Supplemental
Programmatic Environmental Assessment for Army 2020 Force Structure Realignment

June 2014

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4.1 Aberdeen Proving Ground, Maryland

4.1.1 Introduction

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

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

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

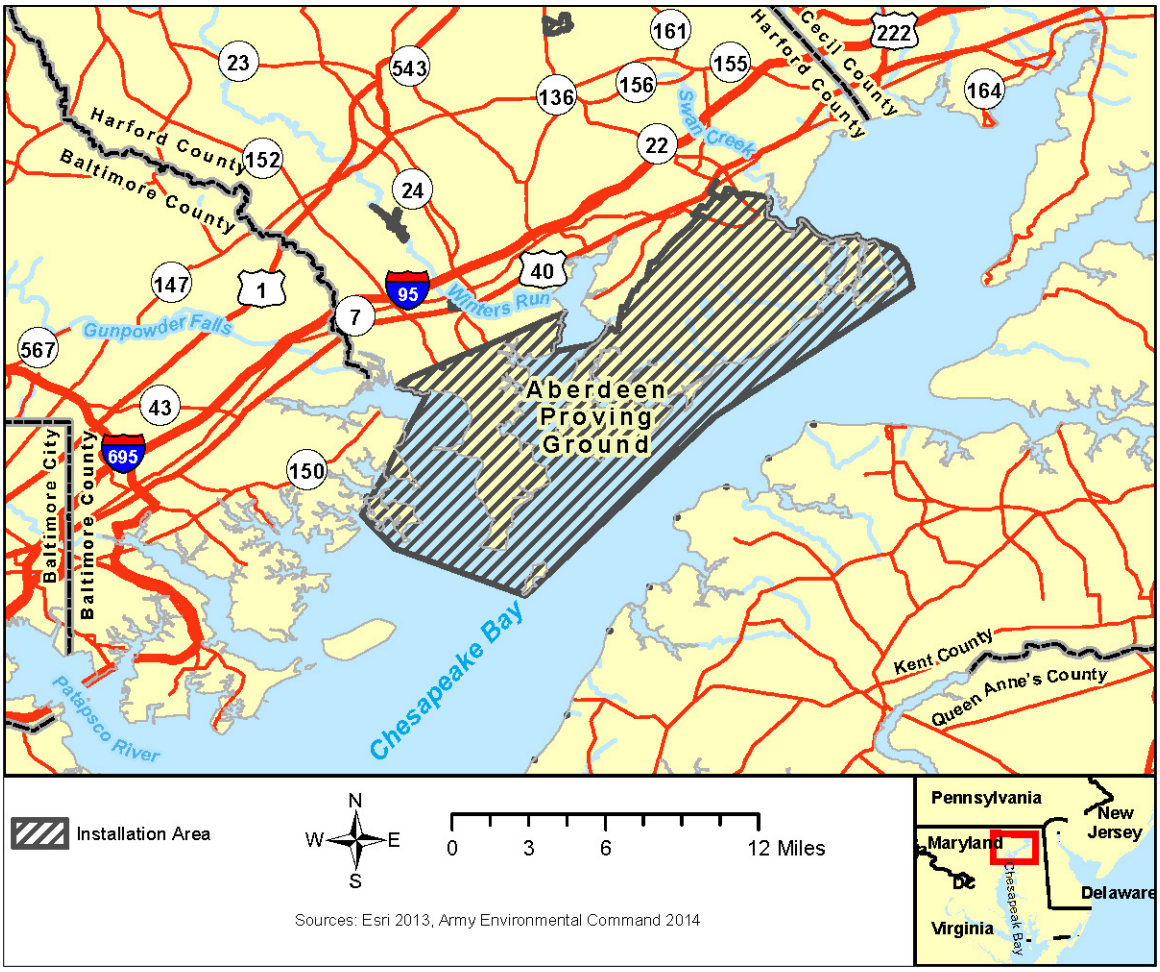

Figure 4.1-1. Aberdeen Proving Ground, Maryland

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

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

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

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

4.1.2 Valued Environmental Components

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

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

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

4.1.3 Air Quality

4.1.3.1 Affected Environment

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

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

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

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

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

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

Source: USACE (2013)

4.1.3.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

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

4.1.4 Airspace

4.1.4.1 Affected Environment

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

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

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

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

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

4.1.4.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

4.1.5 Cultural Resources

4.1.5.1 Affected Environment

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

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

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

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

4.1.5.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

4.1.6 Noise

4.1.6.1 Affected Environment

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

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

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

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

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

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

4.1.6.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reduction

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

4.1.7 Soils

4.1.7.1 Affected Environment

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

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

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

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

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

4.1.7.2 Environmental Effects

No Action Alternative

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

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

Alternative 1—Implement Force Reductions

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

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

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

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

4.1.8.1 Affected Environment

Vegetation

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

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

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

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

Wildlife

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

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

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

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

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

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

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

Threatened and Endangered Species

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

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

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

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

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

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

4.1.8.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

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

4.1.9 Wetlands

4.1.9.1 Affected Environment

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

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

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

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

Source: USFWS (2010)

4.1.9.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

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

4.1.10 Water Resources

4.1.10.1 Affected Environment

Surface Water/Watersheds

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

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

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

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

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

Groundwater

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

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

Water Supply

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

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

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

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

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

Wastewater

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

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

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

Stormwater

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

Floodplains

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

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

4.1.10.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

4.1.11 Facilities

4.1.11.1 Affected Environment

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

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

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

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

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

4.1.11.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

4.1.12 Socioeconomics

4.1.12.1 Affected Environment

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

Population and Demographics

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

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

Table 4.1-5. Population and Demographics, 2012

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

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

Table 4.1-6. Racial and Ethnic Composition, 2012

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

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

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

Employment and Income

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

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

Table 4.1-7. Employment and Income, 2012

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

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

Baltimore County, Maryland

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

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

Cecil County, Maryland

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

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

Harford County, Maryland

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

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

Kent County, Maryland

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

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

Housing

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

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

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

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

Schools

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

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

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

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

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

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

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

Public Health and Safety

Police Services

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

Fire and Emergency Services

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

Medical Facilities

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

Family Support Services

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

Recreation Facilities

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

4.1.12.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

Population and Economic Impacts

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

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

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

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

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

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

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

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

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

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

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

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

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

Housing

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

Schools

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

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

Public Services

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

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

Family Support Services and Recreation Facilities

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

Environmental Justice and Protection of Children

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

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

4.1.13 Energy Demand and Generation

4.1.13.1 Affected Environment

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

Electricity

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

Natural Gas

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

4.1.13.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

4.1.14 Land Use Conflicts and Compatibility

4.1.14.1 Affected Environment

Regional Setting

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

Land Uses on the Installation

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

Surrounding Land Use

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

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

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

Joint Land Use Study

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

4.1.14.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

4.1.15 Hazardous Materials and Hazardous Waste

4.1.15.1 Affected Environment

Hazardous Materials

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

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

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

Hazardous Waste Treatment, Storage, and Disposal

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

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

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

Hazardous Waste Investigation and Remediation Sites

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

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

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

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

Other Hazards

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

4.1.15.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

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

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

4.1.16 Traffic and Transportation

4.1.16.1 Affected Environment

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

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

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

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

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

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

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

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

4.1.16.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

4.1.17 Cumulative Effects

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

Reasonably Foreseeable Future Projects on Aberdeen Proving Ground

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

Reasonably Foreseeable Future Projects outside Aberdeen Proving Ground

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

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

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

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

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

4.2 Fort Belvoir, Virginia

4.2.1 Introduction

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

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

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

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

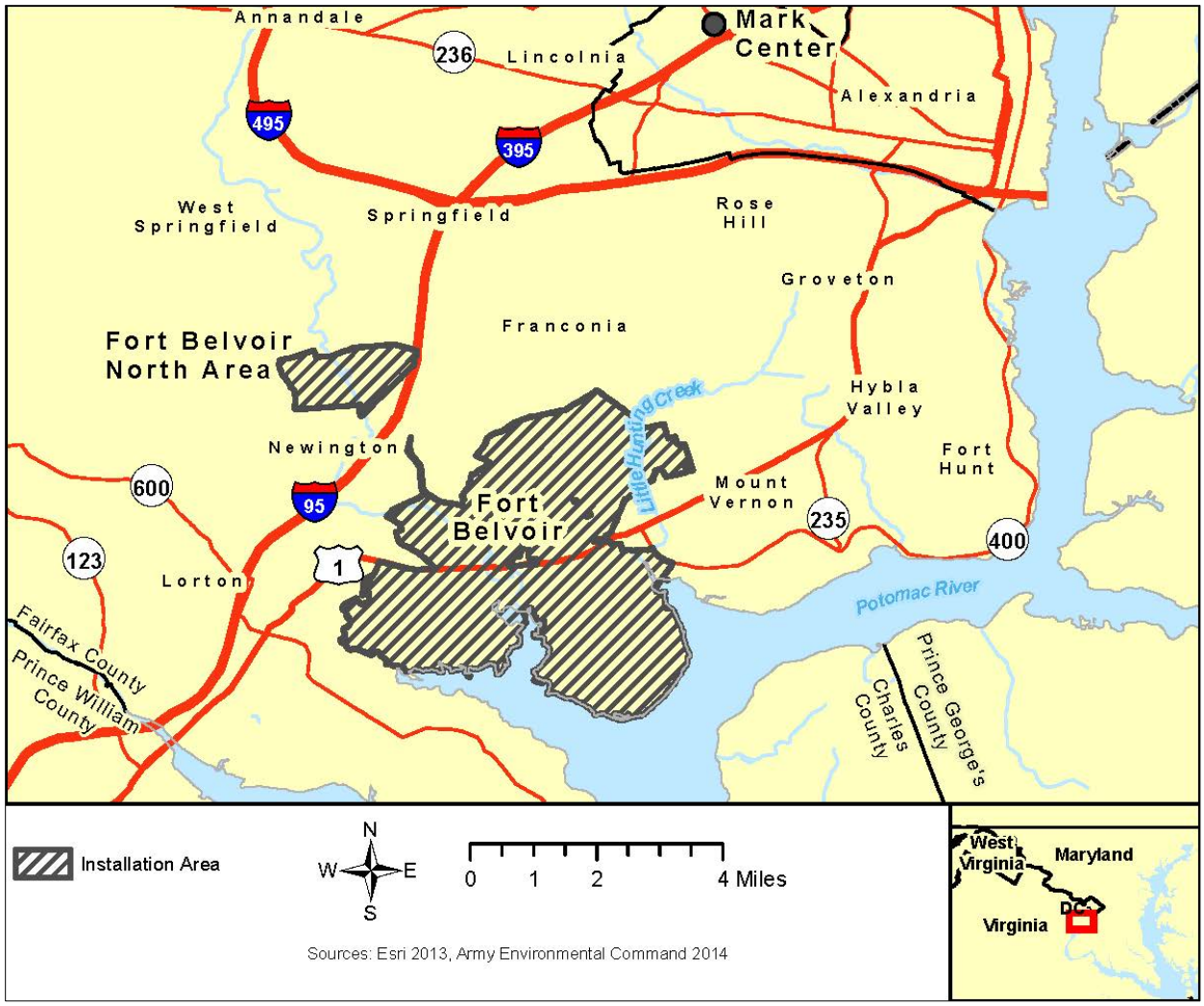

Figure 4.2-1. Fort Belvoir, Virginia

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

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

4.2.2 Valued Environmental Components

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

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

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

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

4.2.3 Air Quality

4.2.3.1 Affected Environment

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

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

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

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

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

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

Source: Fort Belvoir (2013a)

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

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

4.2.3.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

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

4.2.4 Airspace

4.2.4.1 Affected Environment

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

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

4.2.4.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

4.2.5 Cultural Resources

4.2.5.1 Affected Environment

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

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

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

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

4.2.5.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

4.2.6 Noise

4.2.6.1 Affected Environment

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

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

4.2.6.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

4.2.7 Soils

4.2.7.1 Affected Environment

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

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

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

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

4.2.7.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

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

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

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

4.2.8.1 Affected Environment

Vegetation

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

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

Table 4.2-3. Fort Belvoir Plant Communities

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

Source: U.S. Army (2014a)

Wildlife

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

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

Threatened and Endangered Species

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

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

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

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

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

4.2.8.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

4.2.9 Wetlands

4.2.9.1 Affected Environment

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

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

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

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

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

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

4.2.9.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

4.2.10 Water Resources

4.2.10.1 Affected Environment

Surface Water/Watersheds

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

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

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

Groundwater

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

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

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

Water Supply

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

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

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

Wastewater

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

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

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

Stormwater

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

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

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

Floodplains

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

4.2.10.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

4.2.11 Facilities

4.2.11.1 Affected Environment

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

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

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

4.2.11.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

4.2.12 Socioeconomics

4.2.12.1 Affected Environment

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

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

Population and Demographics

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

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

Table 4.2-5. Population and Demographics, 2012

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

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

Source U.S. Census Bureau (2012a)

Table 4.2-6. Racial and Ethnic Composition, 2012

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

Source U.S. Census Bureau (2012a)

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

Employment and Income

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

Table 4.2-7. Employment and Income, 2012

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

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

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

Arlington County

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

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

Fairfax County

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

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

Loudoun County

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

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

Prince William County

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

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

Stafford County

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

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

City of Alexandria

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

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

City of Fairfax

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

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

City of Falls Church

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

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

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

City of Manassas

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

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

City of Manassas Park

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

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

Housing

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

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

Schools

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

Public Health and Safety

Police Services

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

Fire and Emergency Services

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

Medical Facilities

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

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

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

Family Support Services

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

Recreation Facilities

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

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

4.2.12.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

Population and Economic Impacts

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

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

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

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

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

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

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

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

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

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

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

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

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

Housing

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

Schools

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

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

Public Services

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

Family Support Services and Recreation Facilities

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

Environmental Justice and Protection of Children

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

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

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

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

4.2.13 Energy Demand and Generation

4.2.13.1 Affected Environment

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

Electricity

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

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

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

Natural Gas

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

4.2.13.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

4.2.14 Land Use Conflicts and Compatibility

4.2.14.1 Affected Environment

Regional Setting

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

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

Land Use at Fort Belvoir

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

Surrounding Land Use

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

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

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

4.2.14.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

4.2.15 Hazardous Materials and Hazardous Waste

4.2.15.1 Affected Environment

Hazardous Materials

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

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

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

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

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

Hazardous Waste Treatment, Storage, and Disposal

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

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

Hazardous Waste Investigation and Remediation Sites

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

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

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

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

Others Hazards

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

4.2.15.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

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

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

4.2.16 Traffic and Transportation

4.2.16.1 Affected Environment

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

Regional Road Network

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

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

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

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

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

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

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

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

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

Local roadways that directly serve FBNA include the following:

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

Installation Road Network

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

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

Access Control Points

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

Transit

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

Rail

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

Bus and Shuttle Service

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

Pedestrian/Bicycle Network

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

4.2.16.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

4.2.17 Cumulative Effects

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

Reasonably Foreseeable Future Projects on Fort Belvoir

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

Reasonably Foreseeable Future Projects outside Fort Belvoir

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

No Action Alternative

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

Alternative 1–Implement Force Reductions

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

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

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

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4.3 Fort Benning, Georgia

4.3.1 Introduction

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

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

4.3.2 Valued Environmental Components

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

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

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

4.3.3 Air Quality

4.3.3.1 Affected Environment

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

4.3.3.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

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

4.3.4 Airspace

4.3.4.1 Affected Environment

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

4.3.4.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

4.3.5 Cultural Resources

4.3.5.1 Affected Environment

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

4.3.5.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

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

4.3.6 Noise

4.3.6.1 Affected Environment

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

4.3.6.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

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

4.3.7 Soils

4.3.7.1 Affected Environment

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

4.3.7.2 Environmental Effects

No Action Alternative

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

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

Alternative 1—Implement Force Reductions

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

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

4.3.8.1 Affected Environment

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

4.3.8.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

4.3.9 Wetlands

4.3.9.1 Affected Environment

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

4.3.9.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

4.3.10 Water Resources

4.3.10.1 Affected Environment

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

4.3.10.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

4.3.11 Facilities

4.3.11.1 Affected Environment

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

4.3.11.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

4.3.12 Socioeconomics

4.3.12.1 Affected Environment

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

Population and Demographics

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

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

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

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

Table 4.3-2. Population and Demographics, 2012

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

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

Table 4.3-3. Racial and Ethnic Composition, 2012

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

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

Employment and Income

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

Table 4.3-4. Employment and Income, 2012

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

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

Chattahoochee County, Georgia

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

Harris County, Georgia

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

Lee County, Alabama

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

Marion County, Georgia

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

Muscogee County, Georgia

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

Russell County, Alabama

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

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

Talbot County, Georgia

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

Housing

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

Schools

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

Public Health and Safety

Police Services

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

Fire and Emergency Services

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

Medical Facilities

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

Family Support Services

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

Recreation Facilities

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

4.3.12.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

Population and Economic Impacts

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

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

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

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

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

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

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

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

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

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

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

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

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

Housing

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

Schools

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

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

Public Services

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

Family Support Services and Recreation Facilities

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

Environmental Justice and Protection of Children

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

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

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

4.3.13 Energy Demand and Generation

4.3.13.1 Affected Environment

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

4.3.13.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

4.3.14 Land Use Conflicts and Compatibility

4.3.14.1 Affected Environment

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

4.3.14.2 Environmental Effects

No Action Alternative

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

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

Alternative 1—Implement Force Reductions

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

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

4.3.15 Hazardous Materials and Hazardous Waste

4.3.15.1 Affected Environment

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

4.3.15.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

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

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

4.3.16 Traffic and Transportation

4.3.16.1 Affected Environment

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

4.3.16.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

4.3.17 Cumulative Effects

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

Reasonably Foreseeable Future Projects on Fort Benning

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

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

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

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

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

Reasonably Foreseeable Future Projects outside Fort Benning

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

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

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

No Action Alternative

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

Alternative 1–Implement Force Reductions

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

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

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

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

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

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4.4 Fort Bliss, Texas

4.4.1 Introduction

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

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

4.4.2 Valued Environmental Components

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

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

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

4.4.3 Air Quality

4.4.3.1 Affected Environment

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

4.4.3.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

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

4.4.4 Airspace

4.4.4.1 Affected Environment

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

4.4.4.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

4.4.5 Cultural Resources

4.4.5.1 Affected Environment

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

4.4.5.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

4.4.6 Noise

4.4.6.1 Affected Environment

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

4.4.6.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

4.4.7 Soils

4.4.7.1 Affected Environment

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

4.4.7.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

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

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

4.4.8.1 Affected Environment

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

4.4.8.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

4.4.9 Wetlands

4.4.9.1 Affected Environment

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

4.4.9.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

4.4.10 Water Resources

4.4.10.1 Affected Environment

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

4.4.10.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

4.4.11 Facilities

4.4.11.1 Affected Environment

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

4.4.11.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

4.4.12 Socioeconomics

4.4.12.1 Affected Environment

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

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

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

Population and Demographics

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

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

Table 4.4-2. Population and Demographics, 2012

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

Table 4.4-3. Racial and Ethnic Composition, 2012

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

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

Employment and Income

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

Table 4.4-4. Employment and Income, 2012

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

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

Doña Ana County, New Mexico

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

Otero County, New Mexico

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

El Paso County, Texas

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

Housing

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

Schools

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

Public Health and Safety

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

Family Support Services

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

Recreation Facilities

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

4.4.12.2 Environmental Effects

No Action Alternative

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

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

Alternative 1—Implement Force Reductions

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

Population and Economic Impacts

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

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

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

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

Table 4.4-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+6.1	+3.5	+3.7	+1.0
Economic contraction significance value	-5.8	-5.5	-4.4	-1.8
Forecast value	-2.3	-2.8	-5.1	-3.7

Table 4.4-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impact	-$925,584,000	-17,599 (Direct)	-40,288
		-3,264 (Induced)	
		-20,864 (Total)	
Total 2012 ROI economic estimates	$33,679,147,000	442,013	1,107,884
Percent reduction of 2012 figures	-2.8	-4.7	-3.6

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

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period of until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 16,000 active component Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 1,599 direct contract service jobs would be also lost. An additional 3,264 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. The total reduction in employment is estimated to be 20,864, a significant reduction of 4.7 percent from the total employed labor force in the ROI of 442,013. Income is estimated to fall by $925.6 million, a 2.8 percent decrease in income in the ROI from 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $1.2 billion. There would also be a loss in sales tax receipts to local and state governments. The state and average local sales tax for New Mexico is 7.3 and in Texas it is 8.2 percent (Tax Foundation, 2014). To estimate sales tax reductions, information on the proportion of sales that would be subject to sales taxes on average across the country was utilized. According to the U.S. Economic Census, an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rates were applied to the estimated decrease in sales of $1.2 billion resulting in an estimated sales tax receipts decrease ranging from $13.9 million to $15.6 million under Alternative 1.

Of the 1,107,884 people (including those residing on Fort Bliss) who live within the ROI, 40,288 Army employees and their Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 3.6 percent. This number likely overstates potential population impacts because some of the people no longer employed by the military would continue to live and work within the ROI, finding employment in other industry sectors. Some of the displaced personnel may stay in the ROI and seek work, finding work, and others may remain unemployed and possibly affect the unemployment rate in the ROI.

Housing

The population reduction under Alternative 1 would lead to a decreased demand for housing and increased housing availability on the installation and in the region, potentially resulting in a slight reduction in median home values. It is expected that Alternative 1 would have a minor impact on housing throughout the ROI.

Schools

Reduction of 16,000 Soldiers and Army civilian personnel would result in a reduction of 24,288 Family members, of which 15,360 would be children. It is anticipated that school districts that provide education to Army children would be impacted under Alternative 1. Schools on and off the installation are expected to experience a decline in enrollment. School districts with larger portions of military children in proximity to Fort Bliss would be affected more than those with fewer military students.

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

Overall, schools within the ROI, such as El Paso ISD schools, could experience significant, adverse impacts from the decline in military-connected student enrollment that would result under Alternative 1. If enrollment in individual schools were to decline significantly, schools may need to reduce the number of teachers, administrators, and other staff and potentially close or consolidate with other schools within the same school district if enrollment falls below sustainable levels.

Public Services

A reduction in personnel would have minor impacts to emergency services, fire, police, and medical services since the reduction is anticipated to lower the need for these services. Adverse

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

Family Support Services and Recreation Facilities

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

Environmental Justice and Protection of Children

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

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

4.4.13 Energy Demand and Generation

4.4.13.1 Affected Environment

The energy demand and generation affected environment of the Fort Bliss installation remains essentially the same as described in Section 4.2.10.1 of the 2013 PEA. As noted in the 2013 PEA, Fort Bliss proposes to implement a number of actions with the purpose of achieving Net Zero energy, water and waste goals by 2020. The EIS process for the Fort Bliss Net Zero initiative is nearly complete and a Record of Decision is expected soon.

4.4.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, impacts to energy demand and generation would be the same as discussed in the 2013 PEA and would be negligible. Fort Bliss ranges and cantonment areas would continue to use the same types and amounts of utility consumption the installation currently consumes. Maintenance of existing utility systems would continue.

Alternative 1—Implement Force Reductions

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

4.4.14 Land Use Conflicts and Compatibility

4.4.14.1 Affected Environment

The land use affected environment of the Fort Bliss installation remains the same as described in Section 4.2.13.1 of the 2013 PEA.

4.4.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated minor impacts to land use due to potential interruption of grazing or other activities on Bureau of Land Management- and U.S. Forest Service (USFS)-managed lands or potential disturbances to adjacent communities resulting from the military mission. Impacts under the No Action Alternative on Fort Bliss remain the same as those discussed in Section 4.2.11.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Bliss would result in minor land use impacts similar to the No Action Alternative. Minor impacts to land use from continued grazing

and recreation compatibility issues under Alternative 1 on Fort Bliss remain the same as those discussed in Section 4.2.11.2 of the 2013 PEA.

