affect regional economic conditions through the jobs and income they bring (or lose) within the region. Although other services have not finalized their stationing changes, increases in military and civilian personnel at Eielson AFB could be anticipated. It is not known at this time whether one or more squadron of F-35 Joint Strike Fighters would be stationed at Eielson AFB or even whether the installation would be selected for the stationing. If the stationing of F-35 were to occur, an increase in military and civilian personnel would have a cumulative beneficial impact to Fairbank's economy.

Other infrastructure improvements and construction and development activity would also benefit the regional economy through additional economic activity, jobs, and income in the ROI. Oil and gas activities would also affect regional economic conditions. However, these potential benefits would not offset the adverse impacts under Alternative 1 and other adverse cumulative actions. Under Alternative 1, the loss of approximately 5,800 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have significant impacts to population, employment, tax receipts, and schools in the ROI.

4.25 Joint Base Elmendorf-Richardson, Alaska

4.25.1 Introduction

Joint Base Elmendorf-Richardson was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population is discussed in Section 4.10.1 of the 2013 PEA. Potential impacts resulting from any reductions in staffing levels other than Army staff at this Air Force managed joint base could be analyzed in separate, future NEPA analyses, as appropriate, although these reductions would not be related to the Army 2020 reductions analyzed herein.

Joint Base Elmendorf-Richardson's 2011 baseline permanent party population was 6,861. In this SPEA, Alternative 1 assesses a potential population loss of 5,300, including approximately 5,169 permanent party Soldiers and 164 Army civilians.

4.25.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment no significant, adverse environmental impacts are anticipated for Joint Base Elmendorf-Richardson; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.25.2-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.25-1. Joint Base Elmendorf-Richardson Valued Environmental Component Impact Ratings

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

4.25.3 Air Quality

4.25.3.1 Affected Environment

The air quality affected environment of the Joint Base Elmendorf-Richardson ROI remains the same as described in Section 4.10.2.1 of the 2013 PEA. The Joint Base Elmendorf-Richardson area has not been designated as a nonattainment area for any criteria pollutants (EPA, 2013).

4.25.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source emissions at current levels, as well as controlled burns for vegetation management, would result in less than significant impacts to air quality. Air quality impacts of the No Action Alternative for this SPEA remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Joint Base Elmendorf-Richardson would result in minor, beneficial impacts to air quality because of reduced operations and maintenance activities and reduced vehicle miles travelled associated with the facility. Impacts to air quality from the further force reductions proposed under Alternative 1 would continue to be beneficial assuming a corresponding decrease in operations and vehicle travel to and from Joint Base Elmendorf-Richardson. The size of this beneficial impact under Alternative 1 would be slightly larger than at the time of the 2013 PEA.

As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

The Army is committed to ensuring that personnel cuts will not result in Army non-compliance with air quality regulations. However, management at Joint Base Elmendorf-Richardson is under the authority of the Air Force, so measures to maintain compliance regarding overall air quality regulations would continue to be met by the Air Force.

4.25.4 Airspace

4.25.4.1 Affected Environment

The airspace affected environment for Joint Base Elmendorf-Richardson remains the same as described in Section 4.10.3.1 of the 2013 PEA; restricted airspace is sufficient to meet the current airspace requirements.

4.25.4.2 Environmental Effects

No Action Alternative

Impacts to Joint Base Elmendorf-Richardson under the No Action Alternative remain negligible, as described in Section 4.10.3.2 of the 2013 PEA. Joint Base Elmendorf-Richardson would maintain existing airspace operations.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to airspace would occur on Joint Base Elmendorf-Richardson. Under Alternative 1, implementation of proposed further force reductions would increase the beneficial impacts. While there would not be a decreased requirement for airspace, a force reduction would result in slightly lower utilization and requirements for airspace use.

4.25.5 Cultural Resources

4.25.5.1 Affected Environment

The affected environment for cultural resources at Joint Base Elmendorf-Richardson has not changed since 2013, as described in Section 4.10.4 of the 2013 PEA.

4.25.5.2 Environmental Effects

No Action Alternative

Section 4.10.4.2 of the 2013 PEA describes the effects of the No Action Alternative at as significant but mitigable. There has not been a change in the affected environment since the publication of the 2013 PEA that would result in a reduction of impacts to cultural resources. Ongoing and new construction and demolition would continue in some areas of the installation. Live-fire and maneuver training would also continue, allowing for the possibility of inadvertent damage to cultural resources. All activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures.

Alternative 1—Implement Force Reductions

Alternative 1 would have a significant but mitigable impact on cultural resources as described in Section 4.10.4.2 of the 2013 PEA. Effects under Alternative 1 would be similar to those under the No Action Alternative—the reduction of forces at Joint Base Elmendorf-Richardson would not result in a change in the existing conditions. Therefore, if current operations are having a significant but mitigable impact on cultural resources, the potential reduction in forces proposed under Alternative 1 would not alter those impacts. Additionally, the Army is committed to ensuring that personnel cuts will not result in Army non-compliance with cultural resources regulations.

This alternative could result in some beneficial effects as a decrease in training activities could reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources.

As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of Army force reductions is not reasonably foreseeable and not part of the scope of this SPEA. Therefore, potential impacts to cultural resources from these activities are not analyzed. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of Army force reductions, potential impacts could be analyzed in separate, future NEPA analyses and consultation conducted, as appropriate, by Joint Base Elmendorf-Richardson to avoid, minimize, and/or mitigate these effects.

4.25.6 Noise

4.25.6.1 Affected Environment

The noise affected environment of Joint Base Elmendorf-Richardson remains the same as described in Section 4.10.5.1 of the 2013 PEA. Primary sources of noise at Joint Base Elmendorf-Richardson include traffic, live fire from small and large caliber weapons, and demolition exercises.

4.25.6.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, minor impacts from noise are anticipated, which would represent no change to current frequencies or intensities of noise generating activities, as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Joint Base Elmendorf-Richardson would result in beneficial noise impacts because there would be a reduction in the frequency of noise generating events. The beneficial impacts under Alternative 1 would be similar to those described in the 2013 PEA.

The Army is committed to ensuring that personnel cuts will not result in Army non-compliance with noise ordinances and regulations. However, management at Joint Base Elmendorf-Richardson is under the authority of the Air Force; therefore, health and safety requirements, including noise compliance, would continue to be met by the Air Force.

4.25.7 Soils

4.25.7.1 Affected Environment

The soils affected environment on the installation remains the same as was discussed in Section 4.10.6.1 of the 2013 PEA.

4.25.7.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, less than significant impacts to soils were anticipated from continuing training, to include impacts to soils from removal of or damage to vegetation, digging activities, ground disturbance from vehicles, and ammunition or explosives used in training events. Impacts under the No Action Alternative on Joint Base Elmendorf-Richardson remain the same as those discussed in Section 4.10.6.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, minor, adverse impacts to soils were anticipated as a result of less use of weapons ranges and maneuvering ranges. Further forces reductions (Alternative 1 of this SPEA) would result in less erosion, soil compaction, and loss of vegetation.

As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed. The Army is committed to ensuring that personnel cuts will not result in Army non-compliance with regulations affecting soils. However, environmental compliance at Joint Base Elmendorf-Richardson is under the authority of the Air Force, so measures to maintain compliance regarding soils management would continue to be met by the Air Force. Impacts under Alternative 1 at Joint Base Elmendorf-Richardson would be beneficial and remain the same as those discussed in Section 4.10.6.2 of the 2013 PEA.

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

4.25.8.1 Affected Environment

As described in Section 4.10.7.1 of the 2013 PEA, the affected environment on Joint Base Elmendorf-Richardson provides habitat for various species of birds, mammals, and fish. Three federally listed threatened and endangered species are known exist on Joint Base Elmendorf-Richardson along with two ESA candidate species and four species of marine mammals which are federally protected under the Marine Mammal Protection Act. No changes have occurred to the affected environment since 2013.

4.25.8.2 Environmental Effects

No Action Alternative

The analysis of alternatives in the 2013 PEA concluded that implementation of the No Action Alternative would result in significant but mitigable impacts to biological resources due to ongoing training and maintenance activities on Joint Base Elmendorf-Richardson. Under the No Action Alternative, adverse impacts to biological resources would persist at their current rate. Biological resources on Joint Base Elmendorf-Richardson would continue to be managed in accordance with the current installation INRMP (Joint Base Elmendorf-Richardson, 2011).

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that minor impacts to biological resources would occur on Joint Base Elmendorf-Richardson because that Alternative 1 does not involve major changes to the installation operations or types of activities conducted on Joint Base Elmendorf-Richardson, only a decrease in the frequency of training and/or maintenance activities. The Army anticipates that further proposed reduction in forces (Alternative 1 of this SPEA) would not change this finding. However, further reduction in personnel is likely to partially relieve current pressures on biological resources due to a reduction in scheduling conflicts which would increase the ease of conducting biological resource monitoring and proactive conservation activities. The Army is committed to ensuring that personnel cuts will not result in Army non-compliance with natural resources regulations. However, environmental compliance at Joint Base Elmendorf-Richardson is under the authority of the Air Force, so measures to maintain compliance regarding natural resource management would continue to be met by the Air Force.

4.25.9 Wetlands

4.25.9.1 Affected Environment

The wetlands affected environment on the installation remains the same as was discussed in Section 4.10.8.1 of the 2013 PEA.

4.25.9.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, less than significant impacts to wetlands were anticipated from continued training schedules. Potential wetland impacts would be reviewed and managed to be avoided, to the extent practicable, or mitigated for. Impacts under the No Action Alternative on Joint Base Elmendorf-Richardson remain the same as those discussed in Section 4.10.8.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, beneficial impacts to wetlands were anticipated as a result of decreased maneuvers and training. Less sedimentation and vegetation loss were anticipated, and degraded wetlands were expected to restore towards their reference functions and values. Impacts to wetlands could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. However, environmental compliance at Joint Base Elmendorf-Richardson is under the authority of the Air Force, so measures to maintain compliance regarding wetland regulations would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with wetland regulations. Therefore, impacts under Alternative 1 of this SPEA at Joint Base Elmendorf-Richardson would be beneficial and remain the same as those discussed in Section 4.3.7.2 of the 2013 PEA.

4.25.10 Water Resources

4.25.10.1 Affected Environment

The affected environment for water resources on Joint Base Elmendorf-Richardson remains the same as that described in Section 4.10.9.1 of the 2013 PEA. There are no changes to surface water, groundwater, water quality, drinking water supply, wastewater, and stormwater resources.

4.25.10.2 Environmental Effects

No Action Alternative

In the 2013 PEA, minor, adverse impacts to water resources were anticipated from the No Action Alternative due to the disturbance and pollution of surface waters from ongoing construction, maintenance activities, and erosion. Surface water impacts to water resources under the No Action Alternative would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

Beneficial impacts to water resources were anticipated from implementation of force reductions in the 2013 PEA Alternative 1 because of an overall reduction in the potential to affect water resources. Specifically, force reductions were anticipated to result in a reduction in the demand on the water supply and a decrease in indirect construction related impacts to multiple water resources. Reduction in maneuver training from force reductions on Joint Base Elmendorf-Richardson was also anticipated to potentially reduce impacts to surface waters due to disturbance and spills. Increased force reductions under Alternative 1 of this SPEA would continue to have the same beneficial impacts to surface water quality and water usage and supply.

Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. However, environmental compliance at

Joint Base Elmendorf-Richardson is under the authority of the Air Force, so measures to maintain compliance regarding water resource regulations would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with water quality regulations.

4.25.11 Facilities

4.25.11.1 Affected Environment

The facilities affected environment of the Joint Base Elmendorf-Richardson installation remains the same as was discussed in Section 4.10.10.1 of the 2013 PEA.

4.25.11.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be minor impacts to facilities at Joint Base Elmendorf-Richardson. For the current analysis, Joint Base Elmendorf-Richardson would continue to pursue funding to consolidate existing facilities and already programmed construction projects to replace non-standard and aging facilities. As noted in the 2013 PEA, the installation has an adequate quantity of facilities to support the existing units' requirements for living, operations, and maintenance. Impacts to facilities would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

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

If Army reductions result in impacts to the utilization of facilities and/or training areas at this Air Force-managed joint base, the Air Force could conduct any required site-specific NEPA analyses, as appropriate, and make the final determinations regarding disposition of these affected facilities and/or training areas.

4.25.12 Socioeconomics

4.25.12.1 Affected Environment

Joint Base Elmendorf-Richardson is located to the east of the city of Anchorage in south-central Alaska. The ROI for Joint Base Elmendorf-Richardson in this analysis includes those areas that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, contractor personnel, and their Families reside, which includes the Municipality of Anchorage, a consolidated city-borough.

Population and Demographics

Using 2011 as a baseline, Joint Base Elmendorf-Richardson has a total working population of 8,924 consisting of active component Soldiers and Army civilians, students and trainees, other military services, civilians and contractors. Of the total working population, 6,861 were permanent party Soldiers and Army civilians. The population that lives on Joint Base Elmendorf-Richardson consists of 1,729 Soldiers and their estimated 2,625 Family members, for a total on-installation resident population of 4,354 (TeVrucht, 2014). The portion of Soldiers and Army civilians living off the installation is 12,922 and consists of Soldiers, Army civilians, and their Families. Additionally, there are 62 students and trainees associated with the installation.

In 2012, the population of the ROI was 298,294 and increased by 2.2 percent between 2010 and 2012 (Table 4.25-2) (U.S. Census Bureau 2012a). The racial and ethnic composition of the ROI is presented in Table 4.25-3.

Table 4.25-2. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Consolidated borough and city of Anchorage, Alaska	298,294	+2.2

Table 4.25-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of Alaska	67.5	3.7	14.8	5.7	7.1	6.1	63.1
Consolidated borough and city of Anchorage, Alaska	67.0	6.2	8.1	8.7	7.8	8.2	61.2

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

Employment and Income

Total employment increased by 16 percent in Anchorage between 2000 and 2012 (Table 4.25-4). Median household income is 8 percent higher in Anchorage than median household income in the state of Alaska as a whole. Employment, median home value, median household income, and poverty levels are summarized in Table 4.25-4 below (U.S. Census Bureau, 2012b).

Table 4.25-4. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000-2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Alaska	358,521	+20	$237,900	$69,917	10
Consolidated borough and city of Anchorage, Alaska	156,248	+16	$277,100	$76,495	8

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

Consolidated Borough and City of Anchorage, Alaska

The primary source of employment in Anchorage County is the educational services, and health care and social assistance sector (20 percent). Retail trade; public administration; and the professional, scientific, and management, and administrative and waste management services sectors each account for 10 percent of the total workforce. The arts, entertainment, and recreation, and accommodation and food services sector accounts for 8 percent of the total

workforce while the Armed Forces account for 5 percent of the total workforce. The remainder of the sectors account for 37 percent of the total workforce in Anchorage.

Housing

Housing resources at Joint Base Elmendorf-Richardson were described in the 2013 PEA and include 3,262 permanent military Family units (TeVrucht, 2014).

Schools

As described in the 2013 PEA, Joint Base Elmendorf-Richardson children attend Ursa Major Elementary School, Ursa Minor Elementary School, Gruening Middle School, and Eagle River High School, which are part of the Anchorage School District. Elementary, middle, high, and charter schools are located close to the installation, within 1 mile of the Joint Base Elmendorf-Richardson border. Generally, elementary schools, middle schools, and charter schools are experiencing under-enrollment. Between fall 2010 and fall 2011, there was a decrease in total enrollment by 0.54 percent, or 263 students. Only one of the schools is operating at over the school's capacity.

Public Health and Safety

Police Services

Police services include two state trooper posts, a Federal Bureau of Investigation center, a district office for the U.S. Marshal Service, and Ted Stevens Anchorage International Airport Police and Fire Department. One military police station is located within the main cantonment, north of the Fireweed neighborhood.

Fire and Emergency Services

Fire services include Joint Base Elmendorf-Richardson Fire Department, Anchorage Fire Department, and Ted Stevens Anchorage International Airport Police and Fire Department. The Anchorage Fire Department operates out of 13 fire stations.

Medical Facilities

There are several health care options in Anchorage, including Alaska Regional Hospital and Providence Alaska Medical Center, both with emergency room capabilities. Many other healthcare clinics and private practice offices are located within the city of Anchorage, and a Department of Veterans Affairs Hospital is located near the Muldoon entrance of Joint Base Elmendorf-Richardson and an Anchorage Veterans Center is located in the community of Tudor, south of Joint Base Elmendorf-Richardson. Military healthcare facilities include the U.S. Army medical clinic at Joint Base Elmendorf-Richardson, the Air National Guard Medical Squadron, and the 673rd Medical Group.

Family Support Services

As described in the 2013 PEA, child development centers, childcare centers, schools, and playgrounds are generally located within close proximity to the residential areas. Children and youth programs are offered within the cantonment area at Joint Base Elmendorf-Richardson as part of FMWR. Joint Base Elmendorf-Richardson also has a theater and running trails for use.

Recreation Facilities

As described in the 2013 PEA, recreation facilities are primarily located within the cantonment area, including a large physical fitness center, a theater, golf course, cross country skiing and running trails, and a small ski hill.

4.25.12.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

Population and Economic Impacts

Alternative 1 would result in the loss of 5,333[31] military positions (5,169 Soldiers and 164 Army civilians), each with an average annual income of $53,989 and $62,379, respectively. In addition, Alternative 1 would affect an estimated 2,976 spouses and 5,120 dependent children for a total estimated potential impact to 8,096 Family members. The total population of Army employees and their Family members directly affected under Alternative 1 would be projected to be 13,428.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative range. Table 4.25-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the

[31] This number was derived by assuming the loss of one BCT, 60 percent of Joint Base Elmendorf-Richardson's non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 5,333. The 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 4,300.

estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, changes in employment and population in the ROI under Alternative 1 fall outside the historical range and are categorized as a significant impact. However, there would not be a significant impact to sales or income because the estimated percentage change is within the historical ranges for these economic parameters.

Table 4.25-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	25.4	17.0	10.3	5.6
Economic contraction significance value	-12.4	-7.7	-3.5	-2.0
Forecast value	-1.8	-2.4	-4.5	-4.7

Table 4.25-6 summarizes the predicted impacts to income, employment, and population of the reductions against the 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

Table 4.25-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$355,047,800	-5,968 (Direct)	-13,428
		-968 (Induced)	
		-6,936 (Total)	
Total 2012 ROI economic estimates	$16,295,189,000	156,248	298,294
Percent reduction of 2012 figures	-2.2	-4.4	-4.5

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

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Due to the loss of 5,333 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 635 direct contract service jobs would be also lost. An additional 968 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. Total reduction in employment is estimated to be 6,936, a significant

4.4 percent reduction of the total employed labor force in the ROI of 156,248. Income is estimated to reduce by $355.1 million, a 2.2 percent decrease in income from 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $366.1 million. There would also be a loss in sales tax receipts to local and state governments. The average local sales tax rate for Alaska is 1.69 percent (Tax Foundation, 2014). To estimate sales tax reductions, information on the proportion of sales that would be subject to sales tax on average across the country was utilized. According to the U.S. Economic Census, an estimated 16 percent of sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $366.1 million resulting in an estimated sales tax receipts decrease of $989,900 under Alternative 1.

Of the 298,294 people (including those residing on Joint Base Elmendorf-Richardson) who live within the ROI, 5,333 Army employees and their 8,095 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 4.5 percent. This number likely overstates potential population impacts, as some of the people would no longer employed by the military would continue to live and work within the ROI, finding employment in other industry sectors.

Housing

The population reduction would lead to a decrease in demand for housing and could lead to an increase in housing availability on the installation and in the region, potentially leading to a slight reduction in median home values. As stated in the 2013 PEA, this reduction would also have a beneficial impact to housing availability because it would likely resolve concerns of housing shortages both on and off the installation. However, minor, adverse impacts to housing in the Anchorage area could occur as a result of the potential decline in home values; however, there are many other factors that affect housing prices in Anchorage as well.

Schools

Reduction of 5,333 Soldiers and Army civilians would result in a reduction of 8,095 Family members, of which 5,120 would be children. It is anticipated that school districts that provide education on the installation to Army children would be impacted under Alternative 1. Schools with larger portions of military children in proximity to Joint Base Elmendorf-Richardson, including Ursa Major and Ursa Minor Elementary Schools, would be affected by these enrollment reductions, which would adversely contribute to recent trends in decreasing enrollment. As stated in the 2013 PEA, it is likely that these schools have a large population of military children, but specific numbers of military-connected students are not readily available.

The reduction of Soldiers on Joint Base Elmendorf-Richardson would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal Impact Aid a district receives is based on the number of students who are considered “federally connected” and attend district

schools. Actual projected dollar amounts cannot be determined at this time due to the variability of appropriated dollars from year to year, and the uncertainty of the actual number of affected school-age children. School districts in the ROI would likely need fewer teachers and materials as enrollment drops, which would partially offset the reduced Federal Impact Aid. Overall, adverse impacts to schools associated with Alternative 1 would be minor to significant depending on the number of military-connected students attending specific schools.

Public Services

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

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding. Many of the Family Support Services and all of the recreational facilities provided on Joint Base Elmendorf-Richardson are under the authority of the Air Force, so measures for meeting those needs would be met at the discretion of the Air Force. As a result, minor impacts to Family Support Services and recreational facilities would occur under Alternative 1. As described in the 2013 PEA, less than significant impacts are anticipated to Family Support Services and recreation facilities under this alternative.

Environmental Justice and Protection of Children

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

state as a whole, so there would be no disproportionate effect to environmental justice populations.

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

4.25.13 Energy Demand and Generation

4.25.13.1 Affected Environment

The energy demand and generation affected environment of the Joint Base Elmendorf-Richardson installation remains the same as was discussed in Section 4.10.12.1 of the 2013 PEA.

4.25.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be minor impacts to energy demand and generation at Joint Base Elmendorf-Richardson. For the current analysis, Joint Base Elmendorf-Richardson would continue to consume similar types and amounts of energy so impacts to energy demand and generation would remain the same as for the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy demand and generation would occur on Joint Base Elmendorf-Richardson. Under Alternative 1, minor, beneficial impacts to energy are anticipated due to a further reduction in energy consumption associated with the additional force reductions. The installation would also be better positioned to meet energy and sustainability goals.

4.25.14 Land Use Conflicts and Compatibility

4.25.14.1 Affected Environment

The land use affected environment of Joint Base Elmendorf-Richardson remains the same as described in Section 4.10.13.1 of the 2013 PEA.

4.25.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, no changes to land use conditions would occur and therefore continuing minor impacts to land use are anticipated, as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Joint Base Elmendorf-Richardson would result in minor impacts to land use, since a reduction in training activities would occur. Under Alternative 1, impacts would be similar to those described under the 2013 PEA.

The Army is committed to ensuring that personnel cuts will not result in Army non-compliance with land use ordinances and regulations. Installation management at Joint Base Elmendorf-Richardson is under the authority of the Air Force, so measures to maintain compliance regarding land use ordinances and regulations would continue to be met by the Air Force.

4.25.15 Hazardous Materials and Hazardous Waste

4.25.15.1 Affected Environment

As described in the 2013 PEA, hazardous materials are used on Joint Base Elmendorf-Richardson. Joint Base Elmendorf-Richardson is registered with EPA as a Large Quantity Generator of hazardous waste in accordance with RCRA. Hazardous materials and wastes include ammunition, UXO, petroleum products, LBP, asbestos-containing materials, PCBs, pesticides, radon, and contamination found at IRP sites. The Joint Base Elmendorf-Richardson Environmental Management Plan governs the use, generation, accumulation, storage, transport, and disposal of hazardous wastes and hazardous materials on the installation. No substantial changes have occurred to the affected environment since 2013.

4.25.15.2 Environmental Effects

No Action Alternative

As stated in the 2013 PEA, less than significant impacts are anticipated under the No Action Alternative. Use of hazardous materials and generation of hazardous wastes would continue on Joint Base Elmendorf-Richardson in accordance with all applicable laws, regulations and plans.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that less than significant impacts from hazardous materials and hazardous waste would occur on Joint Base Elmendorf-Richardson. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on the installation. Because of the reduced numbers of people, it is likely that the potential for spills would be reduced further during training and maintenance activities. The volume of waste generated and material requiring storage would increase slightly because deactivating units would turn in hazardous material for storage to avoid transportation risks. Under Alternative 1 in this SPEA, Joint Base Elmendorf-Richardson would continue to implement its hazardous waste management in accordance with its HWMP and applicable regulations and therefore impacts would be less than significant.

Under Alternative 1, adverse impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. However, installation management at Joint Base Elmendorf-Richardson is under the authority of the Air Force, so measures to maintain compliance regarding hazardous waste management would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste.

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

4.25.16 Traffic and Transportation

4.25.16.1 Affected Environment

The transportation affected environment of the Joint Base Elmendorf-Richardson ROI remains the same as described in Section 4.10.15.1 of the 2013 PEA. As noted in the 2013 PEA, the installation periodically experiences traffic flow issues at the main gate due to the morning and especially evening commute. Congestion during peak hours was also noted at the Glenn Highway and D Street Interchange. In addition to the main gate, the intersection of Vandenberg Avenue and the Richardson Highway and Davis Avenue experience traffic congestion.

4.25.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated less than significant, adverse impacts. While the existing transportation system is sufficient to support the current traffic load, traffic and congestion within and at major traffic control points leading into and away from the

installation, in particular the main gate, would persist at current levels. Thus, there would continue to be adverse impacts, but they would be less than significant.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Joint Base Elmendorf-Richardson would result in beneficial impacts to traffic and transportation systems, due to the decrease in military fleet vehicles and private vehicles. The 2013 PEA noted that with force reductions the Soldier and Army civilian population would decrease and reduce the competition with seasonal traffic conditions associated with tourism. Impacts to local highways associated with military convoys would also be considerably reduced. These beneficial impacts would also occur under Alternative 1, but with the proposed increase in force reductions the size of the beneficial impact under Alternative 1 would be larger than anticipated at the time of the 2013 PEA.

4.25.17 Cumulative Effects

As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020 realignment at Joint Base Elmendorf-Richardson encompasses the Municipality of Anchorage (consolidated city-borough) in the state of Alaska. Section 4.10.16 of the 2013 PEA noted numerous planned or proposed actions within the ROI that reasonably could be initiated within the next 5 years and would have the potential to cumulatively add impacts to Alternative 1.

Reasonably Foreseeable Future Projects on Joint Base Elmendorf-Richardson

No additional actions have been identified by the installation beyond those noted in the cumulative effects analysis of the 2013 PEA.

Reasonably Foreseeable Future Projects outside Joint Base Elmendorf-Richardson

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

No Action Alternative

The cumulative effects of the No Action Alternative would be the same as determined in the 2013 PEA. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reductions

Cumulative impacts from the proposed implementation of Alternative 1 would be essentially the same as determined in the 2013 PEA. Cumulative impacts from the proposed implementation of Alternative 1 would be beneficial, negligible, or minor in most cases with the exception of socioeconomics, which are anticipated to be significant.

The socioeconomic impact under Alternative 1, as described in Section 4.25.12.2 with a loss of 5,333 Soldiers and Army civilians, could lead to significant impacts to the population, employment, and schools. Joint Base Elmendorf-Richardson is an important part of the economy in the Anchorage metropolitan area with total employment on the installation of almost 7,000. In the Municipality of Anchorage, the Armed Forces account for 5 percent of the workforce. The Municipality of Anchorage could likely absorb some of the displaced workers, depending on the economy and labor market in the region. The oil and gas industry plays an important role in the economy of Anchorage, and its fluctuations (e.g., activities driven by oil and gas prices among other factors) can considerably affect regional economic conditions in the area. If the majority of the displaced forces are not absorbed into the local labor force, there would be additional adverse impacts to the ROI.

Stationing changes would also affect regional economic conditions through the jobs and income they bring (or lose) within the region. The Army force reductions would be compounded by any losses or reductions in service members by the U.S. Air Force, Coast Guard, Navy or Marine Corps within the ROI. Future cuts in federal spending in Alaska may also cause adverse economic impacts within the ROI.

Other infrastructure improvements and construction and development activity would benefit the regional economy through additional economic activity, jobs, and income in the ROI; however, these benefits would not offset the adverse impacts under Alternative 1 and other adverse cumulative actions. Under Alternative 1, the loss of approximately 5,300 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have significant impacts to population, employment, tax receipts, and schools in the ROI.

