Programmatic Environmental Assessment for Army 2020 Force Structure Realignment

Chapter 4
Affected Environment
and
Environmental Consequences

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Assisted by:
Potomac-Hudson Engineering, Inc.
Gaithersburg, MD 20878

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4.1 FORT BENNING, GEORGIA

4.1.1 Introduction

Fort Benning is located in west Georgia and east Alabama, and consists of approximately 182,000 acres (Figure 4.1-1). Fort Benning land is used for a variety of military training and garrison support activities. Of the currently-owned property, approximately 141,500 acres are primarily designated for training and maneuver areas. Fort Benning is immediately adjacent to the communities of Columbus and Cusseta, Georgia and Phenix City, Alabama.

Fort Benning is home to the Maneuver Center of Excellence (MCoE). As part of the 2005 BRAC actions, the Armor School was relocated from Fort Knox, Kentucky to Fort Benning. This relocation consolidated the Infantry and Armor Centers and Schools to create the MCoE for ground forces training at Fort Benning.

Fort Benning conducts Professional Military Education courses for Armor and Infantry officer and non-commissioned officer educational development, Infantry, Armor and Cavalry Soldier Basic Combat and Advanced Individual Training (AIT), Airborne (parachute) Training, Ranger Training as well as 25 functional Training Courses. Fort Benning's major tenant units are the 3rd ABCT 3rd Infantry Division (3-3rd ABCT) and two battalions, and the Regimental Headquarters of the 75th Ranger Regiment. The units of the Armor School include the 194th Armor Training Brigade and the 316th Cavalry Brigade.

Fort Benning has a well developed and highly used range infrastructure with several unique ranges supporting Special Operations Command units. Overall units training on Fort Benning conduct an average of 117 daily training missions. The construction and operation of numerous new ranges and training facilities were required to support the arrival of the Armor School and associated training requirements. Fort Benning has a total of 86 live-fire and 9 non-live-fire ranges with the surface danger zone acreage of over 15,800 acres. The arrival of the Armor School has increased the already high demand for new and existing ranges and maneuver lands as over 50 percent of TRADOCs institutional training requirements in 19 MCoE, 86 Infantry, and 53 Armor training programs that occur 5-6 days per week for 50 weeks annually. Fort Benning is also facing challenges from growing adjacent urbanization, and from federal and state environmental regulations.

The competition for training lands and compliance with environmental regulations have increased the utilization of limited range and training areas. At the current operational tempo, the 3-3rd ABCT and its supporting units represent about 35 percent of Fort Benning's annual requirement for live-fire and maneuver training requirements. The 3-3rd ABCT requires the use of the Digital MPRC and various other heavy ranges about 240 days and 180 nights annually. The usage competes with newly assigned Armor School training for both live-fire and maneuver training.

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 Training Land Expansion Program (TLEP) Draft Environmental Impact Statement (DEIS)* was published in May 2011 for comment per the requirements of the NEPA. The TLEP Final EIS and final decision on land purchase is deferred until more information is available on Army fiscal and force realignments. This PEA assumes that only current Fort Benning land would be available for Army 2020 alternatives.

In May of 2009, during consultation with the USFWS on the MCoE Proposed Action, Fort Benning received a Jeopardy Biological Opinion from the USFWS. A requirement of the Jeopardy Biological Opinion was the relocation of the Army Reconnaissance Course (ARC) field

training off of Fort Benning within 5 years of its first training iteration to reduce potential impacts from heavy maneuver training.

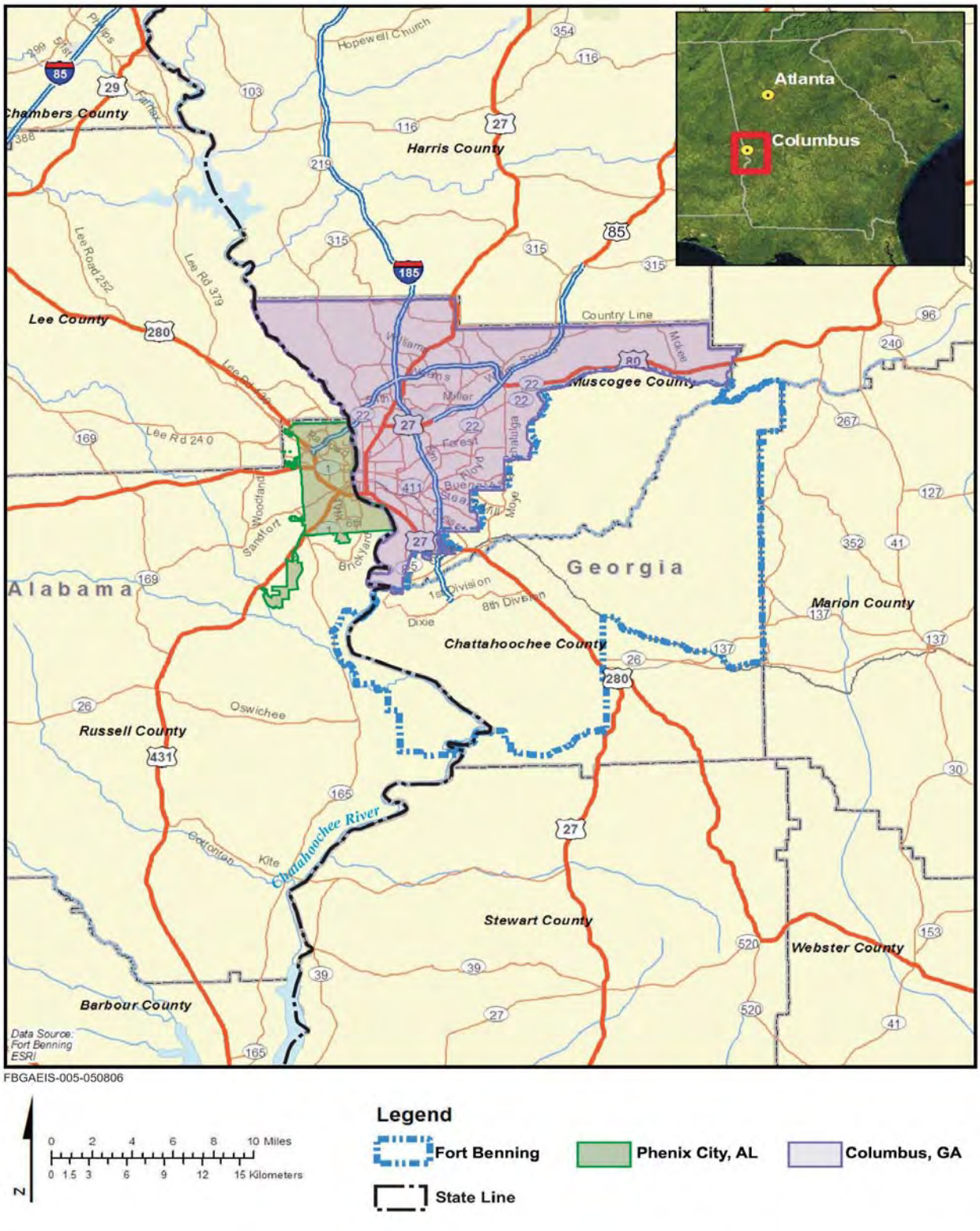

Figure 4.1-1. Fort Benning

The first iteration of ARC training occurred in October of 2011. The Armor School is working closely with Fort Benning biologists to assess potential impacts of training exercises on the red-cockaded woodpecker (RCW) population. If Fort Benning loses units with substantial maneuver land requirements as a result of the implementation of Alternative 1, training activities associated with the ARC could conceivably remain on the installation pending further consultation with the USFWS.

4.1.1.1 Valued Environmental Components

For alternatives the Army is considering as part of Army 2020 force structure realignments, Fort Benning does not anticipate any significant adverse environmental impacts; however, significant socioeconomic impacts are anticipated as a result of the implementation of Alternative 1 (Force reduction of up to approximately 7,100 Soldiers and civilians). Table 4.1-1 summarizes the anticipated impacts to VECs from each alternative.

Fort Benning is not being considered under Alternative 2 for the potential stationing of additional Soldiers that would result in a net increase for the installation as there is a lack of capacity and facilities to accommodate additional Soldiers and training requirements in a cost effective manner. It is possible, however, that the BCT stationed at Fort Benning could be restructured. This would be done in a way that would result in no net gain of Soldiers at Fort Benning.

Table 4.1-1. Fort Benning Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1: Force Reduction of up to 7,100
Air Quality	Minor	Beneficial
Airspace	Minor	Minor
Cultural Resources	Minor	Minor
Noise	Less than Significant	Minor
Soil Erosion	Less than Significant	Minor
Biological Resources	Less than Significant	Minor
Wetlands	Less than Significant	Minor
Water Resources	Less than Significant	Minor
Facilities	Minor	Beneficial
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Minor	Beneficial
Land Use Conflict and Compatibility	Less than Significant	Minor
Hazardous Materials and Hazardous Waste	Minor	Minor
Traffic and Transportation	Minor	Beneficial

4.1.2 Air Quality

4.1.2.1 Affected Environment

The installation's cantonment areas, training areas, and maneuver areas are included in the project area. The air emission's ROI at Fort Benning is the multi-county airshed to include Muscogee, Chattahoochee, Russell, Lee, Harris, Talbot, and Marion counties. These counties are presently designated by the EPA as in attainment for all required standards for criteria pollutants (except lead in a limited area off post in Muscogee County around a battery plant [USACE, 2009]).

At this time, the region is considered to be in attainment for ozone (O_3), based on the 2008 primary and secondary standards. Motor vehicles (mobile sources) are a primary contributor to ground-level O_3 levels in Georgia.

Per the provisions of the CAA, the EPA is required to review the standards every 5 years (next review slated for 2013) and both the primary and secondary standards for O_3 are anticipated to be revised down to levels that may lead the EPA to designate parts or all of the ROI/airshed as nonattainment. This area designation will likely include at least a part of Fort Benning. Because of this growing concern, further efforts at the state and local level, including reduction planning, may be required to reverse the trend ahead of the EPA's data analysis for designating O_3 nonattainment. Fort Benning would be required to assess actions for general conformity should the area be designated nonattainment for O_3.

Fort Benning also generates area emissions from prescribed fire activities as part of their ongoing ecosystem management program (USACE, 2009). Prescribed burning is the largest single source of criteria pollutant emissions on the installation (Fort Benning 2010); however, it is a critical management tool for fire-dependent natural communities, RCW habitat and training area management. Prescribed burning events on the installation would continue based on a 3 year rotational schedule across the installation (Fort Benning, 2001).

The Georgia and Alabama Forestry Commissions administer each state's Smoke Management Plans, which detail the states' basic frameworks of procedures and requirements for managing smoke from prescribed fires. The purpose of each Smoke Management Plan is to minimize the public health and environmental impacts of smoke intrusion into populated areas from fires; to avoid significant deterioration of air quality and potential CAA violations; and to avoid visibility impacts in Class I PSD areas (GFC, 2008). The closest Class I PSD areas are the Sipsey Wilderness Area, Alabama and Okefenokee Wilderness areas, Georgia, both of which are over 150 miles away from the installation. Fort Benning's prescribed burning activities are conducted in full compliance with these plans.

4.1.2.2 Environmental Consequences

No Action Alternative

Fort Benning anticipates a minor adverse impact to air quality. The Fort Benning ROI is currently in attainment for all criteria pollutants. Any new construction with the potential for emission sources would be required to be included on the installation's Title V permit. If Fort Benning is within a county designated as nonattainment after the 2013 standard review by the EPA, future projects beyond that date would need General Conformity analysis and revision to the Title V permit.

Alternative 1: Force Reduction (up to 7,100 Soldiers and Army Civilians)

Fort Benning anticipates a minor beneficial environmental impact on air quality for the installation and surrounding communities. A decrease in operations and maintenance activities

would be a minor beneficial impact, and would likely have a beneficial impact to regional air quality. The anticipated decrease in operations and maintenance activities would most likely have no effect on Class I PSD areas. Since more than 50 percent of ground level O_3 in the State of Georgia comes from vehicle exhaust, it is reasonable to suggest that a reduction in the number of vehicles associated with the loss of approximately 7,100 Soldiers, civilians, and their Families would reduce the local levels of O_3 somewhat, although emission levels are dependant not only upon reduction in number of vehicles but also upon the miles driven and vehicle type.

Demolition of facilities may have short-term, minor adverse air impacts, but would result in long-term, reduced combustion emissions, also reducing O_3 precursors. It is anticipated that combustion emissions from stationary sources would decrease with the relocation of units into newer facilities and the demolition of older facilities.

4.1.3 Airspace

4.1.3.1 Affected Environment

Lawson Army Airfield is the hub for all military aircraft operations in and around Fort Benning, with an average of 35,000 take-off and landing operations per year (ATSCOM DA FORM 3479-6-R). Fort Benning units train with helicopters, fixed wing aircraft and UASs throughout the year at varying frequency and complexity. Most fixed- and rotary-wing tactical aircraft operate out of Lawson Army Airfield, a designated Force Projection Platform. A major portion of the aircraft operations out of Lawson Army Airfield, located at the Southwest corner of Fort Benning, involves airborne jump training. Ranger training uses a combination of both fixed-wing and rotary wing aircraft. Other training events involve small to large scale military training exercises which bring in large and medium size fixed wing cargo aircraft, high performance jets, helicopters, UAS, and other special purpose aircraft throughout the year.

All of these aircraft operations use different classes of airspace designated by the FAA. The classes of airspace designated for Fort Benning are described briefly below.

- **Lawson Class D Airspace:** controlled airspace to terminal visual and instrument flight routes at airports that have a control tower;
- **ASO GA E2 Class E Airspace:** the surface area designated for an airport;
- **Regulatory Special Use Airspace – Restricted Area (R) 3002A through G:** designated to contain artillery, mortars, missiles, and rockets;
- **Non-regulatory Special Use Airspace – Benning MOA:** airspace area designated air combat maneuvers, air intercepts, acrobatics, etc.; and
- **Military Training Routes – Slow Routes 38 and 39:** visual flight routes that are designated for low-altitude tactical training.

The FAA is the controlling agency charged by Congress to administer in the public interest as necessary to ensure the safety of aircraft and its efficient use. Although the FAA must protect the public's right of freedom of transit through the airspace, full consideration shall be given to all airspace users, to include national defense; commercial and general aviation; and space operations. Overall, Fort Benning is responsible for approximately 768 cubic nautical miles of airspace in and around the designated military installation. Currently, the 3-3rd ABCT operates Shadow Tactical Unmanned Aircraft System (RQ-7B) in the SUA.

There are also several commercial and small private airports in the area surrounding Fort Benning that are published in the FAA Airport Registry under the Airport Master Record and Reports. These include the following airports: Columbus Metropolitan, Raju, Jones Light Aviation, Peterson Field, Weedon Field, Sehoy, Flying C's Plantation, and Finkley Farm just to

name a few. The region surrounding Fort Benning contains federal airways as this location is near many major regional and international air carrier hubs, including Hartsfield-Jackson Atlanta International, Macon Middle Georgia Regional, and Albany Southwest Regional. Fort Benning's designated SUA reduces the likelihood of interaction between military aircraft and public, private, or commercial aircraft. UAS vehicles are not allowed to operate outside restricted airspace because they do not have "see and avoid" capability. Training is currently conducted within designated SUA and is conducted within a restricted operating zone which allows unencumbered training flights to meet mission essential training goals.

4.1.3.2 Environmental Consequences

No Action Alternative

Minor adverse impacts to airspace use are anticipated under the No Action Alternative. There is the potential for airspace use conflicts between military and private pilots. UASs would continue to be used at the current operational tempo. Use of airspace would continue to be managed through scheduling and balancing needs with airspace availability.

Alternative 1: Force Reduction (up to 7,100 Soldiers and Army Civilians)

Minor adverse impacts to airspace use are anticipated as a result of the implementation of Alternative 1. There is the potential for airspace use conflicts between military and private pilots. Loss of a ABCT could potentially reduce the number of UASs in operation at Fort Benning. There would be no change in SUA requirements.

4.1.4 Cultural Resources

4.1.4.1 Affected Environment

Cultural resources found within the boundaries of Fort Benning include: archaeological resources, architectural resources and historic districts, and Native American resources. There are 13 federally recognized Tribes affiliated with the Fort Benning area, of which 10 participate in consultation on a bi-annual basis. Management of cultural resources on Fort Benning is accomplished through the installation's Integrated Cultural Resources Management Plan (Fort Benning, 2008). Fort Benning has adopted the Army Alternate Procedures for implementing Section 106 of the NHPA in an effort to improve efficiency in the installation's cultural resources management. The Historic Properties Component established procedures for evaluation of potential effect on historic properties and combining Section 106 consultation with the NEPA process.

Most cultural resources on Fort Benning have been evaluated for eligibility on the NRHP. Those that have not yet been evaluated are considered eligible until they can be evaluated. No properties of religious or cultural significance to the Tribes have been identified on the installation.

4.1.4.2 Environmental Consequences

No Action Alternative

Minor adverse impacts are anticipated on cultural resources under the No Action Alternative. Heavy equipment and tracked vehicles used for off-road maneuvers, and other training could potentially have adverse impacts on archaeological resources. Fort Benning personnel provide maps demarcating cultural resource locations in the training areas for Soldier informational awareness and avoidance. There are also training restrictions and guidelines within these areas to minimize impacts in these areas, (e.g., no digging). Building demolition and renovation are not part of the No Action Alternative; therefore, there would be no adverse impacts from those actions.

Alternative 1: Force Reduction (up to 7,100 Soldiers and Army Civilians)

Minor adverse impacts are anticipated on cultural resources as a result of implementation of Alternative 1. With a decrease of Soldiers and civilians and the potential for units to be relocated to newly vacated facilities, some older buildings on the installation may be programmed for demolition. The adverse impacts from demolition of buildings that are eligible for the NRHP would be mitigated, in accordance with the ICRMP and Army Alternate Procedures. At this time, it is unknown what buildings would be identified for demolition.

Fort Benning anticipates that a decrease in Soldier strength would decrease the training operational tempo and Soldier traffic near archaeological sites; this would reduce potential impacts to those resources within the training and range areas.

4.1.5 Noise

4.1.5.1 Affected Environment

The greatest amount of noise disturbance from Fort Benning is generated from large caliber weapons firing mainly from M1 tank, M2 Bradley Fighting Vehicles, 120mm (millimeter) mortars and 155mm howitzers. Noise is also generated from fixed- and rotary-winged aircraft maneuvers, artillery, various pyrotechnic devices and specialized combat vehicles. Currently, an incompatible NZ III extends into Muscogee and Marion counties where rural residences and communities are located on the northern and eastern boundaries of the installation. Additionally, NZ II extends off post to include Muscogee, Marion, and Talbot counties.

On-post noise impacts have been identified primarily with Family housing. Family housing areas are affected by both NZ II and III noise levels for both small and large caliber weapons. Currently, there are approximately 96 installation housing units within the NZ III noise contour.

In 2003, Fort Benning installed a Blast Analysis and Measurement monitoring sensor site system along the installation boundary. The eight noise monitors are used to verify noise levels when complaints have been received from the public. Data from these monitors can help the installation plan, schedule, and effectively adjust military training exercises to reduce impacts to the community's noise sensitive receptors. The installation's Public Affairs Office notifies the public of training activities involving firing events through public notices issued to local media outlets, local governments, and the Fort Benning public website.

Noise from training activities also has the potential to affect wildlife and threatened and endangered species. For example, some training restrictions and conditions are required to minimize adverse impacts to the RCW population (Fort Benning, 2001). Some noise generating training activities, (e.g., artillery and hand grenade simulators and firing of small caliber weapons), are limited by scheduling restrictions when occurring within RCW cluster boundaries. Other training activities, (e.g., live-fire and incendiary devices), are prohibited altogether within RCW cluster boundaries. Over the past 30 years, several research projects have assessed the potential effects of military noise, primarily from large-caliber ranges and artillery simulators, on certain elements of RCW fitness (USACE, 2008). Generally, the results of these works have demonstrated that noise events (particularly those historic and relatively constant) from military activities have little to no effect on RCW reproductive success.

4.1.5.2 Environmental Consequences

No Action Alternative

Less than significant (moderate adverse) impacts are anticipated due to NZ II and III from operational noise overlapping areas with sensitive noise receptors on and off post. As a result of BRAC/Transformation actions, a number of new small and large arms ranges were constructed

to meet mission training requirements. Current NZ II and III noise contours for small and large caliber weapons are not anticipated to change. Mitigation measures in place to minimize operational noise impacts include noise complaint reporting procedures for the public and posting training schedules for the public when large caliber and/or night-time training events occur.

Alternative 1: Force Reduction (up to 7,100 Soldiers and Army Civilians)

Short-term, minor adverse noise impacts could result from renovation, and or demolition activities that would be identified for the relocation of units on the installation. Impacts from these activities would be localized and would dissipate after renovation or demolition is complete.

Long-term, minor adverse noise impacts would still be associated with training activities on the installation. Noise generated from firing ranges and maneuver areas is not anticipated to change current NZ contours; however, the anticipated decrease in operational tempo would result in less frequent large caliber weapons fire associated with heavy brigade training activities, and may decrease the frequency of night-time training exercises.

Potential noise impacts to the natural environment would also decrease with a reduction of Soldier strength. The anticipated decrease in operational tempo would reduce the number of wheeled and heavy vehicles, Soldier foot-traffic, and use of other military equipment within RCW cluster boundaries.

4.1.6 Soil Erosion

4.1.6.1 Affected Environment

Most of Fort Benning is located south of the Fall Line, which is defined by the overlap of Coastal Plain strata on top of Piedmont rocks. Along the Fall Line Sandhills, crystalline rocks of the Piedmont are overlain by marine or fluvial sediments, resulting in varied topography. The topography across the installation is variable, with generally flat areas along the Chattahoochee River and steeper upland slopes farther inland. Elevations on Fort Benning range from about 170 to 750 feet above MSL.

The six soil associations found at Fort Benning are highly weathered Ultisols of Coastal Plain origin. All soils in the north have a sandy surface and loamy subsoil, and are highly permeable and droughty. The soils in the southwestern part of the installation have a higher water holding capacity, and are loamy sand and clay loam sands. Many soils also have a clayey subsoil. The majority of Fort Benning soils have been identified as highly erodible (USACE, 2009).

Projects involving land disturbance over 1 acre require a stormwater construction permit which would include Best Management Practices (BMPs) to reduce and minimize impacts associated with stormwater runoff, erosion, sedimentation and pollutants. Other projects less than 1 acre may fall under construction BMPs required under the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit.

Approximately 300 new water crossings, culverts and bridges for military vehicles have been constructed as a result of the BRAC/Transformation construction program. The crossings have been established along range and training area roads and include concrete-reinforced tank trail beds through streams and wetlands to minimize impacts to water resources. Additional minimization measures include the design and construction of sediment basins to prevent sedimentation impacts to surface waters and wetlands within heavy maneuver training areas. There is a potential for adverse impacts to water resources due to increased sedimentation directly related to heavy maneuver training.

4.1.6.2 Environmental Consequences

No Action Alternative

Fort Benning anticipates less than significant (moderate adverse) impacts in training areas due to the number of tracked and wheeled vehicles that are currently on the installation. Off-road heavy maneuver training exercises are anticipated to cause the most adverse impact due to the use of tracked vehicles in areas with highly erodible soils. Fort Benning anticipates that the high utilization of maneuver lands by the Armor School and the 3-3rd ABCT could adversely impact soils and increase soil erosion rates. Fort Benning also anticipates that road networks would be susceptible to increased erosion rates due to high traffic volumes of wheeled, heavy, and tracked vehicles traveling to and from training areas.

With the current operational tempo, both on and off-road maneuver areas have less time to naturally recover from training activities. Consequently, training areas could exhibit more soil and vegetation disturbance and become more degraded. This degradation of maneuver areas and road networks would incur high maintenance costs, and could potentially render some training areas unusable for periods of time until training area maintenance activities could be completed.

Erosion and sedimentation concerns represent a substantial threat to long-term viable usage of Good Hope Maneuver Training Area (GHMTA), where the Armor Basic Officer Leaders Course mounted maneuver training is conducted. Highly erodible soil and steep slopes provide indications of potentially serious runoff issues that left unmitigated, would jeopardize training in the maneuver boxes established within the GHMTA.

Fort Benning and the MCoE are aggressively pursuing proactive, preemptive actions to mitigate the risks to the GHMTA to include programming of projects for sedimentation basins, check dams, and rip rap swales in and along stream buffer zones to prevent surface runoff sedimentation into streams. Several low water crossings have inadequate approaches on steep slopes and require supplemental upgrades. Without the upgrades (i.e., extended approaches with articulated concrete “rumble strips”), tracks would not discard soils prior to entering the stream and maneuver damage, with increased erosion, would occur requiring maintenance and repairs based on the extent and location of the damage.

Alternative 1: Force Reduction (up to 7,100 Soldiers and Army Civilians)

Fort Benning anticipates a minor adverse impact to soils with the loss of up to 7,100 Soldiers and civilians. The loss of a ABCT and other Combat Support units would be anticipated to lessen soil erosion and sedimentation potential, but there remains the potential for soil erosion impacts even if these force structure decisions were made. The reduction in wheeled and tracked vehicles, and other heavy equipment traffic on- and off-road, could reduce the impacts on soils and erosion with an anticipated decrease in frequency of training activities. The terrain could show reduced impacts from the vehicle maneuvers, turns and traction from mechanized maneuvering on the installation. These maneuver areas would still be prone to soil erosion depending on the training mission and primary training locations of those remaining units.

A reduction in Soldier strength could result in more effective maintenance operations due to a decrease in training intensity and more access to training lands for repair and maintenance activities. This would be anticipated to enhance the sustainability of training lands throughout Fort Benning. Areas designated specifically for off-road, heavy maneuvers with tracked vehicles (e.g., Armor School), would still experience adverse impacts to soils. When adequately funded, the ITAM program helps sustain training lands via maintenance projects to correct soil erosion problems in heavy maneuver areas.

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

4.1.7.1 Affected Environment

Federal and state threatened and endangered species are known to occur at Fort Benning. Four federally-listed species within the boundaries of Fort Benning and include the RCW (endangered), Wood Stork (endangered), American Alligator (threatened – similarity of appearance), and Relict Trillium (endangered). While the Bald Eagle has been delisted, it is still protected under other federal laws, and has been known to nest along the Chattahoochee River on Fort Benning. State-listed species include the Gopher Tortoise (threatened and proposed for federal listing), Barbour's Map Turtle (threatened), Alligator Snapping Turtle (threatened), and the Blue Stripe Shiner (threatened). In addition, there are 11 state-listed plant species present within the boundaries of Fort Benning (USACE, 2009).

In May 2009, Fort Benning received a Jeopardy Biological Opinion from the USFWS related to the MCoE Biological Assessment. The Jeopardy Biological Opinion outlines specific criteria that must be met in order for the installation to proceed with the actions associated with BRAC and MCoE, including RCW impact minimization measures.

One criterion outlined in the Jeopardy Biological Opinion was the relocation of the ARC field training off the Fort Benning footprint within 5 years of its first training iteration. The requirements to move the ARC was based on the heavy maneuver training initially proposed by the Armor School and the associated potential impacts to RCWs from heavy mechanized training. The ARC training plans have changed substantially from what had originally been proposed and analyzed in the Jeopardy Biological Opinion, to involve fewer days in the training areas and limited use of tracked vehicles.