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

4.4.15 Hazardous Materials and Hazardous Waste

4.4.15.1 Affected Environment

Hazardous chemicals used by the installation include acids, corrosives, caustics, glycols, compressed gases, aerosols, batteries, hydraulic fluids, solvents, paints, cleaning agents, pesticides, herbicides, lubricants, fire retardants, photographic chemicals, alcohols, insecticides, sealants, and ordnance. Fort Bliss is categorized as a large quantity generator of hazardous waste as defined by RCRA and is permitted by the Texas CEQ to operate as a Hazardous Waste Storage Facility. No substantial changes have occurred to the affected environment since 2013.

4.4.15.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that minor, adverse impacts from hazardous materials and hazardous waste would occur on Fort Bliss. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on Fort Bliss. Waste collection, storage, and disposal processes would remain mostly unchanged, and current waste management programs would continue, including the installation's ongoing efforts to pursue a reduction in its waste streams as part of the Net Zero initiative. Because of the reduced numbers of people, it is likely that the potential for spills would be reduced further during training and maintenance activities.

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

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

4.4.16 Traffic and Transportation

4.4.16.1 Affected Environment

The traffic and transportation affected environment of the Fort Bliss installation remains the same as described in Section 4.2.13.1 of the 2013 PEA. With recent growth in the military and civilian populations at Fort Bliss, the LOS of access routes has decreased.

4.4.16.2 Environmental Effects

No Action Alternative

Consistent with the 2013 PEA, significant but mitigable impacts are anticipated under the No Action Alternative.

Alternative 1—Implement Force Reductions

A further beneficial impact to regional traffic conditions is expected under Alternative 1. The chronic congestion along Montana Avenue at commute rush hours would be even further reduced compared to the 2013 PEA. Access to the Patriot Highway would also likely improve, and signaled intersection along Dyer Street and other arteries would see improved LOS. A generally safer driving environment is expected (Fort Bliss, 2014).

4.4.17 Cumulative Effects

As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Bliss consist of three counties—El Paso County in Texas and Las Cruces and Alamogordo counties in New Mexico. Section 4.2.14 of the 2013 PEA noted numerous planned or proposed actions within the ROI that have the potential to cumulatively add impacts to Army 2020 alternatives. No additional actions have been identified beyond those noted in the cumulative effects analysis of the 2013 PEA.

Reasonably Foreseeable Future Projects on Fort Bliss

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

Reasonably Foreseeable Future Projects outside Fort Bliss

No additional actions have been identified beyond those noted in the cumulative effects analysis of the 2013 PEA. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, larger, diverse

economies with more job opportunities could absorb some of the displaced Army workforce, lessening adverse effects of force reductions.

No Action Alternative

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

Alternative 1—Implement Force Reductions

As determined in the 2013 PEA, cumulative impacts as a result of the implementation of Alternative 1 range from beneficial to minor and adverse. The following VEC areas are anticipated to experience either no impact or beneficial impact as a result of the implementation of the previous proposed action: air quality, land use, airspace, cultural resources, noise, soil erosion, biological resources, wetlands, water resources, energy demand and generation, and transportation. The additional force reductions under Alternative 1 of the SPEA would result in minor, adverse, and cumulative impacts to airspace, cultural resources, and facilities.

The socioeconomic impact within the ROI under Alternative 1, as described in Section 4.4.12.2 could be significant and adverse on population, employment, and schools. Fort Bliss is located in the El Paso metropolitan area, with more than 1.1 million residents in the ROI. Because of the large employment base and diverse economy in the region, the ROI would be less vulnerable to these force reductions because other industries and considerable economic activity occurs within the ROI.

Stationing changes, such as the stationing of the Air Force security squadron at Fort Bliss (U.S. Army 2013), would also affect regional economic conditions through the jobs and income they bring (or lose) within the region. Military personnel spend their money in the ROI economy, supporting additional jobs, income, taxes, and sales impacts. As a result of BRAC and Grow the Army, planning, construction, and infrastructure development has occurred for an estimated 35,000 to 50,000 Soldiers. Reduction of 16,000 Soldiers and Army civilians would affect this planning and may result in some unused facilities or cancellation of some construction projects.

Other construction, development, transportation, and energy projects on the installation and in the ROI would benefit the regional economy through additional economic activity, jobs, and income in the ROI. Under Alternative 1, the loss of 16,000 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have a minor, adverse impact on socioeconomic conditions in the broader ROI. However, significant impacts for specific schools could potentially occur under Alternative 1.

4.5 Fort Bragg, North Carolina

4.5.1 Introduction

Fort Bragg was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population, is discussed in Section 4.3.1 of the 2013 PEA.

Fort Bragg's 2011 baseline permanent party population was 52,975. In this SPEA, Alternative 1 assesses a potential population loss of 16,000, including approximately 13,623 permanent party Soldiers and 2,377 Army civilians.

4.5.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Bragg; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.5-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.5-1. Fort Bragg Valued Environmental Component Impact Ratings

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

4.5.3 Air Quality

4.5.3.1 Affected Environment

The air quality affected environment of the Fort Bragg ROI remains the same as described in Section 4.1.2.1 of the 2013 PEA. The Fort Bragg area has not been designated as a nonattainment area for any criteria pollutants (EPA, 2013).

4.5.3.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Bragg would result in minor, beneficial impacts to air quality due to reduced operations and maintenance activities and reduced vehicle miles travelled associated with the facility. The increased size of the force reductions currently proposed under Alternative 1 would continue to result in beneficial air quality impacts assuming a corresponding decrease in operations and vehicle travel to and from Fort Bragg. The size of this beneficial impact under Alternative 1 would be slightly larger than at the time of the 2013 PEA. As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of force reduction is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities on air quality are not analyzed.

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

4.5.4 Airspace

4.5.4.1 Affected Environment

The airspace affected environment for Fort Bragg remains the same as described in Section 4.3.3.1 of the 2013 PEA; restricted airspace is sufficient to meet the current airspace requirements.

4.5.4.2 Environmental Effects

No Action Alternative

Impacts to Fort Bragg under the No Action Alternative remain minor, as described in Section 4.3.3.2 of the 2013 PEA. Fort Bragg would maintain existing airspace operations as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

Force reductions under Alternative 1 are expected to slightly alter and decrease Fort Bragg's use of aviation assets or current airspace use. While use of aviation assets and airspace would be reduced, current restrictions on airspace would still be necessary. Restricted airspace (R5311) would continue to be sufficient to meet airspace requirements. Adverse impacts to airspace under Alternative 1 would be minor.

4.5.5 Cultural Resources

4.5.5.1 Affected Environment

The affected environment for cultural resources at Fort Bragg has not changed since 2013, as described in Section 4.3.4 of the 2013 PEA.

4.5.5.2 Environmental Effects

No Action Alternative

Impacts to cultural resources from the No Action Alternative would continue to be negligible as described in Section 4.3.4.2 of the 2013 PEA. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures.

Alternative 1—Implement Force Reductions

Alternative 1 would have a minor, adverse effect on cultural resources as described in Section 4.3.4.2 of the 2013 PEA. As discussed in Chapter 1, the potential demolition of existing buildings or placing them in caretaker status as a result of force reductions is not reasonably foreseeable and not part of the scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic structures from these activities are not analyzed. Additionally, the Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. If future site-specific analysis indicates that it is necessary to vacate or demolish structures as a result of force reductions, the installation would comply with applicable laws, such as the NHPA, and conduct the necessary analyses and consultation to avoid, minimize, and/or mitigate these effects.

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

4.5.6 Noise

4.5.6.1 Affected Environment

The noise affected environment of the Fort Bragg installation remains the same as described in Section 4.3.5.1 of the 2013 PEA. The primary sources of noise at Fort Bragg vehicles, aircraft, artillery fire and explosions, and small arms firing.

4.5.6.2 Environmental Effects

No Action Alternative

In the 2013 PEA, minor, adverse impacts to noise were anticipated under the No Action Alternative from the continued nature of training operations at the installation. Impacts under the No Action Alternative on Fort Bragg remain the same as those described in Section 4.3.5.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

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

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

4.5.7 Soils

4.5.7.1 Affected Environment

The soils affected environment on the installation remains the same as described in Section 4.3.6.1 of the 2013 PEA.

4.5.7.2 Environmental Effects

No Action Alternative

In the 2013 PEA, significant but mitigable impacts to soils were anticipated under the No Action Alternative from continued training schedules. Impacts under the No Action Alternative on Fort Bragg remain the same as those described in Section 4.3.6.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that force reductions would result in minor, beneficial impacts to soils. A force reduction would result in a reduction in training and associated soil compaction and loss of vegetation. This training reduction would result in less sediment discharge to state waters.

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

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Bragg, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations. Therefore, impacts under Alternative 1 at Fort Bragg would be beneficial and remain the same as those discussed in Section 4.3.6.2 of the 2013 PEA.

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

4.5.8.1 Affected Environment

The affected environment for biological resources at Fort Bragg has not had substantive changes since 2013, as described in Section 4.3.1.2 of the 2013 PEA.

4.5.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts similar to those that are currently occurring to biological resources as described in Section 4.3.1.2 of the 2013 PEA. The threatened and endangered species recorded on Fort Bragg are managed in accordance with the installation's INRMP and Endangered Species Management Plan (ESMP), terms and conditions identified within Biological Opinion(s) issued by USFWS, and any conservation measures identified in ESA, Section 7 consultation documents. Fort Bragg would also continue briefing units prior to each training event regarding sensitive areas on the installation, such as the protective buffer surrounding individual RCW cavity trees.

Alternative 1—Implement Force Reductions

Under Alternative 1, beneficial impacts are anticipated to biological resources at Fort Bragg. Beneficial impacts would result from reduced scheduling conflicts for training area access to conduct resource monitoring and proactive conservation management practices (e.g., application of prescribed fire and restoration of longleaf pine-wiregrass ecosystems) would be more easily accomplished with reduced mission input. Force reductions would reduce construction pressures that cause forest fragmentation and result in the removal of potential threatened or endangered species habitat, thereby, minimizing the risk of violating conditions of previous Biological Opinions. Also, range capabilities and timber management activities on Fort Bragg would continue under Alternative 1 because most prescribed harvest activities are thinnings carried out to support troop training, endangered species management, and forest health.

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

4.5.9 Wetlands

4.5.9.1 Affected Environment

The wetlands affected environment on the installation remains the same as was discussed in Section 4.3.7.1 of the 2013 PEA.

4.5.9.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to wetlands were anticipated from continued training schedules. Potential wetland impacts would be reviewed and managed to be avoided, to the extent practicable, or mitigated for. Impacts under the No Action Alternative on Fort Bragg remain the same as those discussed in Section 4.3.7.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, beneficial impacts to wetlands were anticipated as a result of less use of tank roads, ranges, and training areas. Less sedimentation and vegetation loss were anticipated, and degraded wetlands were expected to restore towards their reference functions and values. Under Alternative 1 of this SPEA, impacts to wetlands could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented.

The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Bragg, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory regulations. Therefore, impacts under Alternative 1 at Fort Bragg would be beneficial and remain the same as those discussed in Section 4.3.7.2 of the 2013 PEA.

4.5.10 Water Resources

4.5.10.1 Affected Environment

Water resources are among the VECs excluded from detailed analysis as described in Section 4.3.1.2 of the 2013 PEA due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

4.5.10.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to water resources similar to those described in Section 4.3.1.2 of the 2013 PEA. The water supply and wastewater systems on the installation are adequate to support water resources needs.

Alternative 1—Implement Force Reductions

Under Alternative 1 in the 2013 PEA, beneficial impacts to water resources, including reduced demand for potable water supply and an increase in available wastewater treatment capacity, would occur on Fort Bragg. Facilities at Fort Bragg are adequate to support force growth or reductions. Fort Bragg anticipates that further proposed reduction in forces would not change this finding because Alternative 1 does not involve major changes to installation operations or types of activities conducted on Fort Bragg, only a decrease in the frequency of training activities. The installation would continue to manage its water resources in accordance with applicable federal and state water quality criteria, drinking water standards, stormwater and floodplain management requirements, and provide maintenance necessary to keep infrastructure operational.

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

4.5.11 Facilities

4.5.11.1 Affected Environment

Facilities are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.3.1.2 because of negligible impacts from implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013. As described in the 2013 PEA, Fort Bragg encompasses 162,816 acres and currently supports a total population of more than 150,000 people. The bulk of the installation's acreage is dedicated to operational areas for field maneuvers, exercises, firing ranges, impact areas, and parachute drop zones. The primary mission is the training of airborne Soldiers. In broad terms, as described in the 2013 PEA, continuing operations at Fort Bragg include general maintenance and repair, land management, utility systems operation, and commercial activities.

Fort Bragg has about 5,800 buildings, while Camp Mackall has about 59. Nearly all military maintenance and commercial facilities, supply facilities, operation and training facilities, various community facilities, and Family and Soldier housing areas are located in the cantonment area as described in the 2013 PEA. The cantonment area is severely constrained and fully developed. Fort Bragg is currently at a deficit of about 1.5 million square feet for company operations facilities and 1 million square feet for vehicle maintenance shop facilities.

4.5.11.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that there would be negligible impacts to facilities at Fort Bragg under the No Action Alternative. Fort Bragg's current facility shortfalls have been prioritized for programming and funding by the Army; however, impacts would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to facilities would occur on Fort Bragg. Under Alternative 1, implementation of additional proposed force reductions would cause overall minor, adverse impacts to facilities. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped, and moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities. Additionally, Fort Bragg has made substantial investments in facilities since 2005 and the additional force reductions could cause newer facilities to be underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demand for utilities and for the use of the shared training facilities, and more available space for operations and maintenance functions. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as

a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.5.12 Socioeconomics

4.5.12.1 Affected Environment

The ROI for Fort Bragg includes those areas that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, contractor personnel, and their Families reside. Fort Bragg is primarily sited in the city of Fayetteville, North Carolina, with a small portion located in the town of Spring Lake, North Carolina. As described in Section 4.3.8 of the 2013 PEA, those who live and work at Fort Bragg contribute to the demographic and economic composition of Cumberland, Hoke, and Harnett counties. Subsequently, these counties are included in the ROI.

Camp Mackall, the installation's satellite training area, is located in Moore, Scotland, and Richmond counties. Because a considerable number of Camp Mackall's employees live in Moore County, it is also included in the ROI. Therefore, the ROI for Fort Bragg includes Cumberland, Hoke, Harnett, and Moore counties in North Carolina.

There are additional counties, such as Bladen, Lee, Montgomery, Richmond, Robeson, Sampson, and Scotland, in which Soldiers and Army civilians and their Families may also reside. However, the number of residents in these counties is expected to be small and therefore these counties are not included in the ROI.

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

Population and Demographics

Using 2011 as a baseline, Fort Bragg has a total working population of 72,324, consisting of active component Soldiers, Army civilians, students and trainees, and other military services, civilians, and contractors. Of the total working population, 52,975 were permanent party Soldiers and Army civilians. The population that lives on Fort Bragg consists of 18,858 Soldiers and an estimated 16,657 Family members, for a total on-installation resident population of 35,515 (Carswell, 2014a). The portion of permanent party Soldiers and Army civilians living off the installation in 2011 was estimated to be 85,907 and consists of Soldiers, Army civilians, and their Families.

In 2012, the ROI had a total population of 587,022, a 2.3 percent increase from 2010. Cumberland County represents the greatest share of the population in the ROI while Hoke County has the smallest population of the counties in the ROI (U.S. Census Bureau, 2012a). The

population in the ROI is presented in Table 4.5-2, and the 2012 racial and ethnic composition of the ROI is presented in Table 4.5-3.

Table 4.5-2. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Cumberland County, North Carolina	324,049	+1.4
Hoke County, North Carolina	50,536	+7.6
Harnett County, North Carolina	122,135	+6.5
Moore County, North Carolina	90,302	+2.3

Table 4.5-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
State of North Carolina	71.9	22.0	1.5	2.5	2.0	8.7	64.7
Cumberland County, North Carolina	53.7	37.4	1.7	2.5	4.2	10.2	46.5
Hoke County, North Carolina	50.4	34.2	9.7	1.3	4.0	12.4	41.1
Harnett County, North Carolina	72.5	21.5	1.7	1.1	3.0	11.3	63.5
Moore County, North Carolina	82.8	13.4	0.9	1.0	1.7	6.1	77.5

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

Employment and Income

Information presented in Table 4.5-4 represents an update from the 2013 PEA, which provided employment and income data from 2009. Between 2000 and 2012, total employment increased significantly in Hoke County, approximately 34.9 percent. Only Cumberland County experienced a slight decline in total employment during this period (Table 4.5-4) (U.S. Census Bureau, 2000 and 2012b).

The median household income in the counties within the ROI is relatively similar to each other and North Carolina as a whole. The percentage of those living below the poverty line is greatest in Hoke County and lowest in Moore County. The percentage of residents in Cumberland and

Harnett counties living below the poverty line is relatively similar to North Carolina as a whole (U.S. Census Bureau, 2000 and 2012b).

At $196,700, the median home value in Moore County is notably higher than other counties within the ROI. The median home value in other counties within the ROI ranges from $126,300 to $137,200, all of which are lower than the North Carolina average (U.S. Census Bureau, 2012b).

Table 4.5-4. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of North Carolina	4,334,829	+10.7	153,600	46,450	16.8
Cumberland County, North Carolina	145,689	-0.8	126,300	45,413	16.8
Hoke County, North Carolina	19,692	+34.9	137,200	46,900	21.9
Harnett County, North Carolina	49,020	+18.1	130,700	44,242	16.4
Moore County, North Carolina	35,455	+8.8	196,700	48,238	14.5

In the Fayetteville area, the Cape Fear Valley Health System is the largest private employer with approximately 5,200 people on staff. The Goodyear Tire Company employs approximately 3,500 people. A Walmart distribution center has an employment base of more than 1,000 people (Visit Fayetteville, n.d.).

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

Cumberland County, North Carolina

The educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Cumberland County (22 percent). The Armed Forces is the second largest employment sector (20 percent), followed by retail trade (11 percent). Public administration and arts, entertainment, and recreation, and accommodation and food services sectors also account for a notable share of the total workforce in Cumberland County (8 percent each). The 10 remaining sectors account for 31 percent of the total workforce in Cumberland County.

Harnett County, North Carolina

Similar to Cumberland County, the educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Harnett County (20 percent). Manufacturing is the second largest employment sector (13 percent), followed by retail trade (12 percent). The Armed Forces account for 8 percent of the Harnett County workforce. The 10 remaining sectors account for 47 percent of the total workforce in Harnett County.

Hoke County, North Carolina

In Hoke County, educational services, and health care and social assistance is the primary employment sector (22 percent). The Armed Forces is the second largest employment sector (15 percent), followed manufacturing (11 percent). Retail trade and the arts, entertainment, and recreation, and accommodation and food services sector individually account for 10 percent of total workforce in Hoke County. The nine remaining sectors account for 32 percent of the total workforce.

Moore County, North Carolina

Similar to other counties in the ROI, educational services, and health care and social assistance is the primary employment sector in Moore County (26 percent). The retail trade and arts, entertainment, and recreation, and accommodation and food services are the second and third largest employment sectors (11 percent each), followed by the professional, scientific, and management, and administrative and waste management services sector (8 percent). The Armed Forces account for 3 percent of the total workforce in Moore County. The nine remaining sectors account for 41 percent of the total workforce.

Housing

Currently, approximately 12,995 Soldiers live in barracks on Fort Bragg. The installation has 168 barracks reserved for permanent residents. An additional 15 barracks are reserved for students and one for Wounded Warriors. Fort Bragg has a total of 18,803 barrack spaces. Residential unit types range from single-family homes to four-bedroom, multi-family buildings and duplexes. Additional information about the location of these units is provided in the 2013 PEA in Section 4.3.8.1. However, there are no longer leased units in Hoke County (Carswell, 2014b).

Schools

Ten schools serving students pre-school through grade 9 are located on Fort Bragg. Students in grades 10 through 12 with parents residing on Fort Bragg are assigned to attend a public high school in Fayetteville, North Carolina. A summary of enrolled students, including military-connected students, and federal aid and DoD funding for the 2012–2013 and 2013–2014 academic years is presented in Table 4.5-5.

Table 4.5-5. School Enrollment, Federal Impact Aid, and DoD Funding

County	Enrollment (students)		Military Connected (students)		Federal Impact Aid (dollars)		DoD Funding (dollars)	
	2012–2013	2013–2014	2012–2013	2013–2014	2012–2013[a]	2013–2014[a]	2012–2013	2013–2014
Cumberland County, North Carolina	52,691	52,742	11,572	10,526	4,055,969	Not yet received		N/A
Harnett County, North Carolina	20,364	20,290	2,947	2,803	632,337	Not yet received	857,081	N/A
Hoke County, North Carolina	7,491	6,444	1,981	1,465	524,609	Not yet received	N/A	N/A
Moore County, North Carolina	12,707	13,009	1,391	2,453	57,775	Not yet received	75,000	N/A

Source: Carswell (2014c). Information obtained from the respective school systems.

[a] Note that Federal Impact Aid funds are usually 2 years in arrears; therefore, these figures are not reflective of the current year's enrollment. Also, Federal Impact Aid is received for a number of federally associated entities; e.g., active component military, civilians working on federal property, and individuals residing in low rent housing areas.

Public Health and Safety

DES includes the Provost Marshal Office, Fire Department, and Intelligence and Security Office. Medical services are provided by the Womack Army Medical Clinic, one of the largest clinical departments and integrated primary care systems in DoD. Womack and its seven outlying clinics, two of which are located off the installation, provide primary care for active component personnel, retirees, and their Families. Additional information regarding these facilities is provided in the 2013 PEA.

Family Support Services

The Fort Bragg FMWR provides a variety of services for children ranging from 6 weeks to 18 years of age. As of FY 2012, more than 13,000 Families had registered for services. Of this, approximately 7,870 live on the installation and another 5,365 reside off the installation. Additional information regarding these facilities is provided in the 2013 PEA.

Recreation Facilities

The Fort Bragg FMWR oversees a variety of CYSS as well as recreational opportunities for adults. Available facilities and opportunities include physical fitness centers, bowling centers, indoor and outdoor swimming pools, and recreational camp and beach activities area, among others. A complete list of these facilities is provided in the 2013 PEA.

4.5.12.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

Population and Economic Impacts

Alternative 1 would result in the loss of 16,000[10] Army positions (13,623 Soldiers and 2,377 Army civilians) with an average annual income of $46,760 and $63,821, respectively. In addition, this alternative would affect an estimated 24,288 Family members, including 8,928 spouses and 15,360 children. The total number of Army employees and their Family members who may be directly affected under Alternative 1 is projected to 40,288.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative range. Table 4.5-6 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, changes in population and employment under Alternative 1 fall outside the historical range and are categorized as a significant impact. However, there would not be a significant impact to sales and income because the estimated percentages fall within the historical range.

Table 4.5-7 summarizes the predicted impacts to income, employment, and population of force reductions against 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecasted values, these figures show the same significance determinations as the EIFS predictions in the previous table.