4.26 Joint Base Langley-Eustis, Virginia

4.26.1 Introduction

Joint Base Langley-Eustis was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population is discussed in Section 4.11.1 of the 2013 PEA. Potential impacts resulting from any reductions in staffing levels other than Army staff at this Air Force managed joint base could be analyzed in separate, future NEPA analyses, as appropriate, although these reductions would not be related to the Army 2020 reductions analyzed herein.

Joint Base Langley-Eustis's 2011 baseline permanent party population was 7,382. In this SPEA, Alternative 1 assesses a potential population loss of 4,200, including approximately 3,410 permanent party Soldiers and 753 Army civilians.

4.26.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Joint Base Langley-Eustis; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.26-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.26-1. Joint Base Langley-Eustis Valued Environmental Component Impact Ratings

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

4.26.3 Air Quality

4.26.3.1 Affected Environment

The air quality affected environment of the Joint Base Langley-Eustis ROI remains the same as described in Section 4.11.2.1 of the 2013 PEA. Hampton and Newport News, Virginia, are maintenance areas for the 1997 O_3 standard. The Joint Base Langley-Eustis area has not been designated as a nonattainment area for any criteria pollutants (EPA, 2013).

4.26.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source emissions at current levels would result in minor, adverse impacts to air quality. Air quality impacts of the No Action Alternative for this SPEA remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that force reductions at Joint Base Langley-Eustis would result in minor, beneficial impacts to air quality because of reduced operations and maintenance activities and reduced vehicle miles travelled associated with the facility. Impacts to air quality from the further force reductions proposed under Alternative 1 would continue to be beneficial assuming a corresponding decrease in operations and vehicle travel to and from Joint Base Langley-Eustis. The size of this beneficial impact under Alternative 1 would be roughly double that anticipated at the time of the 2013 PEA. The Army is committed to ensuring that personnel cuts will not result in Army non-compliance with air quality regulations. However, management at Joint Base Langley-Eustis is under the authority of the Air Force, so measures to maintain compliance regarding overall air quality regulations would continue to be met by the Air Force.

4.26.4 Airspace

4.26.4.1 Affected Environment

Airspace is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.11.1.1 because of lack of significant, adverse environmental impacts from implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013. As described in the 2013 PEA, airspace at Joint Base Langley-Eustis is primarily from Felker AAF, which contains a 3,020 foot by 75 foot asphalt runway. It services various military rotor-wing aircraft from the U.S. Army and U.S. Navy. Additionally, according to the 2013 PEA, certain U.S. Army fixed-wing aircraft (twin engine turbo propeller) utilize the airfield.

4.26.4.2 Environmental Effects

No Action Alternative

The 2013 PEA VEC dismissal statement concluded that there would be negligible impacts to airspace at Joint Base Langley-Eustis under the No Action Alternative. For the current analysis, Joint Base Langley-Eustis would continue to maintain current airspace operations and current airspace classifications and restrictions are sufficient to meet current airspace requirements, and impacts to airspace would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that negligible impacts to airspace would occur at Joint Base Langley-Eustis. Under Alternative 1, implementation of proposed further force reductions would continue negligible, adverse impacts to airspace. Reductions at Joint Base Langley-Eustis would not result in changes to airspace classifications nor would it change the frequency or intensity of activities at Joint Base Langley-Eustis that require the use of airspace.

4.26.5 Cultural Resources

4.26.5.1 Affected Environment

The affected environment for cultural resources at Joint Base Langley-Eustis has not changed since 2013, as described in Section 4.11.3 of the 2013 PEA.

4.26.5.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in minor impacts to cultural resources as described in Section 4.11.3.2 of the 2013 PEA. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures.

Alternative 1—Implement Force Reductions

As described in Section 4.11.3.2 of the 2013 PEA, Alternative 1 would have a minor impact on cultural resources. The effects of this alternative are considered to be similar to the No Action Alternative –future activities with the potential to effect cultural resources would continue to be monitored and the impacts reduced through preventative and minimization measures. This alternative could result in some beneficial effects as a decrease in training activities could reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources.

As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of Army force reductions is not reasonably foreseeable and not part of the scope of this SPEA. Therefore, potential impacts to cultural resources from these activities are not analyzed. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of Army force reductions, potential impacts could be analyzed in separate, future NEPA analyses and consultation conducted, as appropriate, by Joint Base Langley-Eustis to avoid, minimize, and/or mitigate these effects.

4.26.6 Noise

4.26.6.1 Affected Environment

Noise is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.11.1.1. Existing noise sources and noise contours have not changed from the 2013 PEA.

4.26.6.2 Environmental Effects

No Action Alternative

The 2013 PEA anticipated no substantial changes in noise sources at Joint Base Langley-Eustis. Under the No Action Alternative, there would be no expected changes and impacts to noise would continue to be negligible.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Joint Base Langley-Eustis would result in a slight beneficial noise impact since there would be a decreased use of firing ranges and a reduction in noise from military vehicles but no changes in aviation. The beneficial impact under Alternative 1 would be similar to that described in the 2013 PEA. Installation management at Joint Base Langley-Eustis is under the authority of the Air Force; therefore, health and safety requirements, including noise compliance, would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in the Army's non-compliance with noise ordinances and regulations.

4.26.7 Soils

4.26.7.1 Affected Environment

Soils are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.11.1.2 due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

4.26.7.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to soils and the affected environment would remain in its present state.

Alternative 1—Implement Force Reductions

Per Section 4.11.1.2 of the 2013 PEA, there would be negligible, beneficial impacts to soils under Alternative 1. The installation would continue to manage its resources in accordance with the installation INRMP. Under Alternative 1 of this SPEA, impacts to soils could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. However, environmental compliance at Joint Base Langley-Eustis is under the authority of the Air Force, so measures to maintain compliance regarding soils management would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with regulations affecting soils. Therefore, impacts under Alternative 1 at Joint Base Langley-Eustis would be beneficial and remain the same as those discussed in Section 4.3.7.2 of the 2013 PEA.

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

4.26.8.1 Affected Environment

The affected environment on Joint Base Langley-Eustis is described in Section 4.11.4.1 of the 2013 PEA. No threatened or endangered species are known to be present on the installation; however, six bald eagle nesting sites, which are protected under the Migratory Bird Treaty Act, are present on the installation. No changes have occurred to the affected environment since 2013.

4.26.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in minor, adverse impacts to biological resources. Biological resources on Joint Base Langley-Eustis would continue to be managed in accordance with the current installation INRMP to further minimize and monitor any potential impacts.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that minor, adverse impacts to biological resources would occur on Joint Base Langley-Eustis. The Army anticipates that further proposed reduction in forces (Alternative 1 of this SPEA) would not change this finding because Alternative 1 does not involve major changes to the installation operations or types of

activities conducted on Joint Base Langley-Eustis, only a decrease in the frequency of training activities. However, environmental compliance at Joint Base Langley-Eustis is under the authority of the Air Force, so measures to maintain compliance regarding natural resource management would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with natural resources regulations.

4.26.9 Wetlands

4.26.9.1 Affected Environment

The wetlands affected environment on the installation remains the same as was discussed in Section 4.11.7.1 of the 2013 PEA.

4.26.9.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to wetlands were anticipated from continued training schedules. Potential wetland impacts would be reviewed and managed to be avoided, to the extent practicable, or mitigated for. Impacts under the No Action Alternative on Joint Base Langley-Eustis remain the same as those discussed in Section 4.11.7.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, beneficial impacts to wetlands were anticipated as a result of less use of roads, ranges, and training areas. Less sedimentation and vegetation loss were anticipated, and degraded wetlands were expected to restore towards their reference functions and values. Impacts to wetlands could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. However, environmental compliance at Joint Base Langley-Eustis is under the authority of the Air Force, so measures to maintain compliance regarding wetland management and compliance would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with wetland regulations Therefore, impacts under Alternative 1 of this SPEA at Joint Base Langley-Eustis would be beneficial and remain the same as those discussed in Section 4.11.7.2 of the 2013 PEA.

4.26.10 Water Resources

4.26.10.1 Affected Environment

Water resources are among the VECs excluded from detailed analysis as described in Section 4.11.1.1 of the 2013 PEA due to lack of significant, adverse environmental impacts resulting

from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

4.26.10.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to water resources similar to those described in Section 4.11.1.1 of the 2013 PEA. The water supply and wastewater systems on the installation are adequate to support water resources needs and there would be no change to the water resources as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts to water resources, including water demand and treatment, wastewater flow, and unpermitted discharges would occur on Joint Base Langley-Eustis. Although available water and wastewater treatment capacity would increase these impacts would be negligible. Reductions in training activities would decrease surface water impacts from sedimentation and stormwater runoff. Joint Base Langley-Eustis anticipates that further proposed reduction in forces under Alternative 1 of this SPEA would not change this finding because this alternative does not involve major changes to installation operations or types of activities conducted on Joint Base Langley-Eustis, only a decrease in the frequency of training activities. The installation would continue to manage its water resources in accordance with applicable federal and state water quality criteria, drinking water standards, and stormwater and floodplain management requirements.

Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. However, environmental compliance at Joint Base Langley-Eustis is under the authority of the Air Force, so measures to maintain compliance regarding water resource regulations would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with water quality regulations.

4.26.11 Facilities

4.26.11.1 Affected Environment

The facilities affected environment of the Joint Base Langley-Eustis installation remains the same as was discussed in Section 4.11.6.1 of the 2013 PEA.

4.26.11.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be minor, adverse impacts to facilities at Joint Base Langley-Eustis. For the current analysis, Joint Base Langley-Eustis would continue to operate their current facilities and upgrade and remove facilities as funds become available so impacts to facilities would remain the same as for the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to facilities would occur at Joint Base Langley-Eustis. Under Alternative 1, implementation of the proposed further force reductions would result in overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demands for utilities and reduced demands for training facilities and support services. The force reductions would also provide the installation the opportunity to reduce reliance on relocatable facilities and some older buildings not up to current standards. Some permanent facilities may be re-designated to support units remaining at Joint Base Langley-Eustis to provide more space and facilities that are better able to meet tenant and Army needs. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

If Army reductions result in impacts to the utilization of facilities and/or training areas at this Air Force-managed joint base, the Air Force could conduct any required site-specific NEPA analyses, as appropriate, and make the final determinations regarding disposition of these affected facilities and/or training areas.

4.26.12 Socioeconomics

4.26.12.1 Affected Environment

The Joint Base Langley-Eustis was established as a result of the 2005 BRAC, during which time Air Force and Army installation management functions were combined into the new installation. The installation is located near the cities of Hampton and Newport News, Virginia. The ROI for this analysis includes those areas that are generally considered the geographic extent to which the majority of installation's Soldiers, Army civilians, and contractor personnel, and their Families reside. The Joint Base Langley-Eustis ROI for this analysis includes the cities of Hampton,

Newport News, Poquoson, and Williamsburg, and the counties of Gloucester, James City, and York.

This section provides a summary of demographic and economic characteristics within the ROI. These indicators are described in greater detail in Section 4.11.7 of the 2013 PEA. However, some demographic and economic indicators have been updated where more current data are available.

Population and Demographics

Using 2011 as a baseline, Joint Base Langley-Eustis has a total working population of 12,842 consisting of active component Soldiers and Army civilians, students and trainees, and other military services, civilians, and contractors. Of the total working population, 7,382 were permanent party Soldiers and Army civilians. The population that lives on Joint Base Langley-Eustis consists of 2,041 Soldiers and their estimated 2,327 Family members, for a total on-installation resident population of 4,368 (Joint Base Langley-Eustis, n.d.). The portion of Soldiers and Army civilians living off the installation in 2011 was estimated to be 13,449 and consists of Soldiers, Army civilians, and their Family members.

Joint Base Langley-Eustis provides Aviation Maintenance training for Soldiers. Students are based at Joint Base Langley-Eustis for the expected length of their assigned curriculum, which may range from 5 weeks to 7 months. Joint Base Langley-Eustis averages approximately 2,500 students assigned for training and can accommodate up to 2,258 in on-installation housing. On-installation housing includes 1,791 spaces for IET, 175 spaces for AIT, and 192 for the NCO Academy (Joint Base Langley-Eustis, 2014a). Any remaining students would be accommodated in local lodging facilities or rental units.

In 2012, the ROI had a population of 516,882. Between 2010 and 2012, total population increased in the counties of Gloucester, James City and York and the city of Williamsburg. The cities of Hampton, Newport News, and Poquoson experienced a slight decline in population during this period (Table 4.26-2). As shown in Table 4.26-3, the racial and ethnic composition of geographies within the ROI varies significantly. In the city of Hampton, more than 49 percent of residents are African American while in the city of Poquoson more than 90 percent of the population is non-Hispanic White alone (U.S. Census Bureau, 2012a).

Table 4.26-2. Population and Demographics, 2012

Region of Influence Counties/Cities	Population	Population Change 2010–2012 (percent)
Gloucester County, Virginia	36,905	0.1
James City County, Virginia	69,061	3.1
York County, Virginia	66,090	1.4
City of Hampton, Virginia	136,836	-0.5
City of Newport News, Virginia	180,726	-0.1
City of Williamsburg, Virginia	15,167	7.8
City of Poquoson, Virginia	12,097	-0.5

Table 4.26-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties / Cities	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
State of Virginia	71.1	19.7	0.5	6.0	2.6	8.4	64.1
Gloucester County, Virginia	88.0	8.5	0.4	0.9	2.2	2.7	85.8
James City County, Virginia	81.3	13.5	0.4	2.3	2.4	5.1	76.9
York County, Virginia	77.4	13.4	0.5	5.3	3.2	5.1	73.4
City of Hampton, Virginia	42.7	49.6	0.4	2.2	3.7	4.5	41.0
City of Newport News, Virginia	49.0	40.7	0.5	2.7	4.3	7.5	46.0
City of Williamsburg, Virginia	74.0	14.0	0.3	5.7	3.5	6.7	70.7
City of Poquoson, Virginia	95.1	0.6	0.3	2.1	1.4	1.8	93.8

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

Employment and Income

Information presented in Table 4.26-4 represents an update from the 2013 PEA, which provided employment and income data from 2009. Between 2000 and 2012, total employment increased the most significantly in James City County. The only geographic area in the ROI that

experienced a decline in employment was the city of Hampton (U.S. Census Bureau, 2000; 2012b).

Table 4.26-4. Employment and Income, 2012

State and Region of Influence Counties/Cities	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Virginia	3,989,521	+12.6	249,700	63,636	11.1
Gloucester County, Virginia	18,216	+6.0	229,100	60,752	9.1
James City County, Virginia	31,041	+39.1	336,600	76,767	8.7
York County, Virginia	33,147	+14.6	324,200	82,454	5.4
City of Hampton, Virginia	65,737	-2.6	197,300	51,584	14.7
City of Newport News, Virginia	92,192	+4.8	205,800	50,744	14.5
City of Williamsburg, Virginia	5,727	+32.2	326,200	50,865	18.4
City of Poquoson, Virginia	6,078	+6.1	316,000	85,033	4.1

The median household income in the cities of Hampton, Newport News, and Williamsburg is lower than ROI counties for Joint Base Langley-Eustis and Virginia overall. James City and York counties report a median household income greater than the Virginia average. Gloucester County has a median household income slightly lower than the Virginia average (U.S. Census Bureau, 2012b).

The median home value in ROI counties is greater than that of Virginia and those cities for which income is reported with the exception of Poqouson. The cities of Hampton and Newport News both report median home values lower than the Virginia average (U.S. Census Bureau, 2012b).

The percentage of those living below the poverty line in all ROI counties is lower than the Virginia average. The cities of Hampton, Newport News, and Williamsburg report a greater concentration of those living below the poverty line than ROI counties or Virginia overall (U.S. Census Bureau, 2012b).

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

Gloucester County, Virginia

The educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Gloucester County (22 percent). Retail trade is the largest employment sector (13 percent), followed by manufacturing (11 percent). The professional, scientific, and management, and administrative and waste management services also accounts for a notable share of the total workforce in Gloucester County (10 percent). The Armed Forces account for 2 percent of the of the Gloucester County workforce. The nine remaining sectors employ 42 percent of the workforce.

James City County, Virginia

Similar to Gloucester County, the educational services, and health care and social assistance sector accounts for the greatest share of James City County's total workforce (26 percent). The professional, scientific, and management, and administrative and waste management services as well as the arts, entertainment, and recreation, and accommodation and food services both account for 12 percent of the total workforce, followed by retail trade (11 percent). The Armed Forces account for 2 percent of the James City County workforce. The nine remaining sectors account for 37 percent of the workforce.

York County, Virginia

The educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in York County (21 percent). Public administration and the professional, scientific, and management, and administrative and waste management services sectors individually account for 12 percent of the total workforce, followed by the Armed Forces (11 percent). The 10 remaining sectors employ 44 percent of the workforce.

City of Hampton, Virginia

The educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in the city of Hampton (20 percent). Retail trade and manufacturing each individually account for 11 percent of the total workforce, followed by the professional, scientific, and management, and administrative and waste management services sector (10 percent). The Armed Forces account for 8 percent of the city of Hampton workforce. The nine remaining sectors employ 40 percent of the workforce.

City of Newport News, Virginia

Similar to other areas within the ROI, educational services, and the health care and social assistance sector is the primary employment sector in the city of Newport News (19 percent).

Retail trade is the second largest employment sector (12 percent), followed by manufacturing (11 percent). The professional, scientific, and management, and administrative and waste management services and the arts, entertainment, and recreation, and accommodation and food services sectors individually account for 10 percent of the total workforce. The Armed Forces account for 9 percent of city of Newport News' workforce. The eight remaining sectors account for 29 percent of the workforce.

City of Poquoson, Virginia

The educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Poquoson County (20 percent). The professional, scientific, and management, and administrative and waste management services is the second largest employment sector (14 percent), followed by manufacturing (13 percent). The Armed Forces account for 3 percent of the Poquoson County workforce. The 10 remaining sectors employ 50 percent of the workforce.

City of Williamsburg, Virginia

The educational services, and the health care and social assistance sector accounts for the greatest share of the total workforce in the city of Williamsburg (37 percent). The arts, entertainment, and recreation, and accommodation and food services sector is the second largest employment sector (20 percent), followed by retail trade (10 percent). The Armed Forces account for 1 percent of the city of Williamsburg's workforce. The 10 remaining sectors employ 32 percent of the workforce.

Housing

Family housing on the installation is a privatized function under the RCI program. The program falls under a 75-year lease. The housing partner manages 880 homes spread across 26 acres. Approximately 1,800 people to 2,200 people occupy these homes.

The current barrack capacity is 4,248 spaces, which includes 2,732 spaces for permanent party Soldiers and trainees and 1,516 spaces for the Warrior Transition Unit, reserves, and others. The 128th Aviation Brigade can billet up to 2,258, which includes 1,791 spaces for IET Soldiers, 175 spaces for AIT Soldiers, and 192 spaces for those enrolled in the NCO Academy (Joint Base Langley-Eustis, 2014a).

Schools

There is one elementary school located on the installation. The General Stanford Elementary School, which is part of the Newport News School District, has an enrollment of approximately 500 students. The majority of students reside on the installation; however, some non-military connected students living in the ROI attend this school (Sugg, 2014a). As described in the 2013 PEA, approximately 42 percent of those enrolled at Lee Hall Elementary School, the closest elementary school to the installation, are military connected.

Middle and high school age students residing on the installation attend schools in the Newport News Public School District (Sugg, 2014a). Some students may also attend private school or be home schooled.

Public Health and Safety

DES includes the Provost Marshal Office, Fire Department, and Intelligence and Security Office, which provide emergency services on the installation. The fire department has a mutual aid agreement with the city of Newport News (Sugg, 2014b).

Family Support Services

Joint Base Langley-Eustis FMWR and ACS provide programs, services, facilities, and information for Soldiers and their Families. Services range from child care and youth programs to deployment, employment, financial, and relocation readiness, among others.

Recreation Facilities

Joint Base Langley-Eustis FMWR oversees a variety of CYSS as well as recreational opportunities for adults. Available facilities and opportunities include physical fitness centers, golf courses, bowling centers, indoor and outdoor swimming pools, and recreational camp and beach activities areas, among others.

4.26.12.2 Environmental Effects

No Action Alternative

The continuation of operations at Joint Base Langley-Eustis represents a beneficial source of regional economic activity. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

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

Population and Economic Impacts

Alternative 1 would result in the loss of up to 4,163[32] Army positions (3,410 Soldiers and 753 Army civilians), each with an average annual income of $46,760 and $78,963, respectively. In addition, this alternative would affect an estimated 6,319 Family members, including 2,323

[32] This number was derived by assuming the loss of 70 percent of Joint Base Langley-Eustis's Soldiers and 30 percent of the Army civilians to arrive at 4,163. The 2013 PEA assumed the loss of 35 percent of Joint Base Langley-Eustis's Soldiers and 15 percent of the Army civilians to arrive at 2,730.

spouses and 3,996 children. The total population of Army employees and their Family members directly affected by the Alternative 1 would be projected to be 10,482. In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecast value falls outside the historical positive and negative range. Table 4.26-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. The last row summarizes the estimated economic impacts of Alternative 1 to the region as estimated by the EIFS model. Based on the EIFS analysis, there would not be a significant impact to sales and income because the estimate percentage change is within the historical range. However, there would be significant employment and population impacts because the estimated percentage change is outside the historical range.

Table 4.26-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+12.1	+4.2	+3.9	+1.6
Economic contraction significance value	-6.2	-3.9	-2.7	-0.8
Forecast value	-1.4	-2.2	-3.1	-2.5

Table 4.26-6 summarizes the predicted impacts to income, employment, and population of force reductions against 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecasted values, the income and population figures show the same significance determinations as the EIFS predictions in the previous table. The employment percentage shows a change that falls within the historical range that would indicate a less than significant impact. To ensure the potential impacts were captured to the greatest extent possible, this employment loss will be judged significant based on the EIFS forecast value in Table 4.26-5.

With a potential reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the potential loss of 4,163 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 653 direct contract service jobs would also be lost. An additional 960 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. The total reduction in employment is estimated to be 5,776, a reduction of 2.3 percent from the total employed labor force in the ROI of 252,138. Income is estimated to reduce by $283.4 million, a 1.3 percent decrease in income from 2012.

Table 4.26-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impact	-$283,369,100	-4,816 (Direct) -960 (Induced) -5,776 (Total)	-10,482
Total 2012 ROI economic estimates	$22,496,497,000	252,138	516,882
Percent reduction of 2012 figures	-1.3	-2.3	-2.0

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

Under Alternative 1, the total reduction in sales within the ROI is estimated to be $312.4 million. There would also be a loss in sales tax receipts to local and state governments. The average state and local sales tax rate for Virginia is 5.6 percent (Tax Foundation, 2014). To estimate sales tax reductions, information on the proportion of sales that would be subject to sales tax on average across the country was utilized. According to the U.S. Economic Census an estimated 16 percent of sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $312.4 million, resulting in an estimated sales tax receipts decrease of $2.8 million under Alternative 1 if all sales occurred in Virginia.

Of the 516,882 people (including those residing on Joint Base Langley-Eustis) who live within the ROI, 4,163 military employees and their estimated 6,319 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a population reduction of 2.0 percent. This number likely overstates potential population impacts because some of the people no longer employed by the military would continue to live and work within the ROI, finding employment in other industry sectors.

In addition, students and trainees at Joint Base Langley-Eustis may have a substantial impact on the local economy through lodging, eating, and shopping expenditures. Additionally, formal graduation ceremonies generate demand for lodging and dining facilities when Family members attend. The impact to Joint Base Langley-Eustis's training missions cannot be determined until after the Army completes its force structure decisions; therefore, analyzing the impact to those missions is beyond the scope of this document.

Housing

Alternative 1 would increase the availability of barracks space for unaccompanied personal and increase the availability of Family quarters. This reduction along with the completion of the new AIT barracks complex would facilitate the demolition of four 1950-era barracks. The reduction would also increase the availability of Family quarters, which are currently running at greater than 96 percent occupancy, as described in the 2013 PEA. These outcomes will likely decrease

the off-installation demand for rentals and purchases of housing, potentially leading to slight reductions in housing values. The city of Newport News would experience the greatest change in housing occupancy and potentially home values. However, other areas within the ROI would experience similar effects but likely not to the same extent as the city of Newport News. Because of the relatively large population of the ROI, the reduced demand for housing associated with the force reductions has the potential to result in minor impacts to housing within the ROI.

Schools

Removal of 4,163 Soldiers and Army civilians would result in a reduction of 6,319 Family members, of which 3,996 would be children. Military-connected students living on Joint Base Langley-Eustis attend schools on the installation and in the city of Newport News. Military-connected students represent a significant share of total school district enrollment in the city of Newport News. Under Alternative 1, enrollment would decrease in the Newport News School District. If enrollment in individual schools is significantly impacted, schools may need to reduce the number of teachers, administrators, and other staff, and potentially close or consolidate with other schools should enrollment fall below sustainable levels. Enrollment information regarding military-connected students who live off Joint Base Langley-Eustis is not presently available.

Some school districts receive sizable Federal Impact Aid funds, the allocation of which is based on the number of military-connected students they support. The actual projected loss of Federal Impact Aid funds cannot be determined at this time due to the variability of appropriated dollars from year to year and the uncertainty regarding the specific impacts to ROI school enrollment. However, it is anticipated that schools in the city of Newport News would likely need fewer teachers and materials as enrollment declines, which would partially offset the reduction in Federal Impact Aid funds. Overall, schools in the city of Newport News school district could experience significant, adverse impacts from the decline in military-connected student enrollment that would result under Alternative 1.

Public Services

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

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding. Many of the Family Support Services and all of the recreation facilities provided on Joint Base Langley-Eustis are under the authority of the Air Force; therefore, measures for meeting those needs would continue to be met by the Air Force. Overall, minor to significant impacts to Family Support Services and recreation facilities could occur under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, states: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA 1994). As shown in Table 4.26-3, the proportion of minority populations is notably higher in Hampton and Newport News than the proportion in other counties within the ROI and Virginia as a whole. Because minority populations are more heavily concentrated in Hampton and Newport News, Alternative 1 has the potential to result in adverse impacts to minority-owned and/or -staffed businesses if Soldiers and Army civilians directly affected under Alternative 1 move to areas outside the ROI. Although environmental justice populations could be adversely impacted under Alternative 1, the impacts are not anticipated to disproportionately affect these populations.

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

4.26.13 Energy Demand and Generation

4.26.13.1 Affected Environment

The energy demand and generation affected environment of Joint Base Langley-Eustis remains the same as was discussed in Section 4.11.8.1 of the 2013 PEA.

4.26.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be minor impacts to energy demand and generation at Joint Base Langley-Eustis. For the current analysis, Joint Base Langley-Eustis would continue to consume similar types and amounts of energy so impacts to energy demand would remain the same as for the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy demand and generation would occur on Joint Base Langley-Eustis. Under Alternative 1, minor, beneficial impacts to energy are anticipated due to a further reduction in energy consumption associated with the additional force reductions. The installation would also be better positioned to meet energy and sustainability goals.

4.26.14 Land Use Conflicts and Compatibility

4.26.14.1 Affected Environment

Land Use is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.11.1.1. No changes to land use have occurred since the 2013 PEA.

4.26.14.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that no impacts to land use are anticipated. No impacts to land use would continue to be expected under the No Action Alternative.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Joint Base Langley-Eustis would not result in impacts to land use. Less training would be conducted, which could potentially allow more time for natural resource management or recreational land use. Under Alternative 1, impacts would be similar to those described in the 2013 PEA, resulting in no impacts to land use. Installation management at Joint Base Langley-Eustis is under the authority of the Air Force, so measures to maintain compliance regarding land use ordinances and regulations would continue

to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with land use ordinances and regulations.

4.26.15 Hazardous Materials and Hazardous Waste

4.26.15.1 Affected Environment

As described in the 2013 PEA (Section 4.11.9.1), hazardous materials are used in at Joint Base Langley-Eustis. The installation has a Hazardous Waste Facility and a Solid Waste and Recycling, and Pollution Prevention Center to handle all types of waste from units and facilities. Hazardous materials and wastes are handled, stored and transported in accordance with state and federal regulations as well as the Joint Base Langley-Eustis Instruction 32-101, *Environmental Management*. No substantial changes have occurred to the affected environment since 2013.