The first iteration of ARC training occurred in October 2011. The Armor School is working closely with Fort Benning biologists to monitor potential impacts of training exercises on the RCW population. If Fort Benning force structure is reduced as a result of the implementation of Alternative 1; thereby, potentially reducing impacts to the RCW population, training activities associated with the ARC could possibly remain on the installation after reinitiating consultation with USFWS.

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

All birds on Fort Benning except pigeons, starlings and English sparrows (non-native species) are protected under the Migratory Bird Treaty Act (MBTA); however, state regulations allow hunting of certain game species. Fort Benning manages and conserves migratory bird species through its INRMP. There are approximately 150 species of birds protected under the MBTA present on the installation either seasonally or year round. Most of these species are breeding residents or neo-tropical migrants for which the typical breeding season is spring through summer. There are potentially 16 species occurring on Fort Benning considered Species of Concern based on Partners in Flight and Landbird Population Estimates. Fort Benning is currently cooperating with federal, state, and private organizations in gathering information on many migratory bird species in this region. There would be negligible impacts to migratory bird species as a result of either alternative.

4.1.7.2 Environmental Consequences

No Action Alternative

Fort Benning anticipates less than significant (moderate adverse) impacts to threatened and endangered species, particularly the RCW. Although there are specific mitigation criteria for training events, (e.g., no live-fire or heavy mechanized training within RCW cluster boundaries), it has yet to be determined if current training loads would incur any additional impacts to threatened and endangered species, especially by harassment. It is also possible that training impacts may be less than previously anticipated, which could lead to fewer restrictions on training in the future. There would also a potential for moderate adverse effects to vegetation and wildlife. Continued adherence to the INRMP, Biological Opinions and regulatory requirements would minimize impacts.

Alternative 1: Force Reduction (up to 7,100 Soldiers and Army Civilians)

Minor adverse impacts are anticipated as a result of the implementation of Alternative 1. Fort Benning anticipates that the loss of a ABCT would decrease the frequency and intensity of heavy mechanized training on the installation, and reduce potential impacts to vegetation, wildlife, and threatened and endangered species.

Generally, a training reduction could result in reduced impacts to the RCW and its habitat. Fort Benning anticipates that a reduction in the frequency of heavy mechanized training in RCW habitat would decrease the potential for adverse effects to the RCW population due to harassment. This determination would require a more in-depth analysis, however, as it is highly dependent upon the type, location and operational tempo of training. Reorganization of units and their training areas would undergo evaluation to identify any potentially new or reduced impacts to the RCW population and other threatened and endangered species. If additional impacts to federal threatened and endangered species are identified, an issuance of an incidental take permit may be warranted, while reduced impacts may warrant fewer incidental takes than previously determined. This would require further consultation with USFWS.

4.1.8 Wetlands

4.1.8.1 Affected Environment

Fort Benning contains approximately 17,000 acres wetlands based on NWI and jurisdictional wetland delineation. Wetlands on Fort Benning include cypress-tupelo, wood stream swamps, and gum-oak dominated wetlands (USACE, 2009). Currently, all heavy maneuver training activities on Fort Benning avoid wetlands to the degree possible. Additionally, Fort Benning personnel have demarcated buffer zones adjacent to delineated wetlands in some heavy maneuver training areas for Soldier awareness and avoidance.

Wetlands identified as jurisdictional are specifically protected under Section 404 of the CWA. Section 404 permits would be required for construction-related unavoidable impacts to jurisdictional wetlands.

4.1.8.2 Environmental Consequences

No Action Alternative

Less than significant (moderate adverse) impacts to wetlands are anticipated under the No Action Alternative due to the ABCT and the Armor School operational tempo including use of heavy equipment and tracked vehicles. Ranges and training areas are monitored to ensure that there are no significant impacts to wetlands.

Alternative 1: Force Reduction (up to 7,100 Soldiers and Army Civilians)

Minor adverse impacts to installation wetlands are anticipated as a result of the implementation of Alternative 1. As discussed in Section 4.1.6., any reduction in Soldier strength would decrease the number of tracked and wheeled vehicles in areas that may have wetlands and the potential impacts of increased sedimentation caused by training. The frequency of dismounted training activities in wetland areas would be anticipated to decrease.

Fort Benning anticipates that the reduction of heavy mechanized training events would reduce the potential for adverse impacts to wetlands. Specific wetland impacts cannot be determined because it is dependent upon location, type and operational tempo of remaining training after any reduction. Generally, wetland areas are not preferred for heavy maneuver training, but it is likely that rearrangement of remaining units to the training areas would reduce potential impacts to wetlands.

How the Armor School and other tenant units on Fort Benning would utilize current training areas after a force reduction would require further analysis to assess any potentially new impacts to wetlands. It is unlikely that there would be any wetland impacts from renovation or demolition; however, Fort Benning would identify any wetland impacts and would obtain appropriate wetland permits where applicable.

4.1.9 Water Resources

4.1.9.1 Affected Environment

Groundwater. Fort Benning is located within the Coastal Plain hydrogeologic province. The principal groundwater source for Fort Benning is the Cretaceous aquifer system. The recharge area for this aquifer is the Sand Hill cantonment area (Fort Benning, 2004). Aquifers in this area typically have the capacity to yield about 50 gallons per minute (gpm) of water near the Fall Line, but yields increase to approximately 700 gpm near the southern installation boundary (USACE, 2009).

Water Supply. Fort Benning receives the majority of its potable water supply from surface water sources, primarily the Chattahoochee River. The installation's potable water supply system was privatized in September 2004 and is owned and operated by Columbus Water Works (CWW). As a result of BRAC, water infrastructure has been expanded and upgraded throughout the installation. For the more remote training areas, potable water is supplied by a number of drilled wells or transported via transport trailers.

Wastewater. Fort Benning's wastewater system was privatized in September 2004. The ownership, operation, system, and facilities are the responsibility of CWW. As a result of BRAC, sewer infrastructure across the installation has undergone extensive expansion and upgrades. Fort Benning's two wastewater treatment plants (WWTPs) have been replaced with comparable service from CWW. The CWW WWTP has been replaced and expanded to handle a maximum of 17.3 million gallons per day (mgd) (USACE, 2009).

Stormwater. Stormwater discharge in main post drains directly into the Chattahoochee River through a storm drain system. Stormwater from the satellite cantonment areas of Harmony Church, Kelley Hill and Sand Hill, as well as the training compartments, drain directly or indirectly into nearby surface water bodies. Other stormwater on the installation drains via culverts, ditches, swales, and natural seepage and overland flow.

Surface water resources on the installation are subject to contamination from soil sedimentation, oil spills, pesticide residue, and untreated sewage bypasses. These potential pollution sources are controlled and minimized by implementation of installation spill contingency plans,

stormwater pollution control plans, and adherence to applicable laws and regulations. There are several impaired streams located near or on Fort Benning.

4.1.9.2 Environmental Consequences

No Action Alternative

Less than significant (moderate adverse) impacts to water resources are anticipated under the No Action Alternative. As discussed in Section 4.1.6, the installation anticipates some sedimentation impacts to surface waters due to the heavy maneuver training activities of the 3-3rd ABCT and the Armor School. As the majority of Fort Benning is characterized as having highly erodible soils, the frequency of training activities reduces the maintenance and recovery times for heavy maneuver areas. This lack of recovery time increases the potential for sediment to impact water resources. Although minimization measures have been implemented in heavy maneuver areas, the current operational tempo increases the need for maintenance of the training areas, water crossings, and sediment basins. Effective maintenance of maneuver areas and the minimization of impacts to water resources would be a long-term issue at Fort Benning. Negligible impacts are anticipated to groundwater, water supply and wastewater.

Alternative 1: Force Reduction (up to 7,100 Soldiers and Army Civilians)

Minor adverse impacts to water resources are anticipated as a result of the implementation of Alternative 1. With force reduction and associated heavy equipment and other vehicles of the ABCT, Fort Benning anticipates a reduction in off-road heavy maneuver training events. This reduction in training intensity and frequency would allow more recovery time and maintenance functions to be performed. In turn, maneuver training areas would be more sustainable, which would decrease the potential for sedimentation. Due to the high erosion potential of Fort Benning soils, there still exists the potential for impacts from sedimentation from training activities, especially off-road heavy maneuver training. Ranges and training areas are monitored to ensure that there are no significant impacts to wetlands.

There would be a minor beneficial impact to groundwater, water supply and wastewater. A reduction in Soldiers, civilians and their Families would lessen the demand for potable water and reduce the amount of wastewater to be processed.

4.1.10 Facilities

4.1.10.1 Affected Environment

The cantonment areas at Fort Benning have been developed into a wide variety of land uses that comprise the elements necessary for a complete urban-style community. As a result of BRAC Transformation actions and the establishment of the MCoE, a combination of redevelopment (e.g., renovation), development, and expansion has occurred within the four cantonment areas: Main post, Kelley Hill, Sand Hill, and Harmony Church. Training assets, in the form of ranges and maneuver areas, are found throughout the installation.

The 400-acre Kelley Hill cantonment area is located 3 miles east of main post. Current land use, which is fairly concentrated, includes unaccompanied personnel housing, community, and maintenance facilities. Kelley Hill is the current command and control center for the 3-3rd ABCT, which is the only ABCT stationed on Fort Benning. Combat/Combat Support Soldiers and civilians are located throughout the installation. Some equipment maintenance facilities are outdated and undersized to accommodate current requirements.

There are various indoor and outdoor recreation opportunities across the installation. These facilities include golf courses, campgrounds, a marina, bowling centers, swimming pools, and gymnasiums. Hunting and fishing are common activities on post. Other community support

services include Martin Army Hospital, Warrior in Transition facility, child development centers, commissary, and post exchange. Other training and community support facilities are addressed in other sections.

4.1.10.2 Environmental Consequences

No Action Alternative

Fort Benning anticipates a minor adverse impact for training facilities across the installation. During 2011, Fort Benning estimated a 26 percent increase in Soldier training loads post-BRAC Transformation actions. Scheduling conflicts have been identified for training in range and maneuver areas based on the current operational tempo. Although training requirements are being met, some adjustments in scheduling and facilities use must be made to accommodate all of the units training at Fort Benning. This also impacts Range Operations available manpower in servicing and maintenance of training facilities and the scheduling of required environmental mitigation and checks on adjacent ranges and training areas. The use of borrowed military manpower is required to augment manning shortfalls in the Range Operations further depleting the assigned and available Cadre/Soldier strengths of assigned tenant units.

There would be no impacts to support facilities such as training classrooms, motorpools, or equipment maintenance facilities. These facilities would continue to be fully utilized to support the training mission. The demand for recreation, medical, and support facilities would not change.

Alternative 1: Force Reduction (up to 7,100 Soldiers and Army Civilians)

Minor beneficial impacts to training facilities are anticipated as a result of the implementation of Alternative 1. A decrease in Soldier strength would reduce potential conflicts in training scheduling and improve availability of training facilities for remaining units. Additionally, a reduction in the frequency of training exercises would be beneficial for maintaining ranges and training areas and thereby improving sustainability of those facilities. A decrease in training operational tempo and related heavy equipment of a ABCT would be beneficial for the maintenance and sustainability of roadways and off-road maneuver areas.

With a decrease of Soldiers and civilians and the potential for units to be relocated to newly vacated facilities, various older buildings on the installation may be programmed for demolition. Demolition of older structures would be a long-term beneficial effect. Many facilities on Fort Benning are energy inefficient and outdated, and do not efficiently support current training mission and equipment (e.g., some maintenance facilities are undersized for current heavy and tracked vehicles.) The demolition of older facilities would result in a reduction of maintenance costs, and a reduction in the number of buildings containing asbestos and LBP.

Currently, there is a high demand for recreation, medical, and support facilities. It is anticipated that the demand for these services would be reduced to a more sustainable level as a result of this alternative.

4.1.11 Socioeconomics

4.1.11.1 Affected Environment

Fort Benning is located in the Columbus Georgia-Alabama (GA-AL) Metropolitan Statistical Area (MSA), which includes Muscogee, Chattahoochee, Harris, and Marion counties in Georgia, and Russell County in Alabama. The ROI evaluated in this socioeconomic analysis consists of the Columbus GA-AL MSA; and for the purposes of this analysis Talbot County, Georgia, and Lee County, Alabama was added. The geographic extent of the ROI for this analysis includes the residential distribution of the installation's military, civilian, and contractor personnel, and their

Families; and the locations of businesses that provide goods and services to the installation and its population. This ROI constitutes the vast majority of potential socioeconomic impacts from force restructuring proposed for Fort Benning. Data for the Columbus GA-AL MSA is included in the discussion as this data includes the most recent economic conditions for a vast majority of the ROI.

Population and Demographics. This section provides information regarding the installation and ROI population. Total installation daily population (including Active Army, civilians, PCS students and trainees) is approximately 39,250 people (HQDA, 2012), though this does not include military dependents. Fort Benning Soldiers and employee households include another estimated 40,200 Family members (spouses and dependent children). The total population of Fort Benning full-time Soldiers, civilians, trainees, and dependents is estimated to be approximately 79,450 people. This does not include the military retiree population within the ROI, which is estimated to be 10,900 (USACE, 2011). The military retiree population is not anticipated to be directly affected by the Proposed Action or alternatives.

Of the total military employee population (Soldiers, students, trainees, Army civilian employees) of approximately 39,250 people, approximately 14,100 of these are full-time uniformed Soldiers or PCS students and approximately 4,250 are full-time Army civilian employees. The total working population of daily full-time Army Soldiers and government civilian employees is 18,344. Fort Benning's population of students and trainees fluctuates, but currently averages approximately 20,900 students.

Approximately 12,700 Soldiers and their dependents live on Fort Benning. The rest of the military personnel that work or train at Fort Benning and their dependents, an estimated 66,700, live off-post in the surrounding communities within the ROI.

The ROI population is 310,000, which does not include the residents of Fort Benning. As Fort Benning is federal property, its permanent party residents were not included in the 2010 ROI census data as Muscogee or Chattahoochee county residents, though they technically reside within the geographic confines of those counties. Compared to 2000, the 2010 population in Harris and Marion counties increased by more than 20 percent, while the off-post population of Chattahoochee County decreased by more than 20 percent, mainly attributable to the continuing trend of relocation of individuals within the county to areas that are closer to the Atlanta metropolitan area. Table 4.1-2 presents the 2010 census population information for each county and the percent of population change since 2000. The racial and ethnic composition of the ROI is presented in Table 4.1-3 (U.S. Census Bureau, 2010; http://quickfacts.census.gov).

Table 4.1-2. Population and Demographics

Region of Influence Counties	Population 2010	Population Change 2000-2010 (Percent)
Georgia	9,687,653	+18.3
Alabama	4,779,736	+7.5
Muscogee, Georgia	189,885	+ 1.9
Chattahoochee, Georgia	11,267	- 24.3
Harris, Georgia	32,024	+35.2
Marion, Georgia	8,742	+22.4
Talbot, Georgia	6,865	- 5.6
Lee, Alabama	6,058	+15.3
Russell, Al	52,947	+ 6.6

Table 4.1-3. Racial and Ethnic Composition

State and Region of Influence Counties	Caucasian (Percent)	African American (Percent)	Native American (Percent)	Hispanic (Percent)	Asian (Percent)	Multiracial (Percent)	Other (Percent)
Georgia	56	30	<1	9	3	2	<1
Alabama	67	26	1	4	1	1	<1
Muscogee	44	45	<1	6	2	2	< 1
Chattahoochee	63	18	1	12	2	3	1
Harris	78	17	0	3	1	1	0
Marion	58	32	0	7	1	1	0
Talbot	38	59	0	1	0	1	0
Lee	70	23	0	3	3	1	0
Russell	52	41	< 1	4	<1	2	< 1

Employment, Income, and Housing. Overall, the largest employment sectors in the ROI include education, health and social services, manufacturing, and retail trade. Although substantial acreage in the ROI is devoted to forestry and agriculture, a very small percentage of the civilian population is employed in those sectors. Private non-farm employment in the ROI (including the on-post working population of Fort Benning) is 151,441. Compared to 2000, the 2009 employment (private nonfarm) increased in Talbot and Lee counties, and decreased in Muscogee, Chattahoochee, Harris, Marion, and Russell counties, and the states of Alabama and Georgia (Table 4.1-4). Fort Benning employs an estimated 18.4 percent of the personnel in the Columbus MSA when considering (non-farm) employment except the post's training population. This number is even higher (24.6 percent) if one adds the post's training population to the total employment numbers. When considering the indirect economic impacts of goods and service jobs created by the increased regional demand attributable to Fort Benning employees, not including students and trainees, economic impacts of the installation account for more than 20 percent of the full-time non-farm jobs in the ROI. If one includes students and trainees, by the installation is estimated to support more than 25 percent of all jobs within the ROI.

The average unemployment rate as of March 2012 for the Nation was 8.2 percent, compared to 9.0 percent for the State of Georgia, and 7.3 percent for the State of Alabama. As of March 2012, the Columbus MSA unemployment rate was slightly higher than the national average at 8.6 percent. Chattahoochee County has the highest unemployment rate (approximately 15 percent) in the ROI, while Harris County had the lowest (approximately 7 percent).

Housing is not available for all active service members on Fort Benning. Off-post housing is available in the forms of town homes, apartments, and single family homes in the surrounding counties. With the downturn in the economy, several counties within the ROI have occupancy rates below 90 percent for rental units (U.S. Census Bureau, 2010). As of May, 2012, 12,681 Soldiers, Army civilians, and dependents resided on Fort Benning, with the remainder of personnel and dependents residing in off-post housing.

Employment, median home value and household income, and poverty levels are presented in Table 4.1-4.

Table 4.1-4. Housing and Income

State and Region of Influence Counties	2009 Total Nonfarm Employment (Employees)	Employment Change 2000-2009 (Percent)	Median Home Value 2005-2009 (Dollars)	Median Household Income 2009 (Dollars)	Population Below Poverty Level 2009 (Percent)
Georgia	3,410,505	- 2.1	160,100	47,469	16.60
Alabama	1,612,258	- 2.5	111,900	40,547	17.50
Muscogee	78,925	- 8.7	126,100	39,060	17.50
Chattahoochee	644	- 52.2	78,200	40,725	26.50
Harris	3,324	- 22.6	190,500	63,351	8.80
Marion	1,260	- 42.0	75,900	31,581	22.00
Talbot	547	+ 16.1	85,900	33,873	23.50
Lee	37,367	+ 15.8	139,500	40,894	19.20
Russell	11,030	- 1.2	91,300	33,537	19.90

Fort Benning serves as a major driver of economic activity regionally, and contributes more than $2 billion annually to the local economy through salaries, construction and service contracts, and direct purchase of goods from the local economy. Local planning authorities estimate that in 2012, direct payroll to Fort Benning's military personnel could exceed $1.3 billion annually, while the civilian and contractor payroll may exceed $500 million per year (USACE, 2011).

Environmental Justice. E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs federal agencies to identify and address as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations. Minority and low-income populations within the ROI are presented in Table 4.1-2 and 4.1-3. Compared to the state-wide populations of Alabama and Georgia, Muscogee, Talbot, and Russell counties have higher populations of minorities, particularly African Americans, that exceed 40 percent of the counties' total population. Low income populations are more heavily represented in Chattahoochee, Marion, and Talbot counties where the population below the poverty level exceeded 20 percent of the total county population in 2009. Tables 4.1-2 and 4.1-3 provide additional information. Chattahoochee County includes the highest percentage of individuals in the ROI (26.5 percent in 2009) that live at or below the poverty line, though it should be noted that this does not include Fort Benning's on-post military population.

Schools. Fort Benning has seven on-post DoD schools, six elementary and one middle school, and 29,963 students (Fort Benning Staff, May 2012). High school students residing on the installation (grades 9-12) attend local county high schools (The Valley Partnership Join Development Authority, 2009a). Off post, there are a total of 57 elementary schools, 23 middle schools, 18 high schools, and 1 central elementary/high school within the ROI. Enrollment capacity varies by county across the ROI. Currently, only Mount Olive Elementary in Russell County and elementary schools in Phenix City are near or at enrollment capacity; however, if plans to build additional elementary schools proceed, sufficient capacity for growth is anticipated. All remaining schools in the ROI have some capacity for growth, to varying degrees. Certain school districts may approach capacity within the next 3 years. Both Muscogee and Chattahoochee County school districts are projected to exceed capacity by 2013 if no new schools are constructed. Harris and Marion County School districts are projected to have sufficient space for additional students as a result of new facilities opening in 2011. Stewart and Talbot County School districts are projected to have sufficient capacity due to lack of growth. Russell County middle and high schools also have sufficient capacity for additional students.

Webster County High School has excess capacity, while the elementary/middle school is categorized as just below capacity (USACE, 2011).

Public Safety and Social Services. The Provost Marshal provides on-post law enforcement services. Off post, there are approximately 1,000 law enforcement officers in the ROI (USACE, 2011). Fort Benning's Fire Department provides on-post fire protection. 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. No Memoranda of Understanding exists between Fort Benning and the fire departments in Lee, Marion, Harris, or Talbot counties. Muscogee County and Phenix City Fire departments have 342 and 58 paid fire-fighters, respectively (USACE, 2011). Russell, Chattahoochee, Harris, Marion, and Talbot counties are serviced solely by volunteer fire departments that can experience resource and staffing deficiencies in less populated areas. Lee County is serviced by a combination of volunteer fire departments and municipal fire departments.

The U.S. Army Medical Department Activity provides medical care to an eligible patient population in excess of 72,000 beneficiaries (U.S. Army Medical Department, 2010), though many of these potential beneficiaries receive medical treatment through private sources using different military health care options under TRICARE. Medical services are highly concentrated within the Columbus MSA and are notably deficient in rural areas.

4.1.11.2 Environmental Consequences

No Action Alternative

There would be no change to socioeconomic conditions anticipated under the No Action Alternative. Fort Benning would continue to have the same levels of economic and social impacts on employment, housing, schools, and public services. No additional impacts would be anticipated beyond those beneficial and adverse socioeconomic impacts currently being experienced within the ROI.

Alternative 1: Force Reduction (up to 7,100[1] Soldiers and Army Civilians)

Economic Impacts. Alternative 1 would result in the loss of up to 7,100 military employees (Soldier and Army civilian employees), each with an average annual income of $41,830. In addition, this alternative would affect an estimated 3,950 spouses and 6,791 dependent children, for a total estimated potential impact to 10,741 dependents. The total population of military employees and their dependents directly affected by Alternative 1 would be projected to be 17,815.

Based on the EIFS analysis, there would be significant socioeconomic impacts for population loss within the ROI for this alternative. There would be no significant impacts for sales volume, income, or employment, though these values would all experience declines within the ROI. The range of values that would represent a significant economic impact in accordance with the EIFS model are presented in Table 4.1-5, along with the predicted percentages for Alternative 1. Table 4.1-6 presents the projected economic impacts to the region for Alternative 1 as assessed by the Army's EIFS model.

[1] Calculations used a number of 7,074 Soldiers and civilians for estimating socioeconomic impacts. This number was derived by assuming the loss of Fort Benning's ABCT, as well as 30 percent of the installation's non-BCT Soldiers and up to 15 percent of the civilian workforce. As discussed in Chapter 3, this number is rounded to the nearest hundred personnel when discussing impacts of Alternative 1.

Table 4.1-5. Economic Impact Forecast System and Rational Threshold Value Summary of Implementation of Alternative 1

Region of Influence Economic Impact Significance Thresholds	Sales Volume (Percent)	Income (Percent)	Employment (Percent)	Population (Percent)
Economic Growth Significance Value	10.55	10.01	5.03	2.58
Economic Contraction Significance Value	- 7.34	- 6.01	- 8.29	- 1.56
Forecast Value	- 3.16	- 4.99	- 5.94	- 5.74

Table 4.1-6. Economic Impact Forecast System: Summary of Projected Economic Impacts of Implementation of Alternative 1

Region of Influence Impact	Sales Volume	Income	Employment	Population
Total	- $403,706,700	- $342,170,900	- 7,763 (Direct) - 1,234 (Indirect) - 8,997 (Total)	- 17,815
Percent	- 3.16 (Annual Sales)	- 4.99	- 5.94	- 5.74

The total annual loss in volume of direct and secondary sales in the ROI represents an estimated -3.16 percent reduction. State tax revenues would decrease by approximately $16.15 million as a result of the decreased sales. Some counties within the ROI supplement the state sales tax of 4 percent by varying percentages, and these additional local tax revenues would be lost at the county and local level. Regional income would decrease by an estimated 4.99 percent. While approximately 7,100 direct Soldier and Army civilian positions would be lost within the ROI, EIFS estimates another 689 military contract service jobs would be lost as a direct result of the implementation of Alternative 1, and an additional 1,234 job losses would indirectly occur from a reduction in demand for goods and services in the ROI. The total estimated reduction in demand for goods and services within the ROI is projected to lead to a loss of 8,997 non-farm jobs, or a -5.94 percent change in regional non-farm employment. The total number of employed non-farm positions in the ROI is estimated to be 151,441. A significant population reduction of -5.74 percent within the ROI is anticipated as a result of this alternative. Of the approximately 310,000 people (including those residing on Fort Benning) that live within the ROI, 17,815 military employees and their dependents would be projected to no longer reside in the area following the implementation of Alternative 1. This would lead to a decrease in demand for housing, and increased housing availability in the region. This would lead to a reduction in median home values. It should be noted that this estimate of population reduction includes Army civilian and military members and their dependents. This number may overstate potential population impacts, as some of the people no longer employed by the military would continue to work and reside in the ROI, working in other economic sectors; however, this would in part be counterbalanced by the fact that some of the indirect impacts would include the relocation of local service providers and businesses to areas outside the ROI. Table 4.1-7 shows the total projected economic impacts, based on the RECONS model, that would occur as a result of the implementation of Alternative 1.

Table 4.1-7. Regional Economic System: Summary of Projected Economic Impacts of Implementation of Alternative 1

Region of Influence Impact	Sales Volume	Income	Employment
Total	- $319,986,654 (Local) - $521,369,224 (State)	- $358,886,991	- 7,981 (Direct) - 1,008 (Indirect) - 8,989 (Total)
Percent	- 2.51 (Total Regional)	- 5.23	- 5.93

The total annual loss in direct and indirect sales in the region represents an estimated -2.51 percent change in total regional sales volume according to the RECONS model, an impact that is approximately 0.65 percentage points less than projected by EIFS; however, it is estimated that gross economic impacts at the state level would be greater. Extrapolating from sales volume numbers presented in the RECONS model, state tax revenues would decrease by approximately $20.86 million as a result of the loss in revenue from sales reductions, which would be $4.71 million more in lost state sales tax revenue than projected by the EIFS model. Regional income is projected by RECONS to decrease by 5.23 percent, slightly more than the 4.99 percent reduction projected by EIFS. While approximately 7,100 direct Soldier and Army civilian employee positions would be lost within the ROI, RECONS estimates another 907 direct contract and service jobs would be lost, and an additional 1,008 job losses would occur indirectly from a reduction in demand for goods and services in the ROI. The total estimated reduction in demand for goods and services within the ROI is projected to lead to a loss of 8,989 jobs, or a -5.93 percent change in regional non-farm employment, which would be 0.01 percentage points less than projected by the EIFS model.

According to the EIFS, significant negative impacts to economics from loss of populations are anticipated. When assessing the results together, both models indicate that the economic impacts of the implementation of Alternative 1 would lead to a significant negative economic impact to the ROI.