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

Table 4.5-6. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+7.8	+8.1	+6.2	+2.2
Economic contraction significance value	-8.7	-6.5	-7.5	-0.8
Forecast value	-4.8	-4.2	-9.3	-6.3

Table 4.5-7. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$968,559,200	-18,367 (Direct)	-40,288
		-3,196 (Induced)	
		-21,563 (Total)	
Total 2012 ROI economic estimates	$23,795,397,000	249,856	587,022
Percent reduction of 2012 figures	-4.1	-8.6	-6.9

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

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 16,000 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 2,367 direct contract service jobs would also be lost. An additional 3,196 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. The total reduction in employment is estimated to be 21,563, a significant reduction of 8.6 percent from the total employed labor force in the ROI of 249,856. The loss of employment (direct, indirect, and induced) may make it difficult for those affected to find new employment because jobs within the ROI are concentrated in a few sectors, which may not be able to absorb those affected by Alternative 1. Income is estimated to reduce by $968.6 million, a 4.1 percent decrease in income from 2012.

Under Alternative 1, the total reduction in sales within the ROI is estimated to be $1 billion. There would also be a loss in sales tax receipts to local and state governments. The average state and local sales tax rate for North Carolina is 6.9 percent (Tax Foundation, 2014). To estimate sales tax reductions, information on the proportion of sales that would be subject to sales taxes on average across the country was utilized. According to the U.S. Economic Census an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $1.0 billion resulting in an estimated sales tax receipts decrease of $11.3 million under Alternative 1.

Of the 587,022 people (including those residing on Fort Bragg) who live within the ROI, 40,288 Army employees and their Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 6.9 percent. This number could overstate potential population impacts because some people no longer employed by the military may continue to live and work within the ROI, finding employment in other industry sectors. However, because Fort Bragg serves as a primary employer and as an economic driver within the ROI, the majority of displaced personnel are likely to move out of the area to seek other opportunities with the Army or elsewhere. There are few employment sectors in the ROI to absorb the number of displaced military employees. A small number of displaced personnel may seek and find work within the ROI; however, others may not be able to find new employment.

Housing

The population reduction that would result under Alternative 1 would decrease housing demand and increase housing availability on the installation and across the larger ROI, potentially resulting in a decrease in median home values. While the housing market would experience a change under Alternative 1, overall impacts would be minor given the large size of the ROI.

Schools

As reported in the 2013 PEA, regional schools have experienced adverse effects from crowding and large class sizes, particularly those in Harnett and Hoke counties because of the substantial growth of military personnel and their Families in the last 5 years at Fort Bragg. Under Alternative 1, the reduction of 16,000 Soldiers and Army civilians would result in a reduction of 40,288, of which 15,360 would be children. Therefore, under Alternative 1, it is anticipated that the reduction of school-aged children would decrease enrollment in some schools that are experiencing overcrowding, resulting in beneficial impacts to those schools with enrollment greater than capacity.

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

Public Services

The demand for law enforcement, medical care providers, and fire and emergency service providers on the installation may decrease if Soldiers, Army civilians, and their Family members affected under Alternative 1 move to areas outside the ROI. Adverse impacts to public services

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

Family Support Services and Recreation Facilities

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

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, states: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). As shown in Table 4.5-3, the proportion of minority populations is higher in Cumberland and Hoke counties than the proportion in Harnett and Moore counties and North Carolina as a whole. Because minority populations are more heavily concentrated in Cumberland and Hoke counties, the implementation of Alternative 1 has the potential to result in adverse impacts to minority-owned and/or -staffed businesses if Soldiers and Army civilians directly affected under Alternative 1 move to areas outside the ROI. Of the counties within the ROI, only Hoke County has a higher proportion of populations living below the poverty level when compared to the North Carolina average. Because the proportion of poverty populations is greater than the state average, Alternative 1 could cause adverse impacts to environmental justice populations. Although these populations could be adversely impacted under Alternative 1, the impacts are not likely to be disproportional.

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

beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.5.13 Energy Demand and Generation

4.5.13.1 Affected Environment

The energy demand and generation affected environment of the Fort Bragg installation remains the same as described in Section 4.2.10.1 of the 2013 PEA.

4.5.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, adverse impacts to energy demand and generation would be the same as discussed in the 2013 PEA and would be minor. Fort Bragg ranges and cantonment areas would continue to use similar types and amounts of energy. Maintenance of existing utility systems would continue.

Alternative 1—Implement Force Reductions

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

4.5.14 Land Use Conflicts and Compatibility

4.5.14.1 Affected Environment

The land use affected environment of the Fort Bragg installation remains the same as described in Section 4.3.13.1 of the 2013 PEA.

4.5.14.2 Environmental Effects

No Action Alternative

In the 2013 PEA, no impacts to land use were anticipated under the No Action Alternative. Impacts under the No Action Alternative on Fort Bragg remain the same as those described in Section 4.3.10.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Bragg would result in land use impacts identical to those anticipated under the No Action Alternative. Under Alternative 1, there would be no impacts to land use at Fort Bragg.

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

4.5.15 Hazardous Materials and Hazardous Waste

4.5.15.1 Affected Environment

As described in the 2013 PEA, hazardous materials are used in most facilities at Fort Bragg, ranging from small quantities of cleaners and printing supplies to larger quantities of fuels, oils, and chemicals. Hazardous wastes are generated at Fort Bragg from various operations and facilities. The installation generates more than 2,200 pounds of hazardous waste per month and maintains a large quantity generator status under RCRA. No substantial changes have occurred to the affected environment since 2013.

4.5.15.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that minor, adverse impacts from hazardous materials and hazardous waste would occur on Fort Bragg. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on Fort Bragg. Because of the reduced numbers of people, it is possible the potential for spills would be reduced further during training and maintenance activities.

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

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

4.5.16 Traffic and Transportation

4.5.16.1 Affected Environment

The traffic and transportation affected environment on the installation remains the same as described in Section 4.3.12.1 of the 2013 PEA.

4.5.16.2 Environmental Effects

No Action Alternative

Significant but mitigable impacts are anticipated, consistent with the findings in Section 4.3.12.2 of the 2013 PEA. Surveys and studies conducted on the existing Fort Bragg's transportation system indicated that the system is insufficient to meet current needs (it is congested), and traffic improvements are needed.

Alternative 1—Implement Force Reductions

Alternative 1 would have limited beneficial traffic impacts resulting from a reduction in force at Fort Bragg. Traffic congestion and travel times on and off the installation would decrease, although not substantially, particularly in peak morning and evening hours. The impact, however, would be to a greater degree than described in the 2013 PEA.

4.5.17 Cumulative Effects

As noted in the 2013 PEA, the Fort Bragg ROI for cumulative impacts analysis encompasses five counties in North Carolina: Cumberland; Harnett; Hoke; Moore; and Scotland counties. Section 4.3.13 of the 2013 PEA notes a number of planned or proposed actions within the ROI that have the potential to cumulatively add to impacts of Army force reductions.

Reasonably Foreseeable Future Projects on Fort Bragg

The installation identified the deactivation of the 440th Air Wing as an additional cumulative action, which could result in additional effects.

Reasonably Foreseeable Future Projects outside Fort Bragg

Beyond those mentioned in the 2013 PEA, the Army is not aware of any reasonably foreseeable future projects outside Fort Bragg which would be appropriate for inclusion in the cumulative impacts analysis.

No Action Alternative

The cumulative effects of the No Action Alternative would be the same as determined in the 2013 PEA.

Alternative 1–Implement Force Reductions

Cumulative impacts from the proposed implementation of Alternative 1 would be essentially the same as determined in the 2013 PEA. The reduction of forces at Fort Bragg would result in less training, and facilitate accelerated accomplishment of conservation management practices due to reduced training conflicts. Cumulative impacts from the proposed implementation of Alternative 1 would be beneficial, negligible or minor in most cases with the exception of socioeconomics, which are anticipated to be significant.

The socioeconomic impact under Alternative 1, as described in Section 4.5.12.2 with a loss of 16,000 Soldiers and Army civilians, could lead to significant impacts to the population, regional economy, schools, and housing. Fort Bragg is an important economic driver in the Fayetteville, North Carolina metropolitan area, with total employment on the installation of almost 53,000. Specifically, in Cumberland, Hoke, and Harnett counties, the Armed Forces account for 20, 15, and 6 percent of the workforce, respectively, demonstrating the importance of the installation to employment opportunities in the region. The considerable reliance on the installation, in combination with 16,000 lost Army jobs, could lead to reduced Fort Bragg and supporting activities in the ROI, additional losses in jobs and income, with fewer job opportunities for displaced Army employees in the ROI.

Stationing and structure changes would also affect regional economic conditions through the jobs and income they bring (or lose) within the region. Military personnel spend their money in the ROI economy, supporting additional jobs, income, taxes, and sales impacts. Recently, the elimination or relocation of the 440th Airlift Wing consisting of approximately 350 active airmen and Air Force civilian employees, and up to 1,000 drilling reservists stationed at Pope Army Airfield, Fort Bragg, North Carolina, is part of the FY 2015 President's Budget. These reductions may benefit facility shortages, school overcrowding, and pressures on public services; however, in combination with force reductions under Alternative 1, there could be further adverse impacts in regional economic activity and minor, adverse impacts to schools, housing, and public services.

Other infrastructure improvements and construction and development activity would also benefit the regional economy through additional economic activity, jobs, and income in the ROI; however, these benefits would not offset the adverse impacts under Alternative 1 and other adverse cumulative actions. Under Alternative 1, the loss of 16,000 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have significant impacts to employment, income, and tax receipts in ROI and minor, adverse impacts to schools, public services, and housing.

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4.6 Fort Campbell, Kentucky

4.6.1 Introduction

Fort Campbell was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population, is discussed in Section 4.4.1 of the 2013 PEA.

Fort Campbell's 2011 baseline permanent party population was 32,281. In this SPEA, Alternative 1 assesses a potential population loss of 16,000, including approximately 15,221 permanent party Soldiers and 779 Army civilians.

4.6.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Campbell; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.6-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.6-1. Fort Campbell Valued Environmental Component Impact Ratings

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

4.6.3 Air Quality

4.6.3.1 Affected Environment

Air quality is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.4.1.2 due to lack of significant, adverse environmental impacts resulting from implementing the alternatives included in the analysis. No changes have occurred to the affected environment since 2013. Current installation air emissions are well below limits agreed upon between Fort Campbell and the states of Kentucky and Tennessee. Christian County, Kentucky, and Montgomery County, Tennessee, are in attainment with all NAAQS, although the counties are designated maintenance areas (e.g., former nonattainment areas) for the 1997 O_3 standard (EPA, 2013).

4.6.3.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

Force reductions at Fort Campbell would result in minor, long-term, and beneficial impacts to air quality due to reduced operations and training activities, as well as reduction in vehicle miles traveled associated with the facility.

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

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

4.6.4 Airspace

4.6.4.1 Affected Environment

Airspace is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.4.1.2 because of lack of significant, adverse environmental impacts from implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013. Airspace at Fort Campbell is primarily protected to accommodate military testing

and training and includes the Fort Campbell Military Operations Area (MOA) and a number of Military Training Routes, both of which extend beyond the boundaries of the installation to the west. Within the MOA, restricted airspace exists and covers the majority of the installation boundaries and extends from the surface to 27,000 feet msl. The remaining portions of the installation are considered Class D airspace up to 3,100 feet msl (U.S. Army, 2009).

4.6.4.2 Environmental Effects

No Action Alternative

As stated in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative. Fort Campbell would maintain current airspace operations and current airspace classifications and restrictions are sufficient to meet current airspace requirements.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that negligible impacts to airspace would occur at Fort Campbell. Under Alternative 1, implementation of further force reductions is not expected to increase adverse impacts to airspace. There would be no expected changes to installation operations or types of activities conducted on Fort Campbell. Due to reduced numbers of ABCT Soldiers and support activities, it is likely the potential for airspace conflicts would be reduced further during training activities, resulting in potential beneficial impacts. Current airspace regulations and classifications are sufficient to meet future airspace requirements.

4.6.5 Cultural Resources

4.6.5.1 Affected Environment

Cultural resources were dismissed from detailed analysis in Section 4.4.1.2 of the 2013 PEA due to negligible impacts associated with implementing the alternatives included in that analysis. As described in the 2013 PEA, existing protocols and procedures at Fort Campbell make unintentional damage to cultural resources, through demolition or construction, unlikely. Fort Campbell periodically monitors significant archaeological sites and known prehistoric burials for compliance with the Archaeological Resources Protection Act and Native American Graves Protection and Repatriation Act. No changes have occurred to the affected environment since 2013.

4.6.5.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to cultural resources and the affected environment would remain in its current condition.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts to cultural resources would occur at Fort Campbell due to existing protocols and procedures that ensure the protection of cultural resources during undertakings with the potential to affect resources. Fort Campbell anticipates that a further reduction in forces will not change this finding because the protocols and procedures currently in place with continue to be utilized.

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

4.6.6 Noise

4.6.6.1 Affected Environment

Noise is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.4.1.2, due to negligible impacts as a result of implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013. As described in the 2013 PEA, the NZs impacted from air traffic (general purpose and attack helicopters) are already heavily trafficked and would not see a major increase in use or operations. As described in the 2013 PEA, the installation already has mitigations in place to help reduce current noise.

4.6.6.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, negligible, adverse impacts to noise were anticipated from continued operations. Impacts under the No Action Alternative on Fort Campbell remain the same as those discussed in Section 4.4.1 of the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Campbell would result in no adverse impacts. Under Alternative 1 of this SPEA, noise impacts associated with the proposed force reduction would be considered beneficial to the Fort Campbell region. NZs on Fort Campbell are impacted from air traffic (general purpose and attack helicopters) and munitions explosions. These impacts are mitigated through management practices to reduce noise impacts on the Fort Campbell and local communities. It is assumed that any reduction in Soldier strength would

reduce the firing range throughput and curb the existing noise environment. Although not specifically determined in the reduction scenario, any loss in aviation assets would further reduce the frequency of rotor noise; both on and off the installation.

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

4.6.7 Soils

4.6.7.1 Affected Environment

The soils affected environment on the installation remains the same as was discussed in Section 4.4.2.1 of the 2013 PEA.

4.6.7.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to soils were anticipated from continuing training and off-road traffic. Impacts under the No Action Alternative on Fort Campbell remain the same as those discussed in Section 4.4.2.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, beneficial impacts to soils were anticipated as a result of less use of training areas and off-road traffic. This is anticipated to result in less erosion, soil compaction, and loss.

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

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Campbell, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations. Therefore, impacts under Alternative 1 at Fort Campbell would be beneficial and remain the same as those discussed in Section 4.4.2.2 of the 2013 PEA.

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

4.6.8.1 Affected Environment

The affected environment for biological resources at Fort Campbell has not had substantive changes since 2013, as described in Section 4.4.1.2 of the 2013 PEA.

4.6.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to those that are currently occurring to biological resources, as described in Section 4.4.1.2 of the 2013 PEA. The installation has developed an Endangered Species Management Component in coordination with USFWS, and it coordinates all activities that may have adverse impacts with USFWS. Management controls are in place to reduce the chance of a violation.

Alternative 1—Implement Force Reductions

Under Alternative 1, negligible impacts are anticipated to biological resources at Fort Campbell. It is anticipated that additional proposed force reductions would not change this finding because Alternative 1 would not involve substantial changes to installation operations or the types of activities conducted on Fort Campbell, only a decrease in the frequency of training activities. The installation would continue to manage its natural resources and potential habitat in accordance with the installation INRMP and any conservation measures identified in any ESA Section 7 consultation documents.

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

4.6.9 Wetlands

4.6.9.1 Affected Environment

Wetlands are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.4.1.2 because of lack of significant, adverse environmental impacts from implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013.

4.6.9.2 Environmental Effects

No Action Alternative

Wetlands are designated as non-training areas on Fort Campbell, and Soldiers are provided instruction on authorized activities around wetland areas through the Directorate of Plans, Training, Mobilization, and Security, Range Division, Integrated Training Area Management Program. Fort Campbell proactively monitors wetland areas and ensures that required training does not impact wetlands areas. As a result, implementing the No Action Alternative would result in negligible, adverse impacts to wetlands, and the affected environment would remain in its current state.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that beneficial impacts to wetlands would occur on Fort Campbell. Fort Campbell anticipates that further proposed reductions in force will not change this finding because Alternative 1 does not involve major changes to the installation operations or types of activities conducted on Fort Campbell, only a decrease in the frequency of training activities. The installation would continue to manage its wetlands in accordance with the installation INRMP, and ensure that wetland impacts are avoided and/or mitigated for. Adverse impacts to wetlands could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Campbell, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory regulations.

4.6.10 Water Resources

4.6.10.1 Affected Environment

The affected environment for water resources on Fort Campbell remains the same as that described in Section 4.4.3.1 of the 2013 PEA. There are no changes to surface water and watersheds, water supply, wastewater, and stormwater resources.

4.6.10.2 Environmental Effects

No Action Alternative

In the 2013 PEA, minor, adverse impacts to water resources were anticipated from the No Action Alternative due to impaired water quality of surface waters from sedimentation. Surface water impacts under the No Action Alternative would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

Beneficial impacts to water resources were anticipated from implementation of force reductions under Alternative 1 in the 2013 PEA because of reduced water consumption and wastewater treatment requirements. Reduction in off-road training activities from force reductions was also anticipated to potentially reduce sedimentation of surface waters. Increased force reductions under Alternative 1 of this SPEA would continue to have the same beneficial impacts to water supply, wastewater, and surface waters.

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

4.6.11 Facilities

4.6.11.1 Affected Environment

The facilities affected environment of the Fort Campbell installation remains the same as described in Section 4.4.4.1 of the 2013 PEA.

4.6.11.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that there would be negligible impacts to facilities at Fort Campbell under the No Action Alternative. For the current analysis, Fort Campbell would continue to use existing space to support administrative and billeting needs of the installation, and impacts to facilities would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to facilities would occur on Fort Campbell. Under Alternative 1, implementation of the proposed further force reductions would result in overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities, which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demands for utilities and reduced demands for training facilities and support services. The force reductions would also provide opportunities to reduce reliance on aging and relocatable facilities. Some units that are currently

in non-standard facilities would have the opportunity to relocate to a more appropriately configured facility. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.6.12 Socioeconomics

4.6.12.1 Affected Environment

Fort Campbell is located on the Kentucky-Tennessee border between Hopkinsville, Kentucky and Clarksville, Tennessee. The ROI includes Christian and Trigg counties in Kentucky and Montgomery and Stewart counties in Tennessee. The ROI for this analysis includes those counties that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, and contractor personnel, and their Families reside.

This section provides a summary of demographic and economic characteristics within the ROI. These characteristics are described in greater detail in the 2013 PEA in Section 4.4.5. However, some demographic and economic indicators have been updated where more current data are available.

Population and Demographics

Using 2011 as a baseline, Fort Campbell has a total working population of 39,427 consisting of active component Soldiers, Army civilians, and other military services, civilians and contractors. Of the total working population, 32,281 were permanent party Soldiers and Army civilians. The population that lives on Fort Campbell consists of 15,087 Soldiers and an estimated 12,069 Family members, for a total on-installation resident population of 27,156 (Fort Campbell, 2013). Army civilians living on the installation would be the spouse of a Soldier. The portion of Soldiers and Army civilians living off the installation in 2011 was estimated to be 43,294 and consists of Soldiers, Army civilians, and their Family members.

In 2012, the population in the ROI was almost 288,000 (U.S. Census Bureau, 2012a). Each county in the ROI experienced an increase in population between 2010 and 2012 with the exception of Stewart County, which experienced a slight decrease of 0.2 percent (Table 4.6-2). Christian and Montgomery counties are more racially diverse than other counties within the ROI and the states in which they are located (U.S. Census Bureau, 2012a). The 2012 racial and ethnic composition of the ROI is presented in Table 4.6-3.

Table 4.6-2. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Christian County, Kentucky	75,427	+2.0
Trigg County, Kentucky	14,447	+0.8
Montgomery County, Tennessee	184,468	+7.0
Stewart County, Tennessee	13,297	-0.2

Table 4.6-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
State of Kentucky	88.6	8.1	0.3	1.3	1.6	3.2	85.9
State of Tennessee	79.3	17.0	0.4	1.6	1.6	4.8	75.1
Christian County, Kentucky	73.1	21.5	0.7	1.4	2.9	6.9	67.6
Trigg County Kentucky	89.4	8.0	0.3	0.4	1.8	1.4	88.2
Montgomery County, Tennessee	73.1	19.5	0.7	2.2	4.0	8.9	66.2
Stewart County, Tennessee	94.5	2.1	0.7	1.1	1.6	2.3	92.4

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

Employment and Income

Information presented below represents an update from the 2013 PEA, which provided employment and income data from 2009. Between 2000 and 2012, total employment increased in Montgomery County while Christian, Trigg, and Stewart counties all experienced a decrease in overall employment. Median household income was greatest in Montgomery County and lowest in Christian County. Trigg and Stewart counties reported median household incomes similar to that of Kentucky and Tennessee (Table 4.6-4) (U.S. Census Bureau, 2000 and 2012b).

Montgomery County had a median home value greater than that of other counties within the ROI and Kentucky and Tennessee as whole. All other counties within the ROI reported median home values less than the Kentucky and Tennessee averages (U.S. Census Bureau, 2012b).

The percentage of residents living below the poverty line in Christian and Stewart counties is greater than the average for Kentucky and Tennessee while Trigg and Montgomery counties both report fewer residents living below the poverty line than in either state (Table 4.6-4) (U.S. Census Bureau, 2012b).

Table 4.6-4. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Kentucky	1,877,179	+3.3	120,000	42,610	18.6
State of Tennessee	2,832,688	+6.1	138,700	44,140	17.3
Christian County, Kentucky	30,675	-9.5	100,900	37,750	21.3
Trigg County, Kentucky	5,312	-4.7	114,100	44,144	13.5
Montgomery County, Tennessee	79,895	+19.3	139,000	49,459	16.2
Stewart County, Tennessee	4,904	-5.3	110,600	40,200	20.0

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

Christian County, Kentucky

The primary employment sector in Christian County is the Armed Forces (23 percent). Educational services, and health care and social assistance is second largest employment sector (18 percent), followed by manufacturing (13 percent). Retail trade also accounts for a large share of the total workforce (10 percent). The remaining 10 sectors account for 36 percent of the workforce.

Trigg County, Kentucky

The educational services, and health care and social assistance sector accounts for the largest share of the total workforce in Trigg County (21 percent). Manufacturing is the second largest employment sector (18 percent), followed by retail trade (10 percent). The arts, entertainment, and recreation, and accommodation and food services sector also accounts for a notable share of the total workforce (8 percent). The Armed Forces account for 1 percent of Trigg County's workforce. The nine remaining sectors account for 42 percent of the workforce.

Montgomery County, Tennessee

Similar to Trigg County, Kentucky, the primary employment sector in Montgomery County is the educational services, and health care and social assistance (19 percent). The Armed Forces represents the second largest share of the total workforce (14 percent), followed by retail trade (13 percent). Manufacturing also represents a notable share of the total workforce (10 percent). The arts, entertainment, and recreation, and accommodation and food services sector is the fourth largest sector of the total workforce (9 percent). The 10 remaining sectors account for 35 percent of the workforce.

Stewart County, Tennessee

The educational services, and health care and social assistance sector also accounts for the greatest share of the total workforce in Stewart County (24 percent). Manufacturing is the second largest employment sector (12 percent), followed by construction (9 percent). The retail trade and transportation and warehousing, and utilities sectors each account for 8 percent of the total workforce. The Armed Forces account for 3 percent of the Stewart County workforce. The nine remaining sectors account of 39 percent of the total workforce.

Housing

As described in the 2013 PEA, Fort Campbell has 4,457 Family quarters for officers and 4,010 quarters for enlisted personnel, which are provided by an RCI partnership. In addition, the installation has 9,731 barrack spaces for unaccompanied personnel. Available housing off the installation primarily consists of single-family dwellings and a limited number of multi-family dwellings. Numerous single-family housing developments are under construction in communities surrounding Fort Campbell, although construction of multi-family dwellings is limited.