4.26.15.2 Environmental Effects

No Action Alternative

As stated in the 2013 PEA, minor, adverse impacts are anticipated under the No Action Alternative. Use of hazardous materials and generation of hazardous wastes would continue on Joint Base Langley-Eustis in accordance with all applicable laws, regulations and plans.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that minor, adverse impacts from hazardous materials and hazardous waste would occur on Joint Base Langley-Eustis. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on Joint Base Langley-Eustis. Because of the reduced numbers of people, it is likely that the potential for spills would be reduced further during training and maintenance activities. The volume of waste generated and material requiring storage would increase slightly because deactivating units would turn in hazardous material for storage to avoid transportation risks. Under Alternative 1 in this SPEA, Joint Base Langley-Eustis would continue to implement its hazardous waste management in accordance with its HWMP and applicable regulations and therefore, adverse impacts would be minor.

Under Alternative 1, adverse impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. However, installation management at Joint Base Langley-Eustis is under the authority of the Air Force, so measures to maintain compliance regarding hazardous waste management would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the reduction in forces is not reasonably

foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.26.16 Traffic and Transportation

4.26.16.1 Affected Environment

The transportation affected environment of the Joint Base Langley-Eustis ROI remains the same as described in Section 4.11.10.1 of the 2013 PEA with a four-lane divided highway providing primary access to and from the installation (Fort Eustis Boulevard/Virginia Route 105), and connecting the installation to Warwick Boulevard (U.S. Route 60), I-64, Jefferson Avenue (Virginia Route 143) and U.S. Route 17. There is also a secondary gate off Warwick Boulevard.

4.26.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated less than significant, adverse impacts. Current traffic conditions would remain the status quo, including increased staffing from Grow the Army and BRAC 2005, resulting in adverse impacts that would continue to be less than significant.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Joint Base Langley-Eustis would result in beneficial impacts to traffic and transportation systems on and off the joint base. With the departure of Soldiers, Army civilians and their Family members, the Army anticipates a decrease in traffic congestion, particularly during peak hours through the main ACP. Under Alternative 1, these beneficial impacts would also occur, although with the proposed further reduction in forces for the installation, the size of this beneficial impact under Alternative 1 would be larger than anticipated at the time of the 2013 PEA.

4.26.17 Cumulative Effects

The ROI for the cumulative impact analysis for Joint Base Langley-Eustis includes the cities of Hampton, Newport News, Poquoson, and Williamsburg, and the counties of Gloucester, James City, and York. As noted in Section 4.11.11 of the 2013 PEA, a number of cumulative actions within the Joint Base Langley-Eustis ROI would have the potential to cumulatively add impacts to Alternative 1.

As determined in the 2013 PEA, cumulative impacts as a result of the implementation of Alternative 1 range from beneficial to significant and adverse. The following VEC areas are anticipated to experience either no impact or beneficial impact under Alternative 1: air quality, noise, soil erosion, wetlands, energy demand and generation, and traffic and transportation.

Minor impacts are expected for cultural resources, biological resources, facilities, and hazardous materials and hazardous waste.

Reasonably Foreseeable Future Projects on Joint Base Langley-Eustis

Beyond those mentioned in the 2013 PEA, the Army is not aware of any reasonably foreseeable future projects outside Joint Base Langley-Eustis which would be appropriate for inclusion in the cumulative impacts analysis

Reasonably Foreseeable Future Projects outside Joint Base Langley-Eustis

No additional reasonably foreseeable future projects outside Joint Base Langley-Eustis were identified by the installation beyond those identified in the 2013 PEA. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, large economies with more job opportunities could absorb some of the displaced Army workforce, lessening adverse effects of force reductions.

No Action Alternative

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

Alternative 1—Implement Force Reductions

With the exception of socioeconomics, there would be no cumulative effects of the foreseeable future actions under Alternative 1.

The socioeconomic impact within the ROI, as described in Section 4.26.12.2 with a reduction of 4,163 Soldiers and Army civilians, could lead to significant impacts to the population, employment, and schools. Current and foreseeable actions include construction and development activities on and off the installation, which would have beneficial impacts to the regional economy through additional economic activity, jobs, and income in the ROI.

Additionally, stationing changes would also affect regional economic conditions through the loss of jobs and income within the region, although the full extent of military service reductions on the ROI is not known at this time. The Hampton Roads area, in which Joint Base Langley-Eustis is located, has a very large military population that could experience a greater cumulative socioeconomic impact from other military service reductions in the region when combined with the Army's proposed force reductions. It is likely that there would be additional adverse effects on the ROI communities, especially those with high concentrations of military residents.

Joint Base Langley-Eustis is a relatively large employer in the region; the Armed Forces account for 11, 8, and 9 percent of the workforce in York County, city of Hampton, and city of Newport

News, respectively, demonstrating the importance of the joint base to the region. The cities in the ROI could absorb some of the displaced workers, depending on the economy and labor market in the region. If the majority of the displaced forces are not absorbed into the local labor force, there would be additional adverse impacts.

Joint Base Langley-Eustis provides Aviation Maintenance training for Soldiers, averaging approximately 2,500 students assigned for training at a time. Cumulative actions could include reduced training opportunities because of the force reductions on Joint Base Langley-Eustis. This could lead to further adverse impacts to socioeconomic conditions because of reduced temporary population and visitors and the attendant economic activity, spending, and jobs and income they support. Alternative 1 and the loss of approximately 4,200 Soldiers and Army civilians, in combination with current and foreseeable future actions, could have significant impacts to population, employment, tax receipts, housing values, and schools in the ROI.

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4.27 Joint Base Lewis-McChord, Washington

4.27.1 Introduction

Joint Base Lewis-McChord was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population, is discussed in Section 4.12.1 of the 2013 PEA.

Joint Base Lewis-McChord's 2011 baseline permanent party population was 36,222. In this SPEA, Alternative 1 assesses a potential population loss of 16,000, including approximately 14,459 permanent party Soldiers and 1,541 Army civilians.

4.27.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Joint Base Lewis-McChord; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.27-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.27-1. Joint Base Lewis-McChord Valued Environmental Component Impact Ratings

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

4.27.3 Air Quality

4.27.3.1 Affected Environment

The air quality affected environment of the Joint Base Lewis-McChord ROI remains the same as described in Section 4.12.2.1 of the 2013 PEA. Portions of Pierce County are designated maintenance areas for CO and PM_{10}. The Joint Base Lewis-McChord area has not been designated as a nonattainment area for any criteria pollutants (EPA, 2013a).

4.27.3.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source emissions at current levels, as well as controlled burns for vegetation management, would continue to result in less than significant impacts to air quality. Air quality impacts under the No Action Alternative for this SPEA remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that force reductions at Joint Base Lewis-McChord would result in minor, beneficial impacts to air quality because of reduced operations and maintenance activities and reduced vehicle miles travelled associated with the facility. Impacts to air quality from the further force reductions proposed under Alternative 1 would continue to be beneficial assuming a corresponding decrease in operations and vehicle travel to and from Joint Base Lewis-McChord.

As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

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

4.27.4 Airspace

4.27.4.1 Affected Environment

The airspace affected environment for Joint Base Lewis-McChord remains the same as described in Section 4.3.3.1 of the 2013 PEA.

4.27.4.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, impacts to airspace would continue to be significant. As noted in the 2013 PEA, Joint Base Lewis-McChord would maintain existing airspace operations.

Alternative 1—Implement Force Reductions

Force reductions under Alternative 1 are not expected to alter Joint Base Lewis-McChord use of aviation assets or current airspace use. The implementation of Alternative 1 is expected to have no additional adverse impacts; therefore, environmental effects are anticipated to be negligible.

4.27.5 Cultural Resources

4.27.5.1 Affected Environment

The affected environment for cultural resources at Joint Base Lewis-McChord has not changed since 2013, as described in Section 4.12.4 of the 2013 PEA.

4.27.5.2 Environmental Effects

No Action Alternative

Section 4.12.4.2 of the 2013 PEA states that the No Action Alternative would result in less than significant impacts to cultural resources. Existing protocols and procedures outlined in the Joint Base Lewis-McChord ICRMP and other agreements outline the process for managing and protecting cultural resources at the installation. All activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures. Therefore, the No Action Alternative would continue to have less than significant impacts to cultural resources.

Alternative 1—Implement Force Reductions

The effects of force reduction on cultural resources were described as significant but mitigable in Section 4.12.4.2 of the 2013 PEA due to potential impacts to cultural resources from facility demolition or abandonment. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

The Army is committed, however, ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to be realized at Joint Base Lewis-McChord, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations. If future analysis indicates that it is necessary to vacate or demolish structures as a result of troop reductions, the

installation would comply with applicable laws, such as NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects. Therefore, the implementation of this alternative would result in minor impacts to cultural resources.

This alternative could result in minor, beneficial effects as a decrease in training activities could reduce the potential for inadvertent disturbance of archaeological or tribal resources. Additionally, with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources. However, as noted in Section 4.12.4.2 of the 2013 PEA, there is the potential for future, adverse impacts to historic buildings and districts if troop reduction results in the need to vacate or demolish these resources.

4.27.6 Noise

4.27.6.1 Affected Environment

The noise affected environment of Joint Base Lewis-McChord remains the same as described in Section 4.12.5.1 of the 2013 PEA. Primary sources of noise at Joint Base Lewis-McChord include aviation, munitions detonations, and gunnery.

4.27.6.2 Environmental Effects

No Action Alternative

The 2013 PEA anticipated a significant, adverse noise impact because current operations represent a significant, adverse impact. Under the No Action Alternative, there would be continued significant impacts from existing training and operations.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Joint Base Lewis-McChord would result in a less than significant noise impact since there would be a reduction in the frequency of noise generating activities. The implementation of Alternative 1 of this SPEA is expected to have beneficial noise impacts due to decreases in training pressure and associated noise generating activities when compared to the No Action Alternative, but it is not expected to reduce Joint Base Lewis-McChord below the significance threshold for noise.

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

4.27.7 Soils

4.27.7.1 Affected Environment

Soils are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.12.1.2 due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

4.27.7.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to soils and the affected environment would remain in its present state.

Alternative 1—Implement Force Reductions

Per Section 4.12.1.2 of the 2013 PEA, there would be negligible impacts to soils under Alternative 1. Under Alternative 1 of this SPEA, impacts to soils could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Joint Base Lewis-McChord, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at Joint Base Lewis-McChord would be negligible and remain the same as those discussed in Section 4.19.7.2 of the 2013 PEA.

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

4.27.8.1 Affected Environment

Biological resources are described in Section 4.12.6.1 of the 2013 PEA. Since the publishing of that document, three species have been listed as threatened or endangered including the streaked horned lark (*Eremophila alpestris strigata*), Taylor's checkerspot butterfly (*Euphydryas editha taylori*), and Mazama pocket gopher (*Thomomys mazama*). The Mardon skipper butterfly (*Polites mardon*) was determined to be not warranted for listing and remains a species of concern. No other changes have occurred to the affected environment since 2013.

4.27.8.2 Environmental Effects

No Action Alternative

The analysis of alternatives in the 2013 PEA concluded that implementation of the No Action Alternative would result in less than significant impacts to biological resources. The analysis

noted that while growth at Joint Base Lewis-McChord under the Grow the Army initiative was expected to result in significant impacts to biological resources, mitigation measures to reduce the impacts had been employed. As a result, the 2013 PEA concluded that the No Action Alternative would result in less than significant impacts to biological resources. These conditions would continue to exist, so under the No Action Alternative of this SPEA less than significant impacts to biological resources would continue to be expected.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the implementation of Alternative 1 of that PEA would result in beneficial impacts to biological resources due to decreased frequency of disturbances to the affected environment caused by vehicle and foot traffic. Reduced frequency of training activities would also allow greater recovery time between disturbances in the affected areas. Implementation of Alternative 1 of this SPEA would also likely benefit biological resources on Joint Base Lewis-McChord by reducing scheduling conflicts which will increase the ease of conducting biological resource monitoring and proactive conservation activities. Beneficial impacts to biological resources on Joint Base Lewis-McChord are expected to continue as a result of the proposed further reduction of personnel.

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

4.27.9 Wetlands

4.27.9.1 Affected Environment

Wetlands are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.12.1.2 due to lack of significant, adverse environmental impacts as a result of implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013.

4.27.9.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

Per Section 4.7.1.2 of the 2013 PEA, there would be negligible changes to wetlands under Alternative 1. The installation places a 50 meter buffer around all wetlands and does not allow off-road vehicles, bivouacking, digging, or assembling within the buffer. Impacts to wetlands

could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Joint Base Lewis-McChord, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at Joint Base Lewis-McChord would remain the same as those discussed in Section 4.7.1.2 of the 2013 PEA.

4.27.10 Water Resources

4.27.10.1 Affected Environment

The affected environment for water resources on Joint Base Lewis-McChord remains the same as that described in Section 4.12.7.1 of the 2013 PEA for surface water, water supply and demand, and wastewater resources. However, there has been one change to the affected environment for stormwater resources. An NPDES Permit for Stormwater Discharges, effective October 2013, was issued to Joint Base Lewis-McChord authorizing stormwater discharge from the MS4 outfalls on the installation (EPA, 2013b). This permit requires the development and implementation of a stormwater management program and stormwater control BMPs and details the discharges limits, monitoring, and assessment regulations and guidelines to be followed.

4.27.10.2 Environmental Effects

No Action Alternative

In the 2013 PEA, less than significant impacts to water resources were anticipated from the No Action Alternative. Potential water quality violations from wastewater effluent discharged from the existing WWTP on the installation was anticipated to result in significant but mitigable impacts. However, construction of a planned WWTP will minimize these wastewater impacts. Additional minor impacts were anticipated due to continuing water supply and demand, surface water, and stormwater management as well as training related impacts to surface waters. Adherence to permits, BMPs, and other management programs was anticipated to mitigate these impacts. Surface water, wastewater, and stormwater impacts under the No Action Alternative would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

Beneficial impacts to water resources were anticipated from implementation of force reductions in the 2013 PEA because of reduced potable water supply demand and an increase in additional wastewater treatment capacity for other uses. Reduction in training area use from force reductions on the installation was also anticipated to potentially reduce impacts to surface waters caused by disturbance, sedimentation, and runoff. Reduced use of training and other vehicles was expected to lead to less frequent washings and provide more non-potable water for other uses.

Increased force reductions under Alternative 1 of this SPEA would continue to have the same beneficial impacts surface waters, wastewater, and water consumption and treatment.

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

4.27.11 Facilities

4.27.11.1 Affected Environment

The facilities affected environment of the Joint Base Lewis-McChord installation remains the same as described in Section 4.12.8.1 of the 2013 PEA.

4.27.11.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be less than significant impacts to facilities at Joint Base Lewis-McChord. For the current analysis, Lewis-McChord Communities LLC (the privatized Family housing project) is completing the initial development period of a 50-year development plan with an end state housing inventory of 4,994 units by December 2018. All currently planned new construction thru 2052 is replacement construction to address aged and failing inventory.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to facilities would occur at Joint Base Lewis-McChord. Under Alternative 1, implementation of the proposed further force reductions would result in overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demands for utilities and reduced demands for training facilities and support services. Training areas would also have fewer scheduling conflicts from reduced training load. Remaining units with inadequate facilities could occupy facilities that better support unit administrative requirements. Force reductions would also provide the installation the opportunity to reduce reliance on relocatable facilities and some older buildings not up to current standards. As discussed in Chapter 1, the demolition of existing

buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.27.12 Socioeconomics

4.27.12.1 Affected Environment

Joint Base Lewis-McChord is located approximately 9 miles south-southwest of Tacoma, Washington. The ROI for Joint Base Lewis-McChord in this analysis includes those areas that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, contractor personnel, and their Families reside. The ROI includes Pierce and Thurston counties.

This section provides a summary of demographic and economic characteristics within the ROI. These indicators are described in greater detail in Section 4.12.9 of the 2013 PEA. However, some demographic and economic indicators have been updated where more current data are available.

Population and Demographics

Using 2011 as a baseline, Joint Base Lewis-McChord has a total working population of 50,438 consisting of active component Soldiers and Army civilians, and other military services, civilians, and contractors. Of the total working population, 36,222 were Soldiers and Army civilians. The population that lives on Joint Base Lewis-McChord consists of 9,953 Soldiers and Army civilians and estimated 15,109 Family members, for a total on installation population of 25,062 (Joint Base Lewis-McChord, 2014). Finally, the portion of the Soldiers, Army civilians, and Family members living off the installation in 2011 was estimated to be 66,145.

In 2012, the ROI had a population of 1,070,708, a 2.2 percent increase from 2010. Both counties within the ROI increased in population between 2010 and 2012 (Table 4.27-2). As shown in Table 4.27-3, the racial and ethnic composition of Pierce County is slightly more diverse than either Thurston County or the state of Washington as a whole (U.S. Census Bureau, 2012a).

Table 4.27-2. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012(percent)
Pierce County, Washington	812,055	+2.1
Thurston County, Washington	258,653	+2.5

Table 4.27-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
State of Washington	81.6	3.9	1.8	7.7	4.3	11.7	71.6
Pierce County, Washington	76.8	7.2	1.6	6.3	6.6	9.6	69.5
Thurston County, Washington	83.9	3.1	1.6	5.4	5.1	7.7	77.8

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

Employment and Income

Information presented below represents an update from the 2013 PEA, which provided employment and income information from 2009. Between 2000 and 2012, total employment in Thurston County grew at a faster rate than Pierce County and the state of Washington as a whole (Table 4.27-4) (U.S. Census Bureau, 2000 and 2012b).

Counties within the ROI had median home values that were similar to the state as a whole. The median household income in Thurston County was greater than median household income in both Pierce County and the state of Washington. The poverty rate in both Pierce and Thurston counties was lower than the Washington average (Table 4.27-4) (U.S. Census Bureau, 2012b).

Table 4.27-4. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Washington	3,202,700	+12.7	272,900	59,374	12.9
Pierce County, Washington	372,536	+12.5	251,400	59,105	11.9
Thurston County, Washington	120,866	+18.0	251,000	63,224	11.1

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

Pierce County, Washington

The educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Pierce County (21 percent). Retail trade is the second largest employment sector (11 percent), followed by manufacturing (9 percent); professional, scientific, and management, and administrative and waste management services (9 percent); and arts, entertainment, and recreation, and accommodation and food services sectors (9 percent). The Armed Forces account for 5 percent of the Pierce County workforce. The eight remaining sectors account for 36 percent of the workforce.

Thurston County, Washington

Similar to Pierce County, the educational services, and health care and social assistance sector accounts for the greatest share of Thurston County's total workforce (21 percent). Public administration is the second largest employment sector (18 percent), followed by retail trade (11 percent). The Armed Forces account for 3 percent of the Thurston County workforce. The 10 remaining sectors employ 47 percent of the workforce.

Housing

Joint Base Lewis-McChord has approximately 5,000 Family housing units in 22 neighborhoods on the installation. Since 2002, Lewis-McChord Communities LLC has renovated more than 3,000 homes and constructed more than 1,000 new homes on the installation (Lewis-McChord Communities, 2014). Joint Base Lewis-McChord has approximately 12,000 barracks and dormitory spaces for unaccompanied personnel. Additional housing information is provided in the 2013 PEA.

Schools

Military-connected students attend schools throughout the ROI. The Clover Park School District operates the 5 elementary schools on the joint base and an additional 20 schools (elementary, middle, and high) in the city of Lakewood, which is adjacent to the joint base. Joint Base Lewis-McChord and the DoD's Office of Economic Adjustment are in the process of replacing the five elementary schools on the installation.

As described in the 2013 PEA, during the 2008-2009 academic year, approximately 36.0 percent of the district's total enrollment was attributable to military-connected students. In addition, military-connected students represent a notable share of total enrollment in the Steilacoom Historical and Yelm schools districts, 17.0 percent and 7.0 percent, respectively.

Enrollment in regional schools has increased in recent years to such an extent that numerous school districts within the ROI are operating at or over capacity. Additional information on schools is provided in the 2013 PEA.

Public Health and Safety

The Joint Base Lewis-McChord Police and Fire department fall under the auspices of DES. Police protection services to areas within the ROI but city, county, and state police departments provide services to the ROI off the joint base. Because of the joint base's location near I-5, its fire department is often called upon to provide first responder assistance for accidents on the interstate.

A variety of medical services are provided both on the joint base and in the larger ROI. The Madigan Healthcare System, a network of Army medical facilities located throughout Washington, Oregon, and California, is headquartered at the Madigan Army Medical Center on the installation. The medical center is the Army's second largest Military Treatment Facility, which includes a Level II Trauma Center and 240 inpatient beds. Non-military people are also treated at the center, as needed. Additional public health and safety information is provided in the 2013 PEA.

Family Support Services

The Joint Base Lewis-McChord FMWR and ACS, a human service organization, provides services and programs designed to assist Soldiers and their Families. Services include but are not limited to child care and youth programs to deployment, employment, financial, and relocation readiness. Additional information about Family Support Services is provided in the 2013 PEA.

Recreation Facilities

Joint Base Lewis-McChord offers a variety of recreation and leisure programs to military personnel, civilians, and their Families. Facilities include but are not limited to a golf course, bowling center, fitness centers, and outdoor recreation opportunities. Additional information about recreation facilities is provided in the 2013 PEA.

4.27.12.2 Environmental Effects

No Action Alternative

The operations at Joint Base Lewis-McChord would continue to provide beneficial effects on regional economic activity. Presently, an initiative to build two new elementary schools on the joint base is underway, which should help to mitigate school crowding within the ROI. These new schools would have approximately double the capacity of existing on-base schools. Several school districts in the ROI outside Joint Base Lewis-McChord are coping with the influx of the additional school-aged children as a result of the Grow the Army initiative. No additional impacts to housing, public and social services, public safety, recreation facilities, or environmental justice are anticipated.

Alternative 1—Implement Force Reductions

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

Population and Economic Impacts

Alternative 1 would result in the loss of up to 16,000[33] Army positions (14,459 Soldiers and 1,541 Army civilians), with an average annual income of $46,760 and $57,361, respectively. In addition, this alternative would affect an estimated 24,288 Family members, including 8,928 spouses and 15,360 children. The total population of Army employees and their Family members who may be directly affected by Alternative 1 is projected to be 40,288.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecast value falls outside the historical positive and negative range. Table 4.27-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. The last row summarizes the estimated economic impacts of Alternative 1 to the region as estimated by the EIFS model. Based on the EIFS analysis, there would not be significant impacts to sales, income, or employment because the estimated percentage change is within the historical range. However, there would be significant population impacts because the estimated percentage change is outside the historical range.

Table 4.27-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+6.1	+4.0	+2.8	+1.9
Economic contraction significance value	-7.3	-4.5	-7.1	-2.6
Forecast Value	-2.4	-2.2	-5.1	-3.6

Table 4.27-6 summarizes the predicted impacts to income, employment, and population of force reductions against 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact

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

agreement with the EIFS forecasted values, these figures show the same significance determinations as the EIFS predictions in the previous table.

Table 4.27-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impact	-$971,551,600	-17,757 (Direct)	-40,288
		-3,587 (Induced)	
		-21,344 (Total)	
Total 2012 ROI economic estimates	$46,593,600,000	493,402	1,070,708
Percent reduction of 2012 figures	-2.1	-4.3	-3.8

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

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the loss of 16,000 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 1,757 direct contract service jobs would also be lost. An additional 3,587 induced jobs would be lost due to the reduction in demand for goods and services within the ROI. Total reduction in employment is estimated to be 21,344, a reduction of 4.3 percent from the total employed labor force in the ROI of 493,402. The reduced workforce could affect unemployment rates, which in 2012, were 10.3 percent and 8.6 percent in Pierce and Thurston counties, respectively (U.S. Census Bureau, 2012b). Income is estimated to fall by $971.55 million, a 2.1 percent decrease in income from 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $1.2 billion. There would also be a loss in sales tax receipts to local and state governments. The state and average local sales tax for Washington is 8.88 percent (Tax Foundation, 2014). To estimate sales tax reductions, information on the proportion of sales that would be subject to sales taxes on average across the country was utilized. According to the U.S. Economic Census, an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). The percentage and applicable tax rate was applied to the estimated decrease in sales of $1.2 billion resulting in an estimated sales tax receipts decrease of $17.4 million under Alternative 1.

Of the approximately 1.1 million people (including those residing on Joint Base Lewis-McChord) who live within the ROI, 16,000 military employees and their estimated 24,288 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 3.8 percent. This number likely overstates potential population impacts because some of the people no longer employed by the Army would continue to live and work within the ROI, finding employment in other industry sectors.

Housing

The population reduction that would result under Alternative 1 would decrease housing demand and increase housing availability on Joint Base Lewis-McChord and across the larger ROI. Increased vacancy across the region may result in a slight decrease in median home values. These effects would likely be experienced to the greatest extent in the cities of Olympia, Lacey, Yelp, DuPount, Lakewood, Puyallup, and Tacoma, and potentially recognized to a lesser extent in some smaller municipalities within the ROI. However, the ROI is currently experiencing population growth and housing values are likely to be driven by numerous contributing factors. Overall, because the Joint Base Lewis-McChord population is distributed in a number of municipalities across the ROI, the installation reduction that would occur under Alternative 1 has the potential to result in minor, less than significant impacts to the housing market.

Schools

As reported in the 2013 PEA, regional schools have experienced adverse effects from crowding and large class sizes, particularly those in the Clover Park and Steilacoom Historical School Districts. Under Alternative 1, the potential reduction of 16,000 Soldiers and Army civilians would decrease the number of children within the ROI by approximately 15,360. Therefore, under Alternative 1, it is anticipated that the reduction of school-aged children would decrease enrollment in some schools where crowding and large class sizes have been an issue, resulting in beneficial impact. Alternative 1 is not anticipated to change plans to replace the five elementary schools on the joint base.

Under Alternative 1, enrollment would decrease across individual school districts within the ROI, particularly the Clover Park and Steilacoom Historical School Districts. School districts within the ROI receive Federal Impact Aid funds, the allocation of which is based on the number of military-connected students they support. The actual projected loss of Federal Impact Aid funds cannot be determined at this time due to the variability of appropriated dollars from year to year and the uncertainty regarding the specific impacts to ROI school enrollment. It is anticipated that schools across the ROI, particularly in the Clover Park and Steilacoom Historical School Districts, would likely need fewer teachers and materials as enrollment declines, which would partially offset the reduction in Federal Impact Aid. However, the reduction in Federal Impact Aid funds would make it more difficult for some school districts to retain teachers and other staff necessary to effectively run schools within affected districts. Overall, the implementation of Alternative 1 would result in adverse impacts to schools due to reduction of Federal Impact Aid funds associated with the enrollment of military-connected students, ranging from minor to significant depending on the reduction in the number of military-connected students attending specific schools.

Public Services

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

Family Support Services and Recreation Facilities

Under Alternative 1, Joint Base Lewis-McChord would experience a significant population reduction. Family Support Services and recreation facilities on the installation would experience a minor decrease in demand if Soldiers, Army civilians, and their Family members affected under Alternative 1 move to areas outside the ROI. These services and facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, states: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). As shown in Table 4.27-3, the proportion of minority populations is slightly higher in Pierce County than in Thurston County or Washington as a whole. Under Alternative 1, adverse economic impacts would result across the ROI. The extent to which these impacts are recognized by individual businesses, both minority and non-minority owned, would depend on the consumer base in which they serve. Overall, adverse impacts to minority-owned and/or -staffed businesses as well as non-minority-owned and/or -staffed businesses could potentially occur in Pierce County. However, these impacts are not expected to be disproportionate because they would be experienced across all populations.

Populations living below the poverty level in both Pierce and Thurston counties are lower than in Washington overall. Therefore, Alternative 1 would not cause disproportionate adverse impacts to populations living below the poverty level.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks,* federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions

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

4.27.13 Energy Demand and Generation

4.27.13.1 Affected Environment

Energy demand and generation is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.12.1.2 due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

4.27.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be negligible impacts to energy demand and generation at Joint Base Lewis-McChord. For the current analysis, Joint Base Lewis-McChord would continue to draw similar amounts of energy from its utility provider with the same requirements for energy and maintenance of infrastructure so impacts to facilities would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy demand and generation would occur on Joint Base Lewis-McChord. Under Alternative 1, minor, beneficial impacts to energy are anticipated due to a further reduction in energy consumption associated with the additional force reductions. The installation would also be better positioned to meet energy and sustainability goals.