Environmental Justice and Protection of Children Impacts. Force reduction would not disproportionately impact the ROI, although some population segments may be impacted more than other segments in terms of overall economic impacts. There would be some disproportionate impacts projected for minority populations, when the Proposed Action is examined at different scales. Within each affected county, the economic impacts of the action would affect all racial and ethnic groups equally. Some of the counties in the ROI, such as Muscogee, Talbot, and Russell counties have a higher proportion of minorities than the State of Georgia as a whole; however, none of the actions taken by the Army would be anticipated to have greater proportionate impacts on minority populations. The ROI has a higher minority population percentage than the state as a whole. Therefore, the impacts on the minority residents of the ROI may be disproportionately adverse at this level; however, the impacts are not expected to be substantially adverse. Low income populations may be disproportionately impacted across the ROI due to the greater proportion of low income individuals when compared to the State of Georgia as a whole.

Impacts from force reduction could impact children and children's schools depending on the distribution of students and how losses would impact local schools. Standard safety measures and applicable requirements would be implemented during demolition and remodeling activities to ensure the safety of children and prevent exposure to hazardous or toxic substances.

School Impacts. It is anticipated that there would be moderate adverse effects to school systems. Schools on-post and off-post would experience losses in enrollment. Currently none

of the counties within the ROI are over capacity, although Russell and Harris County public schools are close to their capacity (USACE, 2011). The reduction of Soldiers on Fort Benning would result in a loss of Federal Impact Aid dollars in the ROI; however, 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 school-age children for military and civilian Families. Schools receiving Federal Impact Aid dollars would be negatively impacted through monies that would no longer be received to supplement costs of schooling military children. The amount of aid a school receives is based on the number of federal students the district supports in relation to the total district student population. Total Federal Impact Aid varies each year depending on congressional appropriations, but in general has ranged from $250 to $2,000 per student (USACE, 2007).

Alternative 1 may have positive impacts in some of the school systems, particularly in Russell, Muscogee, and Chattahoochee counties where student enrollment is closer to the total schools capacity. Within these counties, implementation of Alternative 1 could lead to a reduction in class sizes and a reduction in student to teacher ratios. Alternative 1 would also reduce student enrollment at Fort Benning's on-post elementary and middle schools. In terms of special needs military children receiving support from the State of Georgia, Federal Impact Aid does not cover the full cost of these students. Alternative 1 would reduce the state economic burden for costs not covered by Federal Impact Aid for these students.

Safety and Public and Social Services Impacts. There would be no anticipated impacts to public safety resulting from implementation of Alternative 1, as all applicable regulations and Memoranda of Understanding would continue to be implemented.

4.1.12 Energy Demand and Generation

4.1.12.1 Affected Environment

Fort Benning's energy needs are currently met by a combination of electric power and natural gas. As a result of utility privatization, the electric system is owned and operated by Flint Electric, and the natural gas system is owned and operated by Atmos Energy. The Energy Policy Act of 2005 (EPACT) states that each federal facility has to reduce energy consumption by 2 percent each year. Fort Benning is committed to comply with the EPACT.

Electricity. Most electric power is supplied to Fort Benning from substations that supply power to cantonment areas, Family housing, and other developed areas of the installation. Low-capacity electrical service is supplied to ranges and training areas in more remote sections of the installation.

Natural Gas. Natural gas supplies the majority of non-mobile fuel requirements at the installation. Propane is the main energy source for the training areas, and is used as backup to the natural gas supply. A peak shaving plant augments natural gas supply during high demands. Distribution lines serve the cantonment areas and Family housing.

4.1.12.2 Environmental Consequences

No Action Alternative

Minor adverse impacts are anticipated on energy demand. The continued use of out-dated, energy inefficient facilities could hinder Fort Benning's requirement to reduce energy consumption. Some older facilities may require renovations to improve energy efficiency to achieve EPACT requirements.

Alternative 1: Force Reduction (up to 7,100 Soldiers and Army Civilians)

Minor beneficial impacts on energy demand are anticipated as the installation would be better positioned to meet EPACT goals. Fort Benning anticipates an overall reduction in energy consumption with the loss of a ABCT and the realignment of tenant units to occupy recently constructed, energy-efficient facilities. Fort Benning anticipates that older, energy inefficient facilities would be demolished. Some utility infrastructure may be demolished or no longer utilized in association with building demolition.

4.1.13 Land Use Conflicts and Compatibility

4.1.13.1 Affected Environment

Fort Benning covers approximately 182,000 acres in portions of Muscogee, Chattahoochee, and Russell counties. Fort Benning training lands consist of drop zones, landing zones, dudded and non-dudded impact areas, ranges, and maneuver areas. Maneuver areas are throughout the installation, and landing and drop zones are scattered throughout.

Land use conflicts and compatibility issues result from encroachment by the surrounding communities. Land uses immediately adjacent to the installation consist of residential, agricultural and timber, industrial, and open space. Residential encroachment adjacent to the installation causes concern due to potential incompatibility. Communities near Fort Benning are required by the State of Georgia to coordinate with Fort Benning on any proposed zoning decisions for land that is within 3,000 feet of the installation (Georgia Code 36-66-6). The decision-making process enables zoning changes to be compatible with nearby military land use.

Fort Benning produces various impacts that can affect the quality of life in surrounding communities. Examples of these impacts include smoke from prescribed burns, the risk of an aircraft accident, and noise from small and large arms firing. To assist the communities in the land use zoning decisions, the Joint Land Use Study (JLUS) describes the land use and NZs that the Army uses to estimate the impacts from encroachment (The Valley Partnership, 2008). Through JLUS, the installation closely works with the community to develop cooperative approaches for reducing adverse impacts of conflicting land uses.

The Army also addresses encroachment issues and promotes natural resource conservation through the Army Compatible Use Buffer (ACUB) program. An implementation strategy of the ACUB program is to acquire conservation easements or other land interests that prohibit incompatible development in perpetuity. While the ACUB program prohibits urban development, it accommodates compatible uses such as farming and forestry that do not pose a risk of encroachment to installation training activities. The ACUB program also expands conservation of natural resources, and management of threatened and endangered species to properties outside of Fort Benning.

Lands that are not used for training at Fort Benning are used to support cantonment functions. Approximately 8,850 acres, main post is the largest and most developed of the cantonment areas. It includes the MCoE and Garrison Headquarters, Infantry and Armor Schools, Cuartels barracks complex, Martin Army Community Hospital, Post Exchange, Commissary, and various Family housing areas. Lawson Army Airfield is located in the southernmost portion of main post. The areas of main post adjacent to the Chattahoochee River and Upatoi Creek are largely green space. Family housing and outdoor recreation dominate the northern portion of main post. The densely developed core of main post includes unaccompanied personnel housing, community facilities, training facilities, supply and storage, maintenance, industrial, and medical land uses.

There are three additional distinct cantonment areas on Fort Benning as discussed below:

- ***Harmony Church.*** The Harmony Church cantonment area lies 5 miles southeast of main post and south of U.S. Highway 27. Harmony Church has seen the greatest change and growth with the establishment of the MCoE. Harmony Church is now the home of the Armor School, Ranger Training Brigade, the 81st Regional Readiness Command Equipment Concentration Site, 197th Infantry Brigade, and the Continental U.S. Replacement Center. The 775-acre Harmony Church cantonment area supports a diverse assortment of facilities including unaccompanied housing, vehicle maintenance shops, training, motor pools, administration buildings, and outdoor recreation land uses.
- ***Kelley Hill.*** The 400-acre Kelley Hill cantonment area is located 3 miles east of main post. Current land use, which is fairly concentrated, includes unaccompanied personnel housing, community, and maintenance facilities. Kelley Hill is the current command and control center for the 3-3rd ABCT, which is the only ABCT stationed on Fort Benning. The 3-3rd ABCT consists of a Brigade Headquarters and six battalions: two combined arms Battalions, one Reconnaissance Squadron, one Field Artillery Battalion, one Brigade Special Troops Battalion, and one Brigade Support Battalion and is manned with approximately 3,750 Soldiers).
- ***Sand Hill.*** The 2,510-acre Sand Hill cantonment area is located 4 miles northeast of main post. Land use in this cantonment area includes Family housing, unaccompanied personnel housing, training, and community facilities.

4.1.13.2 Environmental Consequences

No Action Alternative

Fort Benning anticipates less than significant (moderate adverse) impacts to land use compatibility. With the current operational tempo of live-fire and night-time training events, the encroachment of communities along Fort Benning's boundary could cause conflicts in land use. This conflict is primarily due to noise generated by training exercises and the proximity of sensitive noise receptors as discussed in Section 4.1.5. Land use conflicts also are caused by prescribed burning which can generate smoke and particulate matter that is not compatible with some adjacent land uses. Prescribed burning is required for training area sustainment and to maintain RCW habitat. Fort Benning's ACUB and JLUS programs attempt to mitigate these potential impacts to the surrounding communities.

Within the installation boundary, cantonment areas and training lands have been planned in a logistical manner to support the training mission and Soldier needs. With the recent actions of BRAC/Transformation and the establishment of the MCoE, current availability of land for new construction and development of training areas is minimal.

Alternative 1: Force Reduction (up to 7,100 Soldiers and Army Civilians)

Minor adverse effects to land use are anticipated with a reduction in Soldier strength. A decrease in Soldier strength would not change land use on post. It is anticipated that the frequency of large arms firing event and night-time training exercises would decrease; however, current noise contours would not be expected to change. Fort Benning would continue the JLUS and ACUB programs to minimize potential land use conflicts between training on post and the surrounding community.

4.1.14 Hazardous Materials and Hazardous Waste

4.1.14.1 Affected Environment

At Fort Benning, hazardous materials and hazardous waste are subject to applicable RCRA regulations. This includes the use, storage, transport, and disposal of hazardous materials and wastes. Through the combined efforts of several offices at Fort Benning, programs have been established to control the entry of hazardous substances to the installation; to safely manage their handling and transportation within the installation; to inform military and civilian employees of their dangers; to minimize the risk of human exposure and release to the environment associated with these substances; and to dispose of these substances in an environmentally sound manner when they are no longer useful (USACE, 2007).

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. Toxic substances commonly occurring on Army installations include asbestos, LBP, PCBs, and radon. Routine operations across the installation generate a variety of hazardous wastes, including various solvents; paints; antifreeze; aerosols; contaminated filters, rags and absorbents; weapon cleaning patches and sludges; and some items managed as universal wastes, such as used batteries and fluorescent light tubes (USACE, 2007). Fort Benning has numerous underground storage tanks (USTs) and above ground storage tanks across the installation, primarily in the cantonment areas.

Fort Benning has several plans in place to help manage hazardous materials and waste including an installation Spill Contingency Plan; Spill Prevention, Control, and Countermeasures (SPCC) Plan; Stormwater Pollution Prevention Plan (SWPPP); and Hazardous Waste Management Plan (HWMP). Fort Benning has no active municipal solid waste landfills; however, there are several closed landfills on post. There is one inert landfill used for storm generated debris, such as trees and brush.

4.1.14.2 Environmental Consequences

No Action Alternative

Minor adverse impacts would be anticipated are under the No Action Alternative. The MCoE would continue the use and generation of hazardous materials and wastes on Fort Benning (e.g., motor pools and military equipment requiring maintenance) in accordance with all applicable laws, regulations and plans. Types and quantities of hazardous wastes generated have been accommodated by the existing hazardous waste management system. Due to the higher number of Soldiers and support activities as a result of this alternative, the potential for spills is higher than that of Alternative 1.

Alternative 1: Force Reduction (up to 7,100 Soldiers and Army Civilians)

Minor adverse impacts would be anticipated as a result of the implementation of Alternative 1. It is also anticipated that Fort Benning would decrease its storage and use of hazardous materials that are used during training exercises. Hazardous wastes generated would decrease in volume as vehicle and equipment maintenance activities decrease with a decrease in Soldiers and civilians. Due to the reduced numbers of ABCT Soldiers and support activities, the potential for spills would be somewhat reduced during training and maintenance activities. Waste collection, storage, and disposal processes would remain mostly unchanged, although the quantities may be reduced. There may be the potential for a short-term increase in solid and hazardous waste generation resulting from building renovation or demolition of vacated facilities; this may include removal of above ground storage tanks or USTs. Fort Benning would

minimize any negative impacts by following all applicable laws, regulations and Fort Benning plans.

4.1.15 Traffic and Transportation

4.1.15.1 Affected Environment

Fort Benning is located in the western part of Georgia and the eastern part of Alabama. Local communities include Columbus, Georgia and Phenix City, Alabama. Major road routes in the region include Interstate (I) 185, and U.S. Routes 27, 280, and 431, and Georgia State Routes 1 and 26.

4.1.15.2 Environmental Consequences

No Action Alternative

Minor adverse impacts are anticipated under the No Action Alternative. Traffic studies prepared for analysis in Fort Benning's BRAC and MCoE EIS identified LOS deficiencies within the installation. Mitigation measures to widen roads, improve intersections, and encourage use of travel demand management tools were implemented to minimize significant impacts to traffic and transportation both on and off post. 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: Force Reduction (up to 7,100 Soldiers and Army Civilians)

Minor beneficial impacts are anticipated on traffic and transportation systems. With the departure of Soldiers, civilians, and their Family members, Fort Benning anticipates a decrease in traffic congestion and improvements in LOS on the installation and neighboring communities. The population decrease may have a minor reduction of risk to the safety of motorist, pedestrians and bicyclists.

4.1.16 Cumulative Effects

The ROI for the cumulative analysis consists of the Columbus GA-AL MSA; Talbot, Stewart and Webster counties, Georgia, and Lee County, Alabama. The geographic extent of the ROI includes all counties surrounding or nearby Fort Benning that may be impacted by regional projects listed below. Cumulative effects include Army-related activities at Fort Benning and community activities in the ROI. The effects of past and present actions were included in the discussion of the affected environment and their impacts were taken into account under the direct impacts discussion.

Reasonably Foreseeable Future Projects on Fort Benning

- Training Land Expansion Program to acquire up to 82,800 acres of additional training lands near Fort Benning (approximately FY 2012 to 2017);
- Relocation of the ARC field training off the current Fort Benning footprint (planned completion by FY 2016);
- Construction of a ground-source community loop heat transfer utility system on Sand Hill (proposed for FY 2013);
- Construction of a new Army Lodge on main post (proposed to begin in FY 2012), and implementation of the Army's Privatization of Army Lodging (PAL) at Fort Benning (proposed for no earlier than FY 2014); and
- Implementation of maneuver training improvements (low-water crossings, stream bank hardening, and other projects) within the GHMTA.

Reasonably Foreseeable Future Projects outside of Fort Benning

- Columbus and Phenix City Riverwalk Expansion;
- Benning Technology Park, located adjacent to I-185 and Victory Drive, to provide office space and research and development centers for information technology and defense contractors;
- 14th Amendment Highway Corridor which is a Department of Transportation Study of a proposed highway to extend from Augusta, Georgia to Natchez, Mississippi, servicing intermediate cities of Macon and Columbus, Georgia, and Montgomery, Alabama. General urban growth; which includes several small housing and strip mall development projects, and rehabilitating existing structures to support expanding surrounding communities; and
- Various road improvement projects as identified in the Transportation Improvement Program for Columbus and Phenix City.

Potential incremental effects from the proposed force realignment and reduction at Fort Benning are anticipated to have a significant cumulative, adverse effect to regional economics, and negligible effects to other socioeconomic factors (including environmental justice and protection of children). The community has planned for growth associated with moving the Armor School to Fort Benning and establishing the MCoE. The adjustment to a substantial loss of personnel likely would involve the re-evaluation of proposed projects. The renovation and demolition of Fort Benning facilities that would no longer be utilized would have only a very minor and temporary beneficial impact on regional economics. No current or future projects for growth have been identified that would off-set the long-term, adverse effects from the partial loss of direct and indirect economic activity that Fort Benning currently provides the entire region.

Fort Benning would also re-evaluate the need for land acquisition as proposed in the TLEP. With the loss of an 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 DEIS 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 DEIS, 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.

The potential cumulative effects on the natural environment resources would be reduced to minor adverse or beneficial as a result of the implementation of Alternative 1. Fort Benning would coordinate with USFWS to determine how the changed impacts to threatened and endangered species, especially the RCW, may result in changes in training and management actions. Fort Benning would re-evaluate the need to relocate the ARC training off post and would coordinate with USFWS on options.

If the communities in the Fort Benning region scaled back, fewer environmental impacts may be anticipated. Demolition or renovation of facilities on post and in the community are not anticipated to cause any negative cumulative impacts and instead may result in more energy efficiencies for regional beneficial cumulative impacts.

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

4.2 FORT BLISS, TEXAS

4.2.1 Introduction

Fort Bliss was the home of the Air Defense Artillery Center of Excellence and was responsible for air defense artillery training of U.S. Soldiers and various allied nation Soldiers until the BRAC 2005 Commission recommended the Center's relocation to Fort Sill, Oklahoma. BRAC 2005 legislation directed the realignment of the 1st Armored Division to Fort Bliss. Fort Bliss has approximately 1.1 million acres of land. While most of the installation's training areas and ranges (over 80 percent) are located in New Mexico, the cantonment area is located in Texas immediately adjacent to the City of El Paso. El Paso 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 Fort Bliss Doña Ana gunnery ranges. Las Cruces is separated from Fort Bliss by the Organ Mountains. The Organ Mountains, on the west side of Doña Ana Ranges provide a natural noise barrier effectively containing noise in that part of the range. 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.

1st Armor Division and mobilization training activities are conducted on over 30 live-fire ranges throughout the installation. Fort Bliss has three major range complexes: Doña Ana, Orogrande, and Meyer. The latter two are located in the McGregor Range area. Assigned units include ABCT, Light IBCT, a SBCT, and Aviation, Fires, and SUSBDEs. Large caliber weapons systems include M1 tanks, Bradley Fighting Vehicles, 155mm Self-Propelled Howitzers (tracked), 120mm mortar carriers, Strykers, Apache helicopters, and air defense systems. The live-fire ranges support training with grenades, mortars, artillery, tank fire, anti-tank rockets, guided missiles, and high explosive demolitions. These activities occur primarily at either the Doña Ana Range Complex or at Orogrande Range Complex; however, demolitions occur at the Meyer Range Small Arms Complex (SAC). The Fort Bliss Training Complex offers a variety of terrain and environments for off-road vehicle maneuver, and supports force-on-force maneuvers and live-fire training (Figure 4.2-1).

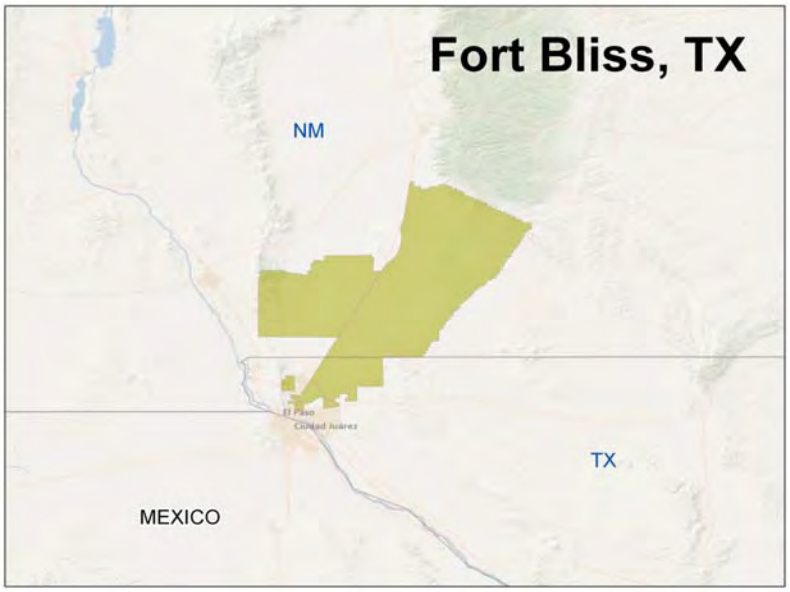

Figure 4.2-1. Fort Bliss

4.2.1.1 Valued Environmental Components

For alternatives the Army is considering as part of Army 2020 force structure realignments, Fort Bliss does not anticipate any significant adverse impacts as a result of the implementation of Alternative 1 (Force reduction of up to 8,000 Soldiers and Army Civilians) or Alternative 2 (Installation gain of up to 3,000 Soldiers) with one exception. While significant impacts from Alternative 1 are not anticipated with regard to employment, income, or sales volume in the ROI, a significant impact to the population is anticipated as a result of the implementation of Alternative 1. Table 4.2-1 summarizes the anticipated impacts to VECs for each alternative.

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

Valued Environmental Component	No Action Alternative	Alternative 1: Force Reduction of up to 8,000	Alternative 2: Growth of up to 3,000
Air Quality	Minor	Beneficial	Minor
Airspace	Minor	Minor	Minor
Cultural Resources	Negligible	Minor	Less than Significant
Noise	Negligible	Beneficial	Minor
Soil Erosion	Minor	Beneficial	Minor
Biological Resources	Negligible	Beneficial	Minor
Wetlands	Negligible	Negligible	Negligible
Water Resources	Minor	Beneficial	Less than Significant
Facilities	Negligible	Negligible	Negligible
Socioeconomics	Negligible	Significant	Beneficial
Energy Demand and Generation	Negligible	Beneficial	Minor
Land Use Conflict and Compatibility	Minor	Minor	Minor
Hazardous Materials and Hazardous Waste	Minor	Minor	Minor
Traffic and Transportation	Significant but Mitigable	Beneficial	Significant but Mitigable

4.2.1.2 Valued Environmental Components Dismissed from Detailed Analysis

For the VECs discussed in this section below, no more than a beneficial or negligible impact would be anticipated. Therefore, these VECs are not being carried forward for detailed analysis, as no potential for significant impacts exists.

- ***Wetlands.*** Fort Bliss contains approximately 1,170 miles of drainage. The majority of these drainages are found in the northeast, central, and southeast portions of the

McGregor Range. The vast majority of arroyo-riparian drainages on Fort Bliss do not qualify as jurisdictional wetlands by the USACE (USACE, 2007).

Minimal (very low) impact is anticipated to wetlands as a result of the implementation of each alternative. Because of the lack of jurisdictional wetlands and in place restrictions to training activities in riparian areas, additional or reduced training activities associated with all of the alternatives would have little to no impact on wetlands. Activities associated with the increase in Soldiers and their Families within the cantonment area would also have no impact to wetlands.

- ***Facilities.*** The main cantonment area is the urbanized portion of Fort Bliss, and has been 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 is composed of ground transportation, utilities, energy, and communication systems that are located in the installations base camps and training areas.

  The impacts of the Proposed Action on utilities, energy, and communications are primarily related to projected increases in population on and off post. These were analyzed by estimating per unit consumption on generation rates using the most recently available data, and then estimating how total consumption or generation rates would change with the changed population. The increased consumption and generation were then compared with the ability of existing infrastructure to handle those changes.

  Negligible impacts are anticipated for all alternatives. Fort Bliss could presumably benefit from the ability to demolish outdated, inefficient facilities as a result of the implementation of Alternative 1, and has the buildable space and facilities capacity to accommodate growth as a result of Alternative 2.

Fort Bliss anticipates that the implementation of any of the alternatives would result in negligible impacts for those VECs discussed above. The following provides a discussion of the VECs requiring a more detailed analysis, as they are anticipated to have the potential of a higher level of impact as a result of the implementation of the Proposed Action alternatives.

4.2.2 Air Quality

4.2.2.1 Affected Environment

At Fort Bliss, the ROI for air quality includes Doña Ana and Otero counties in New Mexico and El Paso County in Texas. El Paso County, including Fort Bliss, is classified as being in attainment for all criteria pollutants. The exception to this is the City of El Paso which has been designated as "moderate" nonattainment for carbon monoxide (CO) and particulate matter smaller than 10 micrometers (PM_{10}). Otero and Doña Ana counties are designated as being in attainment for all criteria pollutants though Doña Ana County has had sporadic violations of the PM_{10} standard. These routinely occur in the western part of the county and are usually the result of high winds lifting dust into the air (i.e., dust storms). Fort Bliss is a party to the Natural Events Action Plan that addresses violations of the PM_{10} caused by natural events by exempting the PM_{10} exceedances during wind storms or other "naturally occurring" events.

Since Fort Bliss is located in attainment areas in both Texas and New Mexico, there is no requirement to conduct a conformity analysis. The closest "PSD Class I Area" is 45 miles to the southeast and is not anticipated to be affected by the installations activities so the facility has no requirements under this provision. Texas issued a federal operating permit to Fort Bliss in January 2007. Emissions of nitrogen oxides (NO_x) and CO are the key pollutant triggering the

installation as a major source. Fort Bliss is not considered a major source on the New Mexico side of the installation so there is no requirement for an air quality permit.

4.2.2.2 Environmental Consequences

No Action Alternative

Although there would continue to be minor short- and long-term fugitive dust impacts from training, these impacts would not exceed threshold levels. Permit conditions would continue to be monitored and met, but no changes to emission sources are anticipated, other than those mandated by maintenance, replacement, or elimination of sources as they age or are removed from service.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

There would be an anticipated beneficial impact to regional air quality from reduced stationary and mobile emission sources. There would be less combustion and generation of NAAQS pollutants and Hazardous Air Pollutants (HAPs) associated with military training. In addition, there would be less fugitive dust generated from fewer training events. It is assumed that the increases in air emissions are directly proportional to the increase in population at Fort Bliss. In general, combustion and fugitive dust emissions would produce localized, short-term elevated air pollutant concentrations that would not result in any sustained impacts on regional air quality and these impacts would be reduced if Fort Bliss were to reduce its Soldier population by up to 8,000 Soldiers.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers and Army Civilians resulting from Brigade Combat Team Restructuring and Unit Realignments

Minor adverse short- and long-term adverse impacts are anticipated on air quality within the installation and surrounding communities due to the influx of approximately 3,000 additional Soldiers. Any construction-related emissions also have the potential to produce localized, short-term elevated air pollutant concentrations; however, these are not anticipated to have a major impact on regional air quality. Mobile source combustion emissions resulting from training would be widely distributed both spatially and temporally. Fugitive dust emissions remain a localized issue and measures would be taken to limit fugitive dust emissions occurring at or near the perimeter of the installation that could potentially affect the off-post community. It is anticipated that there would be increased emissions from additional equipment required to support new units (i.e., fuel storage and dispensing, boiler, and possible electric peak-shaving generators). Additionally, it is anticipated that more training and operations would occur off of established roads and tank trails. Given the wide distribution of emissions across the installation training areas, it is not anticipated that regional air quality would be result in significant impacts, or impacts that would significantly differ from the current No Action Alternative.

4.2.3 Airspace

4.2.3.1 Affected Environment

Fort Bliss also has the largest contiguous tract of virtually unrestricted airspace in the Continental U.S. at 1,500 square miles. Airspace in the region is shared by Fort Bliss, White Sands Missile Range, and Holloman Air Force Base. Biggs Army Airfield at Fort Bliss supports the 1st AD CAB. Fort Bliss is responsible for the air mission of Active and Reserve Components for training at the installation, supporting fixed- and rotary-winged operations. Fort Bliss also supports the major mobilization and deployment mission at Fort Bliss. The runway is 13,554 feet long by 150 feet wide and is capable of handling traffic from C-5 Galaxies and B-52s. There is also 1,000 feet of asphalt overrun at the north end, and more than 7 miles of taxiways.

Aviation activities occur at Biggs Army Airfield and military training activities on McGregor Range and Doña Ana Range–North Training Areas. Biggs Army Airfield mission activities occur within the airspace terminal area under the control of the FAA-operated El Paso Approach Control facility at El Paso International Airport. The Approach Control Area contains elements of controlled airspace, uncontrolled airspace, Restricted Area SUA, and Military Training Routes that are used for military operations by the Army and other DoD services. There are several public use and private airports surrounding Fort Bliss' MOA. Fort Bliss is currently working with the FAA to adjust its MOAs to support aviation and UAS training.