Schools

As described in the 2013 PEA, children of military personnel attend either the Fort Campbell School System or school districts within ROI communities. There are four public school districts with 35 elementary, 12 middle, 12 high, and 2 alternative schools. There are 4,690 students who attend Fort Campbell Schools, including 3,129 elementary (6 schools), 846 middle (2 schools), and 715 high school (1 school) aged students (Fort Campbell, 2013).

Public Health and Safety

DES oversees police and fire protection at Fort Campbell. A range of medical services for military personnel and retirees, and their Families are provided by the Blanchfield Army Community Hospital. Dental services are also provided at Fort Campbell. Additional information about these services is provided in the 2013 PEA.

Family Support Services

The Fort Campbell FMWR and ACS provide programs, activities, facilities, services and information to support Soldiers and their Families. Services range from child care and youth programs to employment, financial, and relocation readiness, among others. Additional information about these services is provided in the 2013 PEA.

Recreation Facilities

Both fee and non-fee recreational programs are provided at Fort Campbell. Programs include fitness centers, swimming pools, outdoor recreation opportunities, and sports teams, among others. Additional information about these services is provided in the 2013 PEA.

4.6.12.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

Population and Economic Impacts

Alternative 1 would result in the loss of up to 16,000[11] Army positions (15,221 Soldiers and 779 Army civilians), with an average annual income of $46,760 and $57,523, respectively. In addition, this alternative would affect an estimated 24,288 Family members, including 8,928 spouses and 15,360 children. The total number of Army employees and their Family members who may be directly affected under Alternative 1 is projected to be 40,288.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative range. Table 4.6-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, changes in population and employment under

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

Alternative 1 fall outside the historical range and are categorized as a significant impact. However, there would not be a significant impact to sales and income because the estimated percentages fall within the historical range.

Table 4.6-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+6.5	+10.4	+11.4	+7.4
Economic contraction significance value	-12.4	-8.8	-5.4	-1.7
Forecast value	-6.8	-7.8	-17.6	-14.7

Table 4.6-6 summarizes the predicted impacts to income, employment, and population of force reductions against 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecasted values, these figures show the same significance determinations as the EIFS predictions in the previous table.

Table 4.6-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$863,318,300	-17,807 (Direct)	-40,288
		-1,798 (Induced)	
		-19,605 (Total)	
Total 2012 ROI economic estimates	$11,140,487,000	120,786	288,000
Percent reduction of 2012 figures	-7.7	-16.2	-14.0

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

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 16,000 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 1,807 direct contract service jobs would also be lost. An additional 1,798 induced jobs would also be lost because of the reduction in demand for goods and services within the ROI. The total reduction in employment is estimated to be 19,605, a significant reduction of 16.2 percent from the total employed labor force in the ROI of 120,786. Income is estimated to fall by $968.6 million, a 7.7 percent decrease in income from 2012.

Under Alternative 1, the total reduction in sales within the ROI is estimated to be $768.6 million. There would also be a loss in sales tax receipts to local and state governments. The state and average local sales tax for Kentucky is 6.0 percent and 9.45 percent for Tennessee (Tax Foundation, 2014). To estimate sales tax reductions, information on the proportion of sales that would be subject to sales taxes on average across the country was utilized. According to the U.S. Economic Census an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $768.6 million under Alternative 1 resulting in an estimated decrease in sales tax receipts in this region between $7.4 and $11.6 million.

Of the 288,000 people (including those residing on Fort Campbell) who live within the ROI, 16,000 military employees and their estimated 24,288 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 14.0 percent. This number could overstate potential population impacts because some people no longer employed by the military may continue to live and work within the ROI, finding employment in other industry sectors. However, because of the rural nature of the ROI and that Fort Campbell serves as a primary employer and economic driver within the ROI, the majority of displaced personnel are likely to move out of the area to seek other opportunities with the Army or elsewhere. There are few employment sectors in the ROI to absorb the number of displaced military employees. A small number of displaced personnel may seek and find work within the ROI; however, others may not be able to find new employment, with possible implications for the unemployment rate.

Housing

Population reduction that would result under Alternative 1 would decrease housing demand and increase housing availability on the installation and across the larger ROI. The housing market in the ROI is generally showing signs of recovery demonstrated by the increase in construction of new single-family developments and a limited number of multi-family dwellings (Fort Campbell, 2014). Subsequently, the decrease in housing demand has the potential to increase vacancy rates and may lead to a decline in home values. Overall, minor to significant impacts to housing would occur under Alternative 1.

Schools

Under Alternative 1, the reduction of 16,000 Soldiers and Army civilians would decrease the number of children within the ROI by approximately 15,360. Children of military personnel associated with Fort Campbell attend schools both on and off the installation. As a result, it is anticipated that enrollment at schools attended by military-connected students would decline.

As described in the 2013 PEA, there are almost 10,000 military-connected students who attend public schools off the installation. School districts within the ROI receive sizable Federal Impact Aid funds, the allocation of which is based on the number of military-connected students they

support. The actual projected loss of Federal Impact Aid funds cannot be determined at this time due to the variability of appropriated dollars from year to year, and because the extent to which the reduction of Soldiers and Army civilians would affect school enrollment is not known at this time. However, it is anticipated that schools across the ROI would likely require fewer teachers and materials as enrollment declines, which would partially offset the reduction in Federal Impact Aid.

The Clarksville-Montgomery County School System would experience the greatest loss in Federal Impact Aid funds because their share of military-connected students is greater than other school districts. This school system has invested local funds to support the construction of new schools due to a growing student population, particularly those who are military-connected students. These investments in capital improvements or new facilities require bond repayment/debt servicing. With decreased revenue for these school districts, it may place additional burden on school districts with potential implications for operations. These are fixed costs that would not be proportionately reduced such as those operational costs (teachers and supplies) (Fort Campbell, 2014).

Overall, schools within the ROI, particularly those within the Clarksville-Montgomery County School System, would experience significant, adverse impacts from the decline in military-connected student enrollment that would result under Alternative 1. The reduction of military-connected students would likely create excess capacity that would be unsupportable over the long term.

Public Services

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

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. Off-installation demand for these services may also experience a slight decline. Overall, minor impacts to Family Support Services and recreation facilities would occur under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, provides: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). As shown in Table 4.6-3, the proportion of minority populations in Christian and Montgomery counties are greater than in Trigg and Stewart counties and in Kentucky and Tennessee as a whole. Because of the higher percentage of minority populations in Christian and Montgomery counties, Alternative 1 has the potential to result in disproportionate adverse impacts to minority-owned and/or -staffed businesses should Soldiers and Army civilians directly affected under Alternative 1 move to areas outside the ROI. Christian and Stewart counties have a slightly higher percentage of population living below the poverty level than in either state. As a result there could be some impacts to environmental justice populations under Alternative 1; however, these impacts are not expected to be disproportional.

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

4.6.13 Energy Demand and Generation

4.6.13.1 Affected Environment

The energy demand and generation affected environment of the Fort Campbell installation remains the same as was discussed in Section 4.4.6.1 of the 2013 PEA.

4.6.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, adverse impacts to energy demand and generation would be the same as discussed in the 2013 PEA and would be negligible. Fort Campbell would continue

to consume similar types and amounts of energy so impacts to energy demand would remain the same as for the 2013 PEA.

Alternative 1—Implement Force Reductions

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

4.6.14 Land Use Conflicts and Compatibility

4.6.14.1 Affected Environment

Land use is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.4.1.2, due to negligible impacts as a result of implementing alternatives included in that analysis. As described in the 2013 PEA, Fort Campbell has a training land deficit; however, the installation's Range Division has the capability to schedule multiple activities within the training lands to meet the current requirements.

4.6.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, negligible impacts to land use were anticipated since the installation is capable of meeting mission requirements with the land available. Impacts under the No Action Alternative on Fort Campbell remain the same as those discussed in Section 4.4.1 of the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Campbell would result in negligible land use impacts similar to those anticipated under the No Action Alternative, since a reduction in troop strength would not alter existing land use or cause incompatibilities with adjacent land uses. Under Alternative 1, these impacts would remain the same.

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

4.6.15 Hazardous Materials and Hazardous Waste

4.6.15.1 Affected Environment

Hazardous materials and hazardous waste are among the VECs excluded from detailed analysis in the 2013 PEA (Section 4.4.1.2) due to lack of significant, adverse environmental impacts that would result from implementing the analyzed alternatives. No substantial changes have occurred to the affected environment since 2013.

4.6.15.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts from hazardous materials and hazardous waste would occur on Fort Campbell. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on Fort Campbell. Alternative 1 would not negatively impact the current hazardous waste handling capabilities on Fort Campbell. Due to the reduced numbers of people, it is likely the potential for spills would be reduced further during training and maintenance activities.

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

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

4.6.16 Traffic and Transportation

4.6.16.1 Affected Environment

The transportation affected environment of the Fort Campbell ROI remains the same as described in Section 4.4.7.1 of the 2013 PEA. The Regional Planning Commission had concluded that a likely increase in traffic levels would exceed the current threshold and warrant further analysis and growth master planning.

4.6.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA identified negligible, adverse impacts. Fort Campbell and its ROI would continue to experience the current LOS on roadways and at ACPs as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Campbell would result in beneficial impacts to traffic and transportation systems. A force reduction of the anticipated magnitude would significantly decrease traffic congestion and improve LOS on the installation and neighboring communities. The size of this beneficial impact under Alternative 1 would be larger than anticipated at the time of the 2013 PEA.

4.6.17 Cumulative Effects

As noted in the 2013 PEA, the ROI for the cumulative impact analysis consist of the four counties within which Fort Campbell is located—Christian and Trigg counties in Kentucky and Montgomery and Stewart counties in Tennessee. As noted in Section 4.4.8 of the 2013 PEA, numerous planned or proposed actions within the ROI have the potential to cumulatively add impacts to Alternative 1.

Reasonably Foreseeable Future Projects on Fort Campbell

Additional actions identified by the installation beyond those noted in the cumulative effects analysis of the 2013 PEA include Training Mission and Mission Support Activities. Currently the Army is preparing a Programmatic Environmental Impact Statement (PEIS) to evaluate the impacts of current and future training and mission-related activities at Fort Campbell.

Reasonably Foreseeable Future Projects outside Fort Campbell

No additional actions have been identified by the installation beyond those noted in the cumulative effects analysis of the 2013 PEA. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, smaller, less diversified economies will be more vulnerable to force reductions and provide fewer opportunities to displaced Army employees.

No Action Alternative

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

Alternative 1–Implement Force Reductions

The cumulative effects of Alternative 1 would be essentially similar as was determined in the 2013 PEA. Overall, the potential cumulative impacts of Alternative 1 at Fort Campbell are anticipated to be significant and adverse for socioeconomics, with generally reduced environmental impacts, ranging from minor, adverse to beneficial.

The socioeconomic impact under Alternative 1, as described in Section 4.6.12.2 with a reduction of 16,000 Soldiers and Army civilians, could lead to significant impacts to the population, regional economy, schools, and housing in the ROI. Fort Campbell has long been an economic driver in the ROI with a baseline party population of over 25,000 Soldiers, civilians, and other employees and students. The relatively small economy of the ROI depends on the installation's employment and economic activity. With fewer opportunities for employment, the ROI may not be able absorb many of the displaced forces. In Christian County, Kentucky, the Armed Forces account for 23 percent of the workforce, while in Montgomery County, Tennessee, the Armed Forces account for 14 percent of the workforce, demonstrating the importance of installation to employment in the region.

Stationing changes would also affect regional economic conditions through the jobs and income they bring (or lose) within the region. Military personnel spend their money in the ROI economy, supporting additional jobs, income, taxes, and sales impacts. Other infrastructure improvements and construction and development activity would also benefit the regional economy through additional economic activity, jobs, and income in the ROI; however, these benefits would not offset the adverse impacts under Alternative 1 and other adverse cumulative actions. Under Alternative 1, the loss of 16,000 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have significant impacts to employment, income, tax receipts, housing values, and schools in the ROI.

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4.7 Fort Carson, Colorado

4.7.1 Introduction

Fort Carson was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population, is discussed in Section 4.5.1 of the 2013 PEA. Unless otherwise noted, the discussion of Fort Carson's affected environment and environmental effects below includes Piñon Canyon Maneuver Site.

Fort Carson's 2011 baseline permanent party population was 25,702. In this SPEA, Alternative 1 assesses a potential population loss of 16,000, including approximately 15,295 permanent party Soldiers and 705 Army civilians.

4.7.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Carson; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.7-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.7-1. Fort Carson Valued Environmental Component Impact Ratings

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

4.7.3 Air Quality

4.7.3.1 Affected Environment

The air quality affected environment of the Fort Carson ROI remains the same as described in Section 4.5.2.1 of the 2013 PEA. The Fort Carson area has not been designated as a nonattainment area for any criteria pollutants. As noted in the 2013 PEA, however, it does include a maintenance area for CO (EPA, 2013). The 2013 PEA stated that the EPA will decide on a more restrictive O_3 standard in 2013. EPA has still not made a determination on the O_3 standard.

4.7.3.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Carson would result in short-term, negligible, adverse as well as long-term, beneficial impacts to air quality due to reduced operations and maintenance activities, dust-generating training activities, and vehicle miles traveled associated with the facility. Impacts to air quality associated with the increased size of the force reductions proposed under Alternative 1 would continue to be beneficial assuming a corresponding decrease in operations and vehicle travel at Fort Carson. The beneficial impact under Alternative 1 for this SPEA would be roughly double that anticipated at the time of the 2013 PEA.

The relocation of personnel outside of the area due to the force reduction could result in negligible, short-term effects on air quality associated with mobile sources.

4.7.4 Airspace

4.7.4.1 Affected Environment

The airspace affected environment on the installation remains the same as described in Section 4.5.3.1 of the 2013 PEA.

4.7.4.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that there would be negligible impacts to airspace at Fort Carson under the No Action Alternative. Fort Carson would continue to maintain existing airspace operations, and impacts to airspace would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

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

4.7.5 Cultural Resources

4.7.5.1 Affected Environment

The affected environment for cultural resources at Fort Carson has changed since the 2013 analysis, as described in Section 4.5.4 of the 2013 PEA. Since completion of the PEA Fort Carson has executed three Programmatic Agreements for compliance with Section 106 of NHPA. These programmatic agreements address: 1) Construction, Maintenance, and Operations Activities for Areas on Fort Carson, Colorado (March 2013), 2) Military Training and Operational Support Activities Down Range Fort Carson, Colorado (March 2014), and 3) Military Training and Operational Support Activities Piñon Canyon Maneuver Site, Fort Carson, Colorado (April 20, 2014).

4.7.5.2 Environmental Effects

No Action Alternative

Impacts to cultural resources from the No Action Alternative would continue to be negligible as described in Section 4.5.4.2 of the 2013 PEA. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures.

Alternative 1—Implement Force Reductions

Alternative 1 would have a minor, beneficial effect on cultural resources. As discussed in Section 4.5.4.2 of the 2013 PEA, there are two historic districts present at the installation and there is little potential for either to be impacted by force reductions. The potential for inadvertent adverse impacts to archaeological sites as a result of training exercises is expected to be reduced under Alternative 1.

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

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

4.7.6 Noise

4.7.6.1 Affected Environment

The noise affected environment of the Fort Carson installation remains the same as described in Section 4.3.5.1 of the 2013 PEA. The primary sources of noise at Fort Carson are the firing of weapons, specifically large-caliber weapons, such as artillery and tank main guns, as well as the operations of military aircraft at Butts AAF.

4.7.6.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, negligible impacts to noise were anticipated from continued use of small- and large-caliber weaponry, artillery, and aircraft overflight. Impacts under the No Action Alternative on Fort Carson remain the same as those discussed in Section 4.2.5.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Carson would result in minor, beneficial noise impacts due to an anticipated reduction in weapons qualification and maneuver training events. The minor, beneficial impact under Alternative 1 would continue as described in the 2013 PEA.

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

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

4.7.7 Soils

4.7.7.1 Affected Environment

The soils affected environment on the installation remains the same as was discussed in Section 4.5.6.1 of the 2013 PEA.

4.7.7.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

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

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

4.7.8.1 Affected Environment

The affected environment for biological resources at Fort Carson has not had substantive changes since 2013, as described in Section 4.5.7 of the 2013 PEA.

4.7.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts similar to those that are currently occurring to biological resources as described in Section 4.5.7.2 of the 2013 PEA. Fort Carson and Piñon Canyon Maneuver Site will continue to adhere to the current 2013–2017 INRMP (Fort Carson, 2013), which further minimizes and monitors any potential effects (e.g., briefing units regarding sensitive areas prior to each training event).

Alternative 1—Implement Force Reductions

Under Alternative 1, minor, beneficial impacts are anticipated to biological resources at Fort Carson and Piñon Canyon Maneuver Site. Such beneficial impacts are reduced access to sensitive habitats, and less training would lessen damage and disturbances to wildlife and their habitats. Furthermore, proactive conservation management practices would be more easily accomplished with reduced mission throughput. Adverse impacts could conceivably occur if force reductions prevented environmental compliance from being properly implemented. However, the Army is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Carson, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met.

4.7.9 Wetlands

4.7.9.1 Affected Environment

The wetlands affected environment on the installation remains the same as was discussed in Section 4.5.8.1 of the 2013 PEA.

4.7.9.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, negligible to minor, adverse impacts to wetlands were anticipated from continued training schedules. Potential wetland impacts would be reviewed and managed to be avoided, to the extent practicable, or mitigated for. Impacts under the No Action Alternative on Fort Carson remain the same as those discussed in Section 4.5.8.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 of the 2013 PEA, minor, beneficial impacts to wetlands were anticipated as a result of less use of tank roads, ranges, and training areas. Less sedimentation and vegetation loss were anticipated, and degraded wetlands were expected to restore towards their reference functions and values. Impacts to wetlands could conceivably occur if force reductions decreased

environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Carson, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at Fort Carson would be beneficial and remain the same as those discussed in Section 4.5.8.2 of the 2013 PEA.

4.7.10 Water Resources

4.7.10.1 Affected Environment

The affected environment for water resources on Fort Carson and the Piñon Canyon Maneuver Site remains the same as that described in Section 4.5.9.1 of the 2013 PEA. There are no changes to potable water, wastewater, stormwater, groundwater, water rights, and floodplain resources.

4.7.10.2 Environmental Effects

No Action Alternative

In the 2013 PEA, minor, adverse impacts to water resources on Fort Carson and negligible impacts to water resources on the Piñon Canyon Maneuver Site were anticipated from the No Action Alternative due to the continued disturbance of surface waters from training activities. Surface water impacts under the No Action Alternative would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

Beneficial impacts to water resources were anticipated from implementation of force reductions under Alternative 1 in the 2013 PEA because of reduced demand for potable water supply and wastewater treatment and an increase in available wastewater treatment capacity on Fort Carson and the Piñon Canyon Maneuver Site. Reduction in training area use from force reductions on Fort Carson was also anticipated to potentially reduce impacts to surface waters. Increased force reductions under Alternative 1 of this SPEA would continue to have the same beneficial impacts to water supplies, wastewater capacity, and surface waters.

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

4.7.11 Facilities

4.7.11.1 Affected Environment

The facilities affected environment of the Fort Carson installation remains the same as described in Section 4.5.10.1 of the 2013 PEA.

4.7.11.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that there would be minor, adverse impacts to facilities at Fort Carson under the No Action Alternative. The installation's current facility shortfalls have been prioritized, and Fort Carson is seeking or has received Army funding to address them. Impacts to facilities would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

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

4.7.12 Socioeconomics

4.7.12.1 Affected Environment

Fort Carson is an Army installation located near Colorado Springs, primarily in El Paso County, Colorado, and extending south into Pueblo and Fremont counties. Fort Carson's ROI, therefore, consists of El Paso, Pueblo, and Fremont counties, which is the geographic extent in which the majority of the installation's Soldiers, Army civilians, and contractor personnel and their Families reside. This section provides a summary of demographic and economic characteristics within the ROI. These indicators are described in greater detail in Section 4.5.11 of the 2013 PEA. However, indicators where more current data are available have been updated accordingly.

As in the 2013 PEA, the analysis in this section does not include the region surrounding the Piñon Canyon Maneuver Site, because Soldiers training at the Piñon Canyon Maneuver Site do so only for a short period of time, a matter of a few days or weeks. Dependents do not accompany Soldiers during this training. Therefore, there would be limited impact from the Proposed Action on community services, schools, or the economy in general.

Population and Demographics

Using 2011 as a baseline, Fort Carson has a total working population of 30,724 consisting of active component Soldiers and Army civilians, students and trainees, other military services, civilians and contractors. Of the total working population, 25,702 were permanent party Soldiers and Army civilians. The population that lives on Fort Carson consists of 13,985 Soldiers and their 21,229 Family members, for a total on-installation resident population of 35,214 (Benford, 2014). The portion of the active component Soldiers and Army civilians living off the installation is estimated to be 29,503 and consists of Soldiers, Army civilians, and their Families. Additionally, there are 121 students and trainees associated with the installation.

In 2012, the ROI's population was over 825,000. The population in El Paso and Pueblo counties increased slightly between 2010 and 2012, by 3.6 percent and 1.1 percent, respectively, while the population in Fremont County decreased slightly, by 0.1 percent (Table 4.7-2). The racial and ethnic composition of the ROI is presented in Table 4.7-3.

Table 4.7-2. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
El Paso County, Colorado	644,964	+3.6
Fremont County, Colorado	46,788	-0.1
Pueblo County, Colorado	160,852	+1.1

Table 4.7-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or more races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of Colorado	88.1	4.3	1.6	3.0	2.8	21.0	69.6
El Paso County, Colorado	84.1	6.8	1.3	2.9	4.5	15.6	71.3
Fremont County, Colorado	91.9	3.9	1.9	0.6	1.6	12.6	80.1
Pueblo County, Colorado	91.1	2.4	2.9	1.0	2.4	42.0	53.5

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

Employment and Income

Employment and income information provided in Table 4.7-4 has been updated from the 2013 PEA. El Paso County's median household income is approximately the same as the state's median household income while Fremont and Pueblo counties' median household income is approximately $17,000 lower than the state's income (U.S. Census Bureau 2012). Total employment increased in the state of Colorado and in El Paso and Pueblo counties between 2000 and 2012 while it decreased in Fremont County during this period (Table 4.7-4). Employment, median housing value, median household income, and the percentage of the population living below the poverty level are presented in Table 4.7-4.

Table 4.7-4. Employment and Income, 2012

States and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Colorado	2,531,138	+13	$236,800	$58,244	13
El Paso County, Colorado	303,857	+13	$217,500	$57,531	13
Fremont County, Colorado	14,757	-10	$161,100	$40,893	15
Pueblo County, Colorado	65,561	+10	$140,500	$41,820	18

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

El Paso County, Colorado

The U.S. Census Bureau reported that the educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in El Paso County, Colorado (19 percent). The professional, scientific, and management, and administrative and waste management services is the second largest employment sector (12 percent), followed by the retail trade sector (10 percent). The arts, entertainment, and recreation, and accommodation and food services sector account for 9 percent of the total workforce in El Paso County while the Armed Forces account for 8 percent of the El Paso County workforce. The remainder of employment sectors in El Paso County account for 42 percent of the workforce.

Fremont County, Colorado

The educational services, and health care and social assistance services sector accounts for the largest share of the total workforce in Fremont County (21 percent). The public administration sector is the second largest employment sector (14 percent) in the county, followed by the retail

trade sector (12 percent). Construction also represents a significant share of total employment in the county (10 percent). The Armed Forces account for less than 1 percent of the Fremont County workforce. The remainder of the sectors account for 43 percent of the total workforce.