4.27.14 Land Use Conflicts and Compatibility

4.27.14.1 Affected Environment

The land use affected environment of Joint Base Lewis-McChord remains effectively the same as described in Section 4.12.10.1 of the 2013 PEA.

4.27.14.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that no changes to land use would occur and impacts would be minor. Under the No Action Alternative, minor impacts to land use would continue to occur.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Joint Base Lewis-McChord would result in a beneficial impact to land use. A reduction in troops would eliminate a need for additional Family housing and allow Joint Base Lewis-McChord to selectively demolish outdated buildings and clear land for best use. Under Alternative 1, beneficial impacts would be similar to those described in the 2013 PEA.

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

4.27.15 Hazardous Materials and Hazardous Waste

4.27.15.1 Affected Environment

As described in the 2013 PEA (Section 4.12.11.1), hazardous materials are used and hazardous waste generated on Joint Base Lewis-McChord. This includes hazardous materials and waste from USTs and ASTs, pesticides, LBP, asbestos-containing materials, PCBs, radon, and UXO. Units and activities on Joint Base Lewis-McChord typically use hazardous materials such as fuels, paints, solvents, lubricants, coolants, and sanitation chemicals. Hazardous waste is generated as a result of facility and equipment maintenance, medical care activities, and Soldier training. Joint Base Lewis-McChord operates as a large quantity hazardous waste generator under RCRA and has several plans in place to help manage hazardous materials and waste, including a Pollution Prevention Plan, ISC Plan, SPCC Plan, and Pest Management Plan. No substantial changes have occurred to the affected environment since 2013.

4.27.15.2 Environmental Effects

No Action Alternative

As stated in the 2013 PEA, minor, adverse impacts are anticipated under the No Action Alternative. Use of hazardous materials and generation of hazardous wastes would continue on Joint Base Lewis-McChord in accordance with all applicable laws, regulations and plans. Joint Base Lewis-McChord would continue to manage hazardous materials and hazardous waste in accordance with the HWMP.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that less than significant impacts from hazardous materials and hazardous waste would occur on Joint Base Lewis-McChord. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on the installation and therefore impacts would remain less than significant. Because of the reduced numbers of people, it is likely that the potential for spills would be reduced further during training and maintenance activities. The volume of waste generated and material requiring storage would increase slightly because deactivating units would turn in hazardous material for storage to avoid transportation risks.

Under Alternative 1, adverse impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Joint Base Lewis-McChord, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

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

4.27.16 Traffic and Transportation

4.27.16.1 Affected Environment

The transportation affected environment of the Joint Base Lewis-McChord ROI remains the same as described in Section 4.12.12.1 of the 2013 PEA, including the fact that along with non-military related growth in the ROI over the last decade, Joint Base Lewis-McChord traffic (military and civilian) negatively affects traffic flow on I-5 and LOS ratings at numerous intersections both on and off the installation.

4.27.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated significant, adverse impacts to traffic and transportation along the I-5 corridor. The Grow the Army proposal determined that there would be significant impacts to traffic flows and increased delays at key intersections on and near the installation. Since the affected environment has not changed since 2013, these significant, adverse impacts would continue.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Joint Base Lewis-McChord would result in beneficial impacts to traffic and transportation systems. With the departure of Soldiers, Army civilians and their Family members, the Army anticipates a decrease in traffic congestion and improvements in LOS on the installation and neighboring communities, particularly during peak periods. Under Alternative 1, these same beneficial impacts would occur, however, with the proposed further reductions in force, the size of this beneficial impact under Alternative 1 would be larger than anticipated at the time of the 2013 PEA.

4.27.17 Cumulative Effects

As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020 realignment at Joint Base Lewis-McChord encompasses Pierce and Thurston counties in Washington. Section 4.12.13 of the 2013 PEA noted numerous planned or proposed actions within the ROI that reasonably could be initiated within the next 5 years. A number of the Army's proposed projects have been previously identified in the installation's Real Property Master Planning Board and are programmed for future execution.

Reasonably Foreseeable Future Projects on Joint Base Lewis-McChord

No additional actions have been identified by the installation beyond those noted in the cumulative effects analysis of the 2013 PEA.

Reasonably Foreseeable Future Projects outside Joint Base Lewis-McChord

Beyond those mentioned in the 2013 PEA, the Army is not aware of any reasonably foreseeable future projects outside Joint Base Lewis-McChord which would be appropriate for inclusion in the cumulative impacts analysis. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, larger economies with more job opportunities could absorb some of the displaced Army workforce, lessening adverse effects of force reductions.

No Action Alternative

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

Alternative 1—Implement Force Reductions

As determined in the 2013 PEA, cumulative impacts as a result of the implementation of force reduction range from beneficial to minor, adverse impacts. The following VEC areas are anticipated to experience either no impact or beneficial impact as a result of the implementation of the previous proposed action: biological resources, water resources, energy demand and

generation, and land use conflict and compatibility. Minor impacts are expected on cultural resources and facilities. The additional force reductions with Alternative 1 of the SPEA would not result in any changes from that determination.

The socioeconomic impact within the ROI, as described in Section 4.27.12 with a reduction of 16,000 Soldiers and Army civilians, would result in a significant reduction in population, with minor, adverse effects on the regional economy, schools, and housing. Joint Base Lewis-McChord is located between the cities of Olympia and Tacoma in Washington with an ROI population of over 1.1 million. Because of the large employment base and diverse economy in the region, the ROI would be less vulnerable to these force reductions because other industries and considerable economic activity occurs within the ROI.

Other construction and development activities on the installation and in the ROI would benefit the regional economy through additional economic activity, jobs, and income in the ROI. Other services on the installation have not finalized military end-strength reduction plans, but these additional reductions are anticipated to add to adverse impacts to socioeconomics conditions. Under Alternative 1, the loss of 16,000 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have a minor, adverse impact on population, employment, income, housing, and schools in the ROI.

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4.28 Joint Base San Antonio-Fort Sam Houston, Texas

4.28.1 Introduction

Joint Base San Antonio-Fort Sam Houston includes both Fort Sam Houston and Camp Bullis, as well as several other sites mainly populated by the Air Force.[34] Fort Sam Houston is located in the city of San Antonio, Texas (Figure 4.28-1). Loop 410 circles the city center and encloses a densely populated urban environment. Fort Sam Houston is located within Loop 410 to the northeast of the city center. The 2,940-acre installation is surrounded by developed property, widely used highways and arterial roadways. Fort Sam Houston is bordered on the east by Salado Creek. There is no room for land expansion, and additional development is confined within the installation's borders.

Fort Sam Houston was established in 1845 and has performed important roles for the Army serving as a headquarters, logistical base, mobilization and training site, garrison, and medical provider. After construction of the Quadrangle in 1876, the Army began to move facilities to the current site of Fort Sam Houston. Fort Sam Houston is one of the oldest installations and has more than 800 historic buildings in various historic zones. Camp Bullis, which serves as a training site for troops stationed at Fort Sam Houston, was established in 1917 approximately 18 miles northwest of Fort Sam Houston. During World War II, the camp was an important venue for training troops stationed at Fort Sam Houston.

After World War II, Fort Sam Houston was designated as the principal Army medical training facility and Brooke General Hospital was developed into a premier Army medical center. The installation's prominence in medical training and research advancement has led to significant tactical and organizational innovations. Medical treatment of casualties evacuated by air was performed at Fort Sam Houston as early as 1917.

Potential impacts resulting from any reductions in staffing levels other than Army staff at this Air Force managed joint base could be analyzed in separate, future NEPA analyses, as appropriate, although these reductions would not be related to the Army 2020 reductions analyzed herein.

Joint Base San Antonio-Fort Sam Houston's 2013 baseline permanent party population was 12,256. In this SPEA, Alternative 1 assesses a potential population loss of 5,900, including approximately 3,949 permanent party Soldiers and 1,985 Army civilians.

[34] In this document, Joint Base San Antonio-Fort Sam Houston refers to the combined Fort Sam Houston and Camp Bullis installations. Each installation is identified as either Fort Sam Houston or Camp Bullis where the information applies only to that installation.

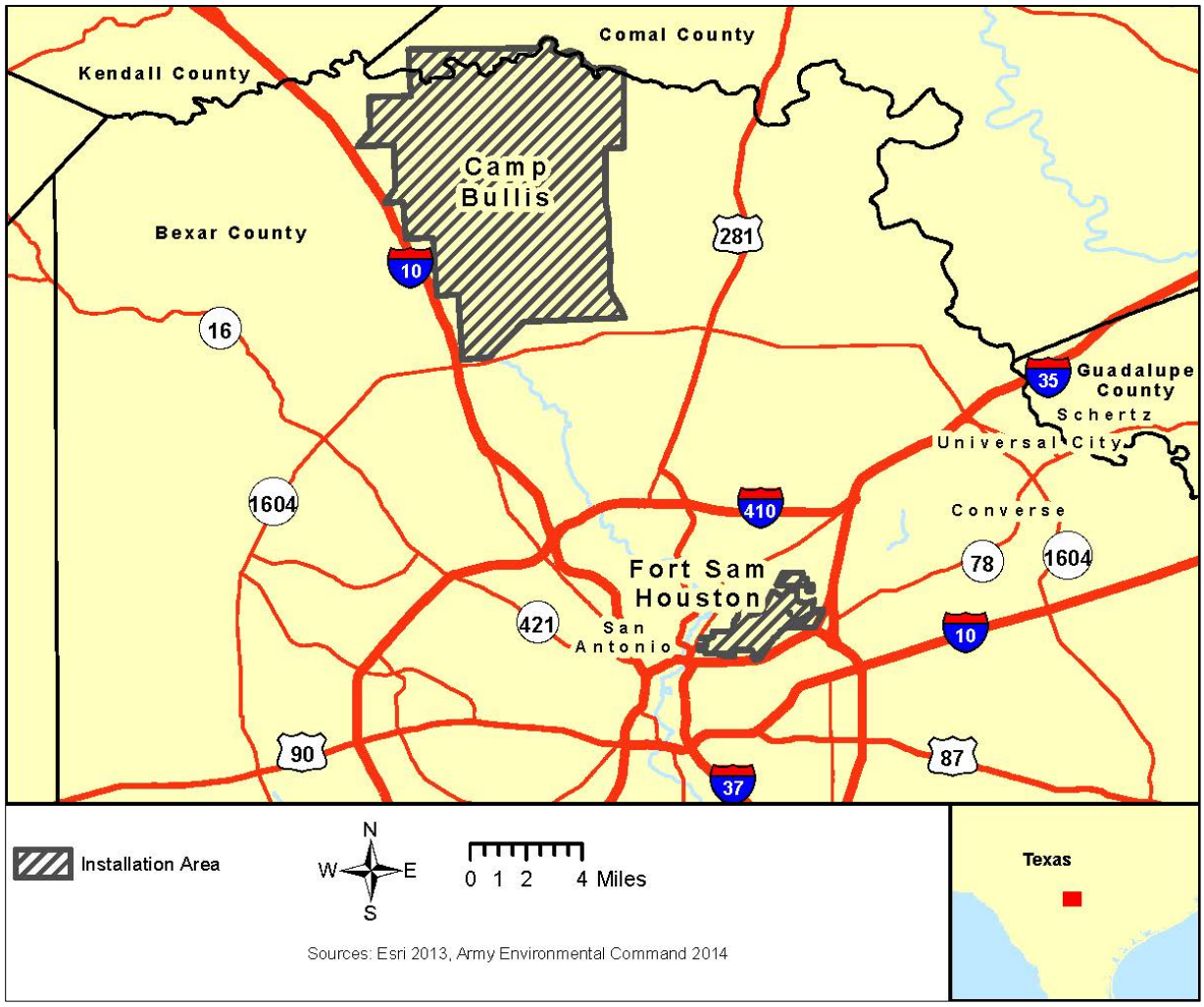

Figure 4.28-1. Joint Base San Antonio-Fort Sam Houston, Texas

4.28.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental or socioeconomic impacts are anticipated for Joint Base San Antonio-Fort Sam Houston. Table 4.28-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.28-1. Joint Base San Antonio-Fort Sam Houston Valued Environmental Component Impact Ratings

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

4.28.3 Air Quality

4.28.3.1 Affected Environment

Joint Base San Antonio-Fort Sam Houston is located in an area in attainment for criteria pollutants (EPA, 2013). There are various sources on the installation that emit criteria and hazardous air pollutants, including emergency generators, boilers, hot water heaters, fuel storage tanks, gasoline service stations, surface coating, and miscellaneous chemical usage (Fort Sam Houston, 2009).

4.28.3.2 Environmental Effects

No Action Alternative

Continuation of existing levels of emissions under the No Action Alternative would result in minor, adverse impacts to air quality. Emissions would remain at levels well below the maximum allowed under existing permits.

Alternative 1—Implement Force Reductions

Force reductions at Joint Base San Antonio-Fort Sam Houston under Alternative 1 would result in minor, long-term, beneficial air quality impacts because of reduced demand for heating/hot water and reduced operation of mobile sources to and from the facility.

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

The Army is committed to ensuring that personnel cuts will not result in Army non-compliance with air quality regulations. However, management at Joint Base San Antonio-Fort Sam Houston is under the authority of the Air Force, so measures to maintain compliance regarding overall air quality regulations would continue to be met by the Air Force.

4.28.4 Airspace

4.28.4.1 Affected Environment

Joint Base San Antonio-Fort Sam Houston is not an Army aviation facility, and it does not include range facilities for launching or firing weapons that would restrict airspace use. Nevertheless, San Antonio Military Medical Center (SAMMC) has a heliport that supports medical evacuation flights and occasional transport within the San Antonio area. The heliport is located on the southeast perimeter of the SAMMC campus, previously known as the Brooke Army Medical Center (BAMC) campus.

Airspace use in San Antonio is controlled by FAA and the Joint Base San Antonio-Fort Sam Houston area is regulated as Class C airspace ranging from 2,000 feet to 4,800 feet msl and Class D airspace in portions to 3,100 feet msl. There are major flight activities north, east, south and southeast of Joint Base San Antonio-Fort Sam Houston from San Antonio International Airport, Stinson Field, Joint Base San Antonio-Randolph and the Kelly Field Annex to Joint Base San Antonio-Lackland. The aviation activity associated with Joint Base San Antonio-Fort Sam Houston is helicopter operations for local area medical evacuation and transport. Takeoffs and approaches generally follow the major adjacent roadways, more specifically IH-35. The centerline of Runway 30L on approach/12R on departure for San Antonio International Airport is close to the SAMMC site. Turns to and from centerline are approximately 4,000 feet north of the SAMMC site (U.S. Army, 1988–89).

Camp Bullis has an airport located near its northern boundary in MA 2. No aircraft are based there; instead, it is a training area used occasionally by C-130/C-17 aircraft to practice combat assault operations, during which aircraft land under simulated tactical conditions and on-load or off-load troops, supplies or mock casualties. A Camp Bullis heliport is located in the cantonment area of the installation. The heliport lies in uncontrolled airspace. The cantonment area is approximately 6 miles northwest of the threshold of Runway 12R at San Antonio International

Airport. Medical combat routes also are used by helicopters at Camp Bullis in support of medical training to evacuate casualties under simulated combat conditions.

4.28.4.2 Environmental Effects

No Action Alternative

Airspace restrictions and classifications around Joint Base San Antonio-Fort Sam Houston are sufficient to meet current airspace requirements. A reduction in force would not alter the current airspace use and would not be projected to require additional airspace restrictions. In addition, because the Army does not conduct air operations or training at Joint Base San Antonio-Fort Sam Houston, no impacts to airspace would occur.

Alternative 1—Implement Force Reductions

Airspace restrictions and classifications around Joint Base San Antonio-Fort Sam Houston are sufficient to meet current airspace requirements and the implementation of Alternative 1 would not result in a decreased requirement for airspace but could result in a slightly lower use of and requirements for airspace use. The potential decrease in airspace use would result in negligible impacts to airspace at Joint Base San Antonio-Fort Sam Houston.

4.28.5 Cultural Resources

4.28.5.1 Affected Environment

The affected environment for cultural resources at Joint Base San Antonio-Fort Sam Houston is the installation footprint. Surveys of the installation have identified 12 archaeological sites, none of which are eligible for listing in the NRHP (Clow et al., 2008).

The built environment is an important component of the installation; as the installation grew and changed over time, care was taken to create an aesthetic environment that was both functional and livable (Clow et al., 2008). The installation has completed architectural surveys of all resources over 50 years of age as well as Cold War Era resources. These surveys have identified 723 historic architectural resources, all of which are considered eligible for listing in the NRHP. Of these, 257 are included in the Fort Sam Houston NHL District. Buildings associated with this NHL District date from the establishment of the installation in 1875 through 1924.

In addition, the New Post area of the installation is eligible for listing as a district in the NRHP and could be included within the NHL District in the future. The area is currently designated a Conservation District. There is one building within the New Post area, the former BAMC (old BAMC, Building 1000), that is individually listed in the NRHP. Four other architectural resources are individually listed in the NRHP: the Quadrangle (Building 16); Clock Tower (Building 40); Pershing House (Building 6); and the Gift Chapel (Building 2200).

Four federally recognized tribes and one non-federally recognized tribe are culturally affiliated with resources managed by Joint Base San Antonio-Fort Sam Houston (Clow et al., 2008). Consultation requirements for NHPA, Section 106 have been satisfied through the development of the alternative procedures described below (Clow et al., 2008). However, comments are sometimes requested from the tribes during the NEPA process or when cultural resource laws are involved such as Archaeological Resources Protection Act or Native American Graves Protection and Repatriation Act. Three of the federally recognized tribes have signed standard operating procedures with Joint Base San Antonio-Fort Sam Houston; these are included in the ICRMP. Currently, no TCPs or sacred areas have been identified within the installation.

Joint Base San Antonio-Fort Sam Houston has developed alternative procedures for compliance with Section 106 of the NHPA. These procedures were developed and agreed upon by the Army and ACHP in 2001 and revised in 2004, before joint basing. These procedures allow for cultural resources management without outside involvement (ACHP/SHPO/others) in case-by-case review (Clow et al., 2008). These procedures do not replace consultation required under other cultural resource management–related laws such as the Native American Graves Protection and Repatriation Act. In addition to the alternative procedures, the installation has implemented two programmatic agreements for cultural resources compliance. The first implements the alternative procedures. The second, titled *Programmatic Agreement for the Privatization of Family Housing at Fort Sam Houston, Texas,* provides for the consideration and treatment of resources that may be affected by the RCI program (Clow et al., 2008). The Fort Sam Houston Military Reservation ICRMP and EA, completed in 2008, detail the procedures for management of cultural resources in accordance with applicable laws.

4.28.5.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

Alternative 1 would have a minor, adverse impact on cultural resources. As discussed in Chapter 1, the potential demolition of existing buildings as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to subsurface

archaeological sites and historic structures are not analyzed. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of Army force reductions, potential impacts could be analyzed in separate, future NEPA analyses and consultation conducted, as appropriate, by Joint Base San Antonio[35] to avoid, minimize, and/or mitigate these effects. Additionally, the Army is committed to ensuring that personnel cuts will not result in Army non-compliance with cultural resources regulations.

The effects of this alternative are considered to be similar to the No Action Alternative. Future activities with the potential to effect cultural resources would continue to be monitored and the impacts reduced through preventative and minimization measures.

4.28.6 Noise

4.28.6.1 Affected Environment

Noise sources common to Joint Base San Antonio-Fort Sam Houston include helicopters, automobiles and other nontactical vehicles, and routine operation of equipment and machinery such as generators; heating, ventilation and air conditioning; and construction equipment. Life Flight operations using the SAMMC helipad represent another intermittent noise source. Life Flight operations have neither established routes into and out of the helipad nor altitude restrictions, but the general directions of the flight routes are to the northeast, southeast and southwest. The low number of helicopter operations is not sufficient to generate significant, adverse noise impacts.

Major sources of noise at Camp Bullis include small arms ranges, the use of explosive simulators in training areas and ranges, the use of explosives during quarrying and training exercises, and aircraft noise. A sound system with outside speakers is used at Camp Bullis to provide exercise inputs at the medical training facility. Medical trainers have direct control over the exercise speaker volume, and sounds from these speakers cannot be heard beyond 100 meters. Several generators may also be in use at any time during field medical training activities. Noise sources are interspersed throughout the installation, and noise, including that from ground combat blast simulators and small- and large-caliber weapons, is generally confined to the installation. Limited helicopter flights and occasional fixed wing operations on a Combat Assault Landing Strip project noise into the surrounding areas.

Noise-sensitive areas at Fort Sam Houston include SAMMC and the three schools in the Fort Sam Houston ISD. The ISD schools include the Robert G. Cole Junior/Senior High School, the Fort Sam Houston Elementary School and an alternative education school. Noise effects on

[35] Joint Base San Antonio includes all Army and Air Force installations under this joint base. Management activities, including environmental compliance, are under the authority of the Air Force.

occupants of these facilities are not expected. No sensitive noise areas are present at Camp Bullis.

4.28.6.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, no force reductions would take place at Joint Base San Antonio-Fort Sam Houston. Existing operations and personnel levels would remain the same as under existing conditions, and existing noise sources and intensity would remain unchanged. Given the generally low overall noise levels at the installations, minimal presence of noise-sensitive areas, limited frequency of higher-intensity noise events, and general confinement of noise to areas within the installation, adverse impacts associated with the No Action Alternative would be negligible.

Alternative 1—Implement Force Reductions

Under Alternative 1, force reductions would be implemented at Joint Base San Antonio-Fort Sam Houston. Existing operations and personnel levels would be reduced from existing conditions. Existing noise sources and intensity would remain similar in character; however, noise events would occur less frequently. Noise-sensitive areas surrounding the installation would remain similar in character to those currently present. Overall, noise impacts associated with force reductions would be similar in nature to impacts from the No Action Alternative, but with fewer personnel. Alternative 1 would therefore have slight beneficial impacts to noise. Installation management at Joint Base San Antonio-Fort Sam Houston is under the authority of the Air Force; therefore, health and safety requirements, including noise compliance, would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in the Army's non-compliance with noise ordinances and regulations.

4.28.7 Soils

4.28.7.1 Affected Environment

Joint Base San Antonio-Fort Sam Houston consists of several installations; however, most Army activities and personnel stationed at Joint Base San Antonio-Fort Sam Houston are concentrated at Fort Sam Houston and Camp Bullis. Fort Sam Houston lies within the West Gulf Coastal plain physiographic province; whereas, Camp Bullis lies within the Edwards Plateau Great Plains physiographic province. The two physiographic provinces are separated by the Balcones fault zone (Stein and Ozuna, 1995). Fort Sam Houston is primarily underlain by Cretaceous period calcareous material such as marl and glauconite which are overlain with Quaternary period alluvial deposits (USACE, 2007). The geology of Camp Bullis consists primarily of Cretaceous period limestone from the Edwards Group and Glen Rose formations (U.S. Army, 2001a, as

cited by USACE, 2007). As a result of the underlying limestone, Camp Bullis contains many features associated with karst topography such as sinkholes, springs, and caves.

Upland soils on Fort Sam Houston are primarily from the Heiden and Houston Black soil series. These soils are characterized as deep to very deep, moderately well drained to well drained, and gently rolling. Floodplain and stream terrace soils on Fort Sam Houston are primarily from the Loire, Lewisville, and Sunev soil series. These soils are characterized as flat to gently rolling, deep to very deep and well drained. All of the soils on Fort Sam Houston are comprised primarily of heavy clay (NRCS, 2013).

Upland soils on Camp Bullis are primarily from the Brackett and Eckrant soil series. These soils are characterized as moderately steep to steep, very shallow, and well drained. Floodplain and stream terrace soils on Camp Bullis are primarily from the Crawford, Krum, and Lewisville soil series, and are characterized as deep to very deep, well drained and flat to gently rolling. All of the soils on Camp Bullis are comprised of clay and clay loam (NRCS, 2013).

Soils on both installations are moderately to highly erodible. The high clay content can cause surface crusting which can decrease the rate of infiltration and increase the rate of surface runoff. BMPs to minimize soil erosion are utilized on both installations (USACE, 2007).

4.28.7.2 Environmental Effects

No Action Alternative

Minor, adverse impacts to soils on Joint Base San Antonio-Fort Sam Houston are anticipated under the No Action Alternative. Range training activities at Camp Bullis would continue under the current schedule, resulting in minimal impacts from ground disturbance and removal of vegetation. Management of soils to minimize erosion would continue. There would be negligible impacts to soils at Fort Sam Houston.

Alternative 1—Implement Force Reductions

Beneficial impacts to soils on Joint Base San Antonio-Fort Sam Houston are anticipated under Alternative 1. Force reductions at Camp Bullis would likely result in decreased use of the training ranges, which could have beneficial impacts to soils because there would be an anticipated decrease in soil compaction and vegetation loss. Because there are no active ranges on Fort Sam Houston, a force reduction would not lead to fewer impacts from these types of activities.

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

Environmental compliance at Joint Base San Antonio-Fort Sam Houston is under the authority of the Air Force, so measures to maintain compliance regarding soils management would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with regulations affecting soils.

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

4.28.8.1 Affected Environment

Vegetation

Fort Sam Houston is located within the city of San Antonio in Bexar County, Texas. Camp Bullis is located north of San Antonio in Comal County, Texas. About 70 percent of the affected environment on Fort Sam Houston consists of developed urban areas. The remaining 30 percent is not developed and lies within the floodplain of Salado Creek (USACE, 2007). Camp Bullis is mostly undeveloped. Fort Sam Houston is situated within the Northern Blackland Prairie ecoregion of Texas and Camp Bullis lies within the Balcones Canyonlands ecoregion (Griffith et al., 2004).

The vegetation on Fort Sam Houston was historically dominated by little bluestem, big bluestem, yellow indiangrass and tall dropseed (*Sporobolus composites*), but it is now primarily maintained grasslands with vegetation typical of the urbanized, anthropomorphically altered Blackland Prairies (USACE, 2007). Vegetation along the undeveloped portion of Salado Creek includes asters (*Asteraceae* spp.), prairie bluet (*Coenagrion angulatum*), prairie clovers (*Petalostemum purpureum*), and black-eyed Susan (*Rudbeckia hirta*). Trees along the undeveloped Salado Creek include bur oak (*Quercus macrocarpa*), Shumard's oak (*Quercus shumardii*), sugar hackberry (*Celtis laevigata*), elm, ash, eastern cottonwood (*Populus deltoides*), pecan, juniper (*Juniperus ashei*) evergreen sumac (*Rhus virens*), common sotol (*Dasylirion wheeleri*), acacia (*Acacia* spp.), honey mesquite (*Prosopis glandulosa*), and ceniza (*Agave colorata*) (Fort Sam Houston, 2009).

Vegetation on Camp Bullis consists of more than 500 plant species that can be grouped into five distinct plant communities: woodland plant communities of intermittent streams and adjacent floodplains, wetland plant communities, grassland savanna plant communities, upland wood plant communities and plant succession on disturbed ground. Woodland plant communities comprise over half of the environment on Camp Bullis while grassland savannahs dominant the majority of the remaining land (USACE, 2007).

Wildlife

Wildlife on Fort Sam Houston is primarily characterized by species which are especially tolerant of urbanization. Urban species found on Fort Sam Houston include fox squirrel, house sparrow, grackle (*Quiscalus* spp.) and American robin. The small portion of the installation in the Salado

Creek floodplain houses a greater diversity of wildlife including birds, mammals, and fish. Habitat use on Fort Sam Houston varies seasonally, particularly with regard to migratory birds. Common species observed during winter months include the white-winged dove (*Zenaida asiatica*) and northern cardinal, while waterfowl species are expected to use the Salado Creek floodplain throughout the year. Mammal species found in and around Salado Creek include mammals such as beaver, armadillo (*Dasypus novemcinctus*) and opossum. Fish species in the creek include bluegill, largemouth bass, and Rio Grande perch (*Cichlasoma cyanoguttatum*). Camp Bullis contains at least 57 mammal species, 157 bird species, 92 species of reptiles and amphibians, and 14 species of fish (USACE, 2007).