4.2.3.2 Environmental Consequences

No Action Alternative

Minor impacts would result under the No Action Alternative. The installation would continue to pursue adjustment of its existing airspace to better support aviation and UAS training. This alternative would not produce any additional conflicts with overlying restricted airspace.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Impacts as a result of the implementation of Alternative 1 would be minor. The use of airspace would not change substantially with the loss of ground units as a result of this alternative. Aviation and UAS would continue to require airspace to support training. The implementation of Alternative 1 would not result in a decreased requirement for airspace, but rather result in lower utilization and requirements for activation of existing SUA. Use of existing airspace would continue to be managed through scheduling and balancing training requirements with airspace availability.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

There would be an anticipated minor impact to airspace as a result of the implementation of Alternative 2. The use of airspace would not change significantly and additional airspace would not be required; however, scheduling, activation, and utilization of existing SUA would increase. The increased operations could cause some minor impacts to air traffic flow within the National Airspace System around Fort Bliss. Current use of airspace is not anticipated to change. Use of existing airspace would continue to be managed through scheduling and balancing training requirements with airspace availability.

4.2.4 Cultural Resources

4.2.4.1 Affected Environment

There are two NRHP-eligible historic districts on Fort Bliss. The installation contains 405 historic buildings and 12 historic landscapes. Over 800,000 acres have undergone archaeological survey. There are over 19,000 recorded archaeological sites on Fort Bliss property. The largest curatorial facility in the region is located on Fort Bliss and is capable of housing 35,000 cubic feet of materials. Due to the history and desert environment of the area, there is a higher incidence of readily visible surface finds than in the eastern U.S. Historic buildings, both pre-1956 and Cold War era, have been identified and evaluated for NRHP-eligibility.

4.2.4.2 Environmental Consequences

No Action Alternative

Impacts to cultural resources from the No Action Alternative would be negligible. Activities with the potential to affect cultural resources are monitored and regulated when anticipated through a variety of preventative and minimization measures.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Minor impacts would be anticipated as a result of the implementation of Alternative 1 at Fort Bliss. Removal of temporary facilities through demolition and the Facility Reduction Program (FRP) would have a very low potential for adverse effects to historic buildings and/or archeological resources. Removal of outdated infrastructure has the potential to affect historic structures, but such actions to demolish older structures would be conducted in accordance with procedures agreed to by Fort Bliss and the State Historic Preservation Officer (SHPO) to ensure compliance with the Section 106 of the NHPA and as required by 36 CFR 800 as required. If less Soldiers allow for some older, inefficient facilities to be demolished, a low potential exists for unique or potentially eligible historic structures to be affected as a result of this action; however, if such an action is proposed, full consultation with the SHPO would occur, as required.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support resulting from Brigade Combat Team Restructuring and Unit Realignments

This level of growth on Fort Bliss is anticipated to have a less than significant impact to cultural resources. Measures are in place to accommodate training to prevent adverse impacts to cultural resources. The types of training conducted by the additional Soldiers would not change, though some training areas on Fort Bliss might be used with more frequency or intensity compared with current baseline conditions. Fort Bliss would continue to follow the procedures it has in place, to ensure regulatory compliance with the NHPA and to protect cultural resources. The increase of range usage would potentially increase the use of bivouac areas that are adjacent to ranges which could lead to an increased loss of some cultural resources through small-scale ground disturbance activities. An increase in training would be anticipated to reduce slightly the installation's capabilities of monitoring archaeological sites for condition and/or violations through competition for range access.

Any increase in training has the potential to further limit access to historic properties. Access to sacred sites under the Sacred Sites Act would not be anticipated to be affected by implementation of Alternative 2. Fort Bliss would continue to work with local Tribes to ensure access to sacred sites. Mechanisms are currently in place to accommodate scheduling and access to all of these cultural resources by the public and have historically been minimally impacted by past training surges and fluctuations.

In general, some historic buildings may be impacted by the additional work space required for the increase in personnel. It is possible that the additional foot and vehicular traffic would adversely impact archaeological sites. Both Combat and Combat Support Soldiers added to Fort Bliss as a result of this alternative would not likely significantly change the risk of exposure of archaeological resources. Soldiers would be engaging qualitatively in the same types of activities the existing BCTs and logistics units currently engage in, just to a slightly greater extent.

4.2.5 Noise

4.2.5.1 Affected Environment

El Paso 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 Fort Bliss Doña Ana gunnery ranges. Las Cruces is separated from Fort Bliss by the Organ Mountains. The Organ Mountains, on the west side of Doña Ana Ranges provide a natural noise barrier effectively containing noise in that part of the range. 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.

U.S. Highway 54 connects El Paso and Alamogordo and runs through the installation, separating McGregor Range area from the installation's Doña Ana Training Complex. I-10 connects El Paso and Las Cruces. Recent land trends along the I-10 corridor traveling towards Las Cruces have the potential for future residential growth. Given the potential for off-post noise in some areas adjacent to I-10, Fort Bliss is continuing to work with Doña Ana County officials to encourage compatible development in those area, as well as the area adjacent to Chaparral, New Mexico.

1st Armor Division and mobilization training activities are conducted on over 30 live-fire ranges throughout the installation. Fort Bliss has three major range complexes: Doña Ana, Orogrande, and Meyer. The latter two are located in the McGregor Range area. Assigned units include ABCT and IBCT, an SBCT, and Aviation, Fires, and SUSBDEs. Large caliber weapons systems include M1 tanks, Bradley Fighting Vehicles, 155mm Self-Propelled Howitzers (tracked), 120mm mortar carriers, Strykers, Apache helicopters, and air defense systems. The live-fire ranges support training with grenades, mortars, artillery, tank fire, anti-tank rockets, guided missiles, and high explosive demolitions. These activities occur primarily at either the Doña Ana Range Complex or at Orogrande Range Complex; however, demolitions occur at the Meyer Range SAC.

The Army measures noise levels in two ways: day-night average levels (DNL) and peak noise levels. DNL describes the average daily average over a period of 1 year. Peak noise levels measure maximum noise levels from a single event. Since peak noise levels are not cumulative, additional units or Soldiers using ranges would not change the peak noise contours as long as the types of weapons remain the same. On the other hand, DNL measures cumulative noise in three NZs. Per standards established by the U.S. Army Public Health Command (PHC) (formerly the Center for Health Promotion and Preventive Medicine), NZ lll noise should not go off the installation and is incompatible with nearly all off-post land uses. NZ ll is incompatible with off-post uses such as residences, schools, and medical facilities. The LUPZ, in NZ l is an area that reaches NZ ll levels during periods of increased operations.

In February 2007 the PHC analyzed the potential for off-post noise based on the stationing of the 1st Armor Division at Fort Bliss with multiple ABCT and other brigades such as Aviation and Fires (U.S. Army, 2007). That noise analysis was subsequently updated in December, 2008 for Grow the Army EIS. It analyzed additional Soldiers and units to include IBCT and SBCT. Based on those analyses, the NZ lll contour for Fort Bliss does not extend beyond the installation boundary for either small or large caliber live-fire weapons. NZ ll DNL levels are projected to extend beyond the installation boundary in two locations as a result of gunnery and artillery firing on the Doña Ana Range Complex. NZ ll peak levels are also projected to extend off the installation adjacent to Meyer Range in the southeast as a result of the demolition range. The community most affected by off-post noise is Chaparral, New Mexico where the Army purchased an easement on 5,200 acres of New Mexico State Trust land to mitigate future

impacts. The LUPZ also is projected to extend off the installation into northeast El Paso and into El Paso County southeast of the installation.

At Biggs Army Airfield NZ lll is contained entirely within the installation. NZ ll only extends beyond a portion of the installation boundary running north and is essentially a flight track, where aircraft using Biggs Army Airfield are still gaining altitude. The LUPZ and NZ ll at Biggs Army Airfield does extend over portions of the cantonment area and main post, into Family housing areas. Noise from operations at the El Paso International Airport extends onto Fort Bliss and has the potential to affect development to the east of Biggs Army Airfield.

4.2.5.2 Environmental Consequences

No Action Alternative

Negligible impacts from noise are anticipated under the No Action Alternative. The acoustic environment of Fort Bliss would continue to be affected by small- and large-caliber weaponry, artillery, and aircraft overflight. Other activities, such as ground maneuver training and exercises resulting in noise created by personnel and vehicles, would continue to contribute noise on Fort Bliss, to the same levels and intensity as historically experienced.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Impacts from noise are anticipated to be negligible and slightly beneficial. Day/night average noise levels would likely decrease and would remain well within the levels and contours previously projected by the PHC (U.S. Army, 2007). Existing ranges would still be utilized for firing the same types of weapons systems and conducting the same types of training. As a result of the implementation of Alternative 1; however, Fort Bliss would have an anticipated reduction in the frequency of noise generating training events. Fort Bliss' remaining BCTs would continue to conduct maneuver and live-fire training in the field; however, the number of weapons qualifications and maneuver training events could be anticipated to decrease in proportion with the number of Soldiers stationing at the installation. A reduction of 8,000 Soldiers would have no impact on the weaponry being utilized on existing ranges and would not be anticipated to change to current noise contours nor change the risk potential for noise complaints. The current frequency and intensity of aviation training activities, a major contributor of off-post noise at the installation, would not be anticipated to change, as aviation units would not be impacted by these decisions.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

Minor long-term adverse impacts are anticipated and are not likely to exceed those previously projected or analyzed by PHC in 2007. There would likely be a minor increase in small arms weapons training which would not generate any new noise contours on the installation, nor is it anticipated to be heard at off-post locations. Small arms firing occurs away from the installation boundary at the Doña Ana and Orogrande Range complexes and does not currently present any significant impacts to off-post residential areas or sensitive noise receptors.

Residential communities located south of Doña Ana Range could experience a slight increase in day/night average noise levels from additional large caliber weapons fire such as tanks and artillery (if included with additional Soldiers). As home station operational tempo increases, residential areas near the installation may experience increased ambient noise levels, but noise contours previously projected would not likely change nor would the Proposed Action result in changes to training or installation land use. If the Proposed Action were implemented at Fort Bliss, site-specific NEPA analysis might be required, depending on whether new ranges and facilities would be needed to support stationing activities and where such facilities would be

located. Given previous noise analyses for BRAC and Grow the Army, the IONMP would not need updating.

4.2.6 Soils

4.2.6.1 Affected Environment

Most of Fort Bliss is located in a large intermontane basin formed by the Tularosa and Hueco basins of southern New Mexico and west Texas. The basins lie between the Franklin and Organ mountains to the west, and the Sacramento and Hueco mountains to the east. Elevation on the basin floor is approximately 3,800 feet above sea level, rising to more than 8,000 feet in the Organ Mountains. The region is part of the Basin and Range Province (Collins and Rainy, 1994) of the western U.S., as well as the northern part of the Chihuahuan Desert (Schmidt, 1979), an interior continental desert which receives most of its rainfall during the hot summer months.

Fort Bliss has developed pedological, geomorphic, and other criteria to create ecological management units (EMU) that encompass regions with similar natural characteristics. The EMU concept helps promote better land stewardship and sustainment practices on Fort Bliss as part of the INRMP (U.S. Army, 2001). Figure 4.2-2 displays the current configuration of EMUs.

The Tularosa and Hueco basins (the Basin Aeolian EMU) comprise most of the land area of Fort Bliss. Wind-deposited (aeolian) coppice dunes anchored by mesquite and other desert shrubs, cover most of the basin floor. The dune soils are mainly Entisols, exhibiting little soil horizon development, and having formed only within the last few hundred years. Soils comprising the coppice dune fields are sands and loamy sands that are highly susceptible to wind erosion due in part to the lack of soil structural development and sparse vegetative cover. Typically underlying the coppice sand dunes is a much older (Pliocene-Pleistocene) calcrete soil up to several meters thick. The calcrete ("caliche") is a massive white calcium carbonate unit which generally has a soil texture of sandy clay loam. Where calcrete horizons are exposed on the surface or are shallowly buried, the soils are classified as Aridisols, a soil order having diagnostic subsurface soil horizons (in this case, the calcrete).

The Basin Alluvial EMU consists of silt and clay soils in low-lying playas and other depressions that are subject to occasional flooding. The basin alluvial areas are the most productive lowland areas and are valuable for wildlife habitat.

Soils on the margins of the basins are also mainly Entisols and Aridisols, and are predominantly alluvial (derived from water-deposited sediments). The Foothill/Bajada EMU consists of alluvial fans and toe slopes that border higher elevations. The texture for these alluvial soils is typically sandy loam, but the soils also contain variable amounts rock fragments eroded from the adjacent mountains. Soils in the upper elevations of the Foothill/Bajada EMU consist of shallow loamy or gravely soils atop sedimentary or igneous bedrock. Soils comprising these fan-piedmont areas of Fort Bliss are susceptible to gully and sheet erosion from running water and less prone to wind erosion.

The Otero Mesa EMU, in the eastern part of Fort Bliss, contains deep, well-drained, sandy and loamy soils. The region is an elevated plateau that receives more rainfall than the lower elevation basins to the west, resulting in grassland mixed with shrubs.

The Hueco, Organ, Franklin and Sacramento mountains EMUs consist of higher elevation shallow-to-bedrock soils in mountain valleys that support brushy or woodland vegetation. The mountain EMUs consist of a complex mix of soils with a variety of parent materials forming in complex terrain. Water erosion is a potential hazard if plant cover is disturbed.

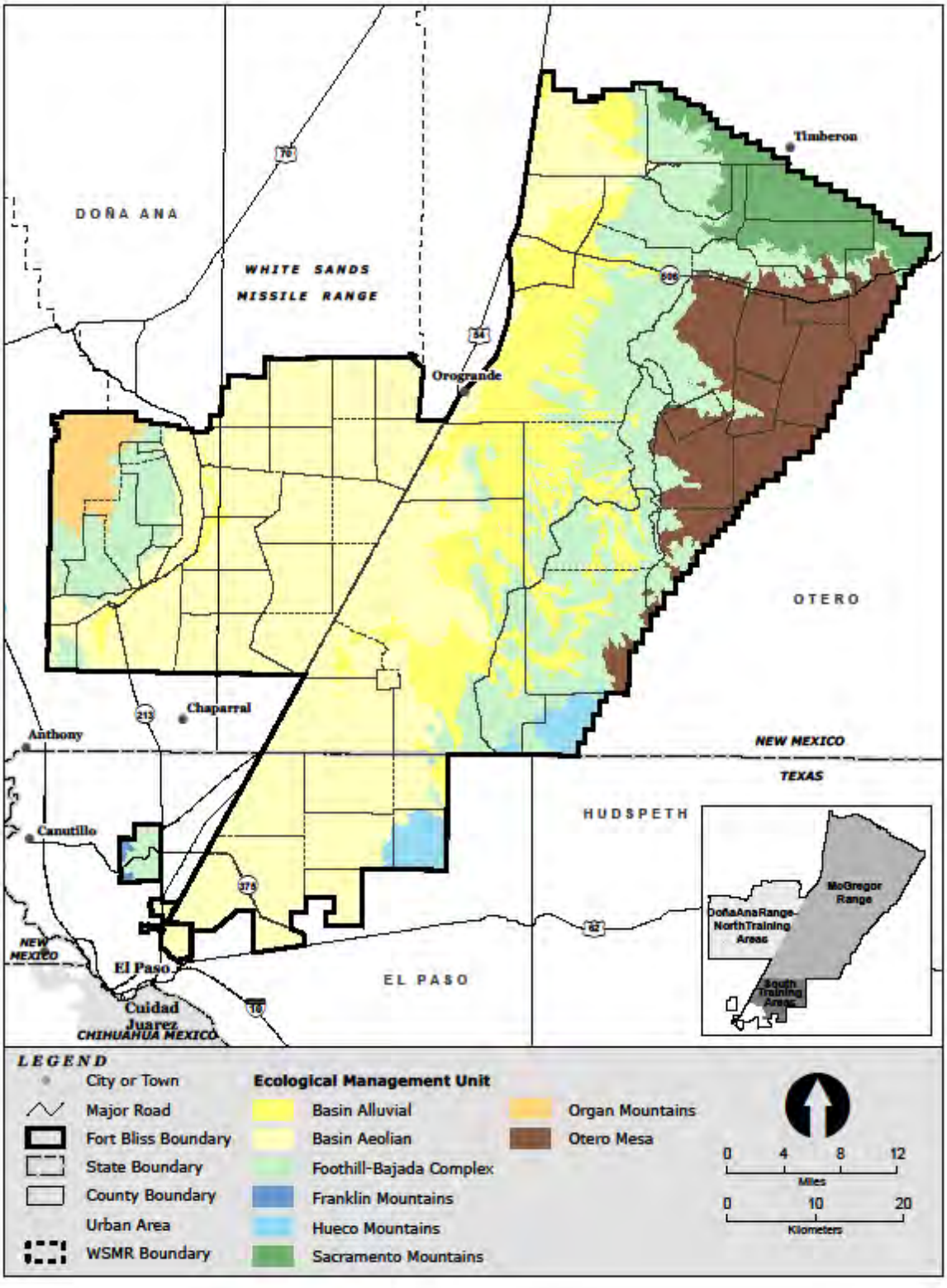

Figure 4.2-2. Map of Fort Bliss Ecological Management Units

Physical and microbiotic soil crusts are found in certain areas throughout Fort Bliss, except for active dune fields. Physical crusts result from evaporation of water and re-precipitation of soluble minerals. Microbiotic crusts form from the activity of soil microorganisms as a dark, cohesive surface layer. Both types of crusts tend to stabilize the soil surface and protect underlying soils from erosion.

More detailed information on Fort Bliss soils can be found in the Fort Bliss Soil Survey (USDA, 2004) which includes physical, chemical, and engineering properties, as well as limitations for military uses and ecological site descriptions and classifications. The soil survey contains data characterizing current conditions of soils, vegetation, and overall ecology, which may be useful in planning military actions and selecting sites for construction or training purposes.

4.2.6.2 Environmental Consequences

No Action Alternative

Minor adverse impacts are anticipated under the No Action Alternative. Fort Bliss would continue its infantry and mechanized 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. The installation's ITAM program conducts monitoring, rehabilitation, and maintenance and repair on areas of high use such as drop zones, artillery firing positions, observation points, and ranges.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

The reduction of up to 8,000 Soldiers from Fort Bliss would lead to minor beneficial impacts. The implementation of this alternative would lead to a marginal decrease in wind and water erosion and an overall lessening of soil impacts. With fewer Soldiers on the installation, soils in the training areas would potentially have more opportunity to recover and allow crusts to regenerate. Fewer military vehicle traverses would lead to marginally less fugitive dust released into the air and also slightly reduce the potential for soil compaction. This alternative includes the reduction of no longer needed facilities that could result in short-term adverse impacts from demolition and temporary exposure of bare soils to rain and water and wind erosion. However, these impacts would be short term in duration. Overall, there would be anticipated beneficial long-term impacts from reduced training and more opportunities for land rehabilitation and natural rest and recovery of the landscape. It is anticipated that there would be less soil erosion attributable to a reduction in training activities.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

Direct and indirect minor adverse impacts on soils would marginally increase from an additional 3,000 Soldiers using the Fort Bliss Training Complex. These effects would include surface-disturbing activities such off-road vehicle maneuvers, and the possible need for construction of additional buildings, roads, and firing ranges.

Potential effects on soils would lead to a minor increase in wind and water erosion, depending upon several factors such as the types of military units being trained, how widespread or limited (in area) the disturbance would be, and the length of time the soils would be left to recover or "rest" following disturbance. An increase in training events would result in slightly more airborne fugitive dust released, primarily through vehicle traverses on dirt roads and off-road.

Foot traffic from additional Soldier training would have minimal impact on the installation's soils. Additional tracked and wheeled military vehicle traverses during off-road maneuvers may result in a slightly greater degree of disruption to soils crusts and an increase in soil compaction in

certain areas. Soils compaction can damage or destroy soil structure and accelerate soil erosion.

The Army's ITAM program on Fort Bliss is responsible for identifying and managing soil erosion (e.g., rill and gully erosion) that is the direct result of training. This is best accomplished through a policy of monitoring and mitigation-through-design to maintain functional natural systems so as to preserve training opportunities on Fort Bliss.

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

4.2.7.1 Affected Environment

Vegetation Communities. Fort Bliss exhibits a high degree of biodiversity due to its varied topography and large size (approximately 1.1 million acres). Of the approximately 4,000 plant species found in New Mexico, an estimated 300 nonvascular (lichen, mosses, liverworts) and 1,200 vascular (ferns, fern allies, ephedras, conifers, flowering plants) species occur on Fort Bliss, with over 800 taxa in the Organ Mountains alone (U.S. Army, 2001). Plant communities on the installation range from the Chihuahuan Desert plant communities in the Tularosa Basin to Rocky Mountain conifer forests in the Organ Mountains and significant grama grasslands on Otero Mesa (U.S. Army, 2000). Otero Mesa is dominated by grassland communities. The various types of shrubland total 67 percent, while there are 31 percent grasslands, less than 1 percent woodlands, and less than 1 percent of facilities.

Fauna. The borderlands region of New Mexico and Texas is a center of biodiversity in temperate North America for birds, mammals, amphibians and reptiles (Parmenter et al., 1995; Parmenter and Van Devender, 1995). There are also numerous mammals occurring in the region, some unique to the area. In addition, the highest known arthropod diversity in North America is found in the Southwest (Danks, 1994), and several groups of arthropods have their centers of diversity for North America in the borderlands region (Parmenter et al., 1995).

Fort Bliss supports a relatively high faunal diversity as well. Approximately 335 species of birds, 58 species of mammals, 39 species of reptiles and eight species of amphibians are known to occur on Fort Bliss. Many of the birds and mammals (and a good proportion of the herpetofauna) found on Fort Bliss are those generally found in the intermountain west, with a substantial great plains influence (Parmenter et al., 1995; Parmenter and Van Devender, 1995).

Threatened and Endangered Species. Three categories of wildlife and plants with special status are included in this section:

- **Federally-Listed Threatened and Endangered Species.** The ESA provides protection to species listed as endangered or threatened. Endangered species are defined as those species that are at risk of extinction in all or a significant portion of their range. Threatened species are those that could be listed as endangered in the near future if declines in populations or available habitats continue.
- **State-Listed Threatened and Endangered Species.** New Mexico and Texas maintain their own lists of state endangered and threatened plant and animal species that have shown declines within respective states. These species may or may not be included on federal ESA lists.
- **Other-Sensitive Species.** These include federal candidates for listing, species proposed for federal listing, and state-listed sensitive species and species of concern – including those recognized as Species of Greatest Conservation Need. The USFWS also has a species of concern designation. Federal candidate species are those for which the USFWS has sufficient information on biological vulnerability and threats to

support proposals to list them as endangered or threatened, but issuance of proposed rules for listing these species is precluded by higher priority listing actions. Federal proposed species are those proposed for listing as endangered and threatened under the ESA, and for which formal ruling is in progress. Species of concern are those identified to receive attention for planning purposes under federal or state agencies. At present, none of those species receive legal protection under the ESA.

Designated Critical Habitat. "Critical habitat" is a term used under ESA to define a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat may include an area that is not currently occupied by the species but that may be needed for its recovery. Fort Bliss does not currently contain any federally-designated threatened or endangered species' critical habitat.

Fort Bliss Federally-Listed Species. Table 4.2-2 includes 57 sensitive species of flora and fauna known to occur, or having the potential to occur, on Fort Bliss. The list includes current species' federal and (or) state status and provides brief comments on known occurrence location within the installation. Because of the diversity of habitats on Fort Bliss, there is the potential that species occur that have not been identified or confirmed on post. Continued monitoring and improved documentation of Fort Bliss' natural environment ensures that sensitive species receive adequate protection in the event that a new population is discovered.

Of the 57 sensitive plant and animal species, 32 have federal special status. However, only seven species are federally-listed as threatened or endangered under ESA and one is a candidate for listing. Of these seven listed species, only the Sneed's pincushion cactus (*Coryphantha Sneedii var. Sneedii*) and Sprague's pipit (*Anthus spragueii*) are known to consistently occur on Fort Bliss. The remaining six species (Kuenzler's hedgehog cactus [*Echinocereus fendleri var. kuenzleri*], interior least tern [*Sterna antillarum athalassos*], yellow-billed cuckoo [*Coccyzus americanus*], southwestern willow flycatcher [*Empidonax trailii extimus*], piping plover [*Charadrius melodus*], and Mexican spotted owl [*Strix occidentalis lucida*]) are not known to occur; have no suitable habitat or insufficient habitat to maintain a population; or exist as rare, transitory, or seasonal migrants, and breeding is not known to occur on Fort Bliss. Surveys for the northern aplomado falcon, which has been designated as a Nonessential Experimental Population within the states of New Mexico and Arizona have observed on Fort Bliss, but only as transients.

Table 4.2-2. Sensitive Species Known to Occur or Having the Potential to Occur on Fort Bliss

Common Name	Scientific Name	Status			Known Location on Fort Bliss
		Federal	New Mexico	Texas	
Plants					
Sneed's pincushion cactus	(*Coryphantha Sneedii* var. *Sneedii*)	E	E	—	Limestone Hills, Doña Ana Range-North Training Areas.

Common Name	Scientific Name	Status			Known Location on Fort Bliss
		Federal	New Mexico	Texas	
Kuenzler hedgehog cactus	(*Echinocereus fendleri* var. *kuenzleri*)	E	E	—	Not known to occur on Fort Bliss, but is found just outside base on Lincoln National Forest. Potential habitat on extreme northern McGregor Range in the Sacramento Mountains.
Alamo beardtongue	(*Penstemon alamosensis*)	SOC	S	—	Hueco Mountains, South Training Areas.
Organ Mountains evening primrose	(*Oenothera organensis*)	SOC	S	—	Organ Mountains, Doña Ana Range-North Training Areas.
Organ Mountains figwort	(*Scrophularia laevis*)	SOC	S	—	Organ Mountains, Doña Ana Range-North Training Areas.
Standley whitlowgrass	(*Draba standleyi*)	SOC	S	—	Organ Mountains, Doña Ana Range-North Training Areas.
Desert night blooming cereus	(*Peniocereus greggii* var. *greggii*)	SOC	E	—	Desert shrublands, Doña Ana Range-North Training Areas.
Hueco Mountains rock daisy	(*Perityle huecoensis*)	SOC	—	—	Hueco Mountains, South Training Areas.
Nodding cliff daisy	(*Perityle cernua*)	SOC	S	—	Organ Mountains, Doña Ana Range-North Training Areas.
Sand prickly pear	(*Opuntia arenaria*)	SOC	E	—	Low Potential to occur on Fort Bliss.
Organ Mountains pincushion cactus	(*Escobaria organensis*)	—	E	—	Organ Mountains, Doña Ana Range-North Training Areas.
Crested coral-root	(*Hexalectris spicata*)	—	E	—	Organ Mountains, Doña Ana Range-North Training Areas.
Sandhill goosefoot	(*Chenopodium cycloides*)	SOC	—	—	Occasional in sandy, disturbed places, Doña Ana Range-North Training Areas.
Invertebrates					
Franklin Mountain talussnail	(*Sonorella metcalfi*)	—	SGCN	—	Rock talus slopes in the Franklin Mountains and possible in the Organ Mountains.
Anthony blister beetle	(*Lytta mirifica*)	SOC	SGCN	—	Not known to occur on Fort Bliss, but habitat occurs in sand dunes.