Pueblo County, Colorado

The educational services, and health care and social assistance services sector is the largest employment sector in Pueblo County (26 percent). Retail trade is the second largest employment sector (14 percent), followed by the arts, entertainment, and recreation, and accommodation and food services sector (10 percent). The construction and the professional, scientific, and management, and administrative and waste management services sectors also account for a significant share of the total workforce in Pueblo County (at 8 percent each). The Armed Forces account for less than 1 percent of the Pueblo County workforce. The remainder of the sectors account for 34 percent of the total workforce.

Housing

Housing resources at Fort Carson were described in Section 4.5 of the 2013 PEA and include 3,260 permanent military Family units, which are managed through an RCI Partnership. Fort Carson Soldiers occupy approximately 91 to 95 percent of the available units in Family housing. As of June 2012, 2,989 accompanied Soldiers resided in Fort Carson Family housing. Information on housing is presented in further detail in the 2013 PEA.

Schools

As described in the 2013 PEA, approximately 10,200 children attended school in seven local school districts during the 2010–2011 school year (not including other districts, private schools, or home schools). The seven districts included Academy D-20, Cheyenne Mountain D-12, Colorado Springs D-11, Falcon D-49, Fountain-Fort Carson D-8, Harrison D-2, and Widefield D-3. The highest percentage of military-connected students attends Fountain-Fort Carson D-8 school district, accounting for 68 percent of the total in attendance (Fountain-Fort Carson, 2011).

Public Health and Safety

Fort Carson's DES enhances safety, security, and increases force protection by providing 24-hour police and fire support to the Fort Carson community. Evans Army Community Hospital on Fort Carson serves all active component personnel, their Family members, and retirees. Additional information on public services is provided in the 2013 PEA.

Family Support Services

Fort Carson ACS is a human service organization with programs and services dedicated to assisting Soldiers and their Families under FMWR. FMWR is a comprehensive network of support and leisure services designed to enhance the lives of Soldiers (active component, U.S. Army Reserve, and ARNG), their Families, civilian employees, military retirees, and other

eligible participants. Services at Fort Carson include Family, child and youth programs, recreation, sports, entertainment, and leisure activities. CYSS is a division within the FMWR that provides child development centers for children ages 6 weeks to 5 years; school age services for ages 6 to 10 years, and middle school and teen programs for ages 11 to 18 years, as well as sports and instructional classes.

Recreation Facilities

Fort Carson offers its military and their Family members and civilians access to many recreation facilities to include, but not limited to, fitness centers, outdoor recreation opportunities, sports teams, bowling, auto crafts shop, a dog park, and a golf course (which is also open to the public).

4.7.12.2 Environmental Effects

No Action Alternative

The operations at Fort Carson would continue to benefit regional economic activity in the ROI. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated. This alternative is anticipated to provide a steady-state contribution of economic and social benefits.

Alternative 1—Implement Force Reductions

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

Population and Economic Impacts

Alternative 1 would result in the loss of up to 16,000[12] Army positions (15,295 Soldiers and 705 Army civilians), each with an average annual income of $46,760 and $58,773, respectively. In addition, this alternative would affect an estimated 8,928 spouses and 15,360 children. The total population of Army employees and their Family members directly affected under Alternative 1 is estimated to be 40,288.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative ranges. Table 4.7-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated

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

by the EIFS model. Based on the EIFS analysis, changes in population and employment in the ROI under Alternative 1 fall outside the historical range and are categorized as a significant impact. However, there would not be a significant impact to income and sales because the estimated percentage change is within the historical range.

Table 4.7-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales Volume (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	7.4	4.5	4.1	3.0
Economic contraction significance value	-6.9	-3.9	-3.8	-1.7
Forecast value	-2.4	-3.1	-5.8	-4.9

Table 4.7-6 summarizes the predicted impacts to income, employment, and population of the reductions against the 2012 economic and demographic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

Table 4.7-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$969,488,000	-17,782 (Direct)	-40,288
		-3,550 (Induced)	
		-21,331 (Total)	
Total 2012 ROI economic estimates	$33,075,843,000	384,175	852,604
Percent reduction of 2012 figures	-2.1	-5.6	-4.7

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

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 16,000 Army Soldiers and civilians under Alternative 1, EIFS estimates an additional 1,782 direct contract service jobs would also be lost. An additional 3,550 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. Total reduction in employment is estimated to be 21,331, a significant reduction of 5.6 percent from the total employed labor force in the ROI of

384,175. Income is estimated to reduce by $969.5 million, a 2.1 percent decrease in income from 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $1.1 billion. There would also be a loss in sales tax receipts to local and state governments. The state and average local sales tax for Colorado is 7.4 percent (Tax Foundation, 2014). To estimate sales tax reductions, information was utilized on the proportion of sales that would be subject to sales taxes on average across the country. According to the U.S. Economic Census, an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $1.1 billion resulting in an estimated sales tax receipts decrease of $13.6 million under Alternative 1.

Of the 852,604 people (including those residing on Fort Carson) who live within the ROI, 16,000 Army employees and their estimated 24,288 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 4.7 percent. This number likely overstates potential population impacts because some of the people no longer employed by the Army would continue to live and work within the ROI, finding employment in other industry sectors.

Housing

The population reduction would lead to a decrease in demand for housing and increased housing availability on the installation and in the region. As stated in the 2013 PEA, this alternative would increase availability of single occupancy barracks and single Soldier housing. With Army force reductions, vacancies could occur in installation Family housing. Once there are no Soldiers and Families on the active component military waiting lists for housing, remaining units would be filled according to the "waterfall" priority list, as described in the 2013 PEA, which could lead to a slight reduction in median home values in the ROI. El Paso County would be most affected because current Army tenant populations are highest there. Alternative 1 would have minor impacts to housing throughout the ROI.

Schools

Under Alternative 1, a reduction of 16,000 Soldiers and Army civilians would result in a reduction in the number of children living in the ROI. It is anticipated that school districts that provide education to on-installation Army children would be affected by this action. Schools on the installation and in the ROI are expected to experience a decline in enrollment. The Fountain-Fort Carson School District as well as Academy D-20, Cheyenne Mountain D-12, Colorado Springs D-11, Falcon D-49, D-8, Harrison D-2, and Widefield D-3 would have a decreased number of military-dependent students attending their schools. With 68 percent of the enrollment associated with military-dependent students, Fountain-Fort Carson (D-8) Public School District is likely to experience significant impacts (Fort Carson, 2014). If enrollment in individual schools declines significantly, schools may need to reduce the number of teachers,

administrators, and other staff, and potentially close or consolidate with other schools within the same school district should enrollment fall below sustainable levels.

The reduction of Soldiers on Fort Carson would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal Impact Aid a district receives is based on the number of students who are considered "federally connected" and attend district schools. Actual projected dollar amounts cannot be determined at this time because of the variability of appropriated dollars from year to year, and the actual number of affected school-age children for military and civilian Families. School districts in the ROI would likely need fewer teachers and materials as enrollment drops, which would partially offset some of the reduced Federal Impact Aid. However, Fountain-Fort Carson school district receives significant federal and DoD funding based on the number of military-connected children it supports. The loss of this funding would have a significant impact to this district in the long term.

Public Services

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

Family Support Services and Recreation Facilities

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

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, provides: "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations" (EPA, 1994). The racial and ethnic composition of Pueblo County in the ROI differs from that of the state as a whole. There are higher populations of minorities in this county compared to the state's proportions as a whole. In these areas with

higher proportions of environmental justice populations, there is a potential that these populations could be adversely impacted under Alternative 1. However, it is not anticipated that Alternative 1 would have disproportionate adverse impacts to minorities, economically disadvantaged populations or children in the ROI. Job losses would be experienced across all income levels and economic sectors and spread geographically throughout the ROI.

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

4.7.13 Energy Demand and Generation

4.7.13.1 Affected Environment

The energy demand and generation affected environment of the Fort Carson installation remains the same as described in Section 4.5.12.1 of the 2013 PEA.

4.7.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, adverse impacts to energy demand and generation would be the same as described in the 2013 PEA and would be negligible. Fort Carson would continue to consume similar types and amounts of energy, and maintenance of existing utility systems would continue.

Alternative 1—Implement Force Reductions

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

4.7.14 Land Use Conflicts and Compatibility

4.7.14.1 Affected Environment

The land use affected environment of the Fort Carson installation remains the same as described in Section 4.5.13.1 of the 2013 PEA.

4.7.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, negligible impacts to land use were anticipated from continued training schedules. Impacts under the No Action Alternative on Fort Carson remain the same as those discussed in Section 4.2.13.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Carson would result in negligible land use impacts because a reduction in training land use is anticipated that roughly correlates with the number of Soldiers inactivated or realigned. Under Alternative 1, negligible impacts to land use would be the same as described in the 2013 PEA.

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

4.7.15 Hazardous Materials and Hazardous Waste

4.7.15.1 Affected Environment

As described in the 2013 PEA, Fort Carson has a comprehensive program to address management, use, and storage of hazardous waste and toxic substances, as well as a systematic program to investigate and remediate, if necessary, known or suspected contaminated sites across the installation. Fort Carson operates under an HWMP that manages hazardous waste to promote the protection of public health and the environment. No substantial changes have occurred to the affected environment since 2013.

4.7.15.2 Environmental Effects

No Action Alternative

As stated in the 2013 PEA, minor, adverse impacts are anticipated under the No Action Alternative. There would be no change in Fort Carson's management of hazardous materials,

toxic substances, hazardous waste, or contaminated sites. Fort Carson would continue to manage existing sources of hazardous waste in accordance with the installation's HWMP.

Alternative 1—Implement Force Reductions

Minor, beneficial, and long-term impacts are anticipated because the reduction in people in a reduction of hazardous material use and waste generated.

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

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

4.7.16 Traffic and Transportation

4.7.16.1 Affected Environment

The transportation affected environment of the Fort Carson ROI remains the same as described in Section 4.5.15.1 of the 2013 PEA.

4.7.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated less than significant, adverse impacts. Deficiencies in road capacity, access points, parking, and on- and off-installation traffic continue to be addressed. Impacts under the No Action Alternative on Fort Carson remain the same as those discussed in Section 4.2.15.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Carson would result in substantially beneficial impacts to traffic and transportation systems. It was anticipated that decreases in traffic congestion and travel time would result, on the installation and in neighboring communities. The size of this beneficial impact under Alternative 1 would be larger than anticipated at the time of the 2013 PEA.

4.7.17 Cumulative Effects

As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Carson consist of three counties—El Paso, Fremont, and Pueblo counties,

Colorado. Section 4.5.16 of the 2013 PEA noted numerous planned or proposed Army actions, as well as public/private actions, within the ROI that have the potential to cumulatively add impacts to Army 2020 alternatives.

Reasonably Foreseeable Future Projects on Fort Carson

Since the completion of the 2013 PEA, changes that have occurred at Fort Carson include the inactivation of one of Fort Carson's ABCTs and realignment of the remainder of the BCTs, announced in June 2013. On January 13, 2014, another decision was made to convert one of the ABCTs to a Stryker BCT.

Reasonably Foreseeable Future Projects outside Fort Carson

Beyond those mentioned in the 2013 PEA, the Army is not aware of any reasonably foreseeable future projects outside Fort Carson that would be appropriate for inclusion in the cumulative impacts analysis. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities.

No Action Alternative

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

Alternative 1–Implement Force Reduction

Overall, the potential cumulative impacts of Alternative 1 at Fort Carson are anticipated to be significant and adverse for socioeconomics, with generally beneficial impacts for the other resources.

The socioeconomic impact under Alternative 1, as described in Section 4.7.12.2 with a loss of 16,000 Soldiers and Army civilians, could lead to significant impacts to the population, regional economy, and schools. Fort Carson is an important economic driver in the Colorado Springs metropolitan area, with total employment on the installation of over 25,000. Specifically, in El Paso County, the Armed Forces account for 8 percent of the workforce. The reliance on the installation, in combination with 16,000 lost Army jobs, could lead to reduced Fort Carson and supporting activities in the ROI, additional losses in jobs and income, with fewer job opportunities for displaced Army employees in the ROI.

The Army has recently stationed the Combat Aviation Brigade at Fort Carson, but the loss and realignment of the BCTs would offset the population gains of the new Combat Aviation Brigade. These stationing changes would also result in a negligible regional economic effect.

Other infrastructure improvements and construction and development activity would also benefit the regional economy through additional economic activity, jobs, and income in the ROI; however, these benefits would not offset the adverse impacts under Alternative 1 and other adverse cumulative actions. Under Alternative 1, the loss of 16,000 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have significant impacts to employment, income, tax receipts, and schools in the ROI.

4.8 Fort Drum, New York

4.8.1 Introduction

Fort Drum is a Regional Collective Training Center and supports U.S. Army Reserve and ARNG units from throughout the northeast and an annual throughput of 21,000 to 25,000 Soldiers. Since the start of the ACUB Program in 2009, Fort Drum has secured 20 parcels under easement totaling 4,705 acres that create a buffer on land bordering the installation, which will sustain natural habitats and protect the installation's accessibility, capability, and capacity for Soldier training and testing. To date, $7,288,549.75 of funding ($6,788,549 of federal and $500,000 from New York State) have been spent on conservation easements. Fort Drum currently has no incompatible development or use issues. Fort Drum was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population, is discussed in Section 4.6.1 of the 2013 PEA.

Fort Drum's 2011 baseline permanent party population was 19,011. In this SPEA, Alternative 1 assesses a potential population loss of 16,000, including approximately 15,417 permanent party Soldiers and 583 Army civilians.

4.8.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Drum; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.8-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.8-1. Fort Drum Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Minor	Minor
Noise	Negligible	Negligible
Soils	Negligible	Beneficial
Biological Resources	Minor	Minor
Wetlands	Minor	Beneficial
Water Resources	Negligible	Negligible
Facilities	No Impacts	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Minor	Beneficial
Land Use Conflict and Compatibility	Negligible	Negligible
Hazardous Materials and Hazardous Waste	Negligible	Negligible
Traffic and Transportation	Minor	Beneficial

4.8.3 Air Quality

4.8.3.1 Affected Environment

The air quality affected environment of the Fort Drum ROI remains the same as was discussed in Section 4.6.2.1 of the 2013 PEA. Jefferson County, New York, is designated a nonattainment area for 1997 O_3 standard. The Fort Drum area has not been designated as a nonattainment area for any other criteria pollutants (EPA, 2013).

4.8.3.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that, in the long-term, force reductions at Fort Drum would result in beneficial impacts to air quality due to reduced operations and maintenance activities, and reduced vehicle miles travelled associated with the facility. Impacts to air quality from the

increased size of the force reduction proposed under Alternative 1 would continue to be beneficial assuming a corresponding decrease in operations and vehicle travel to and from Fort Drum. The size of this beneficial impact under Alternative 1 would be roughly double the size of the impact anticipated at the time of the 2013 PEA.

The relocation of personnel outside of the area because of force reductions could result in negligible, short-term effects on air quality associated with mobile sources; however, these impacts would be minimal compared with the long-term, beneficial impacts. Overall impacts to air quality would be beneficial.

4.8.4 Airspace

4.8.4.1 Affected Environment

Airspace is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.6.1.2 because of lack of significant, adverse environmental impacts from implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013. As described in the 2013 PEA, the installation's base airspace complex includes generally the airspace within an approximate 40/50 mile-radius of Wheeler-Sack AAF extending from the surface up to and including 10,000 feet msl. Restricted airspace at Fort Drum includes R-5201, R-5202A and R-5202B. R-5201 and R-5202A are 147 square miles of SUA extending from the surface to 23,000 feet msl and 23,000 feet msl to 29,000 feet msl, respectively. R-5202B is a 105 square mile SUA extending from 6,000 feet msl to 29,000 feet msl. The installation has access to this airspace continuously, with minor restrictions based on normal established operation coordination procedures as described in the 2013 PEA.

4.8.4.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that negligible, adverse impacts to airspace would occur at Fort Drum. Under Alternative 1, implementation of proposed further force reductions is not expected to result in changes to installation air operations or types of activities conducted on Fort Drum. Current airspace regulations and classifications are sufficient to meet potential future airspace requirements and overall impacts to airspace would be negligible.

4.8.5 Cultural Resources

4.8.5.1 Affected Environment

The affected environment for cultural resources at Fort Drum has not changed since 2013, as described in Section 4.6.3 of the 2013 PEA.

4.8.5.2 Environmental Effects

No Action Alternative

Implementation of the SPEA No Action Alternative would result in minor impacts to cultural resources as described in Section 4.6.3.2 of the 2013 PEA. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures.

Alternative 1—Implement Force Reductions

As discussed in Section 4.6.3.2 of the 2013 PEA, Alternative 1 would have a minor, adverse effect on cultural resources. The Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort Drum, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations at Fort Drum.

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

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

4.8.6 Noise

4.8.6.1 Affected Environment

Noise is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.6.1.2, due to negligible impacts as a result of implementing alternatives included in that analysis. As described in the 2013 PEA, the noise environment on Fort Drum is characterized as aircraft, artillery, and blast such as the sound of a weapon firing or a projectile exploding in the impact area. Artillery weapons tend to generate the highest level of noise heard on and off the installation; however, the highest sound exposure levels are generated from the aircraft maneuvers (fixed- and rotary-winged). Fort Drum is used by the Army, ARNG, and by the U.S. Air Force for aircraft training including air-to-ground weapons training and UAS training.

4.8.6.2 Environmental Effects

No Action Alternative

The 2013 PEA anticipated negligible noise impacts, since installation activities and noise contours at Fort Drum would not change. Negligible impacts to noise are expected to continue under the No Action Alternative.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Drum would result in negligible noise impacts similar to those discussed for the No Action Alternative. Alternative 1 would not involve major changes in noise sources or contours as the types of weapons systems and training conducted on ranges would not change. There would be a projected change in frequency of training; however, this would not be projected to change installation noise contours. Adverse impacts to noise under Alternative 1 would continue to be negligible.

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

4.8.7 Soils

4.8.7.1 Affected Environment

Soils are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.6.1.2 due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

4.8.7.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

Per Section 4.6.1.2 of the 2013 PEA, there would be negligible, adverse impacts to soils under Alternative 1. However, a force reduction would result in a reduction in training and associated soil compaction and loss of vegetation. This training reduction would result in less sediment discharge to state waters, thus a beneficial impact is anticipated.

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

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

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

4.8.8.1 Affected Environment

The affected environment for biological resources at Fort Drum has not had substantive changes since 2013, as described in Section 4.6.4.1 of the 2013 PEA.

4.8.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in minor impacts similar to those that are currently occurring to biological resources as described in Section 4.6.4.2 of the 2013 PEA. Fort Drum would continue to adhere to its existing military land use as described in the USFWS' Biological Opinion on the effects of activities on Fort Drum on the federally endangered Indiana bat (USFWS, 2012). Fort Drum would continue to manage its natural resources and potential habitat in accordance with the installation INRMP, Biological Opinions, and any conservation measures identified in any ESA, Section 7 consultation documents.

Alternative 1—Implement Force Reductions

Under Alternative 1, minor impacts are anticipated to biological resources at Fort Drum. Minor impacts are anticipated on listed Indiana bat or other species recorded as occurring on the installation as a result of this alternative. There would not be a change in the types of activities conducted on Fort Drum as a result of this alternative, as no major changes are anticipated. Adverse impacts could conceivably occur if force reductions prevented environmental compliance from being implemented. However, the Army is committed to ensuring that personnel cuts will not result in non-compliance with natural resources regulations. Even if the full end-strength reductions were to be realized at Fort Drum, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met.

4.8.9 Wetlands

4.8.9.1 Affected Environment

The affected environment for wetlands on Fort Drum remains the same as was discussed in Section 4.6.5.1 of the 2013 PEA.

4.8.9.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to wetlands were anticipated from continued training, personnel operations, and routine maintenance schedules. Potential wetland impacts would be reviewed and managed to be avoided, to the extent practicable, or mitigated for. Impacts under the No Action Alternative on Fort Drum remain the same as those discussed in Section 4.6.5.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

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

4.8.10 Water Resources

4.8.10.1 Affected Environment

Water resources are among the VECs excluded from detailed analysis as described in Section 4.6.1.2 of the 2013 PEA due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

4.8.10.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to water resources similar to those described in Section 4.6.1.2 of the 2013 PEA. The water supply and wastewater systems on the installation are adequate to support water resources needs.

Alternative 1—Implement Force Reductions

Under Alternative 1 in the 2013 PEA, negligible impacts to water resources, including water supply and wastewater treatment capacity, would occur on Fort Drum. Facilities at Fort Drum are adequate to support force growth or reductions. Fort Drum anticipates that further proposed reduction in forces would not change this finding because Alternative 1 of this SPEA does not involve major changes to installation operations or types of activities conducted on Fort Drum, only a decrease in the frequency of training activities. The installation would continue to manage its water resources in accordance with applicable federal and state water quality criteria, drinking water standards, and stormwater and floodplain management requirements.

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

4.8.11 Facilities

4.8.11.1 Affected Environment

The facilities affected environment of the Fort Drum installation remains the same as described in Section 4.6.6.1 of the 2013 PEA.

4.8.11.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

4.8.12 Socioeconomics

4.8.12.1 Affected Environment

Fort Drum is located in the north central portion of Jefferson County in the state of New York. The ROI for this installation includes Jefferson County, New York and includes those areas that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, and contractor personnel and their Families reside. Fort Drum was also discussed in Section 4.6.7 of the 2013 PEA.

Population and Demographics

Using 2011 as a baseline, Fort Drum has a total working population of 23,012 consisting of active component Soldiers and Army civilians, students and trainees, other military services, civilians and contractors. Of the total working population, 19,011 were permanent party Soldiers and Army civilians. The population that lives on Fort Drum consists of 9,867 Soldiers and estimated 14,978 Family members, for a total on-installation resident population of 24,845 (Schadock, 2014a). Finally, the portion of the Soldiers and civilian population living off the

installation is 23,025 and consists of Soldiers, Army civilians, and their Family members. Additionally, there are 68 students and trainees associated with the installation.

The ROI's population was 120,941 in 2012. Between 2010 and 2012, the population increased in Jefferson County by 4.1 percent (Table 4.8-2). The racial and ethnic composition of the ROI is presented in Table 4.8-3 (U.S. Census Bureau, 2012a).

Table 4.8-2. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (Percent)
Jefferson County, New York	120,941	+4.1

Table 4.8-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of New York	71.2	17.5	1.0	8.0	0.1	18,2	57.6
Jefferson County, New York	88.8	6.1	0.6	1.6	0.3	6.7	83.5

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

Employment and Income

Employment and income information provided in Table 4.8-4 has been updated from the 2013 PEA (U.S. Census Bureau, 2012b). Jefferson County's proportion of the population living below the poverty level is similar to that of the state overall. Between 2000 and 2012, employment in both the state of New York and Jefferson County has increased by 8 percent (Table 4.8-4).

Table 4.8-4. Employment and Income, 2012

States and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of New York	9,099,857	+8	$295,300	$57,683	15
Jefferson County, New York	54,286	+8	$129,000	$46,549	15

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

Jefferson County, New York

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Jefferson County (21 percent). The Armed Forces is the second largest employment sector (17 percent), followed retail trade (13 percent). Public administration is the fourth largest employment sector in Jefferson County (9 percent). The remainder of the sectors accounted for 40 percent of the workforce.