Threatened and Endangered Species

According to USFWS, 19 species protected under the ESA potentially occur or imminently are affected by actions in Bexar County, and 10 species potentially occur or imminently are affected by actions in Comal County. Neither Fort Sam Houston nor Camp Bullis contain critical habitat for any federally listed species. However, several threatened and endangered bird species could use portions of the installations during annual migration, including the whooping crane) and Arctic peregrine falcon (*Falco peregrine tundrius*) (USACE, 2007). Two species listed as threatened by the state of Texas, the widemouth blindcat (*Satan eurystomus*) and the toothless blindcat (*Trogloglanis pattersoni*), may be present on Fort Sam Houston. Both of these species are blind catfish that live entirely in the dark parts of caves in the Edwards Aquifer and are endemic to five artesian wells in the San Antonio pool of the Edwards Aquifer, in the southern and eastern portions of San Antonio, Bexar County (Fort Sam Houston, 2009). Camp Bullis contains habitat and current populations of five federally endangered species: golden-cheeked warbler (*Dendroica chrysoparia*), black-capped vireo (*Vireo atricapilla*), Madla's Cave meshweaver (*Cicurina madla*) and two unnamed beetles (*Rhadine exilis* and *R. ewersi*). Camp Bullis is also home to two state-listed threatened species—Cascade Caverns salamander (*Eurycea latitans*) and Comal blind salamander (*Eurycea tridentifera*) (USACE, 2007). Camp Bullis also manages seasonal nesting habitat for the golden-cheeked warbler.

4.28.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in no impacts to biological resources and the affected environment would remain in its current state.

Alternative 1—Implement Force Reductions

Implementation of Alternative 1 would result in slight beneficial impacts to biological resources including vegetation, wildlife, or threatened and endangered species. The potential for disturbances to the affected environment on Joint Base San Antonio-Fort Sam Houston are minimal because the majority of the land cover is anthropogenically altered habitat. The proposed reduction in personnel under Alternative 1 could further alleviate any existing pressure

to biological resources on Joint Base San Antonio-Fort Sam Houston. Environmental compliance at Joint Base San Antonio-Fort Sam Houston is under the authority of the Air Force, so measures to maintain compliance regarding natural resource management would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with natural resources regulations.

4.28.9 Wetlands

4.28.9.1 Affected Environment

A review of NWI maps identified approximately 278 acres of palustrine, lacustrine, riverine, and freshwater pond wetlands within Fort Sam Houston and Camp Bullis at Joint Base San Antonio-Fort Sam Houston (USFWS, 2010). Of the 278 acres identified, approximately 261 acres are on Camp Bullis and approximately 17 acres are on Fort Sam Houston. NWI mapping is an educated delineation based upon interpreting USGS topographic data, the USGS National Hydrography Dataset, NRCS soil data, and aerial imagery. No formal wetland delineation of the installation was performed.

The majority of the wetlands identified through NWI were open water systems, including ponds and lakes; however, riverine, palustrine forested, scrub-shrub, and emergent wetlands were also identified (USFWS, 2010). Table 4.28-2 identifies the acres of each wetland type on Fort Sam Houston and Camp Bullis.

Table 4.28-2. Acres of Wetland Types on Fort Sam Houston and Camp Bullis

Wetland Type	Acres
Fort Sam Houston	
Palustrine forested	14
Palustrine open water	3
Camp Bullis	
Palustrine Forested	11
Palustrine Scrub-shrub	12
Palustrine Emergent	40
Palustrine Open Water	82
Lacustrine	89
Riverine	27
Total acres for Fort Sam Houston and Camp Bullis	**278**

Source: USFWS (2010)

4.28.9.2 Environmental Effects

No Action Alternative

Minor, adverse impacts to wetlands on Joint Base San Antonio-Fort Sam Houston are anticipated under the No Action Alternative. Training activities on the ranges would continue to occur under current schedules and impacts to wetlands from these activities would continue. Additionally, impacts to wetlands from any current projects under construction would have already been assessed and, if required, been properly permitted and mitigated. Current management of wetlands would continue under the No Action Alternative. Current management of recreational facilities, such as golf courses, would also continue under the No Action Alternative and could contribute to pollutants entering adjacent wetlands and ponds.

Alternative 1—Implement Force Reductions

Beneficial impacts to wetlands on Joint Base San Antonio-Fort Sam Houston as a result of the implementation of Alternative 1 are anticipated. A force reduction at Joint Base San Antonio-Fort Sam Houston would mean that training ranges would be used less frequently. As a result, there would be less sedimentation from runoff entering wetland areas, fewer instances of vegetation becoming denuded, and wetland functions and values would remain intact. Adverse impacts to wetlands could conceivably occur if force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. Environmental compliance at Joint Base San Antonio-Fort Sam Houston is under the authority of the Air Force, so measures to maintain compliance regarding wetland management and compliance would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with wetland regulations.

4.28.10 Water Resources

4.28.10.1 Affected Environment

Surface Water/Watersheds

The main surface water draining Fort Sam Houston is Salado Creek, an intermittent stream flowing south through the eastern portion of the installation. Flow is predominantly precipitation driven with recharge from local artesian springs. The western portion of the installation is drained by Alamo Ditch, a small tributary of the San Antonio River. The city of San Antonio MS4 covers the highly impervious southern and central portions of the installation eventually draining to the Salado River.

Camp Bullis, to the north of Fort Sam Houston, is also drained by upper reaches of Salado Creek, and tributary Lewis Creek, as well as Cibolo Creek, Meusebach Creek, and Panther Springs Creek. The smaller surface waters are intermittent and dry for most of the year except during and following rain events. Salado Creek, located on the western portion of Camp Bullis,

runs southeast. Two constructed stormwater control structures hold and attenuate smaller amounts of stormwater runoff. Groundwater surfaces as springs along Lewis Creek and Panther Springs Creek before eventually disappearing into streambed fractures, caves, and sinkholes (U.S. Army, 2005, as cited by USACE, 2007).

The Salado Creek designated uses are contact recreation, high aquatic life, public water supply, and aquifer protection (Texas NRCC, 2001). The Salado Creek reaches within both Fort Sam Houston and Camp Bullis borders are impaired due to inability to meet bacteria water quality standards (Texas CEQ, 2013). Immediately north of Fort Sam Houston, Salado Creek is impaired for depressed dissolved oxygen (Texas CEQ, 2013). Sources for potential surface water quality issues include former landfills within the Salado Creek floodplain, golf course runoff, and other nonpoint sources (USACE, 2007).

Groundwater

The artesian zone of Edwards Aquifer is the major groundwater source under Fort Sam Houston. The groundwater in this area is confined between the Del Rio clay layer and the Glen Rose Formation. The aquifer is recharged by surface waterbodies and precipitation. In general, water flow within the aquifer is west to east however variations in porosity and permeability as well as aquifer faults determine specifics of water movement.

Contamination of groundwater within the Edwards Aquifer has occurred due to unnatural and natural sources. Dense, less permeable rock impedes groundwater movement causing natural contamination from dissolution of mineral solids. Total dissolved solid concentrations of up to 1,000 parts per million have been observed leading to saline, non-potable waters (USACE, 2007). Five wells draw groundwater from depths of 728 to 1,106 feet below the surface for water supply (U.S. Army, 2001b, as cited by USACE, 2007). Because of a hydrologic connection between aquifer and spring levels, too much pumping of aquifer water for water supplies could reduce spring flows (USACE, 2007).

Both Trinity and Edwards Aquifers occur under Camp Bullis. Surface waters and precipitation on Camp Bullis lands recharge both aquifers. Trinity Aquifer occurs under a majority of the Camp although Edwards Aquifer recharge areas occur in small portions of the northern and southeast areas of Camp Bullis. Camp Bullis wells draw water from the upper Trinity Aquifer further north of Edwards Aquifer (U.S. Army, 2006, as cited by USACE, 2007).

Water Supply

Joint Base San Antonio-Fort Sam Houston draws water from the Edwards and Trinity aquifers for water supply (U.S. Army, 2001b, as cited by USACE, 2007; USACE, 2007). In addition to the installations, San Antonio and 16 other cities use the Edwards Aquifer for their water supply (U.S. Army, 2001b, as cited by USACE, 2007). Estimations predict that this aquifer can provide regional water supplies for an additional 200 to 300 years; however, only 5 to 10 percent of

spring or artesian waters are able to be withdrawn (U.S. Army, 1996, as cited by USACE, 2007). Pumping limits are required for the installation so that water withdrawal will not exceed USFWS-recommended limits set to protect threatened and endangered species.

Five Fort Sam Houston wells draw water from the Edwards Aquifer for water supply (U.S. Army, 2001b, as cited by USACE, 2007). Total production capacity of the five Fort Sam Houston potable water wells is 14 mgd. Two elevated storage tanks have a capacity of 2.05 million gallons. There are two WWTPs on Fort Sam Houston, located in the southwest and northeast, which chemically treat well water before storage. The water is treated with chlorine, fluoride, and corrosion inhibitors.

Three Camp Bullis wells draw water from the Trinity Aquifer for water supply. Two of the three wells have a capacity of 0.19 mgd, while the third is restricted to 40 gallons per minute to control aquifer drawdown (USACE, 2007). Two elevated storage tanks have a capacity of 0.45 million gallons. The water is treated with chlorine, fluoride, and corrosion inhibitors before it is pumped to the storage tanks.

The installation has instituted a water use reduction and conservation program. Measures include upgrades to the water distribution system, an irrigation and landscaping policy, car washing restrictions, water reuse, and water recycling (U.S. Army, 2001c, as cited by USACE, 2007; USACE, 2007). Recycled water is used for irrigation and tower cooling on Fort Sam Houston. Camp Bullis uses treated wastewater effluent for range irrigation through a zero discharge permit.

Wastewater

Approximately 262,000 linear feet of pipelines of varying diameters and materials collect wastewater on Fort Sam Houston relying mainly on gravity to move the flow to sewer mains. One lift station assists with wastewater movement in the northeast of Fort Sam Houston. San Antonio Water System receives the wastewater when it leaves the installation. Fort Sam Houston has wastewater discharge permits.

Approximately 43,000 linear feet of pipelines collect wastewater on Camp Bullis with the assistance of six lift stations for transport to the WWTP. This treatment plant uses a conventional, activated-sludge process before off-installation disposal (U.S. Army, 2001b). The design capacity for the treatment plant is 0.68 mgd daily flow and 2.38 mgd 2-hour peak flow (USACE 2007). Treated wastewater effluent is reused for firing range irrigation under a zero discharge permit.

Stormwater

Portions of the installation are developed and contain impervious surfaces; approximately 20 percent of Fort Sam Houston is impervious land (USACE, 2007). In addition to greater amounts of stormwater runoff, these impervious surfaces also lead to more pollutants entering surface waters. The impervious southern and central areas of Fort Sam Houston are drained by the city of San Antonio MS4, which discharges to Salado Creek (USACE, 2007). In other areas the Salado Creek and Alamo Ditch receive surface stormwater runoff. Issues resulting from stormwater runoff within Fort Sam Houston include erosion, sedimentation, and infrastructure damage (USACE, 2007). Natural channels receive the overland stormwater runoff throughout Camp Bullis eventually discharging this flow into the San Antonio River.

The NPDES General Permit for Stormwater Discharge Associated with Industrial Activities (TXR05M458) for the installation requires implementation of BMPs and preparation of an SWPPP (USACE, 2007). Monitoring for the permit includes collecting stormwater runoff samples along Salado Creek. Past years have shown no exceedances of the permit guidelines except for chemical oxygen demand, iron, and total suspended solids (USACE, 2007).

Floodplains

E.O. 11988, *Floodplain Management*, requires federal agencies to avoid floodplain development and any adverse impacts from the use or modification of floodplains when there is a feasible alternative. Specifically, Section 1 of E.O. 11988 states that an agency is required to "reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities." The 100-year floodplain indicates areas where the flood has a 1 percent chance of being equaled or exceeded in any year. The 500-year floodplain indicates area where the flood has a 0.2 percent chance of being equaled or exceeded in any year.

Within Fort Sam Houston, specific areas designated as 100-year and 500-year floodplains include areas adjacent to Salado Creek, especially the entire eastern portion of the installation (USACE, 2007). Flooding in this area occurs about once every 3 to 4 years (USACE, 2007). Six former landfills are located within the Salado Creek floodplain of Fort Sam Houston (USACE, 2007). Within Camp Bullis, 100-year floodplain exists adjacent to Salado Creek and small areas along the main stream channels and tributaries running through the installation borders. Two flood control reservoirs, monitored by NRCS and the San Antonio River Authority, store and retain stormwater flows along Salado and Lewis Creeks preventing serious flooding for Camp Bullis land.

4.28.10.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

Beneficial impacts to water resources are anticipated as a result of implementing Alternative 1. A force reduction would result in fewer training exercises thereby decreasing the potential for surface water disturbance and sedimentation. A force reduction would decrease demand for potable water and would reduce groundwater withdrawals. Demand for wastewater treatment would also decrease, allowing additional capacity for other users. Adverse impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. Environmental compliance at Joint Base San Antonio-Fort Sam Houston is under the authority of the Air Force, so measures to maintain compliance regarding water resource management would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with water quality regulations. Army force reductions at Joint Base San Antonio-Fort Sam Houston are not anticipated to cause violations of federal and state water quality regulations and discharge permits.

4.28.11 Facilities

4.28.11.1 Affected Environment

Joint Base San Antonio-Fort Sam Houston's facilities support its mission of medical training and practice. Mission facilities are primarily characterized as administrative, classroom, hospital and clinic space. Joint Base San Antonio-Fort Sam Houston is a 2,940-acre installation that does not have an airfield or warfighting maneuver or training ranges. Supporting facilities at Joint Base San Antonio-Fort Sam Houston include Family housing, troop housing, recreational facilities, commercial and community facilities, vehicle and equipment maintenance facilities, and supply distribution facilities (USACE, 2007).

Camp Bullis encompasses 27,987 acres and is primarily used for military training. It is divided into three general areas: the cantonment area (about 600 acres), the impact area (about 6,000 acres), and the maneuver areas (about 21,400 acres). The Camp Bullis cantonment area has most

of the administrative and support facilities including offices, warehouses, classrooms, barracks, munitions and explosives storage, and water and wastewater treatment systems. The other facilities at Camp Bullis include target ranges, training areas, airspace, and outdoor recreation facilities (USACE, 2007).

4.28.11.2 Environmental Effects

No Action Alternative

No impacts are anticipated under the No Action Alternative. Joint Base San Antonio-Fort Sam Houston would continue to use its existing facilities to support its tenants and missions.

Alternative 1—Implement Force Reductions

Under Alternative 1, implementation of the proposed force reductions would result in overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a reduction in the frequency of training exercises at Camp Bullis would be beneficial for maintaining ranges and training areas and thereby improving sustainability of those facilities. A decrease in training operational tempo and related heavy equipment use would be beneficial for the maintenance and sustainability of roadways and off-road maneuver areas. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

If Army reductions result in impacts to the utilization of facilities and/or training areas at this Air Force-managed joint base, the Air Force could conduct any required site-specific NEPA analyses, as appropriate, and make the final determinations regarding disposition of these affected facilities and/or training areas.

4.28.12 Socioeconomics

4.28.12.1 Affected Environment

Joint Base San Antonio-Fort Sam Houston is situated in Bexar County within the city of San Antonio, Texas. The ROI for the joint base in this analysis includes counties that are generally considered the geographic extent to which the majority of the joint base's Soldiers, Army civilians, and contractor personnel and their Families reside. The ROI for Joint Base San Antonio-Fort Sam Houston consists of Atascosa, Bandera, Bexar, Comal, Guadalupe, Kendall,

Medina, and Wilson counties in Texas. This section provides a summary of demographic and economic characteristics within the ROI.

Population and Demographics

Using 2013 as a baseline, Joint Base San Antonio-Fort Sam Houston has a total working population of 37,356 consisting of permanent party Soldiers and Army civilians, students and trainees, other military services, civilians and contractors. Of the total working population, 12,256 were permanent party Soldiers and Army civilians. Joint Base San Antonio-Fort Sam Houston provides medical training for Soldiers and averages approximately 11,800 students assigned on the joint base for training at any given time.

In 2012, the population of the ROI exceeded 2.2 million, a 4.3 percent increase from 2010. Compared to 2010, the 2012 population increased in all of the counties in the ROI, with the greatest increase in Kendall County (Table 4.28-3). The racial and ethnic composition of the ROI is presented in Table 4.28-4 (U.S. Census Bureau, 2012a).

Table 4.28-3. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Atascosa County, Texas	46,423	+3.4
Bandera County, Texas	20,586	+0.5
Bexar County, Texas	1,785,787	+4.1
Comal County, Texas	114,590	+5.6
Guadalupe County, Texas	139,873	+6.3
Kendall County, Texas	35,968	+7.7
Medina County, Texas	46,871	+1.9
Wilson County, Texas	44,396	+3.5

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

Table 4.28-4. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic (percent)	White Alone, Not Hispanic or Latino (percent)
State of Texas	80.6	12.3	1	1.7	38.2	4.2	44.5
Atascosa County, Texas	96.0	1.2	1.1	1.1	62.5	0.5	35.4
Bandera County, Texas	96.6	0.6	1.1	1.3	17.3	0.3	80.1
Bexar County, Texas	85.6	8.1	1.2	2.1	59.1	2.7	29.8
Comal County, Texas	94.7	2.0	0.8	1.5	25.8	0.8	70.1
Guadalupe County, Texas	87.5	7.3	1.0	2.3	36.3	1.7	53.5
Kendall County, Texas	96.2	0.8	0.7	1.4	21.3	0.8	75.9
Medina County, Texas	94.3	2.6	1.0	1.2	50.5	0.8	45.7
Wilson County, Texas	95.4	1.8	0.9	1.4	38.9	0.5	58.0

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

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

Employment and Sales

In 2012, the total employed labor force in the ROI was 988,625, the majority of which resides in Bexar County. Between 2000 and 2012, total employed labor force (including Soldiers and Army civilians) increased in all of the ROI counties, with the greatest increase in Kendall, Wilson, and Comal counties (Table 4.28-5). Employment, median home value, household income, and poverty levels are presented in Table 4.28-5 (U.S. Census Bureau, 2012b).

Table 4.28-5. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment 2000-2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Texas	11,546,783	23.6	$128,000	$60,621	13.5
Atascosa County, Texas	18,578	20.2	$83,300	$51,834	14.0
Bandera County, Texas	8,588	9.3	$141,400	$59,797	9.5
Bexar County, Texas	791,377	27.3	$122,600	$58,023	13.8
Comal County, Texas	51,233	40.3	$202,200	$76,326	6.9
Guadalupe County, Texas	63,732	52.2	$154,300	$73,684	7.7
Kendall County, Texas	16,056	46.7	$272,800	$84,630	4.0
Medina County, Texas	18,552	14.1	$109,800	$60,974	14.4
Wilson County, Texas	20,509	45.8	$139,300	$69,731	8.7

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

Information regarding the workforce by industry for each county within the ROI was obtained from the U.S. Census Bureau. Information presented below is for the employed labor force. Information on major employers were not readily available for all counties in the ROI.

Atascosa County, Texas

According to the U.S. Census Bureau, the educational services, health care and social assistance sector accounts for the greatest share of total workforce in Atascosa County (23 percent). Construction is the second largest employment sector (14 percent), followed by retail trade (13 percent). The Armed Forces account for less than 1 percent of the county's workforce. The remaining 10 employment sectors account for a combined 60 percent of total county employment (U.S. Census Bureau, 2010).

Bandera County, Texas

According to the U.S. Census Bureau, the educational services, health care and social assistance sector accounts for the greatest share of total workforce in Bandera County (19 percent). Construction is the second largest employment sector (13 percent), followed by retail trade (12 percent). The Armed Forces account for less than 1 percent of the county's workforce. The

remaining 10 employment sectors account for a combined 56 percent of total county employment (U.S. Census Bureau, 2010).

Bexar County, Texas

According to the U.S. Census Bureau, the educational services, health care and social assistance sector accounts for the greatest share of total workforce in Bexar County (22 percent). Retail trade is the second largest employment sector (12 percent), followed by professional, scientific, and management, and administrative and waste management services (11 percent). The Armed Forces account for 2 percent of the county's workforce. The remaining 10 employment sectors account for a combined 55 percent of total county employment (U.S. Census Bureau, 2010).

Major employers in Bexar County include Joint Base San Antonio, H.E.B. Grocery Company, Northside ISD, and USAA (Bexar County, 2012).

Comal County, Texas

According to the U.S. Census Bureau, the educational services, and health care and social services sector accounts for the greatest share of total workforce in Comal County (20 percent). Retail trade is the second largest employment sector (13 percent), followed by construction (11 percent). The Armed Forces account for less than 1 percent of the county's workforce. The remaining 10 employment sectors account for a combined 56 percent of total county employment (U.S. Census Bureau, 2010).

Major employers in Comal County include Comal ISD, Schlitterbahn Water Park, The Scooter Store, and Walmart Distribution Center (Comal County Auditor's Office, 2012).

Guadalupe County, Texas

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of total workforce in Guadalupe County (21 percent). Retail trade is the second largest employment sector (13 percent), followed by manufacturing (11 percent). The Armed Forces account for 2 percent of the county's workforce. The remaining 10 employment sectors account for a combined 55 percent of total county employment (U.S. Census Bureau, 2010).

Major employers in Guadalupe County include city of Schertz, city of Seguin, CMC Steel Texas, and Continental AG (Guadalupe County Auditor's Office, 2013).

Kendall County, Texas

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of total workforce in Kendall County (21 percent). Professional, scientific, and management, and administrative and waste management services is the second largest employment sector (12 percent), followed by construction (11

percent). The Armed Forces account for less than 1 percent of the county's workforce. The remaining 10 employment sectors account for a combined 56 percent of total county employment (U.S. Census Bureau, 2010).

Major employers in Kendall County include Boerne ISD, H.E.B. Grocery Stores, Walmart Super Center, and Mission Pharmacal (Kendall County, 2014).

Medina County, Texas

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of total workforce in Medina County (24 percent). Construction is the second largest employment sector (10 percent), followed by retail trade (10 percent). The Armed Forces account for less than 1 percent of the county's workforce. The remaining 10 employment sectors account for a combined 56 percent of total county employment (U.S. Census Bureau, 2010).

Wilson County Texas

According to the U.S. Census Bureau, the educational services, and health care and social services sector accounts for the greatest share of total workforce in Wilson County (23 percent). Construction is the second largest employment sector (11 percent), followed by retail trade (10 percent). The Armed Forces account for less than 1 percent of the county's workforce. The remaining 10 employment sectors account for a combined 56 percent of total county employment (U.S. Census Bureau, 2010).

Housing

Housing on Joint Base San Antonio-Fort Sam Houston is privatized. This privatization took effect on March 1, 2005 and is a partnership between the Army and Lincoln Military Housing. There are 925 homes offered to military personnel through Lincoln Military Housing within 8 villages on Fort Sam Houston (Air Force Housing, 2014). This military housing provides many benefits to service members and their Families including, utilities and renters insurance, no credit checks or deposits, and community events and activities (Air Force Housing, 2014).

Benner Barracks is located on Fort Sam Houston and consists of 288 barracks spaces. The new NCO Barracks is located directly across the street from Benner Barracks and consists of 96 Barracks spaces. Located on the Medical Center Annex is Okubo Barracks consisting of 296 barracks spaces (Air Force Housing, 2014).

Schools

An elementary, middle, and high school are located on Fort Sam Houston. This includes Fort Sam Houston Elementary School (serving students pre-kindergarten through grade 5), the Robert G. Cole Middle School (serving students in grades 6 through 8), the Robert G. Cole High School,

and the Military School District's Academy and Special Education (serving special needs students from Joint Base San Antonio-Fort Sam Houston) (Fort Sam Houston ISD, 2014).

Public Health and Safety

Police Services

The Fort Sam Houston Police Department responds to calls at Fort Sam Houston (Fort Sam Houston, 2014a).

Fire and Emergency Services

Fire Emergency Services on Joint Base San Antonio-Fort Sam Houston provides fire prevention, structural firefighting, technical rescue, hazardous materials response, aircraft rescue firefighting, and emergency medical services to prevent the loss of life, property, and the environment for all Joint Base San Antonio-Fort Sam Houston locations (Joint Base San Antonio-Fort Sam Houston, 2014a).

Medical Services

The San Antonio Military Health System oversees the healthcare delivery of 230,000 DoD beneficiaries in the San Antonio metropolitan region. Health care services are provided by the SAMCC, which includes a Level 1 trauma center and DoD's largest inpatient hospital, Wilford Hall Ambulatory Surgical Center; 19 primary care clinics; and more than 100 specialty services (Joint Base San Antonio-Fort Sam Houston, 2014b).

Family Support Services

Joint Base San Antonio-Fort Sam Houston offers Families Exceptional Family Life Consultants, Emergency Financial Aid, Employment readiness, Family Life Education, Unit Service Coordinator/information and referral service, Relocation Readiness, Mobilization and Deployment Readiness, Personal and Family readiness, Transition Assistance Program, Survivor Benefit Plan and Outreach Services, Casualty Affairs, and Air Force Aid Society. Joint Base San Antonio-Fort Sam Houston also offers Families Marriage, Family, and individual counseling at the Family Life center, welfare and Recreation Programs, a Commissary, and an Exchange (an Army and Air force exchange service) (Joint Base San Antonio-Fort Sam Houston, 2014c).

Recreation Facilities

Joint Base San Antonio-Fort Sam Houston provides its military community an aquatic center, bowling center, gym, child development center, equestrian center, Family child care center, golf club, two fitness centers (on the Medical Education and Training Campus and Jimmy Brought Fitness Center), Hacienda Recreation Center, the Harlequin Dinner Theatre, Keith A Campbell Memorial Library, Middle School Teen Center, outdoor equipment center, Sam Houston Community Center, and Salado Park (Joint Base San Antonio-Fort Sam Houston, 2014c).

4.28.12.2 Environmental Effects

No Action Alternative

Under the No Action Alternative the operations at Joint Base San Antonio-Fort Sam Houston would continue to benefit regional economic activity. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

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

Population and Economic Impacts

Alternative 1 would result in the loss of 5,934[36] Army positions (3,949 Soldiers and 1,985 Army civilians), each with an average annual income of $46,760 and $56,913, respectively. In addition, this alternative would affect an estimated 9,008 Family members (3,311 spouses and 5,697 dependent children). The total population of Army employees and their Families directly affected under Alternative 1 is projected to be 14,942.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecast economic impact value falls outside the historical positive or negative ranges. Table 4.28-6 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, there would not be significant impacts to sales, income, employment, and population in the ROI under Alternative 1 because the estimated percentage changes are within the historical range.

Table 4.28-7 summarizes the predicted impacts to income, employment, and population of the reductions against the 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

[36] This number was derived by assuming the loss of 70 percent of Joint Base San Antonio-Fort Sam Houston's Soldiers and 30 percent of the Army civilians.

Table 4.28-6. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+7.2	+4.6	+2.6	1.5
Economic contraction significance value	-6.4	-3.9	-3.5	-1.0
Forecast value	-0.5	-0.5	-0.9	-0.5

Table 4.28-7. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$392,672,500	-6,620 (Direct) -1,864 (Induced) -8,485 (Total)	-14,942
Total 2012 ROI economic estimates	$87,169,022,000	988,625	2,234,494
Percent of total ROI figures	-0.5	-0.9	-0.7

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

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts are likely to occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 5,934 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 686 direct contract service jobs would also be lost. An additional 1,864 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. The total reduction in employment is estimated to be 8,485, a 0.9 percent reduction of the total employed labor force in the ROI. Income is estimated to fall by $392.7 million, a 0.5 percent decrease in income in 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $678 million. Sales tax receipts to local and state governments would also decrease. The state and average local sales tax for Texas is 8.15 percent (Tax Foundation, 2014). To estimate sales tax reductions, information was utilized on the proportion of sales that would be subject to sales taxes on average across the county. According to the U.S. Economic Census, an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). Therefore, with an estimated reduction of $677.7 million in sales would result in an estimated decrease in sales tax receipts of $8.8 million.

Of the approximately 2.2 million people (including those residing on Joint Base San Antonio-Fort Sam Houston) who live within the ROI, 5,934 Army employees and an estimated 9,008 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a

population reduction of 0.7 percent. This number likely overstates potential population impacts because some of the people no longer employed by the Army would continue to live and work within the ROI, finding employment in other industry sectors.

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

Housing

Alternative 1 is expected to result in a decline in population in the ROI of 0.7 percent. While the force reductions may result in a decreased demand for housing on and off the joint base, it is not expected that this would result in significant, adverse impact to the housing sector given the size of the ROI.