Common Name	Scientific Name	Status			Known Location on Fort Bliss
		Federal	New Mexico	Texas	
Los Olmos tiger beetle	(*Cicindela nevadica olmosa*)	SOC	SGCN	—	Not known to occur on Fort Bliss, could occur in areas of limestone soil.
Reptiles					
Texas horned lizard	(*Phrynosoma cornutum*)	—	—	T	Widespread throughout post.
Mountain short-horned lizard Biota Information System of New Mexico (BISON-M) has	(*Phrynosoma douglasii hernandezii*) *Phrynosoma hernandezi hernandezii*	—	—	T	Species occurs on McGregor Range; subspecies not recorded on post.
Gray-banded kingsnake	(*Lampropeltis alterna*)	—	E, SGCN	—	Known from Hueco Tanks State Park. Possible in Hueco Mountains of South Training Areas and on McGregor Range.
Mottled rock rattlesnake	(*Crotalus lepidus lepidus*)	—	T, SGCN	—	Species documented from the Organ Mountains; subspecies not recorded on post.
Texas lyre snake	(*Trimorphodon biscutatus vilkinsoni*)	—	—	T	Castner Range in Texas.
Birds					
Interior least tern	(*Sterna antillarum athalassos*)	E	E, SGCN	E	Not known to occur on Fort Bliss; could occur as very rare migrant at sewage lagoon on Fort Bliss.
Northern aplomado falcon	(*Falco femoralis septentrionalis*)	E[1]	E, SGCN	E	Several sightings of transient birds on Fort Bliss near Otero Mesa, McGregor Range.
Southwestern willow flycatcher	(*Empidonax trailii extimus*)	E	E, SGCN	—	Occasional migrant on McGregor Range.
Bald eagle	(*Haliaeetus leucocephalus*)	—	T, SGCN	E	Forages in Sacramento Mountains, McGregor Range; roosts on Lincoln National Forest.

Common Name	Scientific Name	Status			Known Location on Fort Bliss
		Federal	New Mexico	Texas	
Piping plover	(*Charadrius melodus*)	T	T	T	Rare migrant on McGregor Range; observed once in 1987 at sewage lagoon on Fort Bliss.
Mexican spotted owl	(*Strix occidentalis lucida*)	T	S, SGCN	T	Very rare on Fort Bliss; not known to breed on site; best potential habitat in Organ mountains, Doña Ana Range-North Training Areas.
Yellow-billed cuckoo	(*Coccyzus americanus*)	C	S	—	Uncommon migrant on Fort Bliss; lack of riparian habitat.
Sprague's Pipit	(*Anthus spragueii*)	C	—	—	Uncommon winter resident in grama grasslands on Otero Mesa.
Peregrine falcon	(*Falco peregrinus anatum*)	SOC	T, SGCN	E	Migrant and occasionally nesting in some mountains of Fort Bliss.
Mountain plover	(*Charadrius montanus*)	SOC	S, SGCN	—	Several sightings on Otero Mesa, McGregor Range.
Black tern	(*Chlidonias niger*)	SOC	S, SGCN	—	Regular migrant throughout Fort Bliss at available water sources.
White-faced ibis	(*Plegadis chihi*)	—	SGCN	T	Regular migrant at sewage lagoons on McGregor Range and playas or earthen tanks.
Northern goshawk	(*Accipiter gentilis*)	SOC	S, SGCN	—	Uncommon migrant on Fort Bliss.
Zone-tailed hawk	(*Buteo albonotatus*)	—	—	T	Uncommon migrant on Fort Bliss.
Ferruginous hawk	(*Buteo regalis*)	—	SGCN	—	Wintering and migrant species; mostly on Otero Mesa, McGregor Range.

Common Name	Scientific Name	Status			Known Location on Fort Bliss
		Federal	New Mexico	Texas	
Western burrowing owl	(*Athene cunicularia*)	SOC	SGCN	—	Occurs throughout Fort Bliss except the mountain areas; occurs in all desert shrubland and grassland vegetative communities on Fort Bliss.
Costa's hummingbird	(*Calypte costae*)	—	T, SGCN	—	Uncommon migrant in arroyo-riparian habitat on Fort Bliss.
Loggerhead shrike	(*Lanius ludovicianus*)	SOC	S, SGCN	—	Winter and breeding bird from Otero Mesa and Tularosa Basin.
Baird's sparrow	(*Ammodramus bairdii*)	SOC	T, SGCN	—	Migrates through and winters in dense grasslands primarily on Otero Mesa.
Varied bunting	(*Passerina versicolor*)	—	T, SGCN	—	Very rare on Fort Bliss.
Bell's vireo	(*Vireo bellii*)	SOC	T, SGCN	—	Occasional on Fort Bliss in heavy mesquite thickets in arroyo-riparian drainage habitats.
Gray vireo	(*Vireo vicinior*)	—	T, SGCN	—	Nests in the Organ Mountains, Doña Ana Range-North Training Areas.
Mammals					
Small-footed myotis	(*Myotis ciliolabrum*)	—	S	—	Distribution unknown.
Occult little brown bat	(*Myotis occultus*)	—	S, SGCN	—	Distribution unknown.
Fringed myotis	(*Myotis thysanodes*)	—	S	—	Reported from the Sacramento Mountains foothills, McGregor Range.
Cave myotis	(*Myotis velifera*)	—	S	—	Distribution unknown.
Long-legged myotis	(*Myotis volans*)	—	S	—	Distribution unknown.
Yuma myotis	(*Myotis yumanensis*)	—	S	—	Distribution unknown.
Townsend's pale big-eared bat	(*Corynorhinus townsendii pallescens*)	SOC	S	—	Distribution unknown.
Big free-tailed bat	(*Nyctinomops macrotis*)	—	S	—	Distribution unknown.
Spotted bat	(*Euderma maculatum*)	—	T, SGCN	T	Distribution unknown.
Townsend's pale big-eared bat	(*Corynorhinus townsendii pallescens*)	SOC	S	—	Distribution unknown.

Common Name	Scientific Name	Status			Known Location on Fort Bliss
		Federal	New Mexico	Texas	
Gray-footed chipmunk	(*Neotamias canipes*)	—	S	—	Occurs in woodland and forest habitats in the Sacramento Mountains foothills on McGregor Range.
Organ Mountain Colorado chipmunk	(*Neotamias quadrivittatus australis*)	SOC	T	—	Occurs in Organ Mountains, Doña Ana Range -North Training Areas.
Arizona black-tailed prairie dog	(*Cynomys ludovicianus arizonensis*)	SOC	S, SGCN	—	Occurs on Otero Mesa, McGregor Range.
Desert bighorn sheep	(*Ovis canadensis mexicana*)	—	E, SGCN	—	Does not occur on Fort Bliss; previously existed in Organ Mountains on Doña Ana Range-North Training Areas.

Key: C = Candidate, E = Endangered, S = Sensitive, SGCN = Species of Greatest Conservation Need, SOC = Species of Concern, T = Threatened,

[1] This species has been designated as a Nonessential Experimental Population within the states of New Mexico and Arizona, carrying 10(j) status under ESA. Thus, the species is designated as threatened within these designated geographic confines and is separated from other populations' federal listing status.

4.2.7.2 Environmental Consequences

No Action Alternative

Negligible adverse effects would occur at Fort Bliss under the No Action Alternative. 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. Units are briefed prior to each training event regarding sensitive areas on post, such as protected species habitat, and what is and is not allowed within certain areas, such as within the protective buffer surrounding sensitive species during certain times of the year.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Beneficial impacts to biological resources as a result of the implementation of Alternative 1 are anticipated. Scheduling conflicts for training area access to conduct resource monitoring would be reduced. Proactive conservation management practices would be more easily accomplished with reduced mission throughput.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

Minor adverse impacts are anticipated as a result of the implementation of Alternative 2. The increase in the number of Soldiers is less than 10 percent above the current level. The additional training would not modify military land use analyzed in the *Fort Bliss Army Growth and Force Structure Realignment EIS*; therefore, this alternative represents training types already analyzed over the same locations already analyzed (U.S. Army, 2010). While this moderate force augmentation would increase traffic in the training lands and ranges, it would

not cause significant degradation or destruction of threatened and endangered species or rare species habitats. Fort Bliss proactively manages its conservation programs within the installation's training areas. Access to training lands and ranges for the purpose of threatened and endangered species monitoring and habitat management, however, would become more difficult with increased throughput.

4.2.8 Water Resources

4.2.8.1 Affected Environment

Water Supply. The Fort Bliss main post water distribution system supplies water to the main post proper, the lower, middle, and upper Beaumont areas, the William Beaumont Army Medical Center, and the Logan Heights area. The main post can also supply Biggs Army Airfield. This line, however, is normally closed and Biggs Army Airfield produces its own water. The main post receives its water from two primary sources: The Tobin Well Field and the Pike Well Field, with a peak production of 15.8 mgd as well as water from the El Paso Water Utilities for East Bliss, the McGregor Range Camp, and portions of the main cantonment, Emergency interconnections with the City of El Paso Water Utility (EPWU) are also available.

Biggs Army Airfield Water Distribution System supplies water to the Biggs Army Airfield proper, East Biggs, and Aero Vista Housing. Water is supplied by two wells with a combined maximum capacity of 2.8 mgd. Emergency interconnection with the EPWU is also available. The East Biggs area currently receives water off of the Biggs Army Airfield Grid, but this area's primary potable water system source is from the EPWU (estimated 5.0 mgd maximum water usage).

Municipal water for the EPWU is supplied from groundwater from the Hueco and Mesilla Bolsons and surface water from the Rio Grande. EPWU drastically reduced its reliance on the pumping of the Hueco Bolson, utilizing wells in the Mesilla Bolson (41 mgd) and reliance on surface water plants, which have a combined capacity of 100 mgd. Under normal river flow conditions, the surface water plants operate seven months (mid March – mid October) during the year. Current total demand is about 120,000 acre feet per year. Per capita demand has been reduced from about 225 gallons per person per day in the 1970s to about 153 gallons per person per day in 2002. The strategies implemented in the 1980s and 1990s outlined above have resulted in reduced Hueco Bolson pumping. Due to continued concern regarding brackish groundwater intrusion into wellfield areas and to augment the supply of potable water, EPWU has constructed a desalination plant that came online in August 2007. This plant has the capacity to withdraw 34,000 acre feet per year (30.5 mgd) of brackish water from the Hueco Bolson and produce 31,000 acre feet per year (27.5 mgd) of potable water. The facility; however, currently is producing only 3.5 mgd since the demand for the entire capacity has not been reached (Reinert, 2012).

McGregor Range Camp receives potable water from the City of El Paso; water from the grid also supplies Meyer Range. According to the McGregor Range Land Withdrawal Legislative EIS, the water line from EPWU has a water supply capacity of 2,115 gpm or 3.046 mgd. Doña Ana Range Camp water is supplied by two on-site wells, with a combined maximum capacity of 700 gpm. Water for the Oro Grande Range Camp is produced by the White Sands Missile Range Current max pumping capacity is approximately 1,000 gpm. Water from the Oro Grande Range Camp is trucked to the SHORAD and Red Eye Sites on the North McGregor Range. Hueco Range Camp is supplied one well that has a capacity of approximately 250 gpm. Site Monitor is supplied by one well that has a capacity of about 130 gpm.

Wastewater. Wastewater generated at the main cantonment area flows through five connections to the City of El Paso's sewer system. This wastewater is treated by a privatized system before receiving additional treatment at the Haskell Street WWTP operated by the City

of El Paso. The Haskell Street WWTP has a treatment capacity of 27.7 mgd. Fort Bliss typically uses approximately 10.5 percent of the plant's treatment capacity.

Wastewater generated at training areas is either treated in lagoons or collected in septic tanks that flow to drain fields or dry wells.

Stormwater. MS4 consists of street curb and gutter, pipes, channels, three lift stations, and both detention and retention basins. In general, the MS4 serving the urbanized portion of the installation west of Airport Road is interconnected with the City of El Paso MS4 and has connection to the City MS4 stormwater outfalls to the Rio Grande. The Fort Bliss MS4 serving Biggs Army Airfield and East Bliss is served by street curb and gutter, pipes, channels and retention basins that have no interconnection with the City MS4. Operation of the Fort Bliss MS4 is regulated under the Texas Pollutant Discharge Elimination System (TPDES) Small MS4 General Permit and discharges from qualifying industrial activities on post are regulated under the TPDES Multi Sector General Permit. Fort Bliss also implements stormwater BMPs for the ranges in New Mexico.

4.2.8.2 Environmental Consequences

No Action Alternative

The No Action Alternative would have minor adverse effects to water resources. No change from existing conditions would occur and all construction, operation, and maintenance projects already under way have a NPDES permit (and other applicable permits) and are operating in adherence to the permit guidance. Training activities would continue, both on ranges and training lands; however, impacts to surface waters would be negligible. Fort Bliss would continue to use water resources at its current rate drawing water from current sources. To reduce impacts and increase regional water availability, Fort Bliss is currently evaluating options to upgrade the pipelines from EPWU connections and is implementing aggressive water conservation measures, policies, and technologies as part of the Army's Installation Sustainability and Net Zero conservation initiatives.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Beneficial impacts to the water supply are anticipated as a result of the implementation of Alternative 1. A loss of up to 8,000 Soldiers would reduce regional demand for potable water and would increase available wastewater treatment capacity. Any demolition disturbance over 1 acre as part of facilities reduction would require a stormwater permit, which would entail identification and implementation of mitigation strategies to reduce impacts associated with stormwater runoff during and after construction.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

Overall, less than significant impacts are anticipated as a result of the implementation of Alternative 2. Soldier increases at Fort Bliss would increase pressures put on the regional water demand, but new sources of potable water have been developed to accommodate regional growth. For example, the desalination plant can increase production if there is an increased demand due to the stationing.

There is a limited water supply and limited capacity for wastewater treatment for the region and installation, but a growth of up to 3,000 Soldiers and their dependents would fall within the installations current capacity for wastewater treatment. To reduce impacts and increase regional water availability, Fort Bliss is currently evaluating options to upgrade the pipelines from EPWU connections and is evaluating aggressive water conservation measures, policies and technologies. The increase in demand in regional potable water is actively being

addressed by the El Paso Water Utilities who have initiated a vigorous program of water conservation and reuse, purchased water rights near Dell City, and ranches in west Texas having large amounts of underground water supplies (Reinert, 2012). The Far West Texas Water Planning Group have initiated planning for long-term regional growth that include: evaluation of irrigation efficiency strategies for far West Texas; conceptual evaluation of surface water Storage in El Paso County; and groundwater data acquisition in Far West Texas (TWDB, 2011). These and other planning strategies among various city and county agencies assure that an increase of 3,000 Soldiers at Fort Bliss would have minimal impacts on the available regional supply of potable water.

Any new construction and land disturbance over 1 acre in Texas would require a stormwater construction permit which would entail identification and implementation of mitigation strategies to reduce impacts associated with stormwater runoff during and after construction. Fort Bliss also implements stormwater BMPs in New Mexico.

4.2.9 Socioeconomics

4.2.9.1 Affected Environment

The ROI consists of Fort Bliss and Doña Ana and Otero counties in New Mexico, and El Paso County in Texas. Fort Bliss is located in New Mexico and Texas. With 1.1 million acres, it is the Army's second largest installation, next to White Sands Missile Range.

Population and Demographics. The Fort Bliss population is measured in three different ways. The daily working population is 32,097, and consists of full-time Soldiers and Army civilian employees working on post. The population that lives on Fort Bliss consists of 10,322 Soldiers and an estimated 15,689 dependents, for a total on-post resident population of 26,011. Finally, the portion of the ROI population related to Fort Bliss is 53,066 and consists of Soldiers, civilian employees, and their dependents living off post.

The ROI county population is over 1.075 million. Compared to 2000, the 2010 population increased in Doña Ana, Otero, and El Paso counties (Table 4.2-3). The racial and ethnic composition of the ROI is presented in Table 4.2-4.

Table 4.2-3. Population and Demographics

Region of Influence Counties	Population 2010	Population Change 2000-2010 (Percent)
Doña Ana	210,000	+ 0.3
Otero	65,000	+ 2.4
El Paso	800,000	+ 17.8

Table 4.2-4. Racial and Ethnic Composition

State and Region of Influence Counties	Caucasian (Percent)	African American (Percent)	Native American (Percent)	Hispanic (Percent)	Asian (Percent)	Multiracial (Percent)	Other (Percent)
New Mexico	40	2	1	46	9	16	25
Texas	45	11	4	38	0	1	0
Doña Ana	30	1	1	66	1	1	0
Otero	53	3	6	35	1	2	0
El Paso	13	3	0	82	1	1	0

Employment, Income, and Housing. Compared to 2000, the 2009 employment (private nonfarm) increased the states of New Mexico and Texas and in Doña Ana, Otero, and El Paso counties (Table 4.2-5). Employment, median home value, household income, and poverty levels are presented in Table 4.2-5.

Table 4.2-5. Employment, Housing, and Income

State and Region of Influence Counties	2009 Total Nonfarm Employment (Employees)	Employment Change 2000-2009 (Percent)	Median Home Value 2005-2009 (Dollars)	Median Household Income 2009 (Dollars)	Population Below Poverty Level 2009 (Percent)
New Mexico	615,879	+ 12.1	150,500	42,830	18.20
Texas	8,925,096	+ 11.2	118,900	48,286	17.10
Doña Ana	50,549	+ 36.4	128,500	35,541	24.80
Otero	12,617	+ 1.1	97,400	35,557	20.20
El Paso	205,190	+2.7	95,200	36,078	23.70

There are currently 2,395 permanent military Family housing units under the control of Fort Bliss. These are all located in the cantonment among several neighborhoods. Family housing on Fort Bliss has been privatized under the Resident CI, and the contractor responsible for Fort Bliss Military Housing indicates that the construction of 1,708 additional homes is well underway (Belfour Beatty Communities, 2008). Unaccompanied housing is primarily located on the cantonment (4,748 units) and some units (2,320) located in the three range camps for temporary use during training exercises (U.S. Army, 2007). Fort Bliss also maintains about 1,124 units for temporary use including TDY personnel and Active Duty Families relocating to Fort Bliss.

Schools. Nine school districts surround Fort Bliss, but the majority of students from Fort Bliss (70 percent) attend El Paso ISD public schools. About 15 percent attend Socorro ISD public school, and about 12 percent attend Ysleta ISD public schools. Current total enrollment for Pre-K through 12 is 64,214 for the El Paso ISD (Texas Education Agency, 2012), 43,672 for the Socorro ISD (Texas Education Agency, 2012), and 44,376 for Ysleta ISD (Texas Education Agency, 2012) for a total of about 156,830 students. Attendance in other El Paso county school districts is negligible (U.S. Army, 2000). New Mexico schools serving Fort Bliss include the Las Cruces and Gadsden ISDs. Alamogordo ISD serves Otero County, but the residents of Otero County living in the Chaparral region attend Gadsden ISD public schools under a cost agreement between the school districts. The child development services program in Fort Bliss lists the following El Paso area schools as most affected by Fort Bliss stationing actions: Nixon Elementary, Travis Elementary, Milam Elementary, Logan Elementary, Bliss Elementary, Burnet Elementary, Hughey Elementary, MacArthur Elementary/Intermediate, Ross Middle, Bassett Middle, Richardson Middle, Chapin High, Andress High, and Austin High. El Paso area schools were planning a 9 year build-up to accommodate increased enrollment resulting from BRAC and other initiatives beginning in 2007.

Public Health and Safety.

- **Police Services.** Fort Bliss has exclusive jurisdiction over the cantonment and much of the Doña Ana Range. Fort Bliss has proprietary jurisdiction in Logan Heights and lands withdrawn from other government entities such as McGregor Range. Primary jurisdiction in the Fort Bliss area for law enforcement is with the City of El Paso Police Department. In 2005, there was one law enforcement officer for every 100 people living on post.

- **Fire and Emergency Services.** The Fort Bliss Fire Department responds to fires within the installation. They work cooperatively with the BLM to fight fires on McGregor Range.
- **Medical Facilities.** William Beaumont Army Medical Center is an Army regional hospital and serves the needs of over 400,000 beneficiaries. In addition, it is one of two trauma centers in the ROI. Adjacent to the WBAMC is the Veterans Affairs Health Care Center. Additional clinics are located at the troop medical center in the cantonment, Biggs Army Airfield, and small facilities associated with each unit. There is also a dental clinic and a veterinary clinic located in the cantonment.

Family Support Services. The Fort Bliss Army Community Service (ACS), which is a division of the Directorate of Family Morale, Welfare, and Recreation (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, & Relocation Readiness. The Fort Bliss Child, Youth & School Services, 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 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).

4.2.9.2 Environmental Consequences

No Action Alternative

The No Action Alternative would result in negligible effects to existing socioeconomic resources. To accommodate Army population increases at Fort Bliss from recent stationing decisions, the Army has created additional Residential Community Initiative (RCI) housing for Families and single Soldiers and modernized on-post housing and barracks. Other projects to enhance quality of life, such as shoppettes, gas stations, playgrounds, and similar sites have either been constructed or are pending.

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

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Economic Impacts. Alternative 1 would result in the loss of up to 8,000 military employees (Soldiers and Army civilian employees), each with an average annual income of $41,830. In addition, this alternative would affect an estimated 4,464 spouses and 7,680 dependent children for a total estimated potential impact to 12,144 dependents. The total population of military employees and their dependents directly affected by Alternative 1 would be projected to be 20,144.

Based on the EIFS analysis, there would be no significant impacts for sales volume, income, or employment. There would be significant impacts for population. The range of values that represents a significant economic impact in accordance with the EIFS model are presented in Table 4.2-6, along with the predicted percentages for Alternative 1. Table 4.2-7 presents the projected economic impacts to the region for Alternative 1 as assessed by the Army's EIFS model.

Table 4.2-6. Economic Impact Forecast System and Rational Threshold Value Summary of Implementation of Alternative 1

Region of Influence Economic Impact Significance Thresholds	Sales Volume (Percent)	Income (Percent)	Employment (Percent)	Population (Percent)
Economic Growth Significance Value	7.98	8.07	3.90	1.21
Economic Contraction Significance Value	- 7.15	- 6.54	- 4.29	- 1.66
Forecast Value	- 2.34	- 2.18	- 3.59	- 1.87

Table 4.2-7. Economic Impact Forecast System: Summary of Projected Economic Impacts of Implementation of Alternative 1

Region of Influence Impact	Sales Volume	Income	Employment	Population
Total	$548,190,500	$403,944,100	- 8,829 (Direct) - 1,947 (Indirect) - 10,776 (Total)	- 20,144
Percent	- 2.34 (Annual Sales)	- 2.18	- 3.59	- 1.87

The total annual loss in volume of direct and secondary sales in the ROI represents an estimated -2.34 percent reduction. State tax revenues would decrease by approximately $34.26 million as a result of decreased sales. Some counties within the ROI supplement the state sales tax of 6.25 percent by varying percentages, and these additional local tax revenues would be lost at the county and local level. Regional income would decrease by an estimated 2.18 percent. While 8,000 direct Soldier and Army civilian positions would be lost within the ROI, EIFS estimates another 829 military contract service jobs would be lost as a direct result of the implementation of Alternative 1, and an additional 1,947 job losses would indirectly occur as a result of a reduction in demand for goods and services in the ROI. The total reduction in demand for goods and services within the ROI is projected to lead to a loss of 10,776 non-farm jobs, or a 3.59 percent change in regional non-farm employment. The total number of employed non-farm positions in the ROI is estimated to be approximately 300,000. A significant population reduction of 1.87 percent within the ROI is anticipated as a result of this alternative. Of the approximately 1.075 million people (including those residing on Fort Bliss) that live within the ROI, 20,144 military employees and their dependents would no longer reside in the area following the implementation of Alternative 1. This could lead to a decrease in demand for housing, and increased housing availability in the region. This could lead to a slight reduction in median home values. It should be noted that this estimate of population reduction includes Army civilian and military members and their dependents. This number likely overstates potential population impacts, as some of the people no longer employed by the Army would continue to work and reside in the ROI, working in other economic sectors; however, this would in part be counterbalanced by the fact that some of the indirect impacts would include the relocation of local service providers and businesses to areas outside the ROI.

Table 4.2-8 shows the total projected economic impacts, based on the RECONS model, that would occur as a result of the implementation of Alternative 1.

Table 4.2-8. Regional Economic System: Summary of Projected Economic Impacts of Implementation of Alternative 1

Region of Influence Impact	Sales Volume	Income	Employment
Total	- $365,808,847 (Local) - $484,915,278 (State)	- $406,640,553	- 9,037 (Direct) - 1,152 (Indirect) - 10,189 (Total)
Percent	- 1.56 (Total Regional)	- 2.20	- 3.39

The total annual loss in direct and indirect sales in the region represents an estimated -1.56 percent change in total regional sales volume according to the RECONS model, an impact that is approximately 0.78 percentage points less than projected by EIFS; however, it is estimated that gross economic impacts at the state level would be greater. Extrapolating from sales volume numbers presented in the RECONS model, state tax revenues would decrease by approximately $30.31 million as a result of the loss in revenue from sales reductions, which would be $3.29 million less in lost state sales tax revenue than projected by the EIFS model. Regional income is projected by RECONS to decrease by 2.20 percent, slightly more than the 2.18 percent reduction projected by EIFS. While 8,000 direct Soldier and Army civilian employee positions would be lost within the ROI, RECONS estimates another 1,037 direct contract and service jobs would be lost, and an additional 1,152 job losses would occur indirectly from indirect reduction in demand for goods and services in the ROI. The total estimated reduction in demand for goods and services within the ROI is projected to lead to a loss of 10,189 jobs, or a -3.39 percent change in non-farm regional employment, which would be 0.20 percentage points less than projected by EIFS.

When assessing the results together, both models indicate that the economic impacts of the implementation of Alternative 1 would lead to a net reduction of economic activity within the ROI of roughly the same order of magnitude.

Removal of 8,000 Soldiers would result in a reduction of 12,144 dependents, of which about 3,976 would be school age children using according to the latest DMDC numbers (DMDC, 2012). The removal of 3,976 students would result in the loss of about $3 million of DoD impact assistance to the school districts. This would have a moderate impact on school budgets.

Reduction in personnel would have minor impacts to emergency services and recreational resources since the reduction is anticipated to lower the need for these services.

In general, Alternative 1 would not have a disproportionate adverse impact to minorities, economically disadvantaged populations or children in the ROI. Fort Bliss anticipates that job loss would be felt across economic sectors and at all income levels and spread geographically throughout the ROI. The Hispanic populations of El Paso County and Doña Ana County are disproportionately higher when compared to the population of Texas. Seen at the state-wide level, adverse impacts in the ROI represent a disproportionate adverse impact to Hispanic populations.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

Economic Impacts. Alternative 2 would result in the increase of up to 3,000 Soldiers, each with an average annual income of $41,830. In addition, this alternative would affect an estimated 1,674 spouses and 2,880 dependent children for a total estimated potential impact to 4,554 dependents. The total population of military employees and their dependents directly affected by Alternative 2 would be projected to be 7,554.

Based on the EIFS analysis, there would be no significant impacts for sales volume, income, employment, or population. The range of values that represents a significant economic impact in accordance with the EIFS model are presented in Table 4.2-9, along with the predicted percentages for Alternative 2. Table 4.2-10 presents the projected economic impacts to the region for Alternative 2 as assessed by the Army's EIFS model.