Housing

Housing resources at Fort Drum were described in Section 4.6 of the 2013 PEA and include 3,900 homes to support housing needs for Families and unaccompanied single Soldiers. Additionally, construction of over 1,200 housing units off the installation ($279 million) is approximately 50 percent complete. To date, 38 housing developments have been constructed in Jefferson County, providing 4,790 apartments for military Families. In total, housing projects off the installation, supported with local and New York state financial assistance (investments of $46.94 million to date), have eliminated past housing deficits (Fort Drum, 2014b). Information on housing is presented in further detail in the 2013 PEA.

Schools

As described in the 2013 PEA, children of military personnel attend public and private schools throughout the Jefferson County. Installation housing falls within two area school districts: Carthage Central and Indian River Central. On Fort Drum, 2,782 of 3,835 Family homes are located within the boundaries of the Indian River School District, with the remainder, 1,053 Family homes, located in the Carthage Central School District. Military students account for 71 and 53 percent, respectively, of the enrollment in the Indian River School District and Carthage Central School District. Watertown City School District has 795 children from military Families account for 20 percent of enrollment, the majority of which are enrolled in kindergarten through grade 6. The percentage of military children enrolled in surrounding area school districts is 22 percent (Fort Drum, 2014b).

Jefferson Community College (JCC), located in the city of Watertown, is the only college campus in the County. JCC offers a Higher Education Center offering thirteen bachelors' and masters' degree programs in addition to numerous associate degrees. JCC has the highest military enrollment of all community colleges in New York State, with approximately 38 percent (1,610 students) of the JCC student body comprised of active component military, military Family members, and veterans. Of these students, 11 percent are veterans, 7 percent are active military, and 20 percent are Family members. During the summer of 2012, JCC created a

classroom annex on Fort Drum with seven classrooms devoted to higher education course work (Fort Drum, 2014b).

JCC has recently constructed a $22 million residence hall (290 beds) in response to the housing needs of the current market. This facility provides a housing option for military Family member students wishing to complete their degree when their parents transfer out of the area. This facility will be completed in 2014 (Fort Drum, 2014b).

Public Health and Safety

As described in the 2013 PEA, the Fort Drum DES includes law enforcement, fire and emergency services, force protection/anti-terrorism, fire prevention and protection, emergency dispatch, physical security, and crime prevention. Ultimately, the Fort Drum DES provides for the protection of all critical assets and personnel and ensuring a safe environment for all who work or live on Fort Drum.

Fort Drum's on-installation medical services are administered by its U.S. Army, Medical Department, at several facilities around the cantonment area. These facilities provide healthcare services for military personnel, military Family members, and to military retirees and their Families.

Healthcare support for Fort Drum is also delivered by an established military-community partnership that joins the Army Medical Treatment Facility with community providers to augment the Medical Treatment Facility's primary care capability with most specialty care and inpatient services provided by community hospitals.

The Fort Drum Regional Health Planning Organization originated out of a DoD 721 pilot program for healthcare delivery. It provides a platform to analyze the existing healthcare delivery options and to seek new opportunities for leveraging non-military healthcare resources to carry out a regional healthcare approach to meet the needs of the expanding military and civilian population in the Fort Drum Health Service Area, strengthening the healthcare system for Soldiers and their Families. This unique healthcare model, with no military hospital on the installation, has created numerous opportunities for innovative partnerships to provide high-quality, flexible healthcare solutions. More than $100 million in master-planned upgrades to the five hospitals in the Fort Drum health service area have occurred to meet the needs of a growing population of Soldiers, their Families, and civilian residents caused by growth of Fort Drum.

Family Support Services

Fort Drum's ACS manages programs such as Mobilization and Deployment and the Family Readiness Center to assist in educating and preparing Soldiers and Families for the rigors of deployments and extensions. Army Family Team Building educates on the Army way of life and personal development. The Outreach Services acts as a liaison between Families and Fort Drum

Command, as well as coordinating and facilitating Army Family Action Plan forums and conferences. The Family Advocacy, Employment Readiness, and Financial Readiness programs deal with personal life issues, working towards the enhancement and betterment of Army Families. ACS also provides Relocation Readiness for those transitioning both in and out of Fort Drum and houses the Army Volunteer Corps.

Recreation Facilities

FMWR is responsible for a variety of quality of life concerns for Soldiers and their Families. FMWR is mostly responsible for recreational activities on the installation exclusive of hunting, fishing, trapping, and wildlife viewing, which is managed by the Directorate of Public Works (DPW) Environmental Division Natural Resources. FMWR's Adventure Training Program promotes periodic hunting and fishing trips to recreational areas off the installation; the Outdoor Adventure Program directs and/or promotes other recreational activities on and off the installation and maintains shooting ranges; and Parks and Recreation manages Remington Park, which offers beach swimming and boating, pavilions, lodges, tent, cabin, and recreational vehicle (RV) sites, trails and outdoor equipment rental.

4.8.12.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

Population and Economic Impacts

Alternative 1 would result in the loss of 16,000[13] Army positions (15,417 Soldiers and 583 Army civilians) positions, each with an average annual income of $46,760 and $56,314, respectively. In addition, this alternative would affect an estimated 8,928 spouses and 15,360 children for a total estimated potential impact to 24,288 Family members. The total population of Army employees and their Families directly affected under Alternative 1 would be projected to be 40,288.

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

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative range. Table 4.8-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, changes in population, employment, income, and sales in the ROI under Alternative 1 fall outside the historical range and are categorized a significant impact.

Table 4.8-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	12.3	8.7	10.8	6.5
Economic contraction significance value	-6.7	-4.7	-3.0	-1.0
Forecast value	-12.5	-16.4	-34.4	-34.4

Table 4.8-6 summarizes the predicted impacts to income, employment, and population of the reductions against the 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

Table 4.8-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$877,512,000	-17,544 (Direct)	-40,288
		-1,558 (Induced)	
		-19,102 (Total)	
Total 2012 ROI economic estimates	$5,327,673,000	54,286	120,941
Percent reduction of 2012 figures	-16.5	-35.2	-33.3

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

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. The EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 16,000 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 1,544 direct contract service jobs would also be lost. An additional 1,558 induced jobs would be lost because of the reduction

in demand for goods and services within the ROI. The total reduction in employment is estimated to be 19,102, a significant reduction of 35.2 percent from the total employed labor force in the ROI of 54,286. Income is estimated to be reduced by $877.5 million, a 16.5 percent decrease in income from 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $763.5 million. There would also be a loss in sales tax receipts to local and state governments. The state and average local sales tax for New York is 8.47 percent (Tax Foundation, 2014). To estimate sales tax reductions, information was utilized on the proportion of sales that would be subject to sales taxes on average across the country. According to the U.S. Economic Census an estimated 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $763.5 million resulting in an estimated sales tax receipts decrease of $10.3 million under Alternative 1.

Of the 120,941 people (including those residing on Fort Drum) who live within the ROI, 16,000 Army employees and their estimated 24,288 Family members would potentially no longer reside in the area under Alternative 1, resulting in a significant population reduction of 33.3 percent. Although some people no longer employed by the military could continue to live and work within the ROI, due to the rural nature of the area and Fort Drum as a dominant employer and economic driver of the ROI, most displaced forces would likely move out of the area to seek other opportunities with the Army or elsewhere. In addition, Jefferson County currently has the third highest unemployment rate of the 62 counties in the state of New York (New York Department of Labor, 2014), resulting in few employing sectors in the ROI to absorb displaced military employees. A small number of displaced forces may stay in the ROI and seek work, finding work, and others may remain unemployed and affect the unemployment rate in the ROI.

Housing

The population reduction would lead to a considerable decrease in demand for housing and vacant housing units on Fort Drum and in the ROI, resulting in a reduction in median home values with impacts on the real estate market and foreclosures in the ROI.

In addition to depressing rental rates and lowering home values, there would not be residents to fill the over-30 housing complexes (approximately 5,000 units) constructed in the ROI to support Soldier's housing needs. The loss of residents would not be filled by the local population. Alternative 1 would lead to a loss of revenue and income necessary to maintain housing units, potentially cause a raise in property taxes, and likely drive investors to default on loans in the ROI (Fort Drum, 2014b). Overall, Alternative 1 would have significant, adverse impact on housing throughout the ROI.

Schools

Under Alternative 1, a reduction of 16,000 Soldiers and Army civilians would result in a reduction in the number of children living in the ROI. Carthage Central, Indian River Central, and Watertown City school districts are expected to experience a decline in enrollment. It is likely that the majority of remaining military Families would choose to locate to the on-installation Family housing, and the bulk of the students would be enrolled at Indian River and Carthage Central. Watertown City School District would, therefore, experience a considerable decrease in student enrollment related to the loss of military Families to the installation.

The three aforementioned school districts would experience significant, adverse impacts under Alternative 1. Student population would decrease by more than 2,000 at the Indian River School District; approximately 1,900 at the Carthage Central School District; and 800 at the Watertown City School District. Current enrollment at these school districts is 4,343; 3,545; and 3,973, respectively (Fort Drum, 2014b). This decline is estimated to result in the termination of teachers, professional staff, and support staff and an associated loss of salary and benefits. Schools may need to close or consolidate with other schools within the same school district.

The reduction of Soldiers on Fort Drum would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal School Impact Aid a district receives is based on the number of students who are considered "federally connected" and attend district schools. The three school districts currently receive up to $32,000,000 in Federal Impact Aid (Fort Drum, 2014b). The loss of most of the Federal Impact Aid as well as the loss of state financial support would reduce or eliminate important educational support programs. The loss of approximately 16,000 active component Soldiers, Army civilians, and their Family members will decrease the amount of Federal Impact Aid dollars being provided to these schools. Overall, significant, adverse impacts to schools under Alternative 1 would occur to the Carthage Central, Indian River Central, and Watertown City school districts.

A decrease of 16,000 Soldiers would reduce the JCC's enrollment (Fort Drum, 2014b) with implications for the college's revenue, operating budget, staffing, and degree programs. Decreases in Soldier population will adversely impact the viability of the college's residence hall project because of the impact on enrollment and corresponding softening of the housing market.

Public Services

The demand for law enforcement, medical care providers, and fire and emergency service providers on the installation would decrease if Soldiers, Army civilians, and their Families affected under Alternative 1 move to areas outside the ROI. Adverse impacts to public services could occur if personnel cuts were to substantially affect military police and fire and rescue crews on the installation. Recently, a for-profit provider of emergency medical services invested in a large capital expansion to meet the needs of the Fort Drum growth. Volunteer fire and

ambulance services as well as private emergency service providers would be adversely affected under Alternative 1.

Additionally, community hospitals and medical service providers rely on Army funding for their operations. Medical personnel cuts would adversely affect local hospitals and the services they provide for the remaining Soldiers and Families and the civilian rural population surrounding Fort Drum. Combined military spending on healthcare in the community healthcare system outside the installation is approximately $57.7 million (Fort Drum, 2014b). Under Alternative 1, the loss of military revenue would result in hospital and other clinic closures and loss of access to specialty services. Five hospitals in the Fort Drum health service area have recently been upgraded. Additional financial burden would be placed on companies, communities, and institutions, with implications for the provision of services and viability of operations. Impacts to healthcare services are anticipated because funding, support, time, donations, and tax revenue are directly related to the number of military authorizations and the number of Family members.

Overall, adverse impacts to public health and safety would occur under Alternative 1. Although the level and number of services may decrease at medical facilities on the installation and in the ROI, the Army, regardless of any drawdown in military or civilian personnel, is committed to meeting health and safety requirements.

Family Support Services and Recreation Facilities

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

Environmental Justice and Protection of Children

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

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that

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

4.8.13 Energy Demand and Generation

4.8.13.1 Affected Environment

The energy demand and generation affected environment of the Fort Drum installation remains the same as described in Section 4.6.8.1 of the 2013 PEA.

4.8.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, impacts to energy demand and generation would be the same as described in the 2013 PEA and would be minor. Fort Drum would continue to consume similar types and amounts of energy, and maintenance of existing utility systems would continue.

Alternative 1—Implement Force Reductions

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

4.8.14 Land Use Conflicts and Compatibility

4.8.14.1 Affected Environment

The land use affected environment of the Fort Drum installation remains generally the same as described in Section 4.6.9.1 of the 2013 PEA; since completion of the 2013 PEA, the installation boundary has been surveyed and the total acreage updated to 108,733 acres.

4.8.14.2 Environmental Effects

No Action Alternative

The 2013 PEA anticipated negligible land use impacts, since installation activities at Fort Drum would not change. Negligible impacts to land use are expected to continue under the No Action Alternative.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that force realignments at Fort Drum would result in negligible land use impacts, since additional units would use existing lands and facilities and stationing would not cause changes to existing or regional land use. Under Alternative 1, impacts from force reductions would be continue to be negligible, as described in the 2013 PEA.

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

4.8.15 Hazardous Materials and Hazardous Waste

4.8.15.1 Affected Environment

Hazardous materials and hazardous waste are among the VECs excluded from detailed analysis in the 2013 PEA (Section 4.6.1.2) due to lack of significant, adverse environmental impacts resulting from implementing the analyzed alternatives. No substantial changes have occurred to the affected environment since 2013.

4.8.15.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts from hazardous materials and hazardous waste would occur on Fort Drum. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on Fort Drum. Alternative 1 would not negatively impact the current hazardous waste handling capabilities on Fort Drum. Because of the reduced numbers of people, it is expected that the

potential for spills would be reduced further during training and maintenance activities under Alternative 1.

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

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

4.8.16 Traffic and Transportation

4.8.16.1 Affected Environment

The transportation affected environment of the Fort Drum ROI remains the same as described in Section 4.6.10.1 of the 2013 PEA.

4.8.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated minor, adverse impacts. Significant transportation improvements have been undertaken as described in the 2013 PEA, including new highway connectors leading directly to the installation and new traffic signals on the installation to provide needed capacity for current and future conditions.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Drum would result in minor, adverse impacts to traffic and transportation systems. That assessment has been changed to a beneficial impact for the additional force reductions (Fort Drum, 2014a).

4.8.17 Cumulative Effects

As noted in the 2013 PEA, the ROI consists of Jefferson County, New York. Section 4.6.11 of the 2013 PEA noted a number of on and off installation actions that may present further effects to the installation and surrounding community when the effects of these actions are considered cumulatively.

Reasonably Foreseeable Future Projects on Fort Drum

Additional actions identified by the installation beyond those noted in the cumulative effects analysis of the 2013 PEA include the following:

- An additional UAS hangar at the Air National Guard MQ-9 LRE facility
- A new Army MQ-1 UAS facility
- An addition to the Network Enterprise Command building
- Two Army and Air Force Exchange Service restaurant/shoppette/fuel station improvement projects
- Several MILCON and infrastructure projects

Reasonably Foreseeable Future Projects outside Fort Drum

Reasonably foreseeable future projects outside Fort Drum which would be appropriate for inclusion in the cumulative impacts analysis include the following:

- Several housing projects (1,201 units) with an estimated total cost of $279 million
- Clayton Harbor Hotel
- Mixed use/retail projects—A three-story development on Clayton waterfront (mixed use), Western Blvd commercial development in Watertown, a Family Dollar in West Carthage
- Downtown Watertown development projects
- Restaurants—Sonic in Watertown and Captain's House in Clayton
- Other construction projects—JCC Dorms, RV Park/Campsite in Alexandria Bay, Mobile Home Park in Cape Vincent, Mobile Home Park in Brownville
- Corporate parks—Two buildings in the Jefferson County Corporate Park, Watertown Airport Corporate Park development, Purcell Corporate Park developments on Bradley Street in the city of Watertown and off Washington Street in the town of Watertown
- COR Mercy Hospital redevelopment project
- Lincoln Building revitalization project
- Brighton Building project
- Empsall's Building restoration project

In addition, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, smaller, less diversified economies will be more vulnerable to the force reductions and provide fewer opportunities to displaced Army employees.

No Action Alternative

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

Alternative 1–Implement Force Reductions

Overall, the potential cumulative impacts of Alternative 1 at Fort Drum is anticipated to be significant and adverse for socioeconomics, with generally reduced impacts for the other resources, ranging from minor, adverse to beneficial.

The socioeconomic impact under Alternative 1, as described in Section 4.8.12.2, with a reduction of 16,000 Soldiers and Army civilians could lead to significant impacts to the population, regional economy, schools, and housing in the ROI. Fort Drum has long been an economic driver in the ROI employing over 22,000 people on the installation. The small, rural economy of the ROI depends on the installation's employment and economic activity. With fewer opportunities for employment, the ROI would not be able absorb many of the displaced military employees. In Jefferson County, the Armed Forces accounted for 32 percent of the workforce, demonstrating the importance of installation to employment in the region.

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

Stationing changes would also affect regional economic conditions through the jobs and income they bring (or lose) within the region. Military personnel spend their money in the ROI economy, supporting additional jobs, income, taxes, and sales impacts. Other infrastructure improvements and construction and development activity would also benefit the regional economy through additional economic activity, jobs, and income in the ROI; however, these benefits would not offset the adverse impacts under Alternative 1 and other adverse cumulative actions. Under Alternative 1, the loss of 16,000 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have significant impacts to employment, income, tax receipts, housing values, and schools in the ROI.

4.9 Fort Gordon, Georgia

4.9.1 Introduction

Fort Gordon was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population, is discussed in Section 4.7.1 of the 2013 PEA.

Fort Gordon's 2011 baseline permanent party population was 8,142. In this SPEA, Alternative 1 assesses a potential population loss of 4,600, including approximately 3,922 permanent party Soldiers and 761 Army civilians.

4.9.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Gordon; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.9-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.9-1. Fort Gordon Valued Environmental Component Impact Ratings

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

4.9.3 Air Quality

4.9.3.1 Affected Environment

Air quality is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.7.1.2 due to lack of significant, adverse environmental impacts resulting from implementing alternatives included in the analysis. No changes have occurred to the affected environment since 2013. The Fort Gordon area has not been designated as a nonattainment area for any criteria pollutants (EPA, 2013).

4.9.3.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

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

4.9.4 Airspace

4.9.4.1 Affected Environment

Airspace is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.7.1.2 because of lack of significant, adverse environmental impacts from implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013. As described in the 2013 PEA, Fort Gordon has restricted airspace over its artillery firing points and artillery impact area. The FAA designator for the airspace is R-3004A and R-3004B and go up to 8,000 feet and 20,000 feet above ground level, respectively.

4.9.4.2 Environmental Effects

No Action Alternative

For the current analysis, Fort Gordon would continue to maintain current airspace operations and current airspace classifications and restrictions are sufficient to meet current airspace requirements, and negligible impacts to airspace would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

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

4.9.5 Cultural Resources

4.9.5.1 Affected Environment

Cultural resources were dismissed from detailed analysis in Section 4.7.1.2 of the 2013 PEA because of negligible impacts associated with implementing the alternatives included in that analysis. In addition to an ICRMP, For Gordon has a Programmatic Agreement between the U.S. Army and the Georgia SHPO to facilitate daily management of its cultural resources (Fort Gordon, 2006). As described in the 2013 PEA, existing protocols and procedures outlined in the Fort Gordon ICRMP (2011) and other agreements describe the standard operating procedures for managing and protecting resources on the installation would continue to be followed. There have been no changes in the affected environment since 2013.

Fort Gordon has completed Phase 1 archaeological surveys of approximately 95 percent of the installation. The 2013 PEA documented 1,150 archaeological sites; 41 have been determined eligible for listing in the NRHP and 114 are potentially eligible. These include both prehistoric and historic sites. There are 43 known historic cemeteries that date to before the establishment of the installation and two World War II Prisoner of War cemeteries.

Additionally, as noted in the 2013 PEA, an installation-wide architectural survey has been completed. Through consultation with the SHPO the installation has determined that a single architectural resource, the Woodworth Library, is eligible for listing in the NRHP, and 43 have been recommended for re-evaluation upon reaching 50 years of age. They will likely be determined eligible for listing in the NRHP as a district.

4.9.5.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to cultural resources and the affected environment would remain in its current condition.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts to cultural resources would occur at Fort Gordon due to continued use of existing protocols and procedures that ensure the consideration of cultural resources during undertakings with the potential to affect resources. Fort Gordon anticipates that a further reduction in forces would not change this finding because the protocols and procedures currently in place would continue to be used.

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

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

4.9.6 Noise

4.9.6.1 Affected Environment

Noise is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.7.1.2, due to negligible impacts as a result of implementing alternatives included in that analysis. The primary source of noise at Fort Gordon is military training activities. Other sources of noise include operation of civilian and military vehicles, lawn and landscape equipment, construction activities, and vehicle maintenance operations.

4.9.6.2 Environmental Effects

No Action Alternative

The 2013 PEA anticipated negligible noise impacts, since noise from construction and military training activities at project and range training sites would remain contained within the installation boundary and noise generating activities carried out on the installation would not

change. Negligible impacts to noise at Fort Gordon would continue under the No Action Alternative.

Alternative 1—Implement Force Reductions

Alternative 1 would result in beneficial noise impacts, with a slight decrease in the amount of training related noise.

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

4.9.7 Soils

4.9.7.1 Affected Environment

Soils are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.7.1.2 due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

4.9.7.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

Per Section 4.7.1.2 of the 2013 PEA, there would be negligible impacts to soils under Alternative 1. Decreases in military training would reduce erosion levels and the amount of soil displaced.

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

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Gordon, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations. Therefore, impacts under Alternative 1 at Fort Gordon would be beneficial and remain the same as those discussed in Section 4.7.1.2 of the 2013 PEA.

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

4.9.8.1 Affected Environment

The affected environment for biological resources at Fort Gordon has not had substantive changes since 2013, as described in Section 4.7.1.2 of the 2013 PEA. Biological resources are among the VECs excluded from detailed analysis in the 2013 PEA due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis.

4.9.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts similar to those that are currently occurring to biological resources, as described in Section 4.7.1.2 of the 2013 PEA. Fort Gordon would continue to adhere to its existing military land use as described in accordance with the installation's INRMP (Fort Gordon, 2008) and ESMP, terms and conditions identified within Biological Opinion(s) issued by USFWS and any conservation measures identified in the ESA Section 7 consultation documents.

Alternative 1—Implement Force Reductions

Under Alternative 1, negligible impacts are anticipated to biological resources at Fort Gordon. The threatened and endangered species recorded on the installation would continue to be managed in accordance with the installation's INRMP and ESMP, terms and conditions identified within Biological Opinion(s) issued by USFWS and any conservation measures identified in ESA, Section 7 consultation documents. No change in impacts or management is anticipated to occur as a result of the implementation of this alternative. Minor, beneficial impacts of reduced wildlife disturbance and vegetative disturbance are anticipated as a result of this alternative.

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

4.9.9 Wetlands

4.9.9.1 Affected Environment

Wetlands are among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.7.1.2 due to lack of significant, adverse environmental impacts as a result of implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013.

4.9.9.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

Per Section 4.7.1.2 of the 2013 PEA, there would be negligible changes to wetlands under Alternative 1. The Army is also committed to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Impacts to wetlands could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Gordon, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at Fort Gordon would remain the same as those discussed in Section 4.7.1.2 of the 2013 PEA.

4.9.10 Water Resources

4.9.10.1 Affected Environment

Water resources are among the VECs excluded from detailed analysis as described in Section 4.7.1.2 of the 2013 PEA due to lack of significant, adverse environmental impacts resulting from the implementation of alternatives included in this analysis. No changes have occurred to the affected environment since 2013.

4.9.10.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would continue to result in negligible impacts to water resources similar to those described in Section 4.7.1.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

Under Alternative 1 in the 2013 PEA, negligible impacts to water resources in general would occur on Fort Gordon, as well as beneficial impacts including reduction in water consumption and wastewater treatment generated. Fort Gordon anticipates that further proposed reduction in forces would not change this finding because Alternative 1 of this SPEA does not involve major changes to installation operations or types of activities conducted on Fort Gordon, only a decrease in the frequency of training activities. The installation would continue to manage water resources in accordance with applicable federal and state water quality criteria, drinking water standards, and stormwater and floodplain management requirements.