Schools

Under Alternative 1, the reduction of 5,934 Army personnel would decrease the number of children by 5,697 in the ROI. It is anticipated that school districts that provide education to Army children on the joint base would be impacted by this action. The schools on Joint Base San Antonio-Fort Sam Houston, as well as school districts in Bexar County and neighboring counties where joint base children attend school would be most affected under Alternative 1. If enrollment in individual schools is significantly affected, schools may need to reduce the number of teachers, administrators, and other staff and potentially close or consolidate with other schools within the same school district if enrollment falls below sustainable levels.

The reduction of Soldiers on Joint Base San Antonio-Fort Sam Houston would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal Impact Aid a district receives is based on the number of students who are considered "federally connected" and attend district schools. Actual projected dollar amounts cannot be determined at this time due to the variability of appropriated dollars from year to year and the uncertainty of the actual number of affected school-age children for Soldier and Army and civilian Families. School districts in the ROI would likely need fewer teachers and materials as enrollment drops, which would partially offset the reduced Federal Impact Aid. Overall, adverse impacts to schools associated with Alternative 1 would be minor to significant depending on the number of military-connected students attending each school.

Public Services

The demand for law enforcement, medical care providers, and fire and emergency service providers on the joint base may decrease if Soldiers, Army civilians, and their Family members,

affected under Alternative 1 move off the joint base. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the joint base. These scenarios are not reasonably foreseeable and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements where it is appropriate for them to do so on this Air Force managed joint base. Many of the public services provided on Joint Base San Antonio-Fort Sam Houston are under the authority of the Air Force; these health and safety requirements would continue to be met by the Air Force. Overall, minor impacts to public health and safety would occur under Alternative 1; these impacts are not expected to be significant because the existing service level for the joint base and the ROI would still be available.

Family Support Services and Recreational Facilities

Family Support Services and recreational facilities would experience reduced demand and use and, subsequently, would require fewer personnel and/or reduced funding. Many of the Family Support Services and all of the recreational facilities provided on Joint Base San Antonio-Fort Sam Houston are under the authority of the Air Force, so measures for meeting those needs would continue to be met by the Air Force. Minor impacts to Family Support Services and recreational facilities are anticipated under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, states: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). In general, Alternative 1 would not have a disproportionate adverse impact to minorities, economically disadvantaged populations or children in the ROI. Job losses would be experienced across all income levels and economic sectors and spread geographically throughout the ROI. As shown in Table 4.28-3, minority populations in all of the ROI counties are proportionally smaller than in Texas as a whole, so there would be no disproportionate effect to environmental justice populations.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of the people associated with the joint base, including children, where it is appropriate for them to do so on this Air Force managed joint base. Therefore, it is not anticipated that Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the joint base that may

require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and could be evaluated in future, separate, site-specific NEPA analysis by Joint Base San Antonio, as appropriate.

4.28.13 Energy Demand and Generation

4.28.13.1 Affected Environment

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

Electricity

The electrical power systems at Joint Base San Antonio-Fort Sam Houston were privatized in September 2000. Electrical power is provided by City Public Service. Power is distributed to various facilities via lines owned by City Public Service and metered at each individual facility. In addition to the electrical power provided by City Public Service, Joint Base San Antonio-Fort Sam Houston has several auxiliary generators to supply power to critical mission facilities during emergencies (U.S. Army, 2001b, as cited by USACE, 2007).

Natural Gas

Natural gas supply at Fort Sam Houston was privatized in September 1999. City Public Service owns and maintains the gas distribution lines throughout the installation. Propane gas is used at Camp Bullis for heating. Storage tanks are located near the facilities that use the propane. The gas is supplied by local vendors (USACE, 2007).

4.28.13.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

4.28.14 Land Use Conflicts and Compatibility

4.28.14.1 Affected Environment

Regional Setting

Fort Sam Houston is located in south-central Texas, in the city of San Antonio, approximately 2.5 miles northeast of the central downtown area. Joint Base San Antonio-Fort Sam Houston is located within Loop 410, which circles the city center and encloses a densely populated urban environment. The 2,940-acre installation is surrounded by developed property, widely used highways and arterial roadways. The installation roughly comprises the land area enclosed on the south by IH-35, on the west-northwest by the Old Austin Highway and Harry Wurzbach Highway, on the north by Rittiman Road and Holbrook Road, and by IH-35 on the east-southeast.

Camp Bullis is located north of San Antonio, in Bexar and Comal counties, Texas, and is a sub-installation to Joint Base San Antonio. It encompasses 27,987 acres approximately 18 miles northwest of Fort Sam Houston. The installation runs approximately 10 miles from north to south and 4 miles from east to west. The surrounding area is primarily rural but has become increasingly urbanized as the San Antonio suburbs have radiated outward to extend closer to Camp Bullis.

The Fort Sam Houston mission is focused on medical training and practice, and its activities and facility requirements are primarily characterized as administrative, classroom, hospital and clinic space. Camp Bullis is used as a field training site for medics and medical students. Fort Sam Houston does not have an airfield or warfighting maneuver or training ranges. Camp Bullis provides target ranges and field training areas for the Army, Air Force, Marine Corps, and the Armed Forces reserve units in the San Antonio area, as well as serving as an exercise site for many military units from outside the region.

Land Use on the Installation

There is no room for land expansion at Fort Sam Houston, and additional development is confined within the installation's borders. The Fort Sam Houston master plan layout and the associated land uses are characterized by four mission-related subareas: patient care; medical

training; medical and other RDTE; and headquarters and administration. Additionally, housing, recreational, commercial and community facilities are located throughout the installation. Older, more developed areas occur in the southwestern and south-central portions of the installation, and contain most of the headquarters/administrative, housing, community support and training facilities. The Arthur McArthur Field, a long contiguous tract of land, is used as parade grounds and athletic fields. The central core of Fort Sam Houston contains a variety of land uses, including Family housing, troop housing and bachelor officers' quarters, intermingled with HQ/administrative, community support, educational, and smaller recreation facilities. The south-central part of the installation is an industrial area primarily dedicated to logistics, facilities services, vehicle and equipment maintenance, supply distribution and warehousing. The north end of Fort Sam Houston is less densely developed, with Family housing, schools, outdoor recreation and a national cemetery. There are two 18-hole golf courses, picnic and camping areas and a riding stable in this area. Other smaller recreation areas can be found throughout the installation. The easternmost area houses greater than 1 million square feet of SAMMC and support facilities.

The Camp Bullis master plan divides the installation into three general areas. The cantonment area (about 600 acres) in the southwest part of the reservation, the impact area (about 6,000 acres) in the southeast and the maneuver areas (about 21,400 acres) comprise the bulk of the land area. Each area is used for a variety of functions. The Camp Bullis cantonment area has most of the administrative and support functions and facilities, including offices, warehouses, classrooms, barracks, munitions and explosives storage and water and wastewater treatment systems. The impact area for the firing ranges occupies most of the southeast part of the reservation. Other areas provide a variety of features and facilities supporting different missions and training activities. These include four drop zones used for air missions and several special training areas with constructed obstacles, natural features and facilities to support specific training needs. Tracked vehicle training is performed on trails in the southern, eastern and central portion of the installation.

Camp Bullis supports activities of other entities, mostly governmental, that will not impede or inhibit the military mission, on about 80 percent of the land through easements, grants or permits. The San Antonio River Authority and NRCS monitor and maintain two flood control reservoirs on 700 acres (FAA operates radar and air traffic control equipment on leased land north of the cantonment area). Several borrow pits and quarrying operations are dispersed throughout Camp Bullis. One commercial oil and gas license is in effect. Camp Bullis provides recreational opportunities for military and civilian personnel. Soccer, softball and volleyball facilities are available for military personnel. Personnel also have access to about 21,000 acres for deer, dove and quail hunting during state-designated hunting seasons, as well as a sportsman's shooting range. The entire Camp Bullis land area is used for conservation and restoration of natural resources, consistent with the Army's peacetime mission and federal policy.

Surrounding Land Use

Fort Sam Houston lies within the city of San Antonio. The San Antonio Planning Department oversees master planning efforts in the city as well as compliance with existing ordinances. The Alamo Area Council of Governments is a voluntary association of local governments and organizations that provides technical planning assistance and coordination within the region. Although Fort Sam Houston does not fall under the jurisdiction of the city of San Antonio, land use changes on Fort Sam Houston may have impacts to the surrounding community.

Land use surrounding Fort Sam Houston is varied and includes single- and multi-Family residential, lodging, commercial business, light industrial, office space, warehouse/distribution, institutional, religious and recreational uses. The southeast border of the installation runs parallel to IH-35, a major thoroughfare that defines a corridor of various land uses along the service roads. The eastern boundary is largely open, with rural land and sporadic houses. Some industrial use is interspersed, but floodplains constrain further development. To the southeast and south, open land along the boundaries and highways is zoned mostly for industry and is being developed as such. The city's John James Park and the Fort Sam Houston National Cemetery (owned and administered by the Veterans Administration) are contiguous with Joint Base San Antonio-Fort Sam Houston on the northwest end of the installation.

Camp Bullis is located predominantly within Bexar County. A small amount of land (about 2,000 acres) on the north boundary falls within Comal County. Some original rangeland still is found along the northern boundary of Camp Bullis, but most surrounding land is being subdivided and used for suburban development. On the west side, Camp Stanley abuts Camp Bullis. On the southwestern boundary is the 323-acre city of San Antonio Eisenhower Park. Also to the south of the installation are rock quarries and a cemetery. Some commercial and industrial developments are located along the primary highways south of the installation.

4.28.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, no force reductions would take place. Medical training mission activities at Fort Sam Houston and military training activities at Camp Bullis would continue at their current levels. No incompatibilities with land uses within or outside the installation are anticipated. The No Action Alternative is therefore expected to have no impacts to land use.

Alternative 1—Implement Force Reductions

No impacts to land use would occur on Joint Base San Antonio-Fort Sam Houston under Alternative 1. Medical training mission activities at Fort Sam Houston and military training activities at Camp Bullis would continue at similar, though slightly diminished levels from current conditions. No incompatibilities with land uses within or outside the installation are anticipated.

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

Installation management at Joint Base San Antonio-Fort Sam Houston is under the authority of the Air Force, so measures to maintain compliance regarding land use ordinances and regulations would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with land use ordinances and regulations.

4.28.15 Hazardous Materials and Hazardous Waste

4.28.15.1 Affected Environment

Activities and maintenance processes at Joint Base San Antonio-Fort Sam Houston require the use of hazardous materials. The most commonly used hazardous materials include aviation and motor fuels, petroleum products, paints, solvents, thinners, adhesives, cleaners, batteries, acids, bases, refrigerants, compressed gases and pesticides. The management and distribution of hazardous materials at Joint Base San Antonio-Fort Sam Houston are accomplished primarily through the Department of Logistics supply channels based on forecast and immediate needs. Other hazardous materials, including pesticides, medical supplies, and fuels are maintained and distributed through alternative channels. DPW performs hazardous material reporting for compliance with the EPA Emergency Planning and Community Right-to-Know Act and other regulations (USACE, 2007).

Petroleum fuels and products, as well as waste petroleum products, are stored in various tanks throughout Joint Base San Antonio-Fort Sam Houston. Materials stored include No. 2 diesel fuel, gasoline, jet propellant, motor oil and waste oil.

Hazardous Waste Treatment, Storage and Disposal

Hazardous wastes on the installation are handled, transported and stored in accordance with a HWMP. The plan sets forth procedures to achieve and maintain regulatory compliance regarding material management or administrative responsibilities; turn-in procedures; a hazardous material; inventory; training; a waste analysis plan; a tracking system; and hazardous waste storage, packaging, labeling and shipment requirements. In addition to this plan, SPCC Plans and ISC Plans have been developed and implemented for Joint Base San Antonio-Fort Sam Houston. These plans provide prevention and control measures to minimize the potential for spills of hazardous and toxic chemicals, and establish plans and procedures for controlling and managing sudden releases of petroleum products and other hazardous materials.

Joint Base San Antonio-Fort Sam Houston is a RCRA large-quantity hazardous waste generator. In accordance with state and federal waste regulations, hazardous waste is transported offsite for proper disposal within 90 days. No hazardous waste is disposed on either installation. Recycling

efforts and procedural changes, including product substitutions, have been implemented where feasible to reduce the need for hazardous waste disposal from installation activities (USACE, 2007).

Hazardous Waste Investigation and Remediation Sites

Contamination of groundwater and soil is tracked and mitigated by the U.S. Air Force. Prior to joint basing taking effect, these actions had been recorded in the Army Environmental Database for Restoration. Four IRP sites on Joint Base San Antonio-Fort Sam Houston are in varying stages of investigation and remediation (USACE, 2007).

Other Hazards

Other hazards present at Joint Base San Antonio-Fort Sam Houston are controlled, managed, and removed through specific programs and plans and include UXO, radioactive materials, LBP, asbestos-containing materials, PCBs, pesticides, and medical waste.

4.28.15.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

Minor, adverse impacts are anticipated as a result of implementing Alternative 1. Remediation activities are not expected to be impacted by Alternative 1. Because of the reduced numbers of people, the potential for spills would be somewhat reduced during training and maintenance activities. Waste collection, storage, and disposal processes would remain mostly unchanged, although the quantities may be reduced. No violation of hazardous waste regulations or the Joint Base San Antonio-Fort Sam Houston hazardous waste permit is anticipated as a result of force reduction. Volumes of generated waste are expected to decline depending on the specific units affected.

Environmental compliance at Joint Base San Antonio-Fort Sam Houston is under the authority of the Air Force, so measures to maintain compliance regarding hazardous waste management would continue to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste.

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

4.28.16 Traffic and Transportation

4.28.16.1 Affected Environment

Roadways and Traffic

The Fort Sam Houston installation of Joint Base San Antonio-Fort Sam Houston is located in the city of San Antonio, Texas, and Camp Bullis is north of San Antonio. Loop 410 circles the city center and encloses a densely populated urban environment. Fort Sam Houston is located within Loop 410 to the northeast of the city center. The installation is surrounded by developed property, widely used highways and arterial roadways (USACE, 2007).

The affected environment from a highway transportation perspective primarily includes: 1) the major on-installation roads that provide the corridors for movement of vehicles to and from and within subareas of the installation, and 2) arterial roads that provide direct access to and from the installation and the surrounding areas through ACPs (USACE, 2007). Public transportation and other modes including air and freight transportation are addressed as they pertain to Joint Base San Antonio-Fort Sam Houston.

Camp Bullis is a separate, non-contiguous facility located approximately 18 miles northwest of Fort Sam Houston within the northern San Antonio metropolitan area. Access is through a single ACP.

Joint Base San Antonio-Fort Sam Houston Transportation and ACPs

Most roadways and intersections throughout Fort Sam Houston were operating well prior to the BRAC influx of personnel. All had sufficient capacity to accept the expanded operations. The primary concerns expressed in the 2007 BRAC analysis pertain to peak hour incoming queues at certain ACPs. The ACPs are key elements of the traffic analysis. They represent 100 percent stop-and-check conditions on entry to the installation and slow exiting from the installation (USACE, 2007).

The main concern expressed in the BRAC 2007 study was the BAMC (now SAMMC) area of the installation regarding the morning peak queuing at the ACPs. The SAMMC campus has direct access to IH-35 and Loop 410. This provides convenient access to the major roadway infrastructure on the east side of San Antonio, as well as the downtown area (USACE, 2007). Limiting queues is a safety priority as well as convenience factor. Of greatest concern was the SAMMC/IH-35 ACP queue traffic in the a.m. peak along the access ramp from IH-35 (USACE, 2007).

In addition to the BRAC-related Walters Bridge and IH-35 roadway improvements identified below, Joint Base San Antonio-Fort Sam Houston initiated and completed a comprehensive ACP upgrade and restructuring. The re-built, state-of-the-art Walters Gate was opened in August 2012, with the exception of the Visitor Control Center (Newman, 2012).

New access procedures have been developed and implemented as the gates have been upgraded. Full Visitor Control Center implementation at Joint Base San Antonio-Fort Sam Houston is anticipated for completion April 30, 2014 (Fort Sam Houston, 2014b).

Off-Installation Roadways

Off-installation roadways around Fort Sam Houston comprise a well-developed roadway network system composed of all levels of roads. As noted above, the primary focus of the transportation evaluation is the connection between the roadway network and direct access to the installation at ACPs. The off-installation segments of these direct access roads include the following:

- Walters Street from IH-35 to the ACP
- Harry Wurzbach to the ACPs at Williams Road and Stanley Road along the northwest installation boundary
- Wilson Street ACP at the west end of the installation
- Access road and ramps to the ACP on the IH-35 Service Road along the east installation boundary of the SAMMC subarea at George C. Beach Avenue and a second ACP to this area from Binz-Engleman Road to George C. Beach Road on its south side

The primary access to the main area is through Walters Street, which was a four-lane road, two lanes in each direction in 2007. This roadway was the primary concern related to BRAC implementation (USACE, 2007). Walters Street was widened and reconstructed to six lanes from IH-35 to the Fort Sam Houston entrance gate. The project also included a multi-use path for pedestrians and bicyclists with decorative walls and fence rails (Southside Reporter, 2013).

Public Transportation

The city of San Antonio is serviced by VIA, the metropolitan transit system, with bus routes throughout the metropolitan and surrounding areas. Based on their schedules and routes, they do not provide services on the installation itself, but there are numerous routes in the immediate surrounding off-installation areas. Several routes provide access at the Walters and New Braunfels ACPs. The area adjacent to the northern portion of the installation also has select bus routes with full connectivity and coverage for the entire VIA transit network (USACE, 2007).

Air Transportation

Fort Sam Houston is approximately 8 miles from the San Antonio International Airport. San Antonio International Airport provides commercial airline service for the South Texas region. Over 13 airlines service more than 30 non-stop domestic and international destinations.

There are also at least two general aviation airports in the area, including Stinton Field that serve San Antonio operators of light aircraft, individuals, and private aviation companies (San Antonio, 2014).

Rail Passenger Transportation

Amtrak's Texas Eagle provides daily passenger service between Chicago–St. Louis–Dallas–San Antonio and Los Angeles (Amtrak, 2014).

Freight Rail and Intermodal Freight Services

San Antonio provides good highway and freight rail access via major intersecting highways, railroads, and intermodal systems. I-10, which runs east to west and stretches from Los Angeles, California, to Jacksonville, Florida, intersects in the city, as does north-south-running IH-35, which starts at the border in Laredo, Texas, and continues to Canada, tracing the North American Free Trade Agreement corridor. The rail system also boasts both east-west and north-south rails (Inbound Logistics, 2012). That means Fort Sam Houston has reasonably good access to major rail carriers transporting military materiel and supplies, as well as highway access for such transportation.

4.28.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, current levels of traffic and attendant congestion would continue. Capacity has recently been increased on key roadways and ACPs to accommodate current levels of personnel. Therefore, the No Action Alternative is anticipated to have a negligible impact on the traffic and transportation network.

Alternative 1—Implement Force Reductions

Alternative 1 is anticipated to have a beneficial impact on traffic and transportation resources. If the full reduction of 5,900 personnel were to be implemented, this would result in a 48 percent reduction in Army personnel, without counting the other tenants of the facility. The beneficial impact would likely be minor, perceptible to tenants but not significant. There does not appear to be a traffic congestion problem that needs to be overcome at the ACPs or on the installation. However, there is traffic congestion in the greater San Antonio area. Army personnel contribute to that traffic, and there would be a lessening of the issue under Alternative 1.

4.28.17 Cumulative Effects

The ROI for the cumulative impacts analysis of Army 2020 realignment at Joint Base San Antonio-Fort Sam Houston includes Atascosa, Bandera, Bexar, Comal, Guadalupe, Kendall, Medina, and Wilson counties in Texas.

Reasonably Foreseeable Future Projects on Joint Base San Antonio-Fort Sam Houston)

The Army is not aware of any reasonably foreseeable future projects on Joint Base San Antonio-Fort Sam Houston, which would be appropriate for inclusion in the cumulative impacts analysis.

Reasonably Foreseeable Future Projects outside Joint Base San Antonio-Fort Sam Houston)

No reasonably foreseeable future projects outside Joint Base San Antonio-Fort Sam Houston were identified by the installation. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, larger economies with more job opportunities could absorb some of the displaced Army workforce, lessening adverse effects of force reductions.

No Action Alternative

There were no future proposed actions within the ROI identified that have the potential to cumulatively add impacts to the No Action Alternative. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reductions

With the exception of socioeconomics, there would be no cumulative effects of the foreseeable future actions with Alternative 1. The socioeconomic impact within the ROI, as described in Section 4.28.12.2 with a reduction of 5,934 Soldiers and Army civilians, would be minor and adverse on population, the regional economy, and housing with the potential for significant, adverse impacts to some schools. Joint Base San Antonio is located in the San Antonio, Texas metropolitan area with an ROI population of over 2.1 million. Because of the large employment base and diverse economy in the region, the ROI would be less vulnerable to these force reductions because other industries and considerable economic activity occurs within the ROI. As a result, the region would be able to absorb some of the displaced Army employees, mitigating some of the adverse effects.

Joint Base San Antonio-Fort Sam Houston provides medical training for Soldiers, averaging approximately 11,800 students assigned to the joint base at a time. Cumulative actions could include reduced training opportunities because of the force reductions on Joint Base San Antonio-Fort Sam Houston, which would result in adverse impacts to socioeconomic conditions

because of reduced temporary population and visitors and the attendant economic activity, spending, and jobs and income it supports.

Other construction and development activities on the installation and in the ROI would benefit the regional economy through additional economic activity, jobs, and income in the ROI. Under Alternative 1, the loss of approximately 5,900 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have a minor, adverse impact on socioeconomic conditions in the ROI. However, cumulative impacts could be significant for specific schools on the installation and in the ROI.

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4.29 USAG Hawaii, Hawai'i

4.29.1 Introduction

USAG Hawaii is located on the islands of O'ahu and Hawai'i. The installation encompasses approximately 22 sub-installations, including Schofield Barracks Military Reservation, Schofield Barracks NCO Academy, Helemano Military Reservation, Wheeler AAF, Fort Shafter, Fort Derussy, MSG Earl Kalani U.S. Army Reserve Command, U.S. Army Command Center, and Tripler Army Medical Center. Schofield Barracks was analyzed in the 2013 PEA. The Pohakuloa Training Area is on another island and has very few permanent party Soldiers and Army civilians and is not included in this analysis; however, it was assessed in the 2013 PEA. A detailed overview of background information on Schofield Barracks can found in Section 4.18.1 of the 2013 PEA. While the 2013 PEA was focused on Schofield Barracks, it now appears that Fort Shafter could also experience losses in excess of 1,000. The discussion of both installations is combined in this section because the affected environment for both installations often overlaps. The two installations are about 20 miles apart (Figure 4.29-1).

Fort Shafter, which was not analyzed in the 2013 PEA, is located on the south-central coast of O'ahu, and is the site of the U.S. Army Pacific (USARPAC) command headquarters; IMCOM Pacific; USACE, Pacific Ocean Division; USACE, Honolulu District; and the U.S. Army Reserve Command (9th Mission Support Command). The installation covers 590 acres and extends up the interfluves (ridgeline) between Kalihi and Moanalua valleys, as well as onto the coastal plain (known as Shafter Flats) at Mapunapuna, and is approximately 3 miles northwest of downtown Honolulu. Moanalua Freeway is aligned east-west through the installation, dividing it into two areas. North of the freeway is Main Post and south is Shafter Flats. Fort Shafter is also the oldest military base on O'ahu.

The primary role of Fort Shafter is to support Army organizations that exercise primary command, control, and management of ground defense of the Pacific theater. These organizations include the headquarters of USARPAC; USACE, Pacific Ocean Division; and 9th Mission Support Command Army Reserve. Fort Shafter is also home to engineering, communications, military intelligence, and security units, along with elements of USAG Hawaii.

USAG Hawaii's Fort Shafter 2013 baseline permanent party population was 7,431. In this SPEA, Alternative 1 assesses a potential population loss of 3,800, including approximately 2,725 permanent party Soldiers and 1,061 Army civilians.

USAG Hawaii's Schofield Barracks 2011 baseline permanent party population was 18,441. In this SPEA, Alternative 1 assesses a potential population loss of 16,000, including approximately 15,394 permanent party Soldiers and 606 Army civilians.

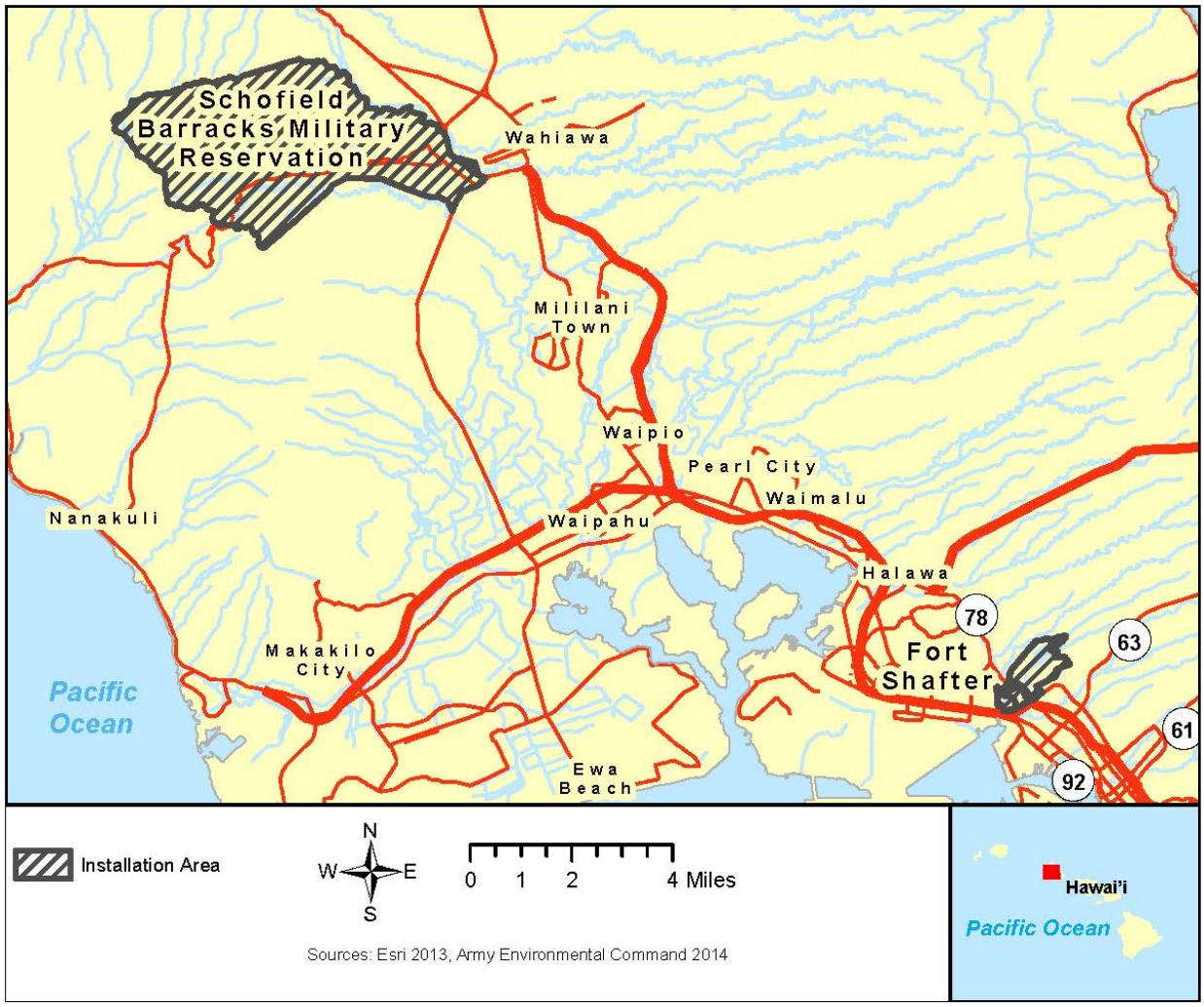

Figure 4.29-1. Fort Shafter and Schofield Barracks Military Reservation, Hawai'i

4.29.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for USAG Hawaii; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.29-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.29-1. USAG Hawaii Valued Environmental Component Impact Ratings

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

4.29.3 Air Quality

4.29.3.1 Affected Environment

Two agencies have jurisdiction over the ambient air quality in Hawai'i—EPA and Hawai'i Department of Health, Clean Air Branch. Hawai'i has established significant ambient air concentration thresholds and criteria for hazardous air pollutants and has adopted ambient air quality standards that are in some areas more stringent than the comparable federal standards. Hawai'i also addresses pollutants, such as hydrogen sulfide, that are not covered by federal ambient air quality standards (Hawai'i Department of Health, 2011). These are applied under the permit review process for emission sources that require state or federal air quality permits.