Table 4.2-9. Economic Impact Forecast System and Rational Threshold Value Summary of Implementation of Alternative 2

Region of Influence Economic Impact Significance Thresholds	Sales Volume (Percent)	Income (Percent)	Employment (Percent)	Population (Percent)
Economic Growth Significance Value	7.98	8.07	3.9	1.21
Economic Contraction Significance Value	- 7.15	- 6.54	- 4.29	- 1.66
Forecast Value	0.88	0.82	1.34	0.70

Table 4.2-10. Economic Impact Forecast System: Summary of Projected Economic Impacts of Implementation of Alternative 2

Region of Influence Impact	Sales Volume	Income	Employment	Population
Total	$205,571,500	$151,479,000	3,311 (Direct) 730 (Indirect) 4,041 (Total)	7,554
Percent	0.88	0.82	1.34	0.70

The total annual gain in direct and secondary sales in the ROI represents an estimated 0.88 percent increase. State tax revenues would increase by approximately $12.85 million as a result of increased sales. Some counties within the ROI supplement the state sales tax of 6.25 percent by varying percentages, and these additional local tax revenues would be gained at the county and local level. Regional income would increase by 0.82 percent. While 3,000 Soldiers would be gained within the ROI, EIFS estimates another 311 military contract service jobs would be gained directly as a result of Alternative 2, and an additional 730 jobs would be created from an increase in demand for goods and services in the ROI. The total estimated increase in demand for goods and services within the ROI is projected to lead to a gain of 4,041 non-farm jobs, or a 1.34 percent change in regional non-farm employment. The total number of employed positions (non-farm employment) in the ROI is estimated to be approximately 300,000. A population increase of 0.70 percent within the ROI is anticipated as a result of this alternative. Of the approximately 1.1 million people (including those residing on Fort Bliss) that live within the ROI, 7,554 military employees and their dependents would begin to reside in the area following the implementation of Alternative 2. This would lead to an increase in demand for housing, and decreased housing availability in the region. This would lead to a slight increase in median home values.

Table 4.2-11 shows the total projected economic impacts, based on the RECONS model, that would occur as a result of the implementation of Alternative 2.

Table 4.2-11. Regional Economic System: Summary of Projected Economic Impacts of Implementation of Alternative 2

Region of Influence Impact	Sales Volume	Income	Employment
Total	$137,178,317 (Local) $238,329,001 (State)	$152,490,207	3,384 (Direct) 432 (Indirect) 3,821 (Total)
Percent	0.58 (Total Regional)	0.82	1.27

The total annual gain in direct and secondary sales in the ROI represents an estimated 0.58 percent change in total regional sales volume according to the RECONS model, an impact that is 0.30 percentage points less than projected by EIFS; however, gross economic impacts at the state level would be greater. Extrapolating from sales volume numbers presented in the RECONS model, state tax revenues would increase by approximately $14.90 million as a result of the gain in revenue from sales reductions, which would be $1.71 million more additional state sales tax revenue that projected by the EIFS model. Regional income is projected by RECONS to increase by 0.82 percent, which is roughly equivalent to the increase projected by EIFS. While 3,000 Soldiers would be directly gained within the ROI, RECONS estimates another 384 direct contract and service jobs would be gained, and an additional 432 jobs would be created as a result of indirect increases in demand for goods and services in the ROI as a result of population increases. The total estimated increases in demand for goods and services within the ROI would lead to a gain of 3,821 jobs, or a 1.27 percent change in regional employment, which would be 0.07 percentage points less than projected by EIFS.

When assessing the results together, both models indicate that the economic impacts of the implementation of Alternative 2 would lead to a net beneficial impacts and growth of economic activity within the ROI of roughly the same magnitude.

An addition of 3,000 Soldiers would result in an increase of about 1,500 school age children. According to El Paso Independent School District planners, this increase in student numbers could be absorbed through school construction now underway and also planned for the district schools (Martinez, 2012). Student increases would result in the need for an additional 60 teachers. This would be a minor beneficial impact to the ROI as a whole.

Increases in the need for emergency services and recreational resources would be able to be absorbed since the planning triggered by the BRAC and Army Transformation Initiatives still have not been fully implemented. For example the planning called for six BCTs and two CABs being stationed at Fort Bliss (USACE, 2007). However, only four BCTs and one CAB will be authorized under these initiatives.

Housing pressure would increase as a result of the increased stationing. Plans and proposals are underway to increase Residential Communities Initiative housing on Fort Bliss such as various Public Private Capital Venture programs proposed by the Army Chief of Staff for Installation Management. The economy is presently sluggish in the ROI and an additional stationing of Soldiers would be a welcome stimulus for the economy (El Paso Times, 2012).

4.2.10 Energy Demand and Generation

4.2.10.1 Affected Environment

In the main cantonment area, the energy services include the El Paso Electric Company (EPEC) and the Texas Gas Service. The line supplying electrical power to this area from EPEC has a load capacity of 150 megavolt amperes. Currently, the main cantonment area has a peak

electrical demand of 30 megavolt amperes. This area consumes approximately 1 percent of power available from EPEC. Natural gas is the main heating fuel in this area supplied by Texas Gas Service. Currently, Fort Bliss is working with EPEC to set up new agreements and increase the installations production and use of energy derived from renewable sources as part of the installation's Net Zero initiative.

4.2.10.2 Environmental Consequences

No Action Alternative

The No Action Alternative would result in negligible energy demand and generation effects. Fort Bliss ranges and garrison area would continue to use and generate the same types and amounts of utility consumption for which the installation is already managing. Maintenance of existing utility systems would continue.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

In FY 2011 Fort Bliss consumed 339,056,533 kilowatt-hour (kWh). Prorating this consumption by 32,350 Soldiers yields 10,480 kWh per Soldier. The consumption from 8,000 Soldiers would be 83,840,000 kWh, or a decrease of 24 percent annual consumption (Rodriguez, 2012).

Alternative 1 would have beneficial overall impacts to energy demand. There would be less of a requirement for energy and less on-post usage of energy. Fort Bliss would continue to search for innovative ways to conserve energy as a result of this alternative.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

The consumption from 3,000 Soldiers would be 31,440,000 kWh, equivalent to a 9.3 percent increase in annual consumption. Excluding civilians from the calculation, adding 3,000 Soldiers would result in an 8.9 percent energy consumption increase (Rodriguez, 2012).

Growth of up to 3,000 Soldiers is anticipated to have a minor (low) impact resulting from energy demand and generation. Fort Bliss existing energy infrastructure has sufficient excess capacity, diversity, and scalability to readily absorb growth in Soldier and associated dependents at this level even though the increased Soldier and equipment strength would increase energy usage and demand.

4.2.11 Land Use Conflicts and Compatibility

4.2.11.1 Affected Environment

Fort Bliss is approximately 70 miles in length and varies from 30 to 50 miles in width. New Mexico contains 994,176 acres of the installation; 125,295 acres lie in Texas. The Doña Ana Firing Ranges lie on the westernmost portion of the fort. McGregor Missile Firing Range and Meyer Small Arms Range are located in the central and southern portions of the installation. McGregor Range is co-managed by Fort Bliss and Bureau of Land Management (BLM) under a Congressional withdrawal for military use. McGregor Range includes the Culp Canyon Wilderness Study Area and the McGregor Black Grama Grassland Area of Critical Environmental Concern. The 800,000-acre restricted area in the northeastern corner is managed by the BLM as grazing unit areas. BLM manages cattle grazing leases for those portions of McGregor Range that are also Army fee owned. Grazing in most cases is very compatible with the military mission. Within the 800,000-acre restricted area, 18,004 acres are managed as National Forest land under the jurisdiction of the U.S. Department of Agriculture (USDA), used by the Army under a Memorandum of Understanding (U.S. Army, 1995).

The military mission takes precedence over but can affect non military uses, activities, and infrastructure including cattle operations, recreation and rights-of-way (ROWs). Issues of development and encroachment, both on and off the installation, as a result of increased numbers of military personnel should be considered. Potential for land use changes on McGregor Range may be in conflict with BLM plans for the range. Sensitive visual resources may be adversely affected by proposed development and training activities. However, BLM public activities such as grazing and recreation do not trump the military mission and would cease if mission cannot accommodate them.

4.2.11.2 Environmental Consequences

No Action Alternative and Alternatives 1 and 2

Minor impacts are anticipated for all alternatives. Fort Bliss could benefit from the ability to demolish outdated, inefficient facilities as a result of the implementation of Alternative 1, and has the buildable space to accommodate cantonment growth and development land use as a result of Alternative 2. The installation has sufficient land available to either build the facilities needed for this stationing action, or would have sufficient vacant space in buildings that would be suitable to accommodate the influx of troops. Though there are some compatibility issues with grazing and recreation at McGregor Range, the Proposed Action is not likely to significantly impact land use in those areas and the military mission has primacy over these non-military land uses within the withdrawn lands.

4.2.12 Hazardous Materials and Hazardous Waste

4.2.12.1 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. An installation HWMP provides detailed information on training; hazardous waste management roles and responsibilities, and hazardous waste identification, storage, transportation, and spill control. Fort Bliss is categorized as a Large Quantity Generator of hazardous waste as defined by 44 CFR Parts 262 and 264 and is permitted by Texas Commission on Environmental Quality to operate as a Hazardous Waste Storage Facility (permit #50296). The permit allows Fort Bliss to store hazardous waste at the Hazardous Waste Storage Facility for up to 1 year.

Training exercises and testing activities at Fort Bliss expend a variety of ordnance. The Fort Bliss explosives ordnance disposal (EOD) unit eliminates explosives hazards on ranges by detonation in place, or, if safe to do so, by removing the hazard to the EOD range and detonating there. Other items of special concern include medical and bio-hazardous waste, radioactive waste, asbestos, LBP, pesticides, PCBs, and petroleum storage tanks. Programs used to manage hazardous waste and materials at Fort Bliss include their installation Restoration Program, Military Munitions Response Program, Compliance-Related Cleanup, and Pollution Prevention.

4.2.12.2 Environmental Consequences

No Action Alternative and Alternatives 1 and 2

Minor impacts are anticipated for all alternatives. Waste collection, storage, and disposal processes would remain mostly unchanged, and current waste management programs would continue, including the installations current efforts to pursue a reduction in its waste streams as part of the Net Zero initiative. As the number of Solders increase, the installation can anticipate an increase in the use of hazardous chemicals in the cantonment and training and range areas.

Demolition, renovation, and construction would mostly likely result in an increase in the generation of asbestos, lead-contaminated wastes, and other hazardous waste, as well as in increase in the use of pesticides due to the addition of Family housing and other facilities. Waste management plans may need to be updated to incorporate the increases in mission activities associated with all of the alternatives.

4.2.13 Traffic and Transportation

4.2.13.1 Affected Environment

The ROI for traffic and transportation includes Fort Bliss, and the City and County of El Paso, Texas. Major road routes in the area include I-10, Spur 601, and U.S. Route 54. I-10 is an east-west interstate highway, which passes about a mile from the cantonment area, and through the City of El Paso. Spur 601 provides divided highway access to the south side of Biggs and to the future Beaumont Medical Center. U.S. Route 54 leads from El Paso to points north. Montana Avenue is a major thoroughfare that leads from El Paso to Fort Bliss access control points (ACPs). With recent growth in the military and civilian populations at Fort Bliss, the LOS of access routes has decreased.

4.2.13.2 Environmental Consequences

No Action Alternative

Significant but mitigable impacts are anticipated under the No Action Alternative. Surveys and studies conducted on the existing Fort Bliss transportation systems have determined that traffic intersection improvements are needed to improve access route congestion. Recommendations to improve on and off-post traffic systems have been made. LOS on roads accessing the installation may continue to deteriorate with increased regional growth.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Alternative 1 would have beneficial traffic impacts resulting from a reduction in force at Fort Bliss. It is anticipated that levels of service and traffic congestion would improve. Travel time to and from post would decrease marginally. The roads would continue to be maintained and LOS for on and off-post commuters would improve as traffic volume decreased on routes such as Montana Avenue.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

There would be significant but mitigable short- and long-term impacts on traffic and transportation systems on the installation due to the presence of an additional 3,000 Soldiers. The increase in off-post traffic would have a moderate adverse impact on traffic in the community overall and could contribute to a decrease in the LOS of the road networks and major routes leading to the installation, particularly during peak morning and afternoon travel periods. Presently, the Texas Department of Transportation is seeking funding, planning, and performing preliminary outreach on improving and expanding many area byways, including those in areas experiencing heavy growth, such as the Montana, Highway 375 and Highway 601 area. These projects would be designed to bring the LOS on these roads to at least C or better. The increase in population would also have a moderate adverse impact on the traffic volume on the installation, and could cause a minor decrease in LOS on some of the installation's arterial routes. The increased traffic volume in both the neighboring community and on the installation could pose an increased level of risk to the safety of pedestrians and bicyclists.

4.2.14 Cumulative Effects

Region of Influence

The ROI for this cumulative impact analysis of Army 2020 realignment at Fort Bliss encompasses three counties in the states of Texas and New Mexico. El Paso, Texas and Las Cruces and Alamogordo, New Mexico are the largest cities within the ROI. El Paso is the center for commercial manufacturing, transportation, and medical activities in the ROI area while Las Cruces and Alamogordo are centers of education and are communities which support White Sands Missile Range and Holloman Air Force Base. Fort Bliss has long been a key component of the economy of the metropolitan area, employing several thousand Soldiers and civilians within the ROI.

There are numerous planned or proposed actions within the ROI that have the potential to cumulatively add impacts to Army Force 2020 alternatives. These actions are either in progress or could reasonably be initiated within the next 5 years. A number of the Army's proposed projects have been previously identified in the installation's Real Property Master Planning Board and are programmed for future execution. A list of projects below presents projects which may add to the cumulative impacts for implementation of Army 2020 realignment alternatives.

Fort Bliss Projects

Due to BRAC, Army Transformation, and other initiatives, Fort Bliss has, in the past 5 years, gained four BCTs, a Fires Brigade, an aviation brigade, and various support units. In turn, Fort Bliss has lost an Air Defense Brigade and the air defense school to Fort Sill. These stationing changes in recent years have resulted in a net gain of population at Fort Bliss of about 24,000 Soldiers, resulting in a total of about 35,000 Soldiers[2] on the installation. In the future, the U.S. Air Force 204th Security Squadron is anticipated to establish a regional training facility at Fort Bliss. This facility will have a permanent stationing of 240 personnel and would train about 520 airmen students per month. All of these temporary student personnel will be housed in existing on-post facilities. The squadron has a current airport security facility on the post and, most of the permanent personnel are already assigned.

Within the next 3 years, the following projects are planned for construction on Fort Bliss:

- Multi-purpose machine gun range;
- Air traffic control tower;
- Construction of a veterans clinic;
- Construction of a complex for the Grey Eagle UAS;
- A warehouse to support supply activities;
- Doña Ana North Water Well; and
- Completion of the William Beaumont Medical Center replacement hospital.

Additionally, the RCI program and the Public-Private Capital Venture Program will continue to produce housing for Soldiers on post. Some other projects Fort Bliss will be engaged in include the implementation of energy, water, and waste sustainability initiatives, also known as "Net Zero". These initiatives should help increase the installation's use of energy from renewable sources, reducing greenhouse gas (GHG) emissions, and also reduce the amount of water the installation requires to support its operations. Regionally, these Net Zero initiatives should have

[2] The final FY 2011 Active Duty population of Fort Bliss was approximately 32,350 Soldiers; however, additional Soldiers have been stationing at Fort Bliss in FY 2012 and this number also includes other service members as well.

beneficial environmental impacts which are being documented in an EIS currently in progress and scheduled for completion in early 2013.

Other Actions

Other known planned or ongoing projects and activities that will cumulatively affect the ROI, and especially the Fort Bliss environs, include Texas Department of Transportation projects providing expansion of the I-10 and Highway 375 interchange; the widening of Montana Avenue and Highway 82; and a toll way from Highway 375 that proceeds through the Anthony Gap and connects to I-10, bypassing the congested downtown El Paso business district. These transportation projects will reduce traffic congestion and delays and increase economic activity within the ROI.

EPEC is planning several major projects that will have cumulative impacts. These include two natural gas power generating plants and the infrastructure/transmission lines associated with these facilities. Other transmission lines are planned that would pass through the El Paso area, conveying power generated from renewable sources to markets elsewhere. These proposed projects include the Sun-Zia, Southline, and Cielo Wind transmission lines from east of El Paso to areas to the west. Additionally, other programs, plans, and initiatives that are on the horizon are:

- Smart Growth Plan for the Northeast, a proposed 6,750 acre development between U.S. Highway 54 and the New Mexico State line, and in proximity to the western border of the South Training Areas, will include mixed commercial/industrial-residential uses. Due to the current economic downturn, definitive dates for the development are pending.
- The City of El Paso, with assistance from the DoD Office of Economic Adjustment, is developing a Regional Growth Management Plan under a collaborative planning effort with the City of El Paso, El Paso County, Fort Bliss, and City of Las Cruces and Doña Ana County. The Regional Growth Management Plan indicates that by 2025, the City of El Paso's current land base of 161,000 acres with development on 50 percent of the land, is anticipated to increase to 171,000 acres with development of 63 percent of the land. The Regional Growth Management Plan is targeting the development of selected buffer areas adjacent to Fort Bliss where development and uses currently and/or potentially could conflict.
- Doña Ana County's current planning effort, entitled *Vision 2040*, is a guide for future land use planning through 2040 and beyond, which will include comprehensive plan updates for Doña Ana County. Between 2000 and 2040, the County population is anticipated to grow by 77 percent, with the primary growth areas located in the southern sector of the county, including Sunland Park, Mesilla, and Anthony. One of the policy strategies of *Vision 2040* is to share the Comprehensive Plan with the U.S. DoD to ensure that all parties have access to information as planning decisions occur.
- In 2006, Otero County initiated the development of a Community Economic Action Plan to address infrastructure and growth in Chaparral. Located between the Northeast planning area of El Paso and the Doña Ana Training Range of Fort Bliss, Chaparral is divided by Otero and Doña Ana counties. Both counties are participating in the planning effort.

A range of cumulative effects is anticipated resulting from the implementation of either action alternatives. Due to the aforementioned Army and local government planning initiatives and forecasted growth, changes in the ROI population created by either action alternative are not anticipated to be significant. Further discussion of the cumulative impacts for each alternative is presented below.

No Action Alternative

Under the No Action Alternative, minor changes in military authorizations would be projected to result at Fort Bliss in conjunction with the 204th Air Force Security Squadron stationing. Current planning for infrastructure and RCI housing developments to accommodate all BRAC and Grow the Army initiatives would continue. The Army would continue to implement some facilities reductions of outdated/unused facilities and construct new as required. Under the No Action Alternative, cumulative impacts would not be anticipated to be more than minor for all VECs.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Cumulative impacts as a result of the implementation of Alternative 1 range from beneficial to minor adverse impacts. The following VEC areas are anticipated to experience either no impact or beneficial impact as a result of the implementation of Alternative 1: air quality, land use, airspace, cultural resources, noise, soil erosion, biological resources, wetlands, water resources, energy demand and generation, and transportation.

As a result of Alternative 1, the Army anticipates minor adverse cumulative impacts to socioeconomics and facilities. There would be a decrease in the frequency of garrison support activities and, therefore, a decrease in the number of required civilian and contractor support personnel. Some of the socioeconomic impacts to the region would be offset by transportation and energy projects, as well as the stationing of the U.S. Air Force security squadron at Fort Bliss. When viewed in conjunction with other past, present and reasonably foreseeable projects, the overall cumulative effects of Alternative 1 are projected to be no more than minor adverse impacts.

Socioeconomics and Facilities. In addition to the impacts described in Section 4.2.9.2, the cumulative socioeconomic impact within the ROI under Alternative 1 would be a less than significant adverse impact on the regional economy. Presently, 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 8,000 Soldiers would affect this planning and may result in some unused facilities or cancellation of some construction projects. However, facilities have already been constructed or refurbished, the economic impacts of future project cancellations would have a minor economic impact.

Nationally, unemployment has been trending lower since 2010. In April 2010, the national unemployment rate was 9.9 percent and as of October 2012 it was reported as 7.8 percent (Bureau of Labor Statistics, 2012). Regionally, off-post unemployment has risen from 6.2 percent to 8.8 percent within the ROI from 2008 to 2012. Alternative 1 would add to the regional unemployment rate but would be partially off-set by other projects in the ROI. The loss of 8,000 Soldiers in conjunction with other reasonably foreseeable proposals would, therefore, have a minor adverse impact on employment.

Air Quality. The reduction of 8,000 Soldiers and Army civilians on Fort Bliss would result in less training on the ranges and; therefore, in a reduction in dust generation and fossil fuel consumption, both of which would incrementally benefit air quality.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

Cumulative impacts of increasing stationing at Fort Bliss by 3,000 Soldiers are projected to have minor beneficial impacts to socioeconomic conditions. The following VEC areas are anticipated to experience either no impact or minor cumulative impact as a result of the implementation of Alternative 2: land use, airspace, cultural resources, noise, soil erosion, biological resources, wetlands, and energy demand and generation.

Impacts to the following VEC areas are anticipated to be more than minor in nature. These VECs are presented in additional detail below and include air quality and transportation.

Air Quality. An additional 3,000 Soldiers stationed at Fort Bliss would be equivalent of another BCT for air impacts. Additional maneuver units from BCT restructuring would add to cumulative air quality impacts and would increase fugitive dust emissions as a result of increased training and military vehicle travel. However, almost all training occurs at the ranges in New Mexico or in areas in attainment for air quality, sparsely populated, relatively open, and where dust emissions are readily dispersed. The *Fort Bliss Army Growth and Force Structure Realignment EIS* (U.S. Army, 2010) analyzed the impacts of six maneuver BCTs and determined that air quality cumulative impacts would not result in loss of NAAQS attainment in the ROI. Since Alternative 2 would potentially bring the number of BCTs to five or one less than capacity, the analysis conducted for the EIS indicates that less than significant cumulative air impacts are anticipated within the ROI as a result of Alternative 2 and that the ROI would remain in NAAQS attainment.

Within El Paso County, additional vehicular and operational emissions from the implementation of Alternative 2, in conjunction with the anticipated projects outlined previously are not anticipated to result in significant cumulative impacts. Air quality within the county would be adversely affected by an increase in O_3, particulate matter (PM), and fugitive dust. However, these increases are not anticipated to significantly affect attainment in these standards throughout the airshed; and the region would be projected to remain in attainment for these criteria air pollutants (CAPs).

Traffic and Transportation. Increased stationing and training would result in increased usage of public roads to transport military vehicles and equipment in and around the ROI. The cumulative effects from Alternative 2 taken together with all the previous stationing and planned actions would be considered significant; however, cumulative impacts associated with selection of Alternative 2 are in accord with the 2035 Trans-Border Metropolitan Transportation Plan. This plan takes into account the growth of Fort Bliss as described in previous NEPA analyses. These impacts are mitigable through road construction and traffic management, much of which is already being conducted as previously discussed. For example, completion of Spur 601 eliminated the need for travel along Montana Avenue to access the Fort Bliss Cantonment Area. It is assumed that up to 90 percent of the traffic currently using Montana Avenue would eventually use Spur 601, and that traffic on many of Montana Avenue's road segments would improve to acceptable levels of service.

Military convoys to and from the training areas via public roads would increase as a result of Alternative 2. These include heavy equipment transporters that tend to slow overall traffic speed and reduce the LOS especially on two-lane roads because they limit passing opportunities. However, an extensive project to harden and stabilize the Main Supply Routes or range roads has recently been completed and has reduced the potential effects of convoy traffic to less than significant.

4.3 FORT BRAGG, NORTH CAROLINA

4.3.1 Introduction

Fort Bragg, located in south-central North Carolina has approximately 161,000 acres of range and training maneuver area suited for firing ranges and training areas as well as approximately 33,000 acres used non-maneuver impact areas (Figure 4.3-1). There are several "drop zones" that are used exclusively for airborne Soldier and equipment parachute training. These areas allow Fort Bragg's units to execute rapid airborne insertions and remain qualified to conduct parachute jumps with their equipment from fixed and rotary wing aircraft.

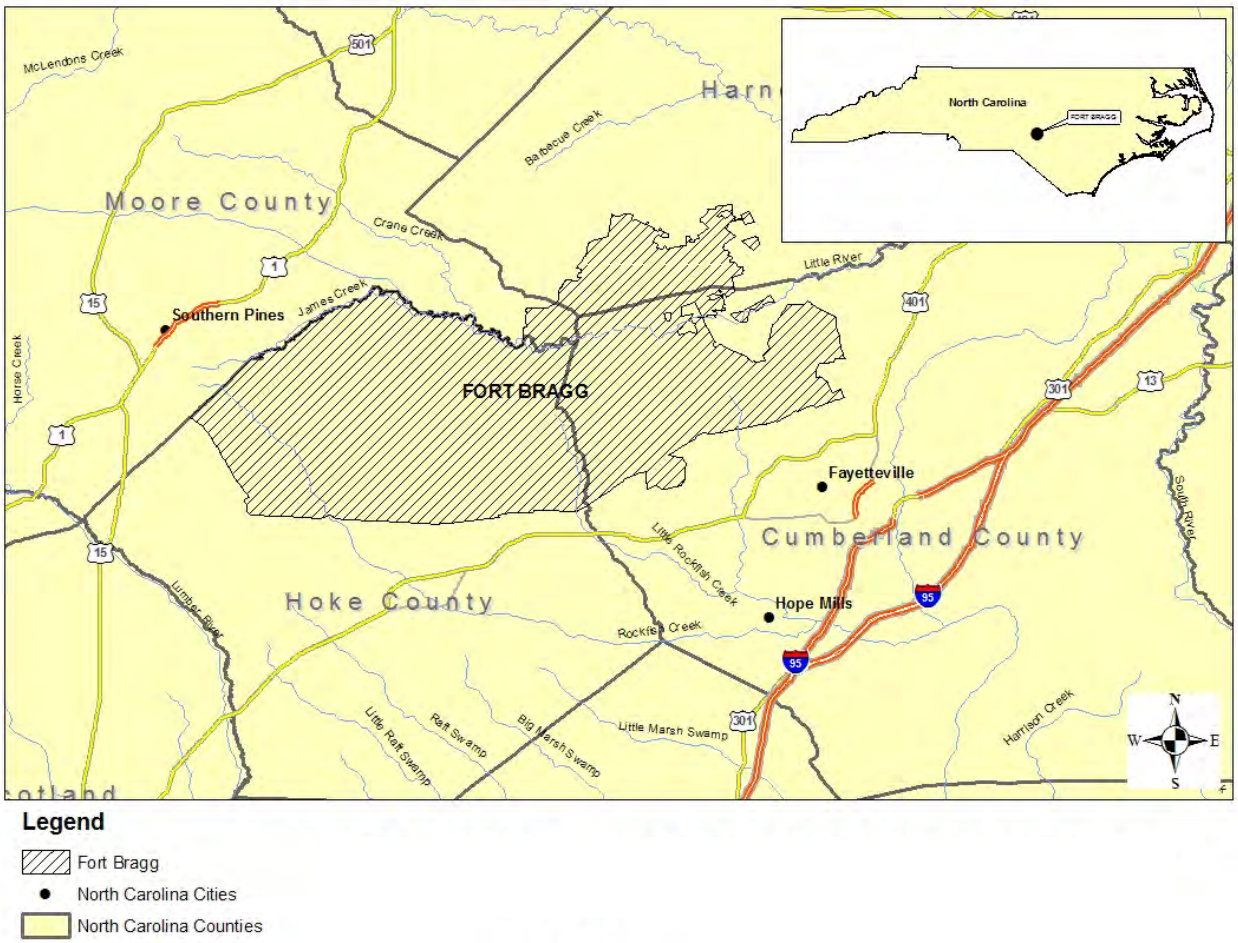

Figure 4.3-1. Fort Bragg

Fort Bragg's major unit is the XVIII Airborne Corps and its primary subordinate unit, the 82nd Airborne Division. The Special Operations Command (Joint and Army) also has schools, units and training facilities on Fort Bragg.