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

4.9.11 Facilities

4.9.11.1 Affected Environment

The facilities affected environment of the Fort Gordon installation remains the same as described in Section 4.7.2.1 of the 2013 PEA.

4.9.11.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that there would be less than significant, adverse impacts under the No Action Alternative to facilities at Fort Gordon. The installation currently has a shortage of facilities such as dining facilities, housing, warehouses, and ranges. The No Action Alternative and known future stationing actions would increase the facility shortage issues. Temporary facilities and building renovations are planned to correct the deficiencies; however, adverse impacts would continue as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that less than significant, adverse impacts to facilities would occur on Fort Gordon. Under Alternative 1, implementation of the proposed further force reductions would result in overall minor, adverse impacts. Impacts would occur from the fact that future, programmed construction or expansion projects may not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities may require modifications to existing facilities; and a greater number of buildings on the installation may become vacant or underutilized due to reduced requirements for facilities,

which would have a negative impact on overall space utilization. Some beneficial impacts are also expected as a result of force reductions such as reduced demands for utilities and reduced demands for training facilities and support services. Force reductions would also provide opportunities to reduce reliance on select outdated facilities. Some facilities could be re-purposed to reduce crowding or support other units. As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.9.12 Socioeconomics

4.9.12.1 Affected Environment

Fort Gordon is located southwest of Augusta, Georgia, approximately halfway between Atlanta, Georgia and Columbia, South Carolina. The ROI includes Richmond, Jefferson, McDuffie, and Columbia counties in Georgia. The ROI for Fort Gordon includes those areas that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, and contractor personnel and their Families reside. Fort Gordon was also discussed in Section 4.7.3 of the 2013 PEA.

Population and Demographics

Using 2011 as a baseline, Fort Gordon has a total working population of 22,020 consisting of full-time Army Soldiers and Army civilians, students and trainees, other military services, civilians and contractors. Of the total working population, 8,142 are permanent party Soldiers and Army civilians. The population that lives on Fort Gordon consists of 1,004 Soldiers and civilians and an estimated 2,566 Family members, for a total on-installation resident population of 3,570. The portion of the Soldiers and Army civilians living off the installation is estimated to be 17,973 and consists of Soldiers, Army civilians, and their Families (Drumm, 2014).

Fort Gordon is home to the Cyber Center of Excellence and provides Communications and Information Technology training for Soldiers. Students are based at Fort Gordon for the expected length of their assigned curriculum, which may range from 4 days to 8 months. Fort Gordon averages approximately 5,700 students assigned for training and can accommodate up to 4,434 students in on-installation housing (Drumm, 2014). Any remaining students would be accommodated in local lodging facilities or rental units.

In 2012, the population of the ROI was more than 360,000. Between 2010 and 2012, population increased in Columbia and Richmond counties and decreased in Jefferson and McDuffie counties (Table 4.9-2). The racial and ethnic composition of the ROI is presented in Table 4.9-3 (U.S. Census Bureau 2012a).

Table 4.9-2. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Columbia County, Georgia	131,563	+9.2
Jefferson County, Georgia	16,460	-2.8
McDuffie County, Georgia	21,650	-1.0
Richmond County, Georgia	202,672	+1.1

Table 4.9-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of Georgia	62.8	31.2	0.5	3.5	1.8	9.2	55.1
Columbia County, Georgia	76.7	16.0	0.4	4.1	2.7	5.6	72.2
Jefferson County, Georgia	44.4	53.9	0.2	0.5	0.9	3.4	41.6
McDuffie County, Georgia	57.1	40.6	0.4	0.4	1.4	2.5	55.3
Richmond County, Georgia	40.3	54.9	0.4	1.7	2.4	4.5	37.3

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

Employment and Income

Employment increased in the state of Georgia and in Columbia County between 2000 and 2012, while it decreased in the remaining counties in the ROI (Table 4.9-4). The percentage of population living below the poverty level in Jefferson County was 13 percent higher than the same measure of poverty at the state level. Additionally, this county had a median household income that was almost half that of the state level in 2012. Employment, median home value and household income, and poverty levels are presented in Table 4.9-4.

Table 4.9-4. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Georgia	4,333,284	+11	$156,400	$49,604	17
Columbia County, Georgia	59,502	+35	$171,400	$67,295	8
Jefferson County, Georgia	5,846	-2	$69,700	$27,612	30
McDuffie County, Georgia	8,539	-5	$105,000	$38,855	21
Richmond County, Georgia	85,072	-2	$102,500	$38,952	24

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

Columbia County, Georgia

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of the workforce in Columbia County at 33 percent of the total workforce. The professional, scientific, and management, and administrative and waste management services sector; retail trade sector; and manufacturing sector each account for 10 percent of the of the workforce. The Armed Forces account for 3 percent of the workforce in Columbia County. The remainder of employment sectors account for 44 percent of the total workforce.

Jefferson County, Georgia

The primary source of employment in Jefferson County is the educational services, and health care and social assistance sector (23 percent). Manufacturing is the second largest employment sector (18 percent), followed by retail trade (11 percent). The Armed Forces account for less than 1 percent of the Jefferson County workforce. The remaining sectors employ 48 percent of the workforce.

Richmond County, Georgia

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Richmond County (24 percent). Retail trade is the second largest employment sector (11 percent), followed the arts, entertainment, and recreation, and accommodation and food services sector (9 percent). The

Armed Forces account for 6 percent of the Richmond County workforce. The remaining sectors account for 50 percent of the total workforce.

McDuffie County, Georgia

The educational services and health care and social assistance sector accounts for the greatest share of the total workforce in McDuffie County (20 percent). Manufacturing is the second largest sector (17 percent), followed by construction (12 percent). Retail trade also accounts for a significant share of the total workforce in McDuffie County (11 percent). The Armed Forces account for less than 1 percent of the McDuffie County workforce. The remaining sectors account for 40 percent of the total workforce.

Housing

There are currently 1,080 Family housing units on Fort Gordon. Additionally, there are 1,932 permanent party bed spaces within 31 Barracks units on the installation (Helmlinger, 2014).

Schools

Children of military personnel attend school in many different counties in the ROI, but predominantly attend schools in Richmond and Columbia counties. Currently, 56 public schools are located in Richmond County, 41 of these schools are Title I schools (73 percent). Title I schools receive extra federal money because they have high concentrations of low-income families and students who qualify for free or reduced price lunch. The Richmond County School System is participating in a Federal Program entitled: The Community Eligibility. This program falls under the 2010 Healthy, Hunger-Free Kids Act. Schools in Richmond County received $1.2 million and Columbia County received $480,000 in Federal Impact Aid from the U.S. Department of Education in FY 2011. The Georgia Department of Education collects enrollment counts from all school districts several times throughout any given school year. These are referred to as Full-Time Equivalency counts (Drinnen, 2014). There has been a steady trend in enrollment growth for both counties recently. The 2013 PEA contains further details on schools within the ROI.

Public Health and Safety

Police Services

The Fort Gordon Police Department, a part of DES, provides law enforcement and property protection at Fort Gordon. Police functions include protecting life and property, enforcing criminal law, conducting investigations, regulating traffic, providing crowd control, and performing other public safety duties. City, county, and state police departments provide law enforcement in the ROI.

Fire and Emergency Services

The Fort Gordon Fire Department, a part of DES, provides emergency firefighting and rescue services at Fort Gordon. Fire prevention is another service provided by the Fort Gordon Fire Department. Fire prevention activities include providing fire safety inspections, ensuring that structures meet all applicable codes and regulations, and also providing awareness and safety training to the installation.

Medical Facilities

The Dwight D. Eisenhower Army Medical Center at Fort Gordon provides healthcare services for military personnel, Family members, and to military retirees and their Family members. The medical center currently has a contract for birthing services for Army Families with Trinity Hospital in Augusta. Fort Gordon also provides dental services and supports a Warrior Transition Battalion. In addition to the services at the Dwight D. Eisenhower Army Medical Center, there are plans for a Blood Donor Center and a Consolidated Troop Medical Clinic.

Family Support Services

The Fort Gordon FMWR and ACS provide programs, activities, facilities, services, and information to support Soldiers and Families. Services provided at Fort Gordon include child care, youth programs, and deployment readiness for Families, employment readiness, financial readiness, relocation readiness, exceptional Family member support, Warrior in Transition support, and survivor outreach.

Recreation Facilities

The Fort Gordon FMWR provides facilities and programs for recreation including fitness centers, swimming pools, athletic fields, a golf course, bowling center, outdoor recreation opportunities, and sports teams.

4.9.12.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, regional economic activity would continue to benefit from operations at Fort Gordon. No changes in employment, support contracts, goods and services purchased or changes in military operations at Fort Gordon are anticipated.

Alternative 1—Implement Force Reductions

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

Population and Economic Impacts

Alternative 1 would result in the loss of up to 4,683[14] Army positions (3,922 Soldiers and 761 Army civilians), each with an average annual income of $46,760 and $56,723, respectively. In addition, this alternative would affect an estimated 2,613 spouses and 4,496 dependent children for a total estimated potential impact to 7,109 Family members. The total population of military employees and their Family members potentially affected under Alternative 1 would be projected to be 11,792.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative range. Table 4.9-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, changes in population in the ROI under Alternative 1 fall outside the historical range and are categorized as a significant impact. However, there would not be a significant impact to sales, employment, or income because the estimated percentage change is within the historical range.

Table 4.9-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	8.9	5.6	4.0	2.2
Economic contraction significance value	-7.0	-5.1	-9.4	-1.5
Forecast value	-1.5	-2.2	-3.8	-2.8

Table 4.9-6 shows the predicted impacts to income, employment, and population of the reductions against the 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

[14] This number was derived by assuming the loss of 70 percent of Fort Gordon's Soldiers and 30 percent of the Army civilians to arrive at 4,683. The 2013 PEA assumed the loss of 35 percent of Fort Gordon's Soldiers and 15 percent of the Army civilians to arrive at 4,300.

Table 4.9-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$282,631,700	-5,243 (direct) -1,000 (induced) -6,243 (total)	-11,792
Total 2012 ROI economic estimates	$13,609,467,000	158,959	372,345
Percent reduction of 2012 figures	-2.1	-3.9	-3.1

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

With a potential reduction in the population in the ROI, losses in income, employment, and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total cumulative force reductions. Due to the loss of 4,683 Army Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 560 direct contract service jobs would be also lost. An additional 1,000 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. Total reduction in employment is estimated to be 6,243, a 3.9 percent reduction of the total employed labor force in the ROI of 158,959. Income is estimated to reduce by $282.6 million, a 2.1 percent decrease in income from 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $348.3 million. There would also be a loss in sales tax receipts to local and state governments. The average state and local sales tax rate for Georgia is 7.0 percent (Tax Foundation, 2014). To estimate sales tax reductions, information was utilized on the proportion of sales that would be subject to sales tax on average across the country. According to the U.S. Economic Census an estimated 16 percent of sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $348.4 million resulting in an estimated sales tax receipts decrease of $3.9 million under Alternative 1.

Of the approximately 372,345 people (including those residing on Fort Gordon) who live within the ROI, 11,792 Army employees and their Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 3.1 percent. This number could overstate potential population impacts because some of the people no longer employed by the military could continue to live and work within the ROI, finding employment in other industry sectors. However, due to the rural nature of the area and Fort Gordon as a dominant employer and economic driver of the ROI, most displaced employees would likely move out of the area to seek other opportunities with the Army or other employers. There are few employing sectors in the ROI to absorb displaced military employees. A small number of displaced personnel may seek and find work in the ROI; however, others may not be able to find new employment, with possible implications for the unemployment rate.

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

Housing

The population reduction would lead to a decreased demand for housing and increased housing availability on the installation and in the region, potentially resulting in a reduction in median home values. It is expected that Alternative 1 would have a minor, adverse impact to housing throughout the ROI.

Schools

Under Alternative 1, the reduction of 4,683 Army personnel would potentially decrease the number of children by 4,496 in the ROI. It is anticipated that school districts that provide education to children on Fort Gordon as well as schools in Richmond and Columbia counties would be impacted by this action, resulting in a decline in enrollment. School districts with larger portions of military children in proximity to Fort Gordon would be more affected than those with fewer military students. If enrollment in individual schools declines substantially, schools may need to reduce the number of teachers, administrators, and other staff, and potentially close or consolidate with other schools within the same school district should enrollment fall below sustainable levels.

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

Public Services

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

and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements.

However, as described under the 2013 PEA, there is a potential for adverse impacts to public health under Alternative 1. In FY 2010, Fort Gordon paid local hospitals and health care providers $148.5 million for care of active component Soldiers and maintained a $3.7 million contract with Trinity Hospital for all obstetrics care. These contracts provided a total of 152.2 million to local health care facilities. Reduction in Army personnel assigned to Fort Gordon would likely reduce the amount of local medical contracts. Additional financial burden would be placed on companies, communities, and institutions, with implications for the provision of services and viability of operations. Impacts to healthcare services are anticipated because they receive funding, support, time, donations, and tax revenue directly related to the number of military authorizations and the number of Family members. Therefore, it is possible that adverse impacts to public services could conceivably occur if personnel cuts were to affect hospitals off the installation. However, the impacts to public services are not expected to be significant because the service level for the installation and the ROI would still be provided.

Family Support Services and Recreation Facilities

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

Environmental Justice and Protection of Children

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

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

4.9.13 Energy Demand and Generation

4.9.13.1 Affected Environment

Energy demand and generation is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.7.1.2 because there were no significant, adverse environmental impacts from implementing alternatives included in the analysis. As described in the 2013 PEA, Fort Gordon's electric and natural gas systems are both privatized. The Georgia Power Company provides 115-kV primary power to two substations at Fort Gordon (main and hospital), which in turn provide power to the entire installation. The Army Energy Initiatives Task Force is working with the Georgia Power Company to possibly establish a 30 megawatt solar field at Fort Gordon. Natural gas is provided by the Atlanta Gas Light Company. Natural gas is supplied to heating and cooling plants, housing, barracks, medical facilities, academic facilities, and other facilities.

4.9.13.2 Environmental Effects

No Action Alternative

Negligible impacts to energy demand are anticipated under the No Action Alternative. No changes to utility systems would be necessary. As noted in the 2013 PEA, the abundance of energy sources, and adequate supplies from each source, provide Fort Gordon with ample excess energy capacity, allowing it to accommodate a variety of future mission expansion scenarios.

Alternative 1—Implement Force Reductions

The analysis of force reductions included in the 2013 PEA concluded that there would be minor, beneficial impacts to energy demand. Fort Gordon anticipates that further proposed reduction in forces would also have minor, beneficial impacts to energy demand because there would be a decrease in the amount of energy consumed with reduced levels of military personnel and Family members. In addition, the installation would continue to look for opportunities to conserve

energy and consume less energy while becoming more efficient in its usage of its existing energy supply.

4.9.14 Land Use Conflicts and Compatibility

4.9.14.1 Affected Environment

The land use affected environment of Fort Gordon remains the same as described in Section 4.5.13.1 of the 2013 PEA.

4.9.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated that significant but mitigable impacts to land use are anticipated under the No Action Alternative. Urban growth and incompatible development around the installations borders would continue to encroach on the training mission, but implementation of the approved Fort Gordon ACUB proposal would mitigate incompatible growth and reduce potential future training restrictions.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Gordon would slow or halt regional growth around the installation. Impacts would remain significant but mitigable through implementation of the ACUB program. Under Alternative 1, impacts would be similar to those described in the 2013 PEA.

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

4.9.15 Hazardous Materials and Hazardous Waste

4.9.15.1 Affected Environment

Hazardous materials and hazardous waste are among the VECs excluded from detailed analysis in the 2013 PEA (Section 4.7.1.2) due to lack of significant, adverse environmental impacts resulting from the implementation of the analyzed alternatives. No substantial changes have occurred to the affected environment since 2013.

4.9.15.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts from hazardous materials and hazardous waste would occur on Fort Gordon. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on Fort Gordon. Alternative 1 in this SPEA would not negatively impact the current hazardous waste handling capabilities on Fort Gordon. There may be a slight decrease in the amount of hazardous materials and hazardous waste used and disposed of as a result of the implementation of Alternative 1 with reduced levels of military personnel.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste.

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

4.9.16 Traffic and Transportation

4.9.16.1 Affected Environment

Transportation resources are among the VECs excluded from detailed analysis in the 2013 PEA for Fort Gordon as described in Section 4.7.1.2, due to negligible impacts as a result of implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013. As described in the 2013 PEA, the basic roadway is adequate for installation traffic, except at major intersections during peak traffic flow.

4.9.16.2 Environmental Effects

No Action Alternative

Negligible impacts to traffic or transportation are anticipated under the No Action Alternative. Traffic LOS would remain the same under the No Action Alternative as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

There would be beneficial overall impacts to traffic and transportation networks as a result of the implementation of Alternative 1. There would be less congestion on and off the installation attributable to the reduction in Soldier and Family member personnel. Less traffic would accumulate at access and entry points around peak working hours.

4.9.17 Cumulative Effects

As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Gordon encompasses four counties in the state of Georgia: Columbia, Jefferson, McDuffie, and Richmond. Section 4.7.5 of the 2013 PEA noted numerous planned or proposed actions within the ROI that reasonably could be initiated within the next 5 years and would have the potential to cumulatively add impacts to Alternative 1. A number of the Army's proposed projects have been previously identified in the installation's Real Property Master Planning Board and are programmed for future execution. Additional actions have been identified beyond those noted in the cumulative effects analysis of the 2013 PEA and are noted below.

Reasonably Foreseeable Future Projects on Fort Gordon

The "Road to Growth" EA is being prepared to analyze potential growth of up to 6,000 personnel associated with various proposed force structure actions.

Reasonably Foreseeable Future Projects outside Fort Gordon

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

No Action Alternative

Implementation of the No Action Alternative would not result in cumulative impacts. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reduction

Cumulative effects from Alternative 1 would be essentially the same as was determined in the 2013 PEA. Cumulative impacts as a result of the implementation of Alternative 1 could range from beneficial to minor and adverse.

The socioeconomic impact within the ROI described in Section 4.9.12 with a reduction of 4,683 Soldiers and Army civilians would be minor and adverse on the regional economy, schools, and housing with significant impacts to population. Fort Gordon is located in the Augusta, Georgia metropolitan area with over 380,000 residents in the ROI. Because of the large employment base and diverse economy in the region, the ROI would be less vulnerable to these force reductions because other industries and considerable economic activity occurs within the ROI.

Other current and future stationing and realignment activities on the installation, such as the Army Cyber Command and Road to Growth stationing actions, would or have the potential to increase military personnel at Fort Gordon. These changes would likely offset most of the force reductions under Alternative 1, resulting in minimal adverse impacts to population, the regional economy, public services, schools, and housing.

Fort Gordon is home to the Cyber Center of Excellence and provides Communications and Information Technology training for Soldiers. Fort Gordon averages approximately 5,700 students assigned for training at any one time. Reduced training opportunities could result from force reductions on Fort Gordon. This could lead to further adverse impacts to socioeconomic conditions because of reduced temporary population and visitors and the attendant economic activity, spending, and jobs and income they support.

Other construction and development activities on the installation and in the ROI would benefit the regional economy through additional economic activity, jobs, and income in the ROI. Under Alternative 1, the loss of approximately 4,600 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have a minor, adverse impact on socioeconomic conditions in the broader ROI.

4.10 Fort Hood, Texas

4.10.1 Introduction

Fort Hood was analyzed in the 2013 PEA. Background information on the installation, including location, tenants, mission, and population, is discussed in Section 4.8.1 of the 2013 PEA.

Fort Hood's 2011 baseline permanent party population was 47,190. In this SPEA, Alternative 1 assesses a potential population loss of 16,000, including approximately 14,606 permanent party Soldiers and 1,394 Army civilians.

4.10.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Hood; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.10-1 summarizes the anticipated impacts to VECs under each alternative.

Table 4.10-1. Fort Hood Valued Environmental Component Impact Ratings

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

4.10.3 Air Quality

4.10.3.1 Affected Environment

The air quality affected environment of the Fort Hood ROI remains the same as described in Section 4.8.2.1 of the 2013 PEA. The Fort Hood area has not been designated as a nonattainment area for any criteria pollutants (EPA, 2013).

4.10.3.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

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

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

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

4.10.4 Airspace

4.10.4.1 Affected Environment

Airspace is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.8.1.2 because of lack of significant, adverse environmental impacts from implementing alternatives included in that analysis. No changes have occurred to the affected environment

since 2013. As described in the 2013 PEA, Fort Hood has four Army-operated airfields on site with SUA around these airfields being divided into airspace subdivisions that includes R-6302A-E, all based on different geographies and ranging from the surface up to 45,000 feet msl in certain portions. As noted in the 2013 PEA, Fort Hood is currently in the process of expanding its SUA, MOA to include 10,000 feet msl to 17,000 feet msl, which will greatly improve the capacity to train fixed-wing aircraft as well as UAS.

4.10.4.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that there would be negligible impacts to airspace at Fort Hood under the No Action Alternative. For the current analysis, Fort Hood would continue to maintain current airspace operations and current airspace classifications and restrictions are sufficient to meet current airspace requirements and no airspace conflicts are anticipated. Impacts to airspace would be the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA VEC dismissal statement concluded that negligible, beneficial impacts to airspace would occur at Fort Hood. Under Alternative 1, implementation of further force reductions is not expected to change installation operations or the types of activities conducted on Fort Hood. There could potentially be a lower utilization rate of existing SUA as some units where UAS may be inactivated and no longer require the use of the existing SUA. Overall, these reductions would result in a negligible, beneficial impact to airspace.

4.10.5 Cultural Resources

4.10.5.1 Affected Environment

The affected environment for cultural resources at Fort Hood has not changed since 2013, as described in Section 4.8.3 of the 2013 PEA.

4.10.5.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in negligible impacts to cultural resources as described in Section 4.8.3.2 of the 2013 PEA. Activities with the potential to affect cultural resources would continue to be monitored and regulated through the use of existing agreements and/or preventative and minimization measures.

Alternative 1—Implement Force Reductions

As described in Section 4.8.3.2 of the 2013 PEA, Alternative 1 would have a minor impact on cultural resources. The Army is committed to ensuring that personnel cuts will not result in non-compliance with cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort Hood, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations at Fort Hood.

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

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

4.10.6 Noise

4.10.6.1 Affected Environment

The noise affected environment of the Fort Hood installation remains the same as described in Section 4.3.5.1 of the 2013 PEA. The primary sources of noise at Fort Hood include weapons fire and ground maneuver training.

4.10.6.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, negligible impacts to noise were anticipated from the continuing nature, levels, and intensity of noise generating training operations at the installation. Impacts under the No Action Alternative on Fort Hood remain the same as those discussed in Section 4.8.4.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

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

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

4.10.7 Soils

4.10.7.1 Affected Environment

The soils affected environment on the installation remains the same as was discussed in Section 4.8.5.1 of the 2013 PEA.

4.10.7.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to soils were anticipated from continuing training, to include impacts to soils from removal of or damage to vegetation, digging activities, ground disturbance from vehicles, and ammunition or explosives used in training events. Impacts under the No Action Alternative on Fort Hood remain the same as those discussed in Section 4.8.5.2 of the 2013 PEA.

Alternative 1—Implement Force Reductions

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

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

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort Hood, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory regulations. Therefore, impacts under Alternative 1 at Fort Hood would be beneficial and remain the same as those discussed in Section 4.8.5.2 of the 2013 PEA.