All of Hawai'i, including Fort Shafter and Schofield Barracks, is in attainment for all criteria pollutants. Typical emission sources in Hawai'i include large and small industrial and commercial operations, vehicles, agricultural activities, and natural emission sources, with the major air emissions sources including emissions from volcanic activity and geothermal development. Sources of air emissions in the vicinity of Fort Shafter Flats primarily consist of commercial and industrial operations, as well as exhaust emissions from vehicles using surface

streets and highways (USACE, 2008). However, in general, the air quality in the state of Hawai'i is some of the best in the Nation, primarily due to consistent trade winds, limited emission sources, and the state's small size.

4.29.3.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

Force reductions proposed at Fort Shafter and Schofield Barracks under Alternative 1 would result in long-term, beneficial air quality impacts because of reduced demand for heating/hot water and reduced mobile source emissions from vehicle trips to and from the facility.

Short-term, negligible impacts to air quality could result from the relocation of personnel outside of the area due to force reductions. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

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

4.29.4 Airspace

4.29.4.1 Affected Environment

USAG Hawaii (Schofield Barracks) was analyzed in the 2013 PEA, and the affected environment for airspace, which can be found in Section 4.18.3, remains the same. There is no military airspace above Fort Shafter. The installation lies within the terminal control area of the Honolulu International Airport, meaning that Fort Shafter is in the vicinity (or in this case the flight path) of one of the airport's runways.

4.29.4.2 Environmental Effects

No Action Alternative

Impacts under the No Action Alternative at USAG Hawaii would remain the same as those discussed in Section 4.18.3.2 of the 2013 PEA, with minor impacts to airspace being anticipated.

USAG Hawaii would maintain existing airspace operations and classifications, and no new airspace conflicts are anticipated to occur.

Alternative 1—Implement Force Reductions

Airspace restrictions and classifications around USAG Hawaii are sufficient to meet current airspace requirements, and force reductions would not alter the current airspace use and would not be projected to require additional airspace restrictions. Some adverse impacts could conceivably occur if force reductions were to affect aircraft and airspace management personnel (i.e., air traffic controllers). The Army, however, is committed to safety issues and would maintain staffing levels to meet current airspace requirements. In the event that force reductions do not impact aircraft and airspace management personnel, impacts to airspace would be consistent with the beneficial impacts as discussed in Section 4.18.3.2 of the 2013 PEA due to reduced utilization of Soldiers and support activities, from the reduced potential for airspace conflicts as a result of reduced training activities.

4.29.5 Cultural Resources

4.29.5.1 Affected Environment

The affected environment for cultural resources at Schofield Barracks has not changed since 2013, as described in Section 4.18.4 of the 2013 PEA.

Fort Shafter

The affected environment for Fort Shafter is the installation footprint. Surveys of the area have identified 32 prehistoric and historic archaeological sites, 21 of which have been determined eligible for listing in the National Register of Historic Places (NRHP), as well as 11 rockshelters that are managed as cultural resources (USAG Hawaii, 2009).

The installation has completed surveys of all architectural resources constructed prior to 1951 (USAEC, 2008). These surveys have identified and evaluated 158 architectural resources. The Palm Circle has been designated an NHL District due to its distinctive architecture and associated landscape that includes rows of royal palms. Outside of this district, 20 architectural resources have been identified as eligible for listing in the NRHP. Currently, there is no proposed development that would impact archaeological sites or NRHP historic buildings.

Fort Shafter is located in an area of traditional significance to Native Hawaiian peoples. The area has been used for traditional religious ceremonies and burials (USAEC, 2008) and continues to be important to these communities (USAG Hawaii, 2009).

4.29.5.2 Environmental Effects

No Action Alternative

Section 4.18.4.2 of the 2013 PEA describes the effects of the No Action Alternative at Schofield Barracks as significant but mitigable. There has not been a change in the affected environment since the publication of the 2013 PEA that would alter impacts to cultural resources. Live-fire training would continue, allowing for the possibility of inadvertent damage to cultural resources. All activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures.

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

Alternative 1—Implement Force Reductions

At Schofield Barracks, Alternative 1 would have a significant but mitigable impact on cultural resources as described in Section 4.18.4.2 of the 2013 PEA. The effects of this alternative are similar to the No Action—the reduction of forces at this installation would not result in a change in the existing conditions. Therefore, if current operations are having a significant but mitigable impact on cultural resources, the potential reduction in forces proposed under Alternative 1 would not alter those impacts.

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

The effects of this alternative are considered to be similar to the No Action Alternative—future activities with the potential to effect cultural resources would continue to be monitored and the impacts reduced through preventative and minimization measures. This alternative could result

in some beneficial effects; with fewer people to support, there may be a reduction in the number of undertakings with the potential to affect cultural resources.

4.29.6 Noise

4.29.6.1 Affected Environment

The noise affected environment of the Schofield Barracks remains the same as was discussed in Section 4.18.5.1 of the 2013 PEA.

Ambient noise at Fort Shafter is generated from intermittent aircraft flybys from Honolulu International Airport, street traffic (predominantly from Interstate H-1 and Moanalua Freeway), and natural sounds such as those typically heard from wind and birds. Since Fort Shafter's role is to serve administrative and command functions, there are no activities at the installation that generate significant noise levels. The primary source of noise generated within the installation is vehicle traffic (U.S. Army 2008a). Sensitive noise receptors located near the installation include civilian housing and a child development center and playground (USAEC, 2008).

Hawai'i has adopted statewide standards related to construction, fixed noise sources, and impulse and non-impulse noise. Each of these noise levels should not be exceeded by more than 10 percent of the time within a 20-minute period (U.S. Army, 2008a). In addition, the Army implements a Hawai'i Statewide Operational Noise Management Plan, which provides a methodology for analyzing exposure to noise associated with military operations, provides guidelines for achieving compatibility between the Army and surrounding communities, and creates a structure for receiving and responding to complaints (U.S. Army, 2010). No maneuver exercises or live-fire training take place at Fort Shafter, as these activities take place on ranges located at other Army installations on O'ahu (USAEC, 2008). Intermittent noise resulting from occasional construction or maintenance activities at Fort Shafter is not expected to exceed statewide community noise standards.

4.29.6.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, as discussed in Section 4.18.5.2, significant but mitigable, impacts to noise were anticipated at Schofield Barracks from continued live-fire and maneuver training and aviation overflights. With no change to the affected environment, impacts under the No Action Alternative on Schofield Barracks would remain the same.

Under the No Action Alternative, no significant noise impacts are expected for Fort Shafter. Fort Shafter would remain the headquarters of the U.S. Pacific Command and the home for units presently stationed there. No additional units or Soldiers would be stationed at Fort Shafter, and no force reductions would take place. Fort Shafter would remain primarily an administrative facility and the Soldier population would remain the same. Ongoing and planned cantonment

projects would proceed as necessary. Regulatory and administrative measures would continue to be implemented to reduce any noise impacts associated with Army activities.

Alternative 1—Implement Force Reductions

Under force reductions in the 2013 PEA, beneficial impacts to noise were anticipated at Schofield Barracks from a reduction in the frequency of noise generating training events, reducing noise contours. Impacts under Alternative 1 on Schofield Barracks would be similar to those discussed in Section 4.18.5.2 of the 2013 PEA, although noise-generating events would be even further reduced.

Under Alternative 1, noise impacts at Fort Shafter would be similar to those described for the No Action Alternative. Force reductions could result in potential reductions in noise from existing conditions. Therefore, impacts from operational noise at the installation resulting from force reductions would range from beneficial to no impacts. Noise sources generated outside the installation are not expected to change as a result of Alternative 1 and would continue to have negligible impacts to sensitive receptors within the installation.

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

4.29.7 Soils

4.29.7.1 Affected Environment

The soils affected environment for Schofield Barracks remains the same as was discussed in Section 4.18.6.1 of the 2013 PEA.

Fort Shafter is underlain by Ko'olau basalts and in some areas by the younger Kalihi basalt member of the Honolulu basalts. Most of Shafter Flats is underlain by artificial fill used to fill two large, former fish ponds. The material overlies fine-grained marine sediments and alluvial and coastal deposits. The southwestern portion of Fort Shafter is within the 100 year flood zone of Moanalua Stream and its tributaries; however, the majority of the installation is in uplands out of the flood zone (FEMA, 2014).

The predominant upland soils on Fort Shafter are from the Honoliuli, Kawaihapai, Makiki, and Manana soil series. These soils are generally characterized as deep to very deep, well drained, and gently rolling. Manana soils are steep and occur on the northeastern portion of the installation. Areas within the floodplain on Fort Shafter are dominated primarily by fill material. The erodibility of the dominant soils on Fort Shafter is low, thus under normal conditions, they are not expected to erode (NRCS, 2013).

4.29.7.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, significant, but mitigable, impacts to soils were anticipated on Schofield Barracks from continued training and ongoing construction. Impacts under the No Action Alternative on Schofield Barracks remain the same as those discussed in Section 4.18.6.2 of the 2013 PEA.

Under the No Action Alternative, impacts to soils on Fort Shafter are anticipated to be negligible to minor due to ongoing construction activities. Any existing BMPs would be adhered to and the installation would continue to minimize erosion.

Alternative 1—Implement Force Reductions

Under Alternative 1 in the 2013 PEA, beneficial impacts to soils were anticipated on Schofield Barracks from reduced use of training ranges. Impacts under Alternative 1 on Schofield Barracks remain the same as those discussed in Section 4.18.6.2 of the 2013 PEA.

Beneficial impacts are anticipated under Alternative 1 on Fort Shafter. As there are no active ranges on the installation, a force reduction would not lead to fewer impacts from these types of activities. However, fewer Soldiers would mean a reduction in the use of roads and unpaved areas, which could reduce the amount of impacts to soils.

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

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

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

4.29.8.1 Affected Environment

The affected environment of Schofield Barracks, described in Section 4.18.7.1 of the 2013 PEA, provides habitat for a great diversity of flora and fauna species. Schofield Barracks is home to 53 rare plant species, 29 special status wildlife species, and 2 rare vegetation communities. The installation also contains large expanses of Biologically Significant Areas. An additional endangered species, the Hawaiian hoary bat (*Lasiurus cinereus semotus*) was recently discovered on Schofield Barracks. Schofield Barracks plans to consult with USFWS with regard to this

newly discovered endangered species in accordance with ESA Section 7 (USAG Hawaii, 2014a) by the end of 2014. No other changes have occurred to the affected environment since 2013.

The affected environment of Fort Shafter, also located on O'ahu, is similar to that of Schofield Barracks, but has undergone extensive disturbance due to the construction on and operation of the installation. For the most part, native vegetation and habitats are no longer present. Several areas of Fort Shafter are devoid of vegetation such as paved parking lots and equipment storage areas. The vegetated areas of Fort Shafter consist generally of a mixture of landscaped areas and scrub habitat dominated by non-native, weedy species. The majority of the Upper Campus area is maintained as a manicured lawn dominated by invasive grass species including Bermuda grass, with king palms (*Archontopheonix alexandrae*) located around the perimeter. Past disturbances and habitat fragmentation have severely affected the viability of wildlife habitat on Fort Shafter (U.S. Army, 2008a).

4.29.8.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, significant, but mitigable, impacts to biological resources were anticipated on Schofield Barracks from continued training and ongoing construction. Impacts under the No Action Alternative on Schofield Barracks remain the same as those discussed in Section 4.18.7.2 of the 2013 PEA.

Implementation of the No Action Alternative would result in no additional impacts to biological resources and the affected environment would remain in its current highly developed state at Fort Shafter.

Alternative 1—Implement Force Reductions

Under Alternative 1 in the 2013 PEA, beneficial impacts to biological resources were anticipated on Schofield Barracks from reduced use of training ranges by up to 30 percent. Impacts under Alternative 1 on Schofield Barracks remain the same as those discussed in Section 4.18.7.2 of the 2013 PEA. However, with greater reductions of soldiers under Alternative 1, training would be reduced further and possibly increase beneficial impacts to biological resources.

The implementation of Alternative 1 would result in no impacts to biological resources including vegetation, wildlife, or threatened and endangered species on Fort Shafter due to its high development and minimal vegetation or wildlife.

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

4.29.9 Wetlands

4.29.9.1 Affected Environment

The wetlands affected environment of Schofield Barracks remains the same as was discussed in Section 4.18.8.1 of the 2013 PEA.

A review of NWI maps identified approximately 10 acres of wetlands on Fort Shafter (USFWS, 2010). NWI mapping is an educated delineation based upon interpreting USGS topographic data, the USGS National Hydrography Dataset, NRCS soil data, and aerial imagery. No formal wetland delineation of the installation was performed.

The majority of the wetlands identified through NWI were palustrine forested wetlands and riverine wetlands; however, palustrine scrub-shrub, palustrine emergent, and estuarine wetlands were also identified (USFWS, 2010). Table 4.29-2 identifies the acres of each wetland type on Fort Shafter.

Table 4.29-2. Acres of Wetland Types on Fort Shafter

Wetland Type	Acres
Estuarine deepwater	0.05
Estuarine wetland	0.22
Palustrine forested	2.33
Palustrine scrub-shrub	1.64
Palustrine emergent	1.72
Riverine tidal	0.64
Riverine lower perennial	3.40
Total acres	**10**

Source: USFWS (2010)

4.29.9.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be minor, adverse impacts to wetlands on Schofield Barracks from continued sedimentation, training and ongoing construction; this impact has not changed.

Minor, adverse impacts to wetlands on Fort Shafter are anticipated under the No Action Alternative. Impacts to wetlands from any current projects under construction would have already been assessed and, if required, been properly permitted and mitigated. Current management of wetlands would continue under the No Action Alternative. Current management

of recreational facilities, such as golf courses, would also continue under the No Action Alternative which could contribute to pollutants entering adjacent wetlands and rivers.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that there would be minor impacts to wetlands on Schofield Barracks under Alternative 1; no new impacts from further force reduction analysis are anticipated.

Beneficial impacts to wetlands on Fort Shafter as a result of the implementation of Alternative 1 are anticipated. As there are no active ranges on the installation, a force reduction would not lead to fewer impacts from these types of activities. Adverse impacts to wetlands could conceivably occur if force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at USAG Hawaii, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met as a result of the Proposed Action.

4.29.10 Water Resources

4.29.10.1 Affected Environment

The affected environment for water resources on USAG Hawaii Schofield Barracks remains the same as that described in Section 4.18.9.1 of the 2013 PEA. There are no changes to surface water and watersheds, water supply, wastewater, and stormwater resources.

Surface Water/Watersheds

The surface waters of Fort Shafter are within the Moanalua watershed. The Moanalua Stream borders the southwestern edge of the installation close to the Shafter Flats area. Kahauiki Stream flows southwest from its headwaters in the Ko'olau Mountains through the installation until its confluence with Moanalua Stream outside the installation borders. The flow regime of the Kahauiki Stream begins as intermittent in the upper reaches and transitions to perennial before crossing into the installation (U.S. Army, 2008a). It receives stormwater runoff and the lower reaches are tidally influenced. Issues associated with dissolved oxygen, pH, turbidity, total suspended solids, and ammonia can affect water quality in Kahauiki Stream (USACE, 2011). The southeastern portion of installation drains to Kalihi Stream which is located south of the installation borders. The Moanalua Stream, a Class 3 perennial stream, and Kalihi Stream are listed as impaired for total nitrogen, turbidity, and trash (Hawai'i Department of Health, 2013).

Groundwater

The Moanalua aquifer is the main groundwater source providing water-bearing layers at 120 to 250 feet below Fort Shafter (USAEC, 2008). Recharge is provided by infiltration and stormwater runoff. In addition, an alluvial caprock aquifer is located above the Moanalua aquifer and is

several to 25 feet below the surface (U.S. Army, 2006b; USAEC, 2008). In the aquifers, depths to groundwater have declined slightly due to regional water withdrawals (U.S. Army, 2006a). Recharge is provided by infiltration, stormwater runoff, and seepage from the main aquifer (U.S. Army, 2006b). Two water supply wells close to Kahauiki Stream pump water from depths of 279 feet and 330 feet (USAEC, 2008). Groundwater in the Fort Shafter Flats area of the installation is brackish and not suitable for water supply (USACE, 2011).

Water Supply

The water supply and distribution system on Fort Shafter is owned and operated by the installation. Water for Fort Shafter is supplied by two 12-inch diameter groundwater wells with a withdrawal capacity of 3.3 mgd (USAEC, 2008; U.S. Army, 2013a). Storage reservoirs in upper, middle, lower service zones hold raw water until movement into the distribution system using pumps. The water is treated with chlorine and fluoride in the supply system and distributed. Demand for water in Fort Shafter area has been increasing and it has been estimated that the existing wells could produce approximately 18 mgd (USAEC, 2008). In addition to the groundwater supply wells, Fort Shafter's water supply system is connected to the city and county of Honolulu's system for potential emergency water supply (U.S. Army, 2013a).

Wastewater

The wastewater system on Fort Shafter is privatized and operated by Aqua Engineers (USAG Hawaii, 2009). The Waste Water Lift Station on Fort Shafter Flats includes multiple pumps with a full capacity of 9.82 mgd. In the mid-2000s the average wastewater flows were 1.7 mgd with peak flows of 7.7 mgd (USAEC, 2008). Wastewater treatment takes place at the Sand Island Treatment Plant operated by the city and county of Honolulu (U.S. Army, 2008b, as cited by USAEC, 2008).

Stormwater

The stormwater collection and distribution system on Fort Shafter consists of storm drains, manholes, pipes, trenches, swales, culverts, and catch basins. The system collects the stormwater runoff, carrying nutrients and sediment, and discharges it to the Kahauiki Stream (USAEC, 2008). Parts of the land on the southern border of the installation drain as surface runoff to the Kalihi Stream which eventually drains to the Ke'ehi Lagoon to the south.

Floodplains

E.O. 11988, *Floodplain Management*, requires federal agencies to avoid floodplain development and any adverse impacts from the use or modification of floodplains when there is a feasible alternative. Specifically, Section 1 of E.O. 11988 states that an agency is required "to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities." The 100-year floodplain indicates areas where the flood has a 1 percent chance

of being equaled or exceeded in any year. The 500-year floodplain indicates areas where the flood has a 0.2 percent chance of being equaled or exceeded in any year. According to FEMA floodplain maps, portions of the installation include 100-year and 500-year floodplain areas. Specific areas of flooding include the Shafter Flats area in the south and areas adjacent to the Moanalua Stream and Kahauiki Stream (FEMA, 2011). Flash flooding is possible in some of these areas. Flooding associated with Kahauiki Stream can be affected by high tides and storm surges (USACE, 2011).

4.29.10.2 Environmental Effects

No Action Alternative

In the 2013 PEA, minor, adverse impacts to water resources on Schofield Barracks were anticipated from the No Action Alternative due to the disturbance and pollution of surface waters and groundwater from stormwater runoff, erosion, and continuing training activities. These minor, adverse impacts to water resources under the No Action Alternative are not expected to change for this SPEA.

Minor, adverse impacts to water resources on Fort Shafter would continue under the No Action Alternative due to continuing surface water quality impairments. Fort Shafter would continue to strive to meet federal and state water quality criteria, drinking water standards, and floodplain management requirements. The installation would continue to comply with all federal and state regulations and guidelines concerning wastewater, stormwater management, and floodplains. Current water resources management and compliance activities would continue to occur under this alternative.

Alternative 1—Implement Force Reductions

Minor impacts to water resources were anticipated from implementation of force reductions in the 2013 PEA because of disturbance, stormwater effects, erosion, and pollution from demolition of older facilities, ongoing construction projects, and continuing training activities on Schofield Barracks. Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Schofield Barracks, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented. Increased force reductions under Alternative 1 would continue to have the same minor impacts to surface waters, groundwater, water supplies, wastewater, and stormwater, although some impacts could be reduced as training decreases.

Beneficial impacts to water resources on Fort Shafter are anticipated as a result of implementing Alternative 1. A force reduction would decrease demand for potable water and would reduce groundwater withdrawals. Demand for wastewater treatment would also decrease allowing

additional capacity for other users. Adverse water resources impacts could conceivably occur if personnel cuts prevented environmental compliance from being implemented. The Army is committed to ensuring that personnel cuts will not result in Army non-compliance with water quality regulations. Even if the full end-strength reductions were to be realized at Fort Shafter, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met and implemented. Force reduction at Fort Shafter is not anticipated to cause violations of federal and state water quality regulations and discharge permits.

4.29.11 Facilities

4.29.11.1 Affected Environment

The facilities affected environment of Schofield Barracks remains the same as described in Section 4.18.10.1 of the 2013 PEA.

Fort Shafter is a 590-acre installation and the site of the USARPAC headquarters and USACE, Pacific Ocean Division. The installation has principally administrative and residential support facilities. Shafter Flats, which is the coastal plain area of the installation, has the following facilities: industrial, maintenance, classroom, parking, and Family housing (USAEC, 2008).

4.29.11.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA concluded that there would be minor impacts to facilities on Schofield Barracks because USAG Hawaii currently has adequate facilities available to support its Soldiers, Families, and mission.

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

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to facilities would occur at Schofield Barracks. Under Alternative 1, implementation of the proposed further force reductions would result in overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demands for utilities and reduced demands for training facilities and support services. Force reductions would also provide

opportunities to reduce reliance on select outdated facilities. Some facilities could be re-purposed to reduce crowding or support other units.

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

4.29.12 Socioeconomics

4.29.12.1 Affected Environment

Schofield Barracks, and designated training areas (South Range, East Range, Kahuku Training Area, and Kawailoa Training Area) are located in the central part of the island of O'ahu, near to the town of Wahiawa, while Fort Shafter is located in the southern part of the island near the town of Aiea. The ROI for both Schofield Barracks and Fort Shafter consists of the city and county of Honolulu and covers the entire island of O'ahu in Hawai'i. The city and county of Honolulu is further divided into seven Census County Divisions, including Ewa, Honolulu, Koolauloa, Koolaupoko, Wahaiwa, Waialua, and Waianae. Kahuku Training Area is located within the Koolauloa Census County Division; Dillingham Military Reservation resides within the Waialua Census County Division; and Schofield Barracks resides within the Wahiawa Census County Divisions. Fort Shafter is located in the Honolulu Census County Division. The ROI includes areas in which the majority of the installation's Soldiers, Army civilians, and contractor personnel and their Families reside. This section provides a summary of demographic and economic characteristics within the ROI.

Because of the coincident ROIs for Fort Shafter and Schofield Barracks and their administration under the command of USAG Hawaii, a combined EIFS analysis was deemed the most appropriate. Since Schofield Barracks was assessed in the 2013 PEA, it carries a baseline population from FY 2011. Fort Shafter was not previously assessed and therefore has a FY 2013 baseline population. To present a comprehensive analysis on the potential impacts for the ROI, Schofield Barracks baseline data were adjusted to FY 2013 numbers, in alignment with Fort Shafter baseline data, to enable a single, combined analysis of the potential reductions for Schofield Barracks and Fort Shafter. The FY 2013 population information shown below for Schofield Barracks varies from the FY 2011 data shown in Tables 3.3-1 and 3.3-2 by −531 permanent party Soldiers, −372 Army civilians, and −903 persons total.

Population and Demographics

Using 2013 as a baseline, Schofield Barracks has a total working population of 23,717 consisting of active component Soldiers and Army civilians, students and trainees, other military services, civilians, and contractors. Of the total working population, 17,538 were permanent party Soldiers and Army civilians. The population that lives on Schofield Barracks consists of 11,806 Soldiers and their 25,993 Family members, for a total on-installation resident population of 37,799. The portion of the Soldiers and Army civilians living off the installation is estimated to be 14,433 and consists of Soldier and Army civilians, and their Families. Additionally, there are 113 students and trainees associated with the installation.

Using 2013 as a baseline, Fort Shafter has a total working population of 11,107 consisting of active component Soldiers and Army civilians, students and trainees, other military services, civilians, and contractors. Of the total working population, 7,431 were permanent party Soldiers and Army civilians. The population that lives on Fort Shafter consists of 2,110 Soldiers and their 3,203 Family members, for a total on-installation resident population of 5,313. The portion of the Soldiers and Army civilians living off the installation is estimated to be 13,398 and consists of Soldiers and Army civilians, and their Families. Additionally, there are 75 students and trainees associated with the installation. The total working population at both Schofield and Shafter is 34,824, consisting of 24,969 permanent party Soldiers and Army civilians.

In 2012, the population of the ROI was 974,990, which represented a 2.3 percent increase in population from 2010 (Table 4.29-3). The racial and ethnic composition of the ROI is presented in Table 4.29-4 (U.S. Census Bureau, 2012a).

Table 4.29-3. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Honolulu County, Hawai'i	974,990	+2.3

Source U.S. Census Bureau (2012a)

Table 4.29-4. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Native Hawaiian and Other Pacific Islander (percent)	Asian (percent)	Two or More Races (percent)	Hispanic (percent)	White Alone, Not Hispanic or Latino (percent)
State of Hawai'i	26.1	2.1	0.4	38.3	23.0	9.5	10.1	22.8
Honolulu County, Hawai'i	22.4	2.8	0.3	43.3	21.6	8.8	9.4	19.4

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

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

Employment and Income

In 2012, the total employed labor force in the ROI was 629,391, which was a 15.2 percent increase from 2000 (Table 4.29-5). Employment, median home value, household income, and population living below the poverty level are presented in Table 4.29-5 (U.S. Census, 2012b).

Table 4.29-5. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment 2000-2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Hawai'i	681,504	+18.1	517,000	79,595	7.6
Honolulu County, Hawai'i	629,391	+15.2	557,800	84,638	6.7

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

Information regarding the workforce by industry for Honolulu County was obtained from the U.S. Census Bureau. Information presented below is for the employed labor force.

Honolulu County, Hawai'i

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of total workforce in Honolulu County (22 percent). Arts, entertainment, recreation, accommodation, and food services sector is the second largest employment sector (14 percent), followed by retail trade (11 percent). The Armed Forces account for 5 percent of the county's workforce. The remaining 10 categories employ 53 percent of the workforce.

Major employers in Honolulu County include Altres Medical, Kapiolani Medical Center, Kyo-Ya Co, Ltd., DoD, and Navy (InfoGroup, 2014).

Housing

As described in the 2013 PEA, Schofield Barracks can house approximately 40 percent of the permanent Soldier population, with Family members, on USAG Hawaii assigned to the installations. There are 7,254 homes for permanent military Family housing on USAG Hawaii installations that are managed through an RCI partnership that has been in place since 2005. The Privatized Housing is managed by Island Palm Communities. The total permanent military Family housing for Schofield Barracks and Fort Shafter are 2,861 and 276, respectively (Andres, 2014). Occupancy for installation Family housing averages 99 percent annually and the waiting list exceeds 1,000 service members (U.S. Army, 2013b).

Unaccompanied personnel housing on USAG Hawaii installations consist of 6,720 spaces in 60 buildings located on 5 installations. Overall, the occupancy rate without deployments is 95 percent for the unaccompanied personnel housing. Ninety-five percent of unaccompanied Soldiers on USAG Hawaii, and those enlisted Soldiers, grade E-5 and below, are housed in barracks on the installations in unaccompanied housing. Single Soldiers who are grade E-6 and above are authorized to reside off the installations (U.S. Army, 2013b).

Off-installation housing consists of high rise condominiums, multi-family dwellings, duplexes, and single homes. While an adequate supply of one- and two-bedroom apartments and condominiums is available in the local economy, there is a shortfall of affordable three-, four-, and five-bedroom homes (U.S. Army, 2013b).

Schools

As described in the 2013 PEA, Hawai'i is made up of one school district, which makes the island 1 of the 10 largest school districts in the United States with 170,000 students (U.S. Army, 2013b). A total of 2,380 students live on Fort Shafter, and 8,619 students live on Schofield Barracks (Nakasone, 2014). Four schools are located on Schofield Barracks with the following enrollments: Hale Kula Elementary (1,000), Solomon Elementary (1,000), Wheeler Elementary (675), and Wheeler Middle (900). One school on Fort Shafter, Shafter Elementary has an enrollment of 469 students (Nakasone, 2014). The classroom sizes are large for all installation schools, so some students have to be transported to neighboring schools. USAG Hawaii is also beginning to address other issues related to schools on the installations, including lack of funding for school transportation, overcrowded CYSS facilities affecting extracurricular activities, and the possibility of a new school on the installation.