4.3.1.1 Valued Environmental Components

For alternatives the Army is considering as part of Army 2020 force structure realignments, Fort Bragg does not anticipate any significant adverse impacts as a result of Alternative 1 (Force reduction of up to 8,000 Soldiers and Army Civilians) other than to socioeconomics. While the Army does not predict significant impacts to income, employment or sales volume within the ROI, a significant impact is anticipated to the population as a result of the implementation of

Alternative 1. The installation is not being considered for growth as a result of the implementation of Alternative 2, as there is currently a lack of facilities and facilities space to accommodate additional Soldiers. Table 4.3-1 summarizes the anticipated impacts to VECs from the No Action and Alternative 1.

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

Valued Environmental Component	No Action Alternative	Alternative 1: Force Reduction of up to 8,000
Air Quality	Minor	Beneficial
Airspace	Minor	Minor
Cultural Resources	Negligible	Minor
Noise	Minor	Beneficial
Soil Erosion	Significant but Mitigable	Beneficial
Biological Resources	Negligible	Beneficial
Wetlands	Minor	Beneficial
Water Resources	Negligible	Beneficial
Facilities	Negligible	Beneficial
Socioeconomics	Minor	Significant
Energy Demand and Generation	Minor	Minor
Land Use Conflict and Compatibility	Minor	Minor
Hazardous Materials and Hazardous Waste	Negligible	Minor
Traffic and Transportation	Significant but Mitigable	Beneficial

4.3.1.2 Valued Environmental Components Dismissed from Detailed Analysis

For the VECs discussed in this section below, no more than a beneficial or negligible impact would be anticipated. Therefore, these VECs are not being carried forward for detailed analysis, as no potential for significant impacts exists.

- ***Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species).*** Fort Bragg supports a large diversity of natural resources and, therefore, falls under jurisdiction of the Sikes Act. Its diversity of habitats provides the necessary resources for a variety of fish, wildlife and plant species. Wildlife species, both common and endangered, are important for present and future military missions at the installation. In general, the health (i.e., population viability) of fish and wildlife populations is an indicator of a healthy ecosystem. A high quality aquatic, faunal and floral component equates to a high quality training environment. For both the short term and long term, it is in interest of the Army to continue supporting a sustainable environment and natural resources to sustain a military readiness training environment.

Various biological inventories indicate there are 194 birds, 20 mammals, 48 reptiles, 37 amphibians, and 49 fish species found on Fort Bragg. An additional 111 vertebrate species are suspected to live or migrate through the installation (U.S. Army, 2011). Since the military mission, military readiness training and natural resource management actions affect fish and wildlife habitat, activities, programs have been designed and integrated to create and enhance habitat that are consistent with the installation's military mission (U.S. Army, 2011).

Throughout this ecosystem on Fort Bragg a variety of natural plant community types can be found. Overall, there are total of 36 natural plant communities and variants, consisting of 23 different vegetative communities, identified on Fort Bragg and Camp Mackall, which are described in Appendix 5.7.4 of the Fort Bragg INRMP.

Negligible adverse effects would occur at Fort Bragg under the No Action Alternative. The threatened and endangered species recorded on the installation 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 the USFWS, and any conservation measures identified in ESA, Section 7 consultation documents. Fort Bragg would continue to adhere to its existing resource management plans and to further minimize and monitor any potential effects.

Units are briefed prior to each training event regarding sensitive areas on post, such as protected species habitat, and what is and is not allowed within certain areas, such as within the protective buffer surrounding individual RCW cavity trees. Range capabilities and timber management activities on Fort Bragg are ongoing and would continue as a result of the implementation of Alternative 1, as planned in the installation's timber harvest priority list. Most prescribed harvest activities are thinnings carried out to support troop training, endangered species management, and forest health.

Beneficial impacts to biological resources as a result of the implementation of Alternative 1 are anticipated. Scheduling conflicts for training area access to conduct resource monitoring would be reduced. Proactive conservation management practices (e.g., application of prescribed fire, restoration of longleaf pine-wiregrass ecosystems) would be more easily accomplished with reduced mission throughput. Force reduction should reduce construction pressures resulting in forest fragmentation and removal of potential threatened or endangered species habitat; therefore, minimizing the risk of violating conditions of previous Biological Opinions. A reduction of up to 8,000 personnel should not affect long-term species recovery.

- ***Water Resources.***

Water Supply. The potable water system at Fort Bragg consists of commodity or supply and distribution. The potable water system is privatized and the City of Fayetteville and Harnett County are jointly responsible for providing water supply to Fort Bragg. Additionally, as of March 1, 2008, the water distribution system at Fort Bragg and Pope Air Force Base was privatized.

The City of Fayetteville and Harnett County each fulfill half the usage requirement and provide 6 to 16 mgd of potable and fire water. Each supplier is capable of providing all of Fort Bragg's water needs should the other supplier incur a problem.

The existing water distribution system is divided into high and low pressure zones, Fort Bragg generally complies with TM 5-813-5 to deliver both peak domestic and fire flows. Some sprinkler systems have pressures below those recommended by TM 5-813-5; however, they are individually designed to operate successfully at lower pressures. The private utility contractor is responsible for upgrading the entire distribution system since there are isolated areas of low pressure, limited fire flow, or is

not completely looped; and provide for adequate distribution and pressure for current and future development.

Wastewater. The wastewater system is comprised of commodity and service, and collection services. The wastewater system has undergone privatization. As per a recent 40 year wastewater commodity contract, Harnett County is responsible for providing wastewater services for Fort Bragg. The private utility contractor has a 50 year contract to own, operate, and maintain the wastewater collection system at Fort Bragg. While Fort Bragg still maintains the permit to operate the Fort Bragg WWTP, the wastewater commodity service purchase process is anticipated to be complete by December 2012.

Portable toilets and individual septic tanks serve firing ranges, drop zones, bivouac grounds, outlying permanent structures, and other outlying areas. Portable toilets are located as needed to serve training requirements, and are pumped into the cantonment's sewer system for treatment. In addition, there are areas at Fort Bragg that generate industrial wastewater. These include the fabrication shops, repair shops, overhaul shops, depot facilities, printing shops, food services, and medical services. Currently, industrial wastewater is discharged to the sanitary sewer system. Vehicle maintenance and refueling areas are equipped with oil and water separators, which was the only means used to pre-treat industrial wastewater. While the on-base treatment facilities were capable of adequately treating industrial wastewater with respect to NPDES permit limits, after the wastewater commodity service purchase process is in effect under privatization, the industrial waste would need to be pre-treated up to the allowed discharge standard before being deposited in the County system.

The current collection system is old and has caused occasional sewage spills and floods. In some areas, 25-inch pipes empty into 14-inch pipes, causing failure under high pressure and flow. Overall, the sanitary sewer collection system provides adequate service, though maintenance and improvements are necessary. While Fort Bragg currently has large sewer mains (gravity and/or force mains) servicing a majority of the areas, the age and condition of the sanitary collection system generally suggests that existing sewers need upgrading. The private utilities contractor would be in charge of upgrading the entire collection system and would provide for future development. There would be adequate wastewater treatment capacity available to accommodate future growth at Fort Bragg.

Fort Bragg also operates a Central Vehicle Wash Facility. Facility management practices have been effective in meeting the conditions of the permit. Additionally, the installation operates the Lamont West Borrow Pit that meets all permit conditions.

The No Action Alternative would have no effects to water resources. The current water supply system has adequate supply, treatment, storage, and distribution to support existing population. The sewage treatment facility is currently capable of handling the wastewater treatment needs of the installation.

Beneficial impacts are anticipated as a result of the implementation of Alternative 1. A loss of up to 8,000 Soldiers and Army civilians would reduce the demand for potable water, and with Alternative 1 would create additional treated wastewater capacity for other uses at the installation. Though depending on where in the distribution system the loss occurs, the installation may need to increase flushing or loop water supply lines to prevent stagnation as a result of nonuse.

- ***Facilities.*** Fort Bragg 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, continuing

operations at Fort Bragg include general maintenance and repair, land management, utility systems operation and commercial activities.

Fort Bragg has approximately 6,560 buildings, while Camp Mackall has 59 that require maintenance. 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.

Fort Bragg's current land use pattern is described in detail in the 2010 *Implementation of the Real Property Master Plan Programmatic Environmental Assessment* (Parsons, 2010). Fort Bragg covers a land area that stretches approximately 27 miles from east to west and 16 miles from north to south at its most extreme points. Generally, the installation is divided into three broad categories of land use; cantonment area, green belt, and range and training areas. Fort Bragg's cantonment area is the urbanized portion of the installation, which has been developed into a wide variety of land uses that comprise the elements necessary for a complete community.

The cantonment area is severely constrained and fully developed. Fort Bragg is currently at a deficit of approximately 1.5 million square feet short in company operations facilities and approximately 1 million square feet in vehicle maintenance shop facilities.

Impacts to facilities would be negligible under the No Action Alternative. Fort Bragg's current facility shortfalls have been prioritized for programming and funding by the Army. The installation would continue to implement the Army's FRP for outdated facilities. Environmental analyses of the projects that result from these programs are conducted prior to implementation.

Beneficial impacts are anticipated as a result of the implementation of Alternative 1. An increase in the FRP and facilities demolition at Fort Bragg would occur as a result of Alternative 1. Older, less efficient facilities nearing the end of their life-cycle would be demolished when no longer needed to support Soldiers or their Families to save the Army on maintenance and energy requirements. Facility availability for the remaining population would increase, as some facilities shortfalls could be addressed through the re-purposing of existing facilities to support best uses. Fort Bragg's land use would not change under of this alternative. A decrease of Soldiers at Fort Bragg would decrease the facilities requirements and shortfalls within the cantonment area including associated requirements for schools, housing and Family-use centers, the Post Exchange, commissary, and medical and Family support facilities.

Fort Bragg anticipates that the implementation of any of the alternatives would result in negligible impacts for those VECs discussed above. The following provides a discussion of the VECs requiring a more detailed analysis, as they are anticipated to have the potential of a higher level of impact as a result of the implementation of the Proposed Action alternatives.

4.3.2 Air Quality

4.3.2.1 Affected Environment

The project area includes Harnett, Hoke, Moore, Scotland and Cumberland counties, North Carolina. In 2003, Cumberland County, which includes all of Fayetteville and large portions of Fort Bragg, was recommended for nonattainment designation for 8-hour O_3 standards. The State of North Carolina, Cumberland County and the EPA entered into an Early Action Compact to avoid the official "nonattainment" designation. The purpose of the Early Action Compact was to develop and implement an Early Action Plan that will reduce ground-level O_3 concentrations in the Fayetteville MSA to comply with the 8-hour O_3 standard by December 31, 2007. As a result of the Early Action Compact efforts, Cumberland County was designated attainment for

O_3 by the North Carolina Department of Environment and Natural Resources - Division of Air Quality on April 15, 2008. If the MSA is designated as nonattainment, Fort Bragg will have to conduct a conformity review for each action to determine if a general conformity analysis is required.

Fort Bragg is designated as a major source of air pollutants. The major source designation requires Fort Bragg to maintain a Title V Operating Permit. Sources of air pollutants at Fort Bragg include heating plants, incinerators, surface coating equipment and painting operations, engine testing operations, fuel evaporation sources, and land vehicle and aircraft exhaust. Stationary emissions sources are regulated by the facility's Title V Air Quality Operating Permit (#04379T35). In addition to permitted emissions sources, air quality impacts in the form of dust are generated by vehicular movement, helicopter rotor wash, weapons firing, and ordnance impacts on the unpaved areas of the installation. Controlled burns associated with forest management and endangered species programs also generate smoke, which contributes to the generation of PM.

4.3.2.2 Environmental Consequences

No Action Alternative

Fort Bragg anticipates a minor adverse impact to air quality. Fort Bragg would continue to operate under the existing Title V Operating Permit under the No Action Alternative. Any new construction or demolition with the potential for emission sources would be required to be included on the installation's Title V permit. If the MSA is designated as nonattainment after the 2013 standard review by the EPA, any future project beyond that date would need general conformity analysis and revision to the Title V permit would be required.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Fort Bragg anticipates a minor beneficial environmental impact on air quality for the installation and surrounding communities. A decrease in operations and maintenance activities would have a beneficial impact regional air quality. Fort Bragg is categorized as a major source of criteria pollutant emissions. The "major source" designation triggers the provisions of 40 CFR 52.21, PSD. The PSD provisions require Fort Bragg to assess all new emission units to determine if their operation constitutes a major modification. The major source designation also requires Fort Bragg to maintain a Title V Operating Permit.

Air quality should benefit as a result of the implementation of Alternative 1. Force reduction would lead to less fossil fuel combustion and vehicular traffic emissions. Troop level reduction would lead to less operational demands on heating, ventilation, and air conditioning systems; painting operations; volatile organic compound (VOC) emissions from parts washers; and other miscellaneous emission sources associated with troop training and maintenance activities. In addition, the proposed personnel reduction should not affect emission standards for HAPs.

Demolition of facilities may have short-term, minor negative air impacts, but would result in long-term, reduced combustion emissions, also reducing O_3 precursors. It is anticipated that combustion emissions from stationary sources would decrease with the relocation of tenant units into newer facilities and the demolition of older facilities.

4.3.3 Airspace

4.3.3.1 Affected Environment

Fort Bragg uses approximately 1,230 cubed miles of FAA designated SUA, up to 29,000 feet. The installation has access to this airspace continuously, with restrictions, and is controlled by the FAA, Washington, DC (Beaty, 2011).

The mission of the Airfield and Training Divisions of the Directorate of Plans, Training, Mobilization, and Security is to manage installation aviation matters, plan, prepare, operate, and maintain fixed based facilities. The Directorate of Plans, Training, Mobilization, and Security coordinates airspace utilization for DoD and civil aviation operations at Fort Bragg and Camp Mackall in support of tactical and non-tactical operations such as: coordinating Fort Bragg airspace, flight simulation training, air traffic control, aircraft refueling operations, flight planning, flight following services, and aviation weather forecasting (U.S. Army, 2006).

4.3.3.2 Environmental Consequences

No Action Alternative and Alternative 1

Fort Bragg would maintain existing airspace operations under the No Action Alternative. Restricted airspace (R5311) is sufficient to meet current airspace requirements, and a Soldier reduction would not be projected to alter the installations use of aviation assets or airspace. A personnel reduction would not alter the current airspace use.

4.3.4 Cultural Resources

4.3.4.1 Affected Environment

Fort Bragg manages its cultural resources through the Cultural Resources Management Program (CRMP) in accordance with the installation's Integrated Cultural Resources Management Plan (U.S. Army, 2007). The CRMP team is comprised of professional archaeologists, architectural historians and historic preservation specialists. The CRMP team consults with other land use managers such as Range Control, Forestry Branch, Wildlife and Endangered Species branches, Real Property and Engineering offices to coordinate efforts to identify any actions that could cause potential impacts on historic and archaeological resources. Relevant federal legislation including the NHPA, the ARPA, and the NAGPRA and AR 200-1, guide cultural resources management and compliance.

Fort Bragg currently manages 352 historic buildings, structures, and landscapes that are listed or considered eligible for listing in the NHRP. These resources are included in two NRHP-eligible districts (the Old Post Historic District and the John F. Kennedy Special Warfare Center and School Historic District), and 18 individual buildings or structures designated as NRHP-eligible. Three properties are NRHP-listed: Long Street Presbyterian Church; Pope Air Force Base Historic District; and Hangars 4 and 5 on Pope Field. In addition, Fort Bragg has identified and manages 27 historic cemeteries.

To date, a total of more than 6,000 archaeological resources have been identified at Fort Bragg and Camp Mackall. Of this number, approximately 5,500 pre-contact period sites, representing over 10,000 years of American Indian land use in this area, reflect the Paleo-Indian, Archaic, and Woodland cultural periods. These sites represent short-term and long-term hunter-gatherer camps, stone tool production workshops, and general habitation and activity areas.

Approximately 530 historic sites represent post-contact periods of American Indian, European-American, and African-American land use during the 18th to 20th centuries. Such sites include farmsteads, churches, schools, rural industrial complexes (saw, grist and lumber mills, blacksmiths, tar kilns, distilleries), and battlefield sites of the Civil and Revolutionary war periods.

Most of the over 6,000 documented archaeological resources on Fort Bragg, of both pre-contact and post-contact periods, have been determined through previous evaluations as not eligible for listing on NRHP and are no longer managed by the CRMP. Only 128 archaeological sites identified are considered eligible for listing on the NRHP. An additional 39 archaeological sites are presently protected pending evaluation for NRHP eligibility (U.S. Army, 2007).

4.3.4.2 Environmental Consequences

No Action Alternative

Impacts to cultural resources under the No Action Alternative would be negligible. Activities with the potential to affect cultural resources are monitored and regulated through a variety of preventative and minimization measures. Fort Bragg consults with the North Carolina SHPO in accordance with 36 CFR 800 and efforts are employed to avoid, minimize, or reduce impacts to installation cultural resources for all projects at the installation. Fort Bragg would continue to consult with the SHPO under the No Action Alternative.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Minor impacts are anticipated as a result of the implementation of Alternative 1 at Fort Bragg. Removal of temporary facilities would have a very low potential for adverse effects to historic buildings and/or archeological resources. Removal of outdated infrastructure has the potential to affect historic structures, but such actions to demolish older structures would be conducted in accordance with the current Programmatic Agreement. If the undertaking has the potential to adversely affect historic properties, consultation with the SHPO would occur per 36 CFR 800 as required. There is a low potential for any unique or potentially eligible historic structures to be affected as a result of this action, and if such an action is proposed, full consultation with the SHPO would occur, as required. Fort Bragg would continue to consult with the SHPO when NRHP potentially eligible cultural resources might be impacted.

4.3.5 Noise

4.3.5.1 Affected Environment

There are four major sources of noise at Fort Bragg: vehicles, aircraft, artillery fire and explosions, and small arms firing. Vehicular noise is created by vehicle movement, but sometimes exacerbated by large troop movements in wheeled or tracked vehicles. These noises are dampened by terrain, woodlands, and distance from receptors, such as on-base and off-base residential areas. The impact created by vehicle noise is rarely considered significant. Aircraft noise is generated by fixed- and rotary-wing aircraft from Pope Army Airfield, Simmons Army Airfield, and Mackall Army Airfield. These are intermittent noises that are most intense during takeoff; however, the points of origin are well within the confines of the post. The most noticeable noise levels are associated with low-level flight during takeoff and landing.

Pope Army Airfield and Simmons Army Airfield have greater noise impacts than Mackall Army Airfield due to the density of residential development near the east end of the installation and the greater number of operations. Artillery fire and explosion noise is created by firing large-caliber weapons, such as the 105mm howitzer. Small arms noise results from small arms being fired on the ranges.

The majority of noise complaints received at Fort Bragg fall into two general categories; aircraft and artillery. Aircraft overflights account for a majority of the noise disturbance above the Deerfield residential subdivision, and the northwestern portion of Spring Lake. Artillery live fire is the greater cause of noise disturbance off the installation. A 2008 JLUS, which included Fort Bragg, Pope Army Airfield, nine surrounding counties, and nineteen municipalities, was conducted to help ensure long-term sustainable training on Fort Bragg. This study projected BRAC growth in addition to the transition of Pope Army Airfield Base to the Army. Land use recommendations developed from that study are currently being implemented. Small portions within the study area along the installation boundary and along Harnett, Hoke, and Cumberland counties had an average noise level exceeding 62 decibels (dB) which is considered incompatible with residential development. Additionally, many of the military LFX are conducted

late at night leading to numerous complaints. As with Fort Benning, existing noise does not significantly impact the RCW population, or other threatened and endangered species at Fort Bragg.

4.3.5.2 Environmental Consequences

No Action Alternative

Minor impacts from noise are anticipated under the No Action Alternative. The acoustic environment of Fort Bragg would continue to be affected by small- and large-caliber weaponry, artillery, and aircraft overflight. Other activities, such as ground maneuver training and exercises resulting in noise created by personnel and vehicles, would continue to contribute noise on Fort Bragg, to the same levels and intensity as historically experienced.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Impacts from noise are anticipated to be negligible and slightly beneficial as a result of the implementation of Alternative 1. Existing ranges would still be utilized for firing the same types of weapons systems and conducting the same types of training. Alternative 1, however, would have an anticipated reduction in the frequency of noise generating training events. Fort Bragg's remaining BCTs would continue to conduct maneuver and live-fire training in the field; however, the number of weapons qualifications and maneuver training events could be anticipated to decrease in proportion with the number of Soldiers stationing at the installation. Noise impacts would likely remain comparable to current conditions, though less frequent. A reduction of 8,000 Soldiers would have no impact on the weaponry being utilized on existing ranges and would not be anticipated to change to current noise contours nor change the risk potential for noise complaints. The current frequency and activities of aviation training activities, a contributor of noise at the installation, would not be anticipated to change, as aviation units would not be impacted by these decisions. The installations existing noise contours would not be anticipated to change as a result of the implementation of Alternative 1. Aviation activities generating noise would be anticipated to remain largely unchanged.

4.3.6 Soil Erosion

4.3.6.1 Affected Environment

Fort Bragg is located in the Sandhills physiographic province. The Coastal Plain soils are dominated by the Gilead-Blaney-Lakeland soil mapping unit. The surface of Fort Bragg is predominantly mantled by sandy soils comprised of loose to silty and clayey sands in some subsoils. Most of these soils are well-drained, or even excessively well-drained. Poorly drained soils are primarily limited to floodplains and some high organic terrace deposits.

Each soil type at the installation has particular engineering limitations. These soil types and their limitations are described in the U.S. Geological Service soil surveys for the region. Since most soils in the region are sandy, they also easily erode; therefore, soil conservation is paramount in any area with insufficient ground cover. A combination of vegetative and drainage system maintenance is necessary to prevent or remedy erosion.

4.3.6.2 Environmental Consequences

No Action Alternative

The affected environment of soils in the Sandhills region is highly susceptible to severe soil erosion due to the physical, geological, topographical and chemical nature of these soils. Soil erosion frequency and severity would not be altered under the No Action Alternative and would remain significant but mitigable through the implementation of construction BMPs and the ITAM program to limit soil loss in Fort Bragg's training areas.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Reducing Fort Bragg's Soldiers and civilians by 8,000 as a result of the implementation of Alternative 1 would be projected to lead to a slight beneficial impact. As a result of the implementation of Alternative 1, a slight reduction in training and associated soil compaction and loss of-vegetation would occur. This would in turn be projected to result in less sediment discharge into the state's waters. Continued compliance with NPDES stormwater permits would ensure present and future construction actions properly manage surface water resource impacts and sedimentation issues.

4.3.7 Wetlands

4.3.7.1 Affected Environment

Fort Bragg contains approximately 10,900 acres of potential wetlands (U.S. Army, 2011). Palustrine wetlands have unique and important biological functions. They provide critical habitat for many wildlife species, absorb and abate floodwaters, improve water quality by removing pollutants, represent important wildlife travel corridors, enhance aesthetics, and provide recreational, scientific, and educational values. Wetlands are important in several natural processes, including groundwater discharge and recharge, flood flow attenuation, sediment stabilization, nutrient removal or transformation, stormwater abatement, and as fish and wildlife habitat.

Any disturbance to the soil or substrate (bottom material) of a wetland or waterbody, including a stream bed, is an impact and may adversely affect the hydrology of an area. Activities involving the discharge of dredged or fill material into jurisdictional wetlands and open waters are regulated under Section 404 of the CWA. Discharges of fill material generally include, without limitation: placement of fill material that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; dams and dikes; artificial islands; property protection or reclamation devices such as riprap, groins, seawalls, breakwaters, and revetments; beach nourishment; levees; fill for intake and outfall pipes and sub-aqueous utility lines; fill associated with the creation of ponds; and any other work involving the discharge of fill or dredged material. A USACE permit is required whether the work is permanent or temporary.

4.3.7.2 Environmental Consequences

No Action Alternative

The No Action Alternative would have a minor adverse effect to wetland on Fort Bragg resulting from the impacts of continued training. Wetlands impacts from projects already under construction (or for which NEPA is complete and construction pending) have been assessed and, if required, appropriate mitigation and permitting have occurred. Additionally, training, personnel operations, and routine maintenance and monitoring activities on Fort Bragg would occur, resulting in minimal impacts to wetlands. These are minimized by BMPs and regular maintenance of roads, ranges, training lands, and developed areas, although traffic through wetlands is avoided and activities in wetland restoration areas monitored to ensure restoration is not compromised. All soil-disturbing activities are reviewed by subject matter experts to ensure avoidance or minimization of wetlands impacts in accordance with USACE Section 404 permit requirements. Wetland impacts would continue to be reviewed and managed in this fashion under the No Action Alternative.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Beneficial impacts to wetlands as a result of the implementation of Alternative 1 are anticipated. A reduction in force at Fort Bragg would mean tank roads, ranges, and training areas would be less utilized. Less vegetation would be denuded and less sediment would run off into wetlands to impair their ecological function. As such, the loss or degradation of wetland systems would occur less frequently or to a decreased extent. All soil-disturbing activities to include potential facilities demolition, would be reviewed by subject matter experts to ensure avoidance or minimization of wetlands impacts in accordance with USACE Section 404 permit requirements. Wetland impacts would continue to be reviewed and managed in this fashion as a result of this alternative.

4.3.8 Socioeconomics

4.3.8.1 Affected Environment

The ROI consists of Cumberland, Hoke, Harnett, and Moore counties. Fort Bragg's population and workforce have long been an essential element of the demography and economy of Cumberland, Hoke, and Harnett counties. The area around the satellite training area of Camp Mackall also includes Moore, Scotland, and Richmond counties. Of these counties, Moore County is included in the ROI because a substantial number of Fort Bragg employees live within the county.

Population and Demographics. The Fort Bragg population is measured in three different ways. The daily working population is 54,892, and consists of full-time Soldiers and Army civilian employees working on post. The population that lives on Fort Bragg consists of 20,924 Soldiers and an estimated 23,723 dependents, for a total on-post resident population of 44,297. Finally, the portion of the ROI population related to Fort Bragg is 80,769 and consists of Soldiers, civilian employees, and their dependents living off post.

The ROI county population is 570,000. Compared to 2000, the ROI's 2010 population increased in Cumberland, Hoke, Harnett, and Moore counties (Table 4.3-2). The racial and ethnic composition of the ROI is presented in Table 4.3-3.

Table 4.3-2. Population and Demographics

Region of Influence Counties	Population 2010	Population Change 2000-2010 (Percent)
Cumberland	320,000	+ 5.4
Hoke	45,000	+ 39.5
Harnett	115,000	+ 25.8
Moore	90,000	+ 18.0

Table 4.3-3. Racial and Ethnic Composition

State and Region of Influence Counties	Caucasian (Percent)	African American (Percent)	Native American (Percent)	Hispanic (Percent)	Asian (Percent)	Multiracial (Percent)	Other (Percent)
North Carolina	65	21	2	8	1	2	0
Cumberland	47	36	1	9	2	4	1

Table 4.3-3. Racial and Ethnic Composition (Continued)

State and Region of Influence Counties	Caucasian (Percent)	African American (Percent)	Native American (Percent)	Hispanic (Percent)	Asian (Percent)	Multiracial (Percent)	Other (Percent)
Hoke	41	33	9	12	1	3	0
Harnett	64	21	1	11	1	2	0
Moore	78	13	1	6	1	1	0

Employment, Income, and Housing. Compared to 2000, the 2009 employment (private nonfarm) increased in Cumberland, Hoke, and Moore counties, and decreased in Harnett County and overall in the State of North Carolina (Table 4.3-4). Employment, median home value, household income, and poverty are presented in Table 4.3-4.