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

4.10.8.1 Affected Environment

The affected environment for biological resources at Fort Hood has not had substantive changes since 2013, as described in Section 4.8.6.1 of the 2013 PEA.

4.10.8.2 Environmental Effects

No Action Alternative

Implementation of the No Action Alternative would result in minor impacts similar to those that are currently occurring to biological resources as described in Section 4.8.6.2 of the 2013 PEA. In accordance with Army Regulation 200-1, Fort Hood has prepared an ESMP (Fort Hood, 2007) and an INRMP, which provide comprehensive guidelines for maintaining and enhancing populations and habitats of federally listed and candidate species on Fort Hood while maintaining mission readiness consistent with Army and federal environmental regulations. Fort Hood would also continue briefing units regarding sensitive areas prior to each training event, helping to further minimize any adverse impacts.

Alternative 1—Implement Force Reductions

Under Alternative 1, minor, beneficial impacts are anticipated to biological resources at Fort Hood. Scheduling conflicts for training area access to conduct natural resource monitoring and management activities would be reduced with a projected decrease in the amount of training being conducted. Proactive conservation management practices, such as those outlined in the INRMP, would be more easily accomplished with reduced mission input. The frequency of disturbance of wildlife from training would decrease as a result of this alternative.

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

4.10.9 Wetlands

4.10.9.1 Affected Environment

Wetlands are among the VECs excluded from detailed analysis in the 2013 PEA, as described in Section 4.8.1.2, because of the lack of significant, adverse environmental impacts as a result of implementing alternatives included in that analysis. No changes have occurred to the affected environment since 2013.

4.10.9.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

Per Section 4.7.1.2 of the 2013 PEA, there would be negligible impacts to wetlands under Alternative 1. The installation would continue to manage its wetlands in accordance with the installation INRMP, and ensure that wetland impacts are avoided and/or mitigated for. Impacts to wetlands could conceivably occur if the further force reductions decreased environmental staffing levels to a point where environmental compliance could not be properly implemented. The Army is committed, however, to ensuring that personnel cuts will not result in non-compliance with wetland regulations. Even if the full end-strength reductions were to be realized at Fort Hood, the Army would ensure that adequate staffing remains so that mandated environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at Fort Hood would remain the same as those discussed in Section 4.7.1.2 of the 2013 PEA.

4.10.10 Water Resources

4.10.10.1 Affected Environment

The affected environment for water resources on Fort Hood remains the same as that described in Section 4.8.7.1 of the 2013 PEA. There are no changes to surface water, waters of the United States, water supply, wastewater, and stormwater resources.

4.10.10.2 Environmental Effects

No Action Alternative

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

Alternative 1—Implement Force Reductions

Beneficial impacts to water resources were anticipated from implementation of force reductions under Alternative 1 in the 2013 PEA because of reduced demand for potable water supply and wastewater treatment and an increase in available wastewater treatment capacity. Reduction in training area use from force reductions on Fort Hood was also anticipated to potentially reduce impacts to surface waters from disturbance and spills. Increased force reductions under Alternative 1 of this SPEA would continue to have the same beneficial impacts to water supplies, wastewater capacity, and surface waters.

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

4.10.11 Facilities

4.10.11.1 Affected Environment

The facilities affected environment of the Fort Hood installation remains the same as described in Section 4.8.8.1 of the 2013 PEA.

4.10.11.2 Environmental Effects

No Action Alternative

The 2013 PEA concluded that there would be negligible impacts to facilities under the No Action Alternative at Fort Hood. The Army has prioritized the installation's current facility shortfalls for programming and funding. The installation would continue to use its existing facilities and cantonment areas as they are currently being used; therefore, the impacts would remain the same as described in the 2013 PEA.

Alternative 1—Implement Force Reductions

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

4.10.12 Socioeconomics

4.10.12.1 Affected Environment

Fort Hood is located outside Killeen, Texas, in Bell and Coryell counties halfway between Austin and Waco, Texas. The ROI includes Bell, Coryell, and Lampasas counties. The ROI includes counties that are generally considered the geographic extent to which the majority of the installation's Soldiers, Army civilians, and contractor personnel and their Families reside. The population and workforce at Fort Hood have long been an essential element of the regional economy.

There are additional counties, such as McLennan and Falls, in which Soldiers and Army civilians and their Families may also reside. However, the number of residents in these counties is expected to be small, and therefore these counties are not included in the ROI. The vast majority of the population and economic impacts would be experienced within the ROI. Fort Hood was also discussed in Section 4.8.9 of the 2013 PEA.

Population and Demographics

Using 2011 as a baseline, Fort Hood has a total working population of 66,385 consisting of active component Soldiers and Army civilians, students and trainees, other military services, civilians and contractors. Of the total working population, 47,190 were permanent party Soldiers and Army civilians. The population that lives on Fort Hood consists of 6,286 Soldiers and their 9,542 Family members for a total resident population of 15,828 (Baldwin, 2014). The portion of Soldiers and Army civilians living off the installation is estimated to be 102,996 and consists of Soldiers, Army civilians, and Family members. Additionally, there are 247 students and trainees associated with the installation.

In 2012, the population of the ROI was 417,992 (U.S. Census Bureau 2012a). Between 2010 and 2012, the population in Bell and Coryell counties increased between 2 and 4 percent while it decreased slightly in Lampasas County (Table 4.10-2). The racial and ethnic composition of the ROI is presented in Table 4.10-3.

Table 4.10-2. Population and Demographics, 2012

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Bell County, Texas	323,536	+4.3
Coryell County, Texas	76,850	+1.9
Lampasas County, Texas	17,606	-1.5

Table 4.10-3. Racial and Ethnic Composition, 2012

State and Region of Influence Counties	White[a] (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of Texas	80.6	12.3	1.0	4.2	1.7	38.2	44.5
Bell County, Texas	68.4	22.4	1.1	3.1	4.2	22.7	49.6
Coryell County, Texas	75	16.8	1.2	2.1	4.1	17.0	60.9
Lampasas County, Texas	90.9	3.7	1.1	1.3	2.7	18.1	74.4

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

Employment and Income

Between 2000 and 2012, employment increased in the state of Texas, as well as Bell and Lampasas counties, but fell in Coryell County (U.S. Census Bureau, 2000 and 2012b). None of the counties in the ROI have a percentage of their residents living below the poverty level that is substantially greater than the same measure at the state level. Lampasas County had the lowest median household income at $47,968, approximately 7 percent lower than median household income at the state level. Employment, median home value and household income, and poverty levels are presented in Table 4.10-4 (U.S. Census Bureau, 2012b).

Table 4.10-4. Employment and Income, 2012

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Texas	11,546,783	+24	$128,000	$51,563	17
Bell County, Texas	143,389	+25	$119,800	$50,085	15
Coryell County, Texas	31,606	-9	$98,300	$50,104	13
Lampasas County, Texas	8,669	+7	$122,500	$47,968	17

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

Bell County, Texas

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the largest share of the total workforce in Bell County (22 percent). The Armed Forces is the second largest employer (16 percent), followed by retail trade (11 percent). The arts, entertainment, and recreation, and accommodation and food services and the public administration sectors also account for a significant share of the total workforce in Bell County (8 percent each). The remaining sectors account for 35 percent of the total workforce.

Coryell County, Texas

The primary source of employment in Coryell County is the Armed Forces (26 percent). The educational services, and health care and social assistance is the second largest employment sector (17 percent), followed by the public administration sector (13 percent). Retail trade also represents a significant share of the total workforce in Coryell County (8 percent). The remaining sectors account for 36 percent of the total workforce.

Lampasas County, Texas

The educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Lampasas County (20 percent). Retail trade is the second largest employment sector (13 percent), followed by construction (12 percent). The professional, scientific, and management, and administrative and waste management services sector also accounts for a significant share of the total workforce (11 percent). The Armed Forces account for 2 percent of the Lampasas County workforce. The remaining sectors account for 42 percent of the workforce.

Housing

As described in the 2013 PEA, Fort Hood has extensive housing on the installation for Families and single Soldiers. Fort Hood has more than 6,000 homes in 13 housing areas, many of which have recently been renovated as part of privatization. In addition to these homes, Fort Hood provides single Soldiers with space in the barracks for accommodations. Existing homes on the installation include single-family and multi-family homes, from two to five bedrooms. A large percentage of Soldiers also opt to live in private rental housing or own homes in the communities surrounding Fort Hood.

Schools

As described in the 2013 PEA, Killeen ISD serves the communities of Killeen, Fort Hood, Harker Heights, and Nolanville. The student enrollment for the 2011–2012 school year was 41,172. Approximately 50 percent of students enrolled were military Family members. The district employs about 6,100 staff members, making it the second largest employer in the ROI. The Copperas Cove ISD serves the community of Copperas Cove. The student population for the 2010-2011 school year was 8,324 students. Exact population by school is unknown; however, it is estimated that approximately 40 percent of the student population are military Family members. Further information on schools serving Fort Hood is available in the 2013 PEA.

Public Health and Safety

Police Services

The Fort Hood DES handles the day to day police operations on the installation. They do this with a combination of active component military police and civilian contractors. In January 2011, the ratio per day was 1 officer for every 33 Soldiers and 28 civilians on patrol across the installation.

Fire and Emergency Services

The Fort Hood Fire Department responds to emergencies involving structures, facilities, transportation equipment, hazardous materials (along with DPW Environmental Spill Response Team), and directs fire prevention activities. However, partnerships with the surrounding cities and counties are in place to provide assistance should either party need it to respond to an emergency.

Medical Facilities

Medical services on Fort Hood are administered by the Carl R. Darnall Army Medical Center, as well as several on-installation clinics. The clinics serve active component Soldiers, Family members, and retirees throughout the community. Fort Hood also has a Warrior in Transition Brigade, and new support facilities to accommodate the unit. Further, the community supported medical centers include Metroplex Hospital, Scott and White Hospital and clinics, Kings Daughters Hospital and supporting clinics, and a 123-bed hospital owned by Seton Enterprises.

Family Support Services

Fort Hood's CYSS is a division of FMWR. It provides facilities and child care, as well as sports, apprenticeships, and instructional classes for children of active component military, DoD civilian, DoD contractor personnel, and retirees. In FY 2011, Parent Central Services registered 11,458 households and enrolled 17,593 child or youth programs.

Recreation Facilities

Fort Hood offers its community of Soldiers, Airmen, retirees, DoD employees, and Families several different avenues for recreational entertainment. The military community is encouraged to become active in an arts and crafts facility, bingo, two skate parks, an auto crafts shop, outdoor swimming pools, an indoor swimming pool, a 48-lane bowling center with automatic scoring displayed on 42-inch flat screen monitors, a 27-hole golf course, an RV travel camp, an outdoor recreation equipment checkout center, physical fitness centers spread throughout the installation, an all-terrain vehicle course, a paintball course, archery and skeet shooting ranges, swimming, camping, horseback riding, mountain biking and fishing opportunities at Belton Lake Outdoor Recreation Area, intramural and youth sports teams, and a Sportsmen's Center, which is where patrons may purchase hunting and fishing licenses.

4.10.12.2 Environmental Effects

No Action Alternative

The No Action Alternative is anticipated to provide a steady-state contribution of economic and social benefits and costs. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of 16,000[15] Army positions (14,606 Soldiers and 1,394 Army civilians), each with an average annual income of $46,760 and $56,913, respectively. In addition, this alternative would affect an estimated 8,928 spouses and 15,360 children for a total estimated potential impact to 24,288 Family members. The total population of Army employees and their Families directly affected under Alternative 1 would be projected to be 40,288.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative ranges. Table 4.10-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated

[15] This number was derived by assuming the loss of two BCTs, 60 percent of Fort Hood's non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 16,000. The 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 8,000.

by the EIFS model. Based on the EIFS analysis, changes in population and employment in the ROI under Alternative 1 fall outside the historical range and are categorized as a significant impact. However, there would not be a significant impact to income or sales because the estimated percentage change is within the historical range.

Table 4.10-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	5.7	7.5	5.8	7.9
Economic contraction significance value	-6.4	-8.6	-7.0	-2.3
Forecast value	-4.1	-5.3	-10.7	-9.5

Table 4.10-6 summarizes the predicted impacts to income, employment, and population of the reductions against the 2012 demographic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

With a reduction in the population in the ROI, losses in sales, income, employment, and tax receipts would occur over a period until 2020. The EIFS estimates were analyzed based on total cumulative force reductions. Because of the maximum potential loss of 16,000 Soldiers and Army civilians under Alternative 1, EIFS estimates an additional 1,416 direct contract service jobs would also be lost. An additional 1,499 induced jobs would be lost because of the reduction in demand for goods and services within the ROI. Total reduction in employment is estimated to be 18,915, a significant 10.3 percent reduction of the total employed labor force in the ROI of 183,664. Income is estimated to fall by $870.2 million, a 5.2 percent decrease in income from 2012.

The total reduction in sales under Alternative 1 within the ROI is estimated to be $821.7 million. There would also be a loss in sales tax receipts to local and state governments. The average state and local sales tax rate for Texas is 8.2 percent (Tax Foundation, 2014). To estimate sales tax reductions, information on the proportion of sales that would be subject to sales tax on average across the country was used. According to the U.S. Economic Census, an estimated 16 percent of sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of $821.7 million, resulting in an estimated sales tax receipts decrease of $10.7 million under Alternative 1.

Table 4.10-6. Summary of Predicted Economic Impacts under Alternative 1

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-$870,201,600	-17,416 (Direct)	-40,288
		-1,499 (Induced)	
		-18,915 (Total)	
Total 2012 ROI economic estimates	$16,592,415,000	183,664	417,992
Percent reduction of 2012 figures	-5.2	-10.3	-9.6

Note: Sales estimates are not consistently available from public sources for all counties in the United States; therefore, the sales data for counties are not presented in this table. The estimated reduction in total sales from EIFS is described in the paragraphs below.

Of the 417,992 people (including those residing on Fort Hood) who live within the ROI, 40,288 military employees and their Family members are predicted to no longer reside in the area under Alternative 1, resulting in a significant population reduction of 9.6 percent. This number could overstate potential population impacts because some of the people no longer employed by the military could continue to live and work within the ROI, finding employment in other industry sectors. However, since Fort Hood is a dominant employer and economic driver in the ROI, most displaced employees would likely move out of the area to seek other opportunities. There are few employing sectors in the ROI to absorb this large a number of displaced military employees. A small number of displaced personnel may seek and find work within the ROI; however, others may not be able to find new employment, with possible implications for the unemployment rate.

Housing

The population reduction would lead to a decrease in demand for housing and increase housing availability on the installation and in the region. This could potentially lead to a reduction in housing values.

Schools

Under Alternative 1, the potential reduction of 16,000 Soldiers and Army civilian personnel would result in a reduction of 24,288 Family members, of which 15,360 would be children. It is anticipated that school districts that provide education to Army children would be impacted by this action. Schools on and off the installation are expected to experience a decline in enrollment. School districts with larger portions of military children in proximity to Fort Hood would be more severely affected than those with fewer military students.

The reduction of Soldiers on Fort Hood would result in a loss of Federal Impact Aid dollars in the ROI. The amount of Federal Impact Aid a district receives is based on the number of students who are considered “federally connected” and attend district schools. Actual projected dollar amounts cannot be determined at this time due to the variability of appropriated dollars from

year to year, and the actual number of affected school-age children for military and civilian Families. School districts in the ROI would likely need fewer teachers and materials as enrollment drops, which would offset the reduced Federal Impact Aid. There is the potential for significant, adverse impacts to the Kileen ISD and the Copperas Cove ISD that support Army Family members under Alternative 1. There would be fewer resources available for the remaining students as a result of the loss of tax revenue and the federal funds associated with the reduction of students under this alternative. These school districts may, therefore, lose their ability to employ the current number of staff and faculty within the ROI resulting in some secondary job losses. Impacts would be greater than those described in the 2013 PEA and could range from minor to significant.

Public Services

A reduction in personnel would have minor impacts to emergency services, fire, police, and medical services because the reduction is anticipated to decrease the need for these services. Adverse impacts to public services could conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is committed to meeting health and safety requirements. The impacts to public services are not expected to be significant because the existing service level for the installation and the ROI would still be available.

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. As a result, minor impacts to Family Support Services and recreation facilities would occur under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, provides: “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations” (EPA, 1994). The racial and ethnic composition of the ROI differs from that of the state as a whole. There are larger minority populations in Coryell and Bell Counties in the ROI relative to those same populations at the state level. In these areas with higher proportions of environmental justice populations, there is a potential that these populations could be adversely impacted by the Proposed Action. However it is not likely that these impacts would fall disproportionally on these environmental justice populations.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of the people associated with the installation, including children. Therefore, it is not anticipated that any environmental health and safety risks to children within the ROI would occur under Alternative 1. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.10.13 Energy Demand and Generation

4.10.13.1 Affected Environment

The energy demand and generation affected environment of the Fort Hood installation remains the same as described in Section 4.8.10.1 of the 2013 PEA.

4.10.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, adverse impacts to energy demand and generation would be the same as discussed in the 2013 PEA and would be negligible. Fort Hood's ranges and cantonment area would continue to consume similar types of energy, and maintenance of existing utility systems would continue.

Alternative 1—Implement Force Reductions

The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy demand and generation would occur on Fort Hood. Under Alternative 1, a further reduction in energy consumption is anticipated with the additional force reductions. The increased force reductions would also provide additional beneficial impacts because the installation would be better positioned to meet energy and sustainability goals through decreased demand.

4.10.14 Land Use Conflicts and Compatibility

4.10.14.1 Affected Environment

Land Use is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.8.1.2, due to negligible impacts as a result of implementing alternatives included in that analysis. Land use at Fort Hood is designated as cantonment, maneuver, live fire, and

airfields. The cantonment areas are like small cities with industrial, administrative, retail, and housing. Maneuver and live-fire training areas support combat training activities. Additionally, cattle-grazing is permitted (through 5-year leases) throughout the training areas. Airfields are located adjacent to the cantonment areas and house both fixed and rotary-wing assets and support facilities. Fort Hood also has Belton Lake Outdoor Recreation Area. More than 88 percent of the land (more than 191,000 acres) is used for maneuver and live-fire training.

4.10.14.2 Environmental Effects

No Action Alternative

Under the No Action Alternative in the 2013 PEA, negligible impacts to land use were anticipated because no changes in land use or compatibility are anticipated. Impacts under the No Action Alternative on Fort Hood remain the same as those discussed in Section 4.8.1 of the 2013 PEA.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Hood would result in negligible land use impacts similar to those anticipated under the No Action Alternative. Under Alternative 1, impacts would be similar to those described in the 2013 PEA.

The Army is also committed to ensuring that personnel cuts will not result in non-compliance with land use ordinances and regulations. Even if the full end-strength reductions were to be realized at Fort Hood, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations including land use ordinances and regulations.

4.10.15 Hazardous Materials and Hazardous Waste

4.10.15.1 Affected Environment

Hazardous materials and hazardous waste are among the VECs excluded from detailed analysis in the 2013 PEA (Section 4.8.1.2) due to lack of significant, adverse environmental impacts resulting from the implementation of the analyzed alternatives. No substantial changes have occurred to the affected environment since 2013.

4.10.15.2 Environmental Effects

No Action Alternative

As stated in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative. Use of hazardous materials and generation of hazardous wastes would continue on Fort Hood in accordance with all applicable laws, regulations and plans.

Alternative 1—Implement Force Reductions

The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts from hazardous materials and hazardous waste would occur on Fort Hood. Alternative 1 in this SPEA is not expected to involve major changes to the installation operations or types of activities conducted on Fort Hood. Alternative 1 in this SPEA would not negatively impact the current hazardous waste handling capabilities on Fort Hood. There may be a minor decrease in the amount of hazardous materials and hazardous waste used and disposed of as a result of the implementation of Alternative 1 with reduced levels of military personnel and other people on the installation.

The Army is committed to ensuring that personnel cuts will not result in non-compliance with regulations governing the handling, management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions were to be realized at Fort Hood, the Army would ensure that adequate staffing remains so that the installation would comply with all mandatory environmental regulations.

As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

4.10.16 Traffic and Transportation

4.10.16.1 Affected Environment

The transportation affected environment of the Fort Hood ROI remains the same as described in Section 4.8.11.1 of the 2013 PEA.

4.10.16.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, the 2013 PEA anticipated negligible impacts. Currently, the Fort Hood transportation system adequately supports the needs of the Fort Hood community and impacts negligible impacts would continue under the No Action Alternative in this analysis.

Alternative 1—Implement Force Reductions

The 2013 PEA concluded that the force reductions at Fort Hood would result in minor, beneficial impacts to traffic and transportation systems because it was anticipated that traffic congestion would be diminished slightly with a reduction in the number of personnel on the installation. The same would occur under Alternative 1, with the size of the beneficial impact slightly larger than anticipated at the time of the 2013 PEA due to the greater reduction in personnel on the installation.

4.10.17 Cumulative Effects

As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Hood consists Bell, Coryell, and Lampasas counties in Texas. Section 4.8.12 of the 2013 PEA noted several major projects that are planned for the near future.

Reasonably Foreseeable Future Projects on Fort Hood

No additional actions have been identified by the installation beyond those noted in the cumulative effects analysis of the 2013 PEA.

Reasonably Foreseeable Future Projects outside Fort Hood

The Army is not aware of any reasonably foreseeable future projects outside Fort Hood which would be appropriate for inclusion in the cumulative impacts analysis. However, there are other projects and actions that affect regional economic conditions and generally include construction and development activities, infrastructure improvements, and business and government projects and activities. Additionally, smaller, less diversified economies will be more vulnerable to the force reductions and provide fewer opportunities to displaced Army employees, while larger economies with more job opportunities could absorb some of the displaced Army workforce, lessening adverse effects from force reductions.

No Action Alternative

The cumulative effects of the No Action Alternative would be the same as determined in the 2013 PEA. Current socioeconomic conditions would persist within the ROI, and the No Action Alternative would not contribute to any changes.

Alternative 1—Implement Force Reduction

As determined in the 2013 PEA, with the exception of socioeconomics, cumulative impacts under Alternative 1 would range from beneficial to minor and adverse. The additional force reductions with Alternative 1 of the SPEA would not result in any changes from that determination. The potential cumulative impacts of Alternative 1 at Fort Hood are anticipated to be significant and adverse for socioeconomics.

The socioeconomic impact under Alternative 1, as described in Section 4.10.12.2 with a loss of 16,000 Soldiers and Army civilians, could lead to significant impacts to the population, regional economy, schools, and housing. Fort Hood is an important economic driver in the Kileen-Temple-Fort Hood metropolitan area, with total employment on the installation of over 47,000. Specifically, in Bell and Coryell counties, the Armed Forces account for 16 and 26 percent of the workforce, respectively, demonstrating the importance of installation to employment opportunities in the region. The considerable reliance on the installation, in combination with 16,000 lost Army jobs, could lead to reduced Fort Hood and supporting activities in the ROI,

additional losses in jobs and income, with fewer job opportunities for displaced Army employees in the ROI.

Stationing changes would also affect regional economic conditions through the jobs and income they bring (or lose) within the region. Military personnel spend their money in the ROI economy, supporting additional jobs, income, taxes, and sales impacts. Other infrastructure improvements and construction and development activity would also benefit the regional economy through additional economic activity, jobs, and income in the ROI; however, these benefits would not offset the adverse impacts under Alternative 1 and other adverse cumulative actions. Under Alternative 1, the loss of 16,000 Soldiers and Army civilians, in conjunction with other reasonably foreseeable actions, would have significant impacts to population, employment, income, tax receipts, housing values, and schools in the ROI.

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