Public Health and Safety

Police Services

The USAG Hawaii DES oversees police operations, physical security, access control, and wildland fire and emergency services at Schofield Barracks and at Fort Shafter. The city and county of Honolulu Police Department also provide law enforcement services since there is concurrent jurisdiction on all USAG Hawaii installations. However, the majority of law enforcement activities on the installations are provided by the USAG Hawaii DES.

Fire and Emergency Services

The Federal Fire Department (U.S. Navy) manages the installations' structural fire programs. The Federal Fire Department responds to emergencies involving structures, facilities, transportation equipment, hazardous materials, and natural and man-made disasters. It also directs fire prevention activities and conducts public education programs. The Federal Fire Department has mutual aid agreements with the city and county of Honolulu.

Medical Facilities

On-installation medical services are administered at installation clinics. These facilities service all permanent active component personnel and their Service members, as well as retirees and their Family members, within a 20-mile radius of the installations. The Schofield Barracks Health Clinic functions as an outpatient treatment facility only. Acute care, specialty services, and long-term medical needs for military Families on O'ahu are provided by the Tripler Army Medical Center next to Fort Shafter. Other medical services include Embedded Behavioral Health units and Soldier Center Medical Homes on Schofield Barracks and at Wheeler AAF. Embedded Behavioral Health provides multidisciplinary behavioral health care to Soldiers in close proximity to their unit's work area and in close coordination with unit leaders. Soldier Center Medical Homes provide integrated medical care at or near the Soldier's brigade. There are plans for a dental clinic at Fort Shafter. Off of the installation, the 18th MEDCOM operates a Patient Center Medical Home for DoD service members and Families only.

Family Support Services

Fort Shafter-Schofield Barracks FMWR assists Soldiers and their Families with programs that include child development centers, child and youth services, the Family child care program, Relocation Readiness Program, tax centers at Schofield Barracks and Fort Shafter, Exceptional Family Member Program, Family Support, Transition Assistance Program, and Family advocacy (U.S. Army FMWR, 2014).

Recreation Facilities

Fort Shafter provides its military community, Families, and civilians with the Walter J. Nagorski Golf Course (9 holes), a library, a bowling alley, an outdoor recreation center, and a fitness center.

Schofield Barracks provides its military community, Families, and civilians with the SGT Yano Library, Army Hawaii Bowling Center, a health and fitness center, Richardson Pool, an auto shop and storage, an arts and crafts center, and a Family and FMWR pet kennel (U.S. Army FMWR, 2014).

4.29.12.2 Environmental Effects

No Action Alternative

The operations at Schofield Barracks and Fort Shafter would continue to benefit regional economic activity. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

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

Population and Economic Impacts

Alternative 1 would result in the loss of 19,786[37] Army positions at USAG Hawaii (18,119 Soldiers and 1,667 Army civilians), each with an average annual income of $55,374 and $63,980, respectively. Approximately 16,000 of the Soldier and Army civilian losses would be associated with Schofield Barracks and the remainder would be associated with Fort Shafter. In addition, this alternative would affect an estimated 30,035 Family members (11,041 spouses and 18,995 children). The total population of Army employees and their Family members directly affected under Alternative 1 is projected to be 49,821.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative ranges. Table 4.29-6 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the

[37] This number was derived by assuming the loss of 70 percent of Fort Shafter's Soldiers, two BCTs from Schofield Barracks, 60 percent of Schofield Barracks' non-BCT Soldiers, and 30 percent of USAG Hawaii's (Schofield Barracks and Fort Shafter) Army civilians to arrive at 19,786. For Schofield Barracks, the 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 8,000. Fort Shafter was not assessed in the 2013 PEA.

estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, changes in employment and population in the ROI under Alternative 1 fall outside the historical range and are categorized as a significant impact. However, there would not be a significant impact to sales and income because the estimated percentage changes are within the historical range, although the decline in income approaches the significance threshold.

Table 4.29-6. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+5.6	+4.4	+3.6	+3.5
Economic contraction significance value	-4.1	-2.8	-2.3	-0.9
Forecast value	-2.4	-2.6	-5.5	-5.0

Table 4.29-7 summarizes the predicted impacts to income, employment, and population of the reductions against the 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

Table 4.29-7. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$1,352,402,000	-22,839 (Direct)	-49,821
		-3,936 (Induced)	
		-26,776 (Total)	
Total 2012 ROI economics estimates	$114,113,630,000	629,391	974,990
Percent of total ROI figures	-1.2	-4.3	-5.1

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

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 19,786 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 3,053 direct contract service jobs would also be lost. An additional 3,936 induced jobs would be lost due to the reduction in demand for goods and services within the ROI. The total reduction in employment is estimated to be 26,776, a 4.3 percent reduction of the total employed labor force in the ROI of 629,391.

Income is estimated to reduce by $1.4 billion, a 1.2 percent decrease in income in the ROI in 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $1.3 billion. There would also be a loss in sales tax receipts to local and state governments. The average state and local sales tax rate for Hawai'i is 4.4 percent (Tax Foundation, 2014). To estimate sales tax reductions, information was utilized on the proportion of sales that would be subject to sales taxes on average across the county. According to the U.S. Economic Census, an estimated 16 percent of sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated reduction of $1.3 billion, resulting in an estimated sales tax receipts decrease of $9.2 million under Alternative 1.

Of the 974,990 people (including those residing on Fort Shafter and Schofield Barracks) who live within the ROI, 19,786 military employees and their estimated 30,035 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 5.1 percent. This number likely overstates potential population impacts because some of the people no longer employed by the Army would continue to live and work within the ROI, finding employment in other industry sectors.

Housing

The population reduction under Alternative 1 would lead to a decreased demand and increased housing availability on the installations and in the region, alleviating housing shortages on the installations for military personnel. However, with an expected decrease in population within the ROI of 5.1 percent, reduced demand for housing in the ROI could potentially lead to a reduction in housing values, although many factors can affect real estate prices. Additionally, housing that the military purchased with base housing allowance would also become available for local residents, leading to additional homes on the market. As a result, housing impacts under Alternative 1 are likely to be adverse and could range from minor to significant.

Schools

Under Alternative 1, removal of 19,786 Soldiers and Army personnel would decrease the number of children by 18,995 in the ROI. It is anticipated that the school district in the ROI that provides education to Army children on the installation would be affected under the Proposed Action. The schools on Fort Shafter and Schofield Barracks, specifically the schools with greater enrollment such as Hale Kula Elementary, Solomon Elementary, and Wheeler Middle, as well as the school district in Honolulu County would be affected under Alternative 1. Alternative 1 could benefit some of the schools on the installations that are experiencing over-crowding, alleviating issues such as large classrooms and congested schools. Additionally, a new school on Schofield Barracks would likely not need to be constructed if overcrowding pressures are addressed. However, if enrollment in individual schools is significantly impacted, which is likely the case with on-installation schools, the schools may need to reduce the number of teachers,

administrators, and other staff, and potentially close or consolidate with other schools should enrollment fall below sustainable levels.

The reduction of Soldiers on Fort Shafter and Schofield Barracks would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal Impact Aid a district receives is based on the number of students who are considered "federally connected" and attend district schools. Actual projected dollar amounts cannot be determined at this time due to the variability of appropriated dollars from year to year, and the uncertainty of the actual number of affected school-age children. The school district in the ROI would likely need fewer teachers and materials as enrollment drops, which would partially offset the reduced Federal Impact Aid. Overall, impacts to schools associated with Alternative 1 would be minor to significant and adverse depending on the reductions in the number of military-connected students attending specific schools.

Public Services

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

Family Support Services and Recreational Facilities

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

Environmental Justice and Protection of Children

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

sectors and spread geographically throughout the ROI. As shown in Table 4.29-5, the proportion of minority and poverty populations in Honolulu County are similar in proportion to the state as a whole; as a result, no disproportionate impacts to environmental justice populations would occur.

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

4.29.13 Energy Demand and Generation

4.29.13.1 Affected Environment

The energy demand and generation affected environment of Schofield Barracks remains the same as was discussed in Section 4.18.12.1 of the 2013 PEA.

USAG Hawaii's energy needs are currently met by electric power. During the past decade, Congress has enacted major energy bills, and the President has issued Executive Orders that direct federal agencies to address energy efficiency and environmental sustainability. The federal mandates for energy conservation that are most relevant to Fort Shafter include the Energy Policy Act of 2005, E.O. 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, issued January 2007; Energy Independence and Security Act of 2007; and E.O. 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, issued October 2009. USAG Hawaii tracks its energy use and is striving to comply with these mandates. USAG Hawaii continues efforts to reduce power demand by implementing energy conservation methods, including promoting the use of photovoltaic lighting where feasible, and examining renewable sources of energy production. The Army is analyzing a possible lease of land to Hawaiian Electric at Schofield Barracks for the construction and operation of a 50-megawatt biofuel-capable power generation plant.

Hawaiian Electric Company provides two 46-kV transmission lines to Fort Shafter. Each line has a separate transformer feeding the Fort Shafter distribution system. One line feeds a 10-megavolt

amp, 46-kV-12.47/7.4-kV transformer, and the other line feeds a 5/6.25-megavolt amp, 46-kV-12.47/7.4-kV transformer (USAEC, 2008).

Hawaiian Electric Company owns the electric substations and provides the operations and maintenance support to the distribution system. The overall electrical system is reported as being in good condition with capacity for expansion if required for future development (USAG Hawaii, 2009).

4.29.13.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that there would be negligible impacts to energy demand and generation on Schofield Barracks under the No Action Alternative; no new impacts from the 2013 analysis are anticipated.

Negligible impacts are anticipated on energy demand at Fort Shafter. Energy demand through the use of Army facilities would continue and not change appreciably from existing levels. USAG Hawaii would continue to look for ways to reduce energy use and increase energy efficiency under the No Action Alternative, although the continued use of outdated, energy inefficient facilities could hinder USAG Hawaii's requirement to reduce energy consumption.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that there would be beneficial impacts to energy demand and generation on Schofield Barracks under Alternative 1; further force reductions under Alternative 1 are also anticipated to have a beneficial impact.

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

4.29.14 Land Use Conflicts and Compatibility

4.29.14.1 Affected Environment

The land use affected environment of Schofield Barracks remains the same as was discussed in Section 4.18.13.1 of the 2013 PEA.

The primary role of Fort Shafter is to support Army organizations that exercise primary command, control, and management of ground defense of the Pacific theater. These organizations include the headquarters of USARPAC; USACE, Pacific Ocean Division; and 9th

Mission Support Command Army Reserve. Fort Shafter is also home to engineering, communications, military intelligence, and security units, along with elements of USAG Hawaii (USAEC, 2008).

The land uses on Fort Shafter's Main Post are predominantly administrative, residential, and community support. Barracks facilities are centrally located along Bonnie Loop, and Family housing is located in the upper areas of the Main Post. Within Shafter Flats, land uses are generally industrial, maintenance, educational, and parking; this area also includes a Family housing area, Funston Family Housing, in the northwestern portion. Potential future land uses include administrative, maintenance, and housing uses (USAEC, 2008).

Land use surrounding Fort Shafter is largely residential and open space, and the city and county of Honolulu zoning regulations largely designate those areas for single-family, multi-family, and park uses (City and County of Honolulu, 2014). Land remaining available for construction outside the installation is primarily mountainous with high topographic relief (USAEC, 2008) and therefore further encroachment on the installation by surrounding development is unlikely.

4.29.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, no impacts to land use were anticipated on Schofield Barracks. The use of Army lands would continue as they are currently designated and authorized. Impacts under the No Action Alternative on Schofield Barracks remain the same as those discussed in Section 4.18.13.2 of the 2013 PEA.

No impacts are expected at Fort Shafter under the No Action Alternative. Current uses of the affected environment would not change from existing conditions and would continue as they are designed and authorized. The installation has sufficient critical facilities available to support existing operations and satisfy existing units' living and administrative requirements. Some construction renovation may occur on an as-needed basis in the future. The No Action Alternative is not expected to affect land use on or surrounding the installation. The Army would continue to coordinate with the public regarding any issues that may arise.

Alternative 1—Implement Force Reductions

Under Alternative 1 in the 2013 PEA, beneficial impacts to land use were anticipated on Schofield Barracks from a reduction in training land use that roughly correlates with the number of Soldiers inactivated or realigned as a result of this alternative. Impacts under Alternative 1 on Schofield Barracks remain the same as those discussed in Section 4.18.13.2 of the 2013 PEA, though the magnitude of the benefits would be greater due to the greater reduction in forces that would impact training grounds.

No impacts are expected under Alternative 1 at Fort Shafter. Current uses of the affected environment would not change from existing conditions and would continue as they are designed and authorized. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts to land use from these activities are not analyzed. Alternative 1 is not expected to affect land use on or surrounding the installation.

4.29.15 Hazardous Materials and Hazardous Waste

4.29.15.1 Affected Environment

As described in the 2013 PEA, hazardous materials are used at Schofield Barracks. The affected environment for hazardous materials and hazardous waste at the installation remains the same as was discussed in the 2013 PEA. This analysis also includes Fort Shafter, a smaller, 590-acre installation and the site of the USARPAC headquarters and USACE, Pacific Ocean Division. Fort Shafter has principally administrative and residential support facilities. Schofield Barracks and Fort Shafter are among 22 sub-installations on the islands of O'ahu and Hawai'i that make up the USAG Hawaii (USAG Hawaii, 2009).

Hazardous materials and waste at these facilities (collectively referred to as USAG Hawaii) are tracked and grouped in the following categories by how they are generated: ammunition, live-fire, and UXO; petroleum, oils, lubricants and storage tanks; IRP sites; LBP; asbestos-containing materials; PCBs; pesticides and herbicides; radon; and hazardous wastes. The Army maintains updated Material Safety Data Sheets for all hazardous materials used.

As noted in the 2013 PEA, most industrial operations for the Army installations in Hawai'i use the "Super Station" centralized motor pool at Building 2805 on Schofield Barracks. All fuel for industrial use is transported from the Hickam AFB Fuel Farm and stored in ASTs at the Super Station. Two filling stations are located on Schofield Barracks at Buildings 80 and 1167. Both USTs and ASTs are used to store petroleum products and fuels at various locations at Hawai'i. There are a number of in-use and permanently out-of-use USTs at Schofield Barracks, and other USAG Hawaii sub-installations.

Facilities containing oil-water separators, grease traps, and wash racks are inspected regularly by the USAG Hawaii Environmental Compliance Office, and DPW is responsible for maintaining these devices.

Hazardous Waste Treatment, Storage, and Disposal

As noted in the 2013 PEA, hazardous wastes generated at USAG Hawaii installations are subject to applicable RCRA regulations. The motor pool facilities at USAG Hawaii have designated waste storage/holding areas with secondary containment for wastes generated by shop and vehicle servicing. The waste is separated into hazardous waste such as lithium batteries or RCRA

chemicals, and non-regulated waste such as recyclable oil. The hazardous waste is brought to the hazardous waste shop storage point, while the recyclable materials are brought to the Recyclable Material Shop Storage Point. Hazardous wastes collected at hazardous waste shop storage points are then transferred to less than 90-day storage point on the installation before being properly disposed of.

At Schofield Barracks, spent ammunition and live-fire are stored at satellite hazardous waste storage facilities. Fort Shafter has no live-fire ranges, impact areas, ammunition storage, or surface danger zones. Therefore, ammunition, live-fire, and UXO are not a hazardous material of concern at Fort Shafter.

Hazardous Waste Investigation and Remediation Sites

The 2013 PEA identified several IPR sites at USAG Hawaii including on Schofield Barracks. Remedial investigations have also been conducted at various sites on Fort Shafter (U.S. Army, 2008a). Soil and groundwater contaminants at USAG Hawaii include explosive compounds, metals, VOCs and semi-VOCs. As noted in the 2013 PEA, Schofield Barracks was previously on the NPL list as a result of a trichloroethylene plume in groundwater; however, that site has since been remediated and was removed from NPL in 2000.

Other Hazards

Other hazards present at USAG Hawaii are controlled, managed, and removed through specific programs and plans and include UXO, radioactive materials, LBP, asbestos-containing materials, PCBs, pesticides, herbicides, and medical waste.

4.29.15.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

Minor, adverse impacts are anticipated as a result of the implementation of Alternative 1. Remediation activities are not expected to be impacted by Alternative 1. Because of the reduced numbers of people, it is likely that the potential for spills would be reduced during training and maintenance activities. Waste collection, storage, and disposal processes would remain mostly unchanged, although the quantities may be reduced. No violation of hazardous waste regulations

or the USAG Hawaii hazardous waste permit is anticipated as a result of active forces reduction. Volumes of generated waste are expected to decline depending on the specific units affected.

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

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

4.29.16 Traffic and Transportation

4.29.16.1 Affected Environment

Twenty-one of the 22 USAG Hawaii sub-installations are located on the island of O'ahu. The Pohakuloa Training Area is located on the island of Hawai'i. For clarity and simplicity, with regards to this SPEA, and with reference to the 2013 PEA, the transportation analysis focuses on the island of O'ahu generally and Fort Shafter and Schofield Barracks specifically. The ROIs for Fort Shafter and Schofield Barracks include the installations, the transportation facilities on their perimeters, and the ACPs that link the internal and external transportation facilities.

As indicated in the 2013 PEA, traffic on O'ahu extends largely from urban development in southern coastal areas from Ewa on the west of the island to Hawai'i Kai to the east. The island of O'ahu has four freeways—State Road 78, H-1, H-2, and H-3. State Road 78 (Moanalua Road) functions as a bypass for H-1 (Lunalilo Freeway), which spans the south portion of the island connecting the Ewa area with Hawai'i Kai. H-2 connects the Ewa area with the central portion of the island (where Schofield Barracks is located) and connects with H-1 to east of Honolulu. Fort Shafter is located in Honolulu. H-3 connects Pearl Harbor with Kaneohe Bay Marine Corps Airfield at the northeast portion of the island.

The other state highways make up roughly 200 lane-miles of roadway; and the city and county of Honolulu contain approximately 1,200 lane-miles of roadway. Very few roads connect the northern and southern portions of O'ahu (separated by the Koolau Mountains); these are Pali Highway, Likelike Highway, and H-3. The Kalanianaole Highway traverses through the east coastline between Hawai'i Kai and Kailua.

Fort Shafter and Schofield Barracks are about 20 miles apart on the island of O'ahu, Hawai'i.

Fort Shafter

Fort Shafter is in Honolulu, about 4 miles from the Central Business District in the most densely populated part of the island. It is located just off H-201, which branches off H-1 (USAG Hawaii, 2014b). Roadways adjacent to Fort Shafter include Moanalua Freeway, Kaua Street, Notley Street, and Meyers Street. Buckner and Patch Gates are the ACPs for the Fort (USAG Hawaii, 2009). Fort Shafter Flats is an additional gate, open 24/7 (USAG Hawaii, 2014b). Buckner, the main gate, has inadequate stacking lengths and lacks deceleration/pull-off lanes. The close proximity of drives and intersections to the gate contributes to the problem. Identification checks and vehicle searches at Buckner gate cause traffic to back up, creating major traffic congestion on the busiest freeway on O'ahu (H-1) (USAG Hawaii, 2009).

The existing road network and traffic patterns at Fort Shafter make it difficult to get from point A to point B. There is no clear hierarchy to the roadways and no visual clues to help with wayfinding (USAG Hawaii, 2009).

No rail service is available at Fort Shafter. The closest military airfield is Wheeler AAF. Honolulu International Airport is approximately 5 miles from Fort Shafter using city streets and the H-1 freeway (USAG Hawaii, 2009).

City bus service is available to many portions of Honolulu and surrounding communities (USAG Hawaii, 2009).

Schofield Barracks and Wheeler Army Airfield (Schofield Barracks)

Schofield Barracks and Wheeler AAF are located approximately 22 miles northwest of the business district of Honolulu, via interstates H-1 and H-2 (USAG Hawaii, 2009). H-2 and Kamehameha Highway traverses the western portion of the Koolau Range and connects Honolulu with Mililani, Wahiawa, Schofield Barracks, and Haleiwa. The installations are separated by State Highway 750 (Kunia Road) and are bordered by the Kamehameha Highway on the east, Highway 99 to the north, and by mountains and gulches to the west and south (USAG Hawaii, 2009). As indicated in the 2013 PEA, the training areas around Schofield Barracks are primarily accessed through the Kamehameha Highway and Kunia Road (from Ewa), and Kamananui Road and Wilikina Drive (from the North Shore). In addition, military convoys travel from Schofield Barracks along H-2 to Pearl Harbor for deployments or training at the Pohakuloa Training Area on the island of Hawai'i.

There are four authorized ACPs to Schofield Barracks and two to Wheeler AAF. Schofield Barracks gates include Lyman Gate (main gate and visitor gate, 24/7), Foote Gate, Macomb Gate (Monday through Friday), and McNair Gate (24/7). Wheeler AAF gates include Kunia Gate (24/7) and Kawamura Gate (USAG Hawaii, 2014b).

Lyman Gate on Kunia Road became the new main gate in 2012, with access to Wheeler AAF directly opposite the Lyman Gate via the Kunia Gate. Both of these gates were reconfigured to allow additional "stacking space" and to meet required ACP standards (U.S. Military News, 2012). There is a considerable amount of movement between Schofield Barracks and Wheeler AAF during the day based on the fact the Garrison HQ and several Garrison directorates as well as 25th ID organizations are located on Wheeler AAF. Much of the morning and evening Wheeler AAF traffic uses the Kawamura Gate that provides direct access to the Kamehameha Highway and H-2 (USAG Hawaii, 2009).

Vehicle traffic on Schofield Barracks is contained primarily through Trimble and Lyman Roads, and Kolekole Avenue. There is already a reduced LOS on and off installation due to current local and commuter traffic. Morning and afternoon commutes tend to experience the heaviest traffic flow. There is also an increased flow of traffic around noon, when installation personnel travel to various on- and off-installation dining facilities for lunch. As noted in the 2013 PEA, a key existing traffic circulation issue for Schofield Barracks is excessive traffic through housing areas, which degrades the quality of life and increases the risk to pedestrians and cyclists.

Direct access to major portions of Schofield Barracks is inefficient due to the lack of adequate north/south connecting streets. The existing primary and secondary traffic routes are generally short and disjointed requiring an excessively circuitous route to traverse the installation (USAG Hawaii, 2009).

Aside from the Family housing area, vehicle parking is extremely limited and negatively impacts mission readiness (USAG Hawaii, 2009).

No rail service exists at Schofield Barracks or Wheeler AAF (USAG Hawaii, 2009).

Honolulu International Airport is approximately 18 miles south of Schofield Barracks and Wheeler AAF. Most of the drive is interstate along H-2 to H-1 and the terminal (USAG Hawaii, 2009).

4.29.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, no impacts to transportation were anticipated on Schofield Barracks from continued transportation levels. The existing transportation system on O'ahu is extremely stressed and traffic congestion is considerable. LOS in the USAG Hawaii ROI have segments rated D through F (the lowest rating). As noted in the 2013 PEA, that LOS would not get worse as a result of this alternative. Impacts under the No Action Alternative on both Schofield Barracks and Fort Shafter remain the same as those discussed in Section 4.18.15.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 in the 2013 PEA, beneficial impacts to transportation were anticipated on Schofield Barracks from reductions in the severity of traffic flow issues at the Main Gate as well as regionally on O'ahu. Impacts under Alternative 1 of this SPEA on Schofield Barracks remain the same as those discussed in Section 4.18.15.2 of the 2013 PEA, although the magnitude of the beneficial impacts would be greater due to the further reduction in forces.

Under Alternative 1 in this SPEA, beneficial, long-term effects are anticipated from the decrease in military fleet vehicles and privately owned vehicles, likely reducing the severity of the traffic flow issues at the Buckner Main Gate at Fort Shafter and Schofield Barracks and Wheeler AAF entrances to the installations. It would also reduce traffic regionally on O'ahu. With this stationing reduction scenario, the Soldier population would decrease and the reduced traffic would no longer compete as much with seasonal (summertime and spring) traffic conditions associated with tourism. A reduction in military use of range roads or trails within USAG Hawaii training areas would occur. In addition, impacts to local highways associated with military convoys would also drastically reduce. Potential conflicts between civilian use and military use of local roadways would be reduced proportionately with the reduction in overall military population at USAG Hawaii (up to 80 percent decrease).

4.29.17 Cumulative Effects

The ROI for USAG Hawaii includes Honolulu County, which encompasses the island of O'ahu. As noted in the 2013 PEA, the cumulative impact analysis for USAG Hawaii (Schofield Barracks) focused on impacts to the environment resulting from the incremental impact of the action when added to past, present, and reasonably foreseeable future actions. About 40 reasonably foreseeable future actions were identified for the island of O'ahu and approximately 10 were identified for the island of Hawai'i. Some of these actions are ongoing projects that would continue into the future, whereas others are discrete projects that would be conducted in the reasonably foreseeable future. These actions would also pertain to the cumulative impact analysis for USAG Hawaii (Fort Shafter) as both installations are in the same ROI.

Reasonably Foreseeable Future Projects on USAG Hawaii

One reasonably foreseeable future project on USAG Hawaii identified by the installation beyond those identified in the 2013 PEA includes the Schofield Generating Station Project. This source of renewable power would provide energy security for Schofield Barracks, Wheeler AAF, and Field Station Kunia if loss of service occurs from the normal sources of electricity supporting these installations. This project would also benefit the Hawaiian Electric Company and the residents of O'ahu by supplying power to the island-wide grid during normal operations. This project is the subject of a separate NEPA analysis.

Reasonably Foreseeable Future Projects outside USAG Hawaii

In addition to those reasonably foreseeable projects mentioned in the 2013 PEA, the Honolulu Rail project would be appropriate for inclusion in the cumulative impacts analysis. The construction of an elevated rapid transit line serving the city and county of Honolulu on the island of O'ahu would connect Honolulu's urban center with outlying areas.

Additionally, other actions on and off the installation that affect regional economic conditions could include construction and development activities, infrastructure improvements, and business and government projects and activities. In addition, larger economies with more job opportunities may be able to absorb some of the displaced Army workforce, lessening adverse effects from force reductions.

No Action Alternative

Although cumulative effects of the No Action Alternative were not addressed in the 2013 PEA, they are expected to range from beneficial to minor and adverse. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reductions

The cumulative effects of Alternative 1 are essentially the same as was determined in the 2013 PEA. For the following VECs, the Army anticipates a beneficial impact due to force reduction: air quality, airspace, noise, soil erosion, biological resources, energy demand and generation, land use conflict and compatibility, and traffic and transportation. Cumulative impacts to socioeconomics are anticipated to be adverse and significant.

The socioeconomic impact under Alternative 1, as described in Section 4.29.12.2 with a loss of 19,786 Soldiers and Army civilians, could lead to significant impacts to the population, employment, housing values, and schools in the ROI. USAG Hawaii is an important part of the economy on the island with total employment on the two installations of almost 25,000. In Honolulu County, the Armed Forces account for 5 percent of the workforce. Although the island of O'ahu has a high degree of military, DoD contractors, and government jobs, the tourism economy is the primary source of revenue for the island, with O'ahu attracting considerably more visitors than any of the other Hawaiian islands.

It is anticipated that the ARNG, U.S. Army Reserve, Navy, Air Force, and Coast Guard will be making reductions, although the extent of those reductions have not been finalized. Additional stationing of Marines and the Navy Amphibious Group may bring more military presence to the island. These stationing changes would also affect regional economic conditions through the jobs and income they bring (or lose) within the region. The reliance on USAG Hawaii and other DoD presence on the island could lead to reduced USAG Hawaii and supporting activities in the ROI,

additional losses in jobs and income, with fewer job opportunities for displaced Army employees in the ROI.

Other infrastructure improvements and construction and development activity would also benefit the regional economy through additional economic activity, jobs, and income in the ROI; however, these benefits would not offset the adverse impacts under Alternative 1 and other adverse cumulative actions. Under Alternative 1, the loss of approximately 19,800 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, could have significant impacts to population, employment, tax receipts, housing values, and schools in the ROI.