Table 4.3-4. Employment, Housing, and Income

State and Region of Influence Counties	2009 Total Nonfarm Employment (Employees)	Employment Change 2000-2009 (Percent)	Median Home Value 2005-2009 (Dollars)	Median Household Income 2009 (Dollars)	Population Below Poverty Level 2009 (Percent)
North Carolina	3,353,931	- 0.90	143,700	43,754	16.20
Cumberland	91,510	+ 2.70	110,300	41,163	17.00
Hoke	5,259	+ 11.30	108,600	40,838	21.30
Harnett	18,881	- 9.20	118,500	42,792	17.30
Moore	27,815	+ 4.10	170,700	45,987	13.30

Approximately 14,605 Soldiers were living in barracks in FY 2010. Currently, 177 barracks are reserved for unaccompanied personnel, and 14 are reserved for students (Gioia, 2012). There are two, three and four-bedroom multi-family buildings; single homes; and duplexes in nine communities on Fort Bragg. Picerne Military Housing manages these 6,550 housing units, 6,319 Family quarters units, and 250 leased units in Hoke County. There are 31 General Officer's quarters, and 129 quarters provided for Colonels and Lieutenant Colonels on post. Fort Bragg also provides 813 lodging units for on-post transient lodging within 18 buildings (Locklear, 2012). Some of these buildings and units are currently diverted for Special Operations Command students; therefore, the current available lodging unit total is 540 (USACE, 2012).

Schools. There are ten schools located on Fort Bragg with an estimated enrollment of 4,744 students grades pre-school through nine. Students in grades 10-12, whose parents reside at Fort Bragg, are assigned to attend E.E. Smith High School in Fayetteville, NC (Cumberland County School). Total enrollment, military connected enrollment, Federal School Aid, and DoD funding for the 2010-2011 and 2011-2012 school years are depicted in Table 4.3-5. Federal Impact Aid reported is 2 years in arrears; therefore, the Federal School Impact Aid for 2010-2011 and 2011-2012 reported in Table 4.3-5 does not correspond to the enrollment reported for those school years. Additionally, the Federal School Impact Aid reported in Table 4.3-5 does not singularly pertain to Active Duty military, but rather is a conglomerate of all federally-associated entities including civilians working on federal property, Active Duty military, individuals residing in low rent housing, etc.

Table 4.3-5. School Enrollment, Impact Aid, and DoD Funding

	Enrollment (Students)		Military Connected (Students)		Impact Aid (Dollars)		DoD Funding (Dollars)	
County	**2010 - 2011**	**2011 - 2012**	**2010 - 2011**	**2011 - 2012**	**2010 - 2011[1]**	**2011 - 2012[1]**	**2010 - 2011**	**2011 - 2012**
Cumberland	52,401	51,803	12,170	11,639	5,715,374	7,232,661	1,178,861	1,196,561
Harnett	19,486	19,555	2,455	2,671	436,313	679,377	Unable to obtain	Unable to obtain
Hoke	7,882	8,102	1,813	1,783	431,579	471,048	121,414.33	138,128
Moore	12,491	12,466	1,373	1,412	87,559	117,000	185,000	Unable to obtain

[1.] Please note that Federal School Impact Aid funds are usually two years, arrears; therefore, these figures are not reflective of the current year's enrollment. Also, Federal School Impact Aid is received for a number of federally associated entities; e.g., Active Duty military, civilians working on federal property, individuals residing in low rent housing areas, etc.

Public Health and Safety. Directorate of Emergency Services includes the Provost Marshal Office, Fire Department, and Intelligence and Security Office. The Fire and Emergency Services Division provides fire protection and prevention services to Fort Bragg's Soldiers, their Families, and civilian work force. Womack Army Medical Clinic is one of largest clinical departments and integrated Primary Care systems in the DoD, and operates the largest Graduate Medical Education program in the Army. Active Duty personnel, retirees, and their dependents are provided Primary Care at Womack, or its seven outlying clinics. Two of these clinics are located off-post in the surrounding communities of Hope Mills and Fayetteville.

Family Support Services. The Fort Bragg FMWR provides facilities and care for children 6 weeks to 5 years, School Age Care for ages 6-10 years, and middle school and teen programs for ages 11-18 years. As of FY 2012, 13,277 Families have registered for services, 8,080 children for specific child care and child and youth passes, and 6,754 children have been enrolled in sports and SKIES programs. Of those Families, 7,871 live on post and 5,365 reside off post. Additionally, 454 of those enrolled are DoD civilians, 88 are DoD contractors, and 438 are retired military.

Recreation Facilities. The Fort Bragg MWR oversees Child, Youth, and School Services; auto skills, frame, design and wood shop; library; physical fitness centers; clay target center; three bowling centers; two 18-hole golf courses; indoor and outdoor swimming pools; ice rink and in-line outdoor skating rink; Army Travel Camp; recreational camp and beach activities area; mountain bike trails and ski Rixen; and food and beverage facilities to include McKellar's Lodge, Fort Bragg Club, Iron Mike's Brew Pub, Green Beret Club, Sports USA, and Bingo.

4.3.8.2 Environmental Consequences

No Action Alternative

The No Action Alternative would result in minor impacts to existing socioeconomic resources. Fort Bragg's continuing operations represent a beneficial source of regional economic activity. The demand for public services and local school spaces by the dependents of Soldiers living off post would continue at current levels. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Economic Impacts. Alternative 1 would result in the loss of up to 8,000 military employees (Soldier and Army civilian employees), each with an average annual income of $41,830. In addition, this alternative would affect an estimated 4,464 spouses and 7,680 dependent

children, for a total estimated potential impact to 12,144 dependents. The total population of military employees and their dependents directly affected by Alternative 1 is projected to be 20,144.

Based on the EIFS analysis, there would be significant socioeconomic impacts for population in the ROI for this alternative. There would be no significant impacts for sales volume, employment, or income. The range of values that represents a significant economic impact in accordance with the EIFS model are presented in Table 4.3-6, along with the predicted percentages for Alternative 1. Table 4.3-7 presents the estimated economic impacts to the region for Alternative 1 as assessed by the Army's EIFS model.

Table 4.3-6. Economic Impact Forecast System and Rational Threshold Value Summary

Region of Influence Economic Impact Significance Thresholds	Sales Volume (Percent)	Income (Percent)	Employment (Percent)	Population (Percent)
Economic Growth Significance Value	12.36	9.14	6.62	2.36
Economic Contraction Significance Value	- 6.8	- 5.96	- 7.5	- 0.7
Forecast Value	- 4.09	- 3.13	- 5.34	- 3.53

Table 4.3-7. Economic Impact Forecast System: Summary of Projected Economic Impacts of Implementation of Alternative 1

Region of Influence Impact	Sales Volume	Income	Employment	Population
Total	- $448,370,800	- $390,474,200	- 8,943 (Direct) - 1,641 (Indirect) -10,584 (Total)	- 20,144
Percent	- 4.09 (Annual Sales)	- 3.13	- 5.34	- 3.53

The total annual loss in sales volume from direct and indirect sales reductions in the ROI would represent an estimated -4.09 percent reduction. State tax revenues would decrease by approximately $21.29 million as a result of decreased sales. Some counties within the ROI supplement the state sales tax of 4.75 percent by varying percentages, and these additional local tax revenues would be lost at the county and local level. Regional income would decrease by an estimated 3.13 percent. While 8,000 direct Soldier and Army civilian positions would be lost within the ROI, EIFS estimates another 943 military contract service jobs would be lost as a direct result of the implementation of Alternative 1, and an additional 1,641 job losses would indirectly occur as a result of a reduction in demand for goods and services in the ROI. The total reduction in demand for goods and services within the ROI is projected to lead to a loss of 10,584 non-farm jobs, or a -5.34 percent change in regional employment. The total number of employed non-farm positions in the ROI is estimated to be 198,357. A significant population reduction of -3.53 percent within the ROI is anticipated as a result of this alternative. Of the approximately 570,000 people (including those residing on Fort Bragg) that live within the ROI, 20,144 military employees and their dependents would no longer reside in the area following the implementation of Alternative 1. This would lead to a decrease in the demand for housing, and increased housing availability in the region. This could lead to a slight reduction in median home values. It should be noted that this estimate of population reduction includes Army civilian and military members and their dependents. This number likely overstates potential population impacts, as some of the people no longer employed by the military would continue to work and reside in the ROI, working in other economic sectors; however, this would in part be

counterbalanced by the fact that some of the indirect impacts would include the relocation of local service providers and businesses to areas outside the ROI.

Table 4.3-8 shows the total projected economic impacts, based on the RECONS model (see Section 4.0.4), that would occur as a result of the implementation of Alternative 1.

Table 4.3-8. Regional Economic System: Summary of Projected Economic Impacts of Implementation of Alternative 1

Region of Influence Impact	Sales Volume	Income	Employment
Total	- $274,958,832 (Local) - $519,989,748 (State)	- $370,596,376	- 8,605 (Direct) - 751 (Indirect) - 9,357 (Total)
Percent	- 2.56 (Total Regional)	- 2.97	- 4.71

The total annual loss in direct and indirect sales in the region represents an estimated -2.56 percent change in total regional sales volume according to the RECONS model, an impact that is approximately 1.53 percentage points less than estimated by EIFS; however, it is estimated that gross economic impacts at the state level would be greater. Extrapolating from sales volume numbers presented in the RECONS model, state tax revenues would decrease by approximately $24.7 million as a result of the loss in revenue from sales reductions, which is $3.41 million more in lost state sales tax revenue that projected by the EIFS model. Regional income is projected by RECONS to decrease by 2.97 percent, which is slightly less than the 3.13 percent reduction projected by EIFS. While 8,000 direct Soldier and Army civilian positions would be lost within the ROI, RECONS estimates another 605 direct contract and service jobs would be lost, and an additional 751 job losses would occur indirectly from a reduction in demand for goods and services in the ROI. The total estimated reduction in demand for goods and services within the ROI is projected to lead to a loss of 9,357 jobs (as compared to 10,584 jobs under EIFS), or a -4.71 percent change in regional non-farm employment (as compared to -5.34 percent under EIFS). When assessing the results together, both models indicate that the economic impacts of the implementation of Alternative 1 would lead to a net reduction of economic activity within the ROI of roughly the same magnitude.

Schools. A reduction of 8,000 Soldiers and Army civilians would result in a beneficial impact to regional schools. The majority of the analysis conducted by the Fort Bragg Regional Alliance focused on adverse impacts to regional schools due to the substantial growth of military personnel and their Families in the last 5 years at Fort Bragg. Most of this growth occurred in Harnett and Hoke counties. Therefore, it would be anticipated that a reduction of 8,000 Soldiers and Army civilian school-age dependents would result in a beneficial impact, as schools may become less crowded with a net decrease in student to teacher ratios in surrounding communities.

Public Health and Safety. Law enforcement, medical care provider, and fire and emergency service provider demands would potentially be decreased due to a reduction of military employees. Fort Bragg anticipates less than significant impacts to public health and safety under the Proposed Action.

Family Support Services. A reduction in demand for on- and off-post Family support services could potentially occur due to implementing Alternative 1. Fort Bragg anticipates less than significant impacts to Family support services under the Proposed Action.

Recreation Facilities. Implementation of Alternative 1 could potentially decrease recreational facility use on post. Fort Bragg anticipates less than significant impacts to recreation facilities due to the Proposed Action.

Environmental Justice. The ROI's Caucasian, African American, Native American, and Hispanic population differs from the state population; the Asian population in the ROI is nearly identical to the state population. Moore County is 78 percent Caucasian compared to 65 percent of the state as a whole. The poverty level of the ROI also differs from the state as a whole 21.33 percent of the Hoke County population is below the poverty level compared to 16.22 percent of the state as a whole. Fort Bragg anticipates less than significant impacts to children, economically disadvantaged populations, or minorities. Job loss due to implementing Alternative 1 would potentially impact all income and economic sectors throughout the ROI. Seen at the state level, the relatively higher minority populations in Hoke and Harnett counties could be seen as meaning that adverse impacts would have a disproportionate impact on those groups.

4.3.9 Energy Demand and Generation

4.3.9.1 Affected Environment

Fort Bragg's energy needs are currently met by a combination of natural gas and electric power, both of which are provided by private utilities.

Electricity. Progress Energy provides electric power to Fort Bragg via three 230-kilovolt (kV) transmission feeds into six substations located in the main cantonment area. A small portion of Fort Bragg's electricity is supplied by a few Electric Membership Cooperatives. Pope Army Airfield receives its power from the Fort Bragg system. While some of the distribution power lines are aerial and installed with telephone and cable distribution systems on common poles, Fort Bragg has begun to bury much of its distribution system. A private utility contractor operates and maintains the distribution conductors, poles, transformers and associated equipment including streetlights connected to the distribution system. Power demand has increased steadily to a peak of 135 megawatt (MW) in 2011; however, energy providers have been able to meet this load growth. Future decreases in energy intensity are anticipated as a result of greater energy efficiency.

Natural Gas. Fort Bragg has four medium to large, central heating systems, which include a variety of field-erected and packaged equipment units. There are also six central cooling systems and numerous individual heating and cooling systems on Fort Bragg. Many operational buildings and virtually all Family housing units are heated by self-contained, decentralized units. Natural gas-fired central boilers, and circulating hot water systems serve major building complexes. Oil- or gas-fired, hot air furnaces or heat pumps serve smaller buildings, duplexes and single family units. Natural gas is transported by pipeline to a single point of delivery by Piedmont Natural Gas. The ability of the natural gas supplier to meet an increase in future demands, if necessary, is unknown. The ability of the distribution system to meet demand increases also is unclear due to insufficient data. No study of the capability of the gas supplier to meet any increases in future load requirements has been performed. Current capabilities appear to be adequate based on operating experience of public works personnel (Jones, 2011).

4.3.9.2 Environmental Consequences

No Action Alternative and Alternative 1

Current energy needs would not deviate from existing use under the No Action Alternative and would be anticipated to have minor impact. Reducing personnel should result in less electricity

demand as a result of the implementation of Alternative 1. Additionally, the garrison implemented sustainability goals geared toward reducing electrical supply. A reduction of up to 8,000 personnel should not affect these goals.

4.3.10 Land Use Conflicts and Compatibility

4.3.10.1 Affected Environment

Fort Bragg is situated in the Sandhills of North Carolina, and consists of approximately 161,000 acres. Fort Bragg proper includes a cantonment area, the Weapons Range and Training Area, Pope Amy Airfield, and Simmons Army Airfield. Fort Bragg also includes two satellite areas, including Camp Mackall, a 7,919-acre sub-installation located 6.6 miles to the southwest, and the Richmond (Hoffman) tract, a 100-acre parcel located southwest of Fort Bragg in Richmond County, which is used for training.

Fort Bragg proper is irregularly shaped, stretching approximately 27 miles east and west and 16 miles north and south at its most distant points. The cantonment area is located in the southeastern end of the installation in Cumberland County; the Weapons Range and Training Area is primarily located in the central and western portions of the installation in Hoke, Cumberland, Harnett, and Moore counties.

The cantonment area, which occupies approximately 8,300 acres, is situated in the southeastern portion of the installation and includes a mix of administrative, operational, recreational, and community facilities, as well as vehicle maintenance and related facilities. Pope Army Airfield is on the northwest end and consists of approximately 2,000 acres. Simmons Army Airfield (579 acres) is located in the southeast corner of the cantonment area. The major community facilities (e.g., hospitals, schools, housing) are located in the middle of the cantonment area.

Encroachment on Fort Bragg's training lands from outside development requires that Fort Bragg carefully consider how its operations affect the surrounding area and how civilian land use near the installation affects operations. Fort Bragg planners work closely with regional governments to identify and mitigate any potential issues before they become impediments to training or conflict with land uses external to the installation. One product of that coordination effort was the 2008 update of the 2003 Regional Land Use Advisory Commission report. This update increases the regional land use plan from the 1-mile area surrounding the installation in 2003 to a 5 mile boundary area, as required by legislation passed in 2004 by the North Carolina legislature requiring all local governments to notify the commanding officer of a military base (located within 5 miles of its jurisdictional boundaries) of any proposed zoning changes. The purpose of the plan was to promote compatibility between military training and off-post development. This plan included recommendations to be enacted by both Fort Bragg and the surrounding communities that are designed to mitigate the effects of military training on Fort Bragg's neighbors (Parsons, 2009).

In Cumberland County, most land bordering Fort Bragg already is developed for residential use. In Hoke County, south of the installation boundary, development is not as widespread but is growing. Moore County, to the west-northwest and home of Southern Pines and Pinehurst golf courses, is undergoing substantial growth. The Woodlake area, near the northern boundary of Fort Bragg, is substantially developed. Harnett County, north of Fort Bragg, has an entirely different land use situation that could affect Fort Bragg. Currently, there is no zoning in place for the southern portion of the county closest to Fort Bragg. Mobile homes constitute a substantial and growing percentage of residential land use in this area. These structures have less noise attenuation capability than other types of dwelling units. As a result, there could be future land use incompatibility issues in Harnett County as this area develops.

4.3.10.2 Environmental Consequences

No Action Alternative and Alternative 1

Fort Bragg's land use would not be altered under the No Action Alternative nor would it change with a reduction of up to 8,000 Soldiers. A reduction in Soldiers would lead to less competition internally for training areas and training space, but there would not be any land use incompatibility issues anticipated that would affect any long-range development plans on or off Fort Bragg or future land use.

4.3.11 Hazardous Materials and Hazardous Waste

4.3.11.1 Affected Environment

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. E.O. 13423 states that all appropriate organizational levels including appropriate facilities, organizations, and acquisition activities, shall develop written goals and support actions to identify and reduce the release and use of toxic and hazardous chemicals and materials, including toxic chemicals, hazardous substances, O_3 depleting substances, and other pollutants that may result in significant harm to human health or the environment. The Fort Bragg HWMP 200-2 states that it is the Army's goal to continuously reduce hazardous waste generation by seeking non-hazardous substitution of hazardous materials, finding and developing markets for waste as a recyclable material, and promoting the total use of hazardous materials (USACE, 2006b).

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. Currently, Fort Bragg operates under a RCRA Subtitle C (EPA ID NC 8210020121 (200-2)), which authorizes storage of hazardous waste for a period of 90 days and Universal Waste for a period of 1 year in containers in Building 3-1240. In addition to Directorate of Public Works (DPW) storage facility, there are two 90-day storage facilities on Fort Bragg, located at the Womack Army Medical Center (Building 4-2817), and DPW HWRO 90-Day Storage Site, and a 90-Day Storage Site located at Camp Mackall (EPA ID NCR000144527 (RCRA Subtitle C).

Typical wastes routinely generated by on-going operations at Fort Bragg include universal waste, hazardous medical waste, weapons cleaning materials, chemical identification kits and mask filters, paint and paint-related products, pesticides, adhesives and sealants, solvents, battery acid, photographic developer and fixer solutions, fuel filters, contaminated fuel, and spent parts washer filters (USACE, 2006b). A large amount of waste solvent is generated by leased part washers and government-owned part washers. The waste solvent generated by the leased machines is taken off site for recycling. The waste solvent from the government-owned machines are collected in drums, taken to the DPW-ECB 90 day accumulation site for recycling or to be processed. In addition to hazardous waste, some regulated medical waste is generated through activities at the medical center, clinics, and field training exercises. This waste is collected in disposable red biohazard bags which are then placed in lined boxes. Medical waste is managed by contractors who take the waste off-site for incineration. Some medical waste may be radioactive (e.g., by products of therapy and treatments and diagnostic medical imaging). The procedures and practices for handling of radioactive medical waste are licensed under the Nuclear Regulatory Commission and the DA Radioactive Materials Authorization. Waste with a short half-life is stored in a secure locker at the Womack Army Medical Center, and waste with a long half-life is stored in the Preventive Medicine Bunker. All radioactive wastes are stored for 10 half-lives and then disposed of by an approved contractor.

4.3.11.2 Environmental Consequences

No Action Alternative

Overall, negligible effects are anticipated under the No Action Alternative. There would be no change in Fort Bragg's management of hazardous materials, toxic substances, hazardous waste, or contaminated sites. Fort Bragg would continue to manage existing sources of hazardous waste in accordance with the HWMP.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Minor impacts are anticipated as a result of the implementation of Alternative 1. In the short term, there would be an increase in the demolition of outdated and no longer needed facilities. This would increase the volume of solid waste generated. In addition, an increase in asbestos and LBP disposal is anticipated until facility reduction is completed as a result of this alternative. Construction workers and Army personnel would take measures to dispose materials in accordance with regulatory requirements installation management plans. A reduction of up to 8,000 personnel would not cause the installation to exceed installation's hazardous waste permit.

4.3.12 Traffic and Transportation

4.3.12.1 Affected Environment

Fort Bragg is located between Spring Lake and Fayetteville, North Carolina. Currently Fort Bragg is accessible through the I-95 and US-NC highway system. I-95 is located about 12 miles east of the post and is accessible through local arterial roads. The Fayetteville Outer Loop (I-295) is planned to connect to Fort Bragg to I-95 through a limited access highway. The anticipated completion of this project is early 2016.

Off-post Roadways Connecting Fort Bragg. The main roads that provide access to Fort Bragg are the All American Freeway, NC87 (Bragg Boulevard) and NC87-210 (Murchison Rd.) All American Freeway is a four lane divided roadway that is the main access connector into Fort Bragg. Visitors accessing post via the All American Freeway may use this gate for entry. Visitors entering post via Bragg Boulevard may use gates at Knox and Randolph Streets.

The Fort Bragg road system that connects to the North Carolina Department of Transportation roads is already experiencing capacity level failure. At this time Fort Bragg has not had the capacity to develop roadway projects to offset the existing traffic congestion. Troop decreases would benefit overall traffic conditions both on and off post.

Access Control Points. There are 16 ACPs or gates that control entry into Fort Bragg. The gates are located throughout the perimeter of the cantonment area. At each manned gate, security guards check vehicles before allowing access into the installation. Initially all these gates were manned full time. Budget limitations have forced the base to limit operation and close some of these ACPs. Troop decreases would relieve the problem of daily access to the base for the troops and civilian employees.

Parking. There are two distinct areas at Fort Bragg where parking availability presents different conditions. Post Exchange and commissary locations were observed to have adequate parking capacity; however, Womack Army Medical Center, Historic District, Soldier Support Center, and most training centers have inadequate parking capacity. Most Soldiers who live or commute to the base have at least one vehicle. The base is reviewing options such as satellite parking, shuttle system and parking decks. These plans would have to be incorporated into the off-post regional transportation network for optimum efficiency.

4.3.12.2 Environmental Consequences

No Action Alternative

Significant but mitigable impacts are anticipated. Surveys and studies conducted on the existing Fort Bragg's transportation system determined that, although basically sufficient to meet current needs, it is congested, and traffic improvements are needed.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Alternative 1 would have beneficial traffic impacts resulting from a reduction in force at Fort Bragg. It is anticipated that traffic congestion would be diminished and travel time would decrease. The roads would continue to be maintained and LOS for on- and off-post commuters would improve as traffic volume decreased. The decreased population would reduce traffic congestion on the installation and safety risks to pedestrians and bicyclists. A large percentage of the unit's married population, and unmarried Solders in the grade of E-6 (Staff Sergeant) and higher, reside in off-post housing. A reduction of off-post population would decrease traffic congestion, particularly the road network leading to the installation's cantonment area, during peak morning and evening hours.

4.3.13 Cumulative Effects

Region of Influence

Fort Bragg has been in operation supporting the Army since 1918. The ROI cumulative impact analysis encompasses five counties in North Carolina (Cumberland, Harnett, Hoke, Moore, and Scotland counties). The ROI was assessed for both direct and indirect impacts due to a reduction of up to 8,000 Soldiers.

There are numerous planned or proposed actions within the ROI that have the potential to cumulatively add to impacts of Army Force 2020. These actions are either in progress, or reasonably could be initiated within the next 5 years. A number of the Army's proposed projects have been previously identified in the installation's Real Property Master Planning Board and are programmed for future execution. A list of projects below presents some of the projects which may add to the cumulative impacts of the implementation of Army 2020 realignment alternatives.

Reasonably Foreseeable Future Projects

There are a number of reasonably foreseeable projects that may occur simultaneously with implementation of the Proposed Action. These projects that may add to cumulative impacts include BRAC, BRAC Discretionary and other Transformation, and Grow the Army projects. A list of reasonably foreseeable projects to be undertaken at Fort Bragg as well as in the region includes:

- Project Number (PN) 53555, Barracks Complex Third BCT, Phase III;
- PN 60272, 61172, 63850, 66227, 68526, 69287, 69293, 69302, 69382, 69448, 69493, 69552, 69758, 70751, 71229, 71861, 76364, 76369, 76375, 78499, Ammunition Supply Point (ASP) Bunker Demo, 108th Air Defense Artillery Round-out in conjunction with multiple MILCON projects supporting construction at the Old ASP/Patriot Point;
- PN 69835 and 80112 Sky Warrior Complex;
- Fort Bragg School Modernization (demo and consolidate Murray, McNair, Irwin, Butner, Pope, and Holbrook Schools);
- PN FF00013-7P, Land transfer to Harnett County;
- PN FF00041-1P, Charter School;

- PN FF00043-1P, Property transfer to Cumberland County;
- PN 55121 Aerial Gunnery Range;
- PN PT00003-2P Range 67 Expansion;
- ASP at Pope Air Force Base constructed;
- Northern Training Area – Linden Oaks Phase II Housing;
- Three Fort Bragg road improvements (Widen Gruber Road intersection at Zabitosky, widen Gruber Road intersection at Reilly Road and widen and resurface Vass Road to Morrison Bridge);
- Closure of Bragg Blvd to civilian through trips;
- Continued development pressure around the Fort Bragg and Pope Air Force Base perimeter, particularly in Cumberland, Harnett, Moore, and Hoke counties; and
- 00006 Privatize Army Lodging.

Other Agency (DoD and non-DoD) Actions (Past, Present, and Reasonably Foreseeable)

- Widening of All American Freeway (State Route 1007) form Owen Drive to the proposed Fayetteville Outer Loop Cumberland County (NC Department of Transportation); and
- Fayetteville Outer Loop Corridor Study (NC Department of Transportation).

Fort Bragg anticipates a range of cumulative effects resulting from the implementation of the Proposed Action and alternatives. Cumulative impacts for each alternative are as follows:

No Action Alternative

Beneficial through significant but mitigable adverse cumulative impacts would be anticipated from implementing the No Action Alternative. Under the No Action Alternative, no changes in military authorizations, or local environmental conditions would be anticipated. Installation facility shortages and excesses would remain at their currently planned levels without additional stationing or force reductions. The Army would continue to implement some facilities reductions of outdated/unused facilities. Under the No Action Alternative, cumulative impacts to the following VECs would have no impact, or have a minor impact only and are not carried forward for detailed discussion in this section. These VECs are: air quality, airspace, cultural resources, noise, biological resources, wetlands, water resources, facilities, socioeconomics, energy demand and generation, land use, and hazardous materials and hazardous waste. Soil erosion and traffic and transportation cumulative impacts are significant but mitigable under the No Action Alternative. Implementation of BMPs and the ITAM program mitigate soil erosion severity and frequency; traffic surveys and plans have been developed to improve Fort Bragg's transportation system.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

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 less than significant. 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.

The cumulative socioeconomic impact within the ROI, in addition to impacts described in Section 4.3.8.2, would be less than significant on the regional economy. Regionally, off-post unemployment has declined from 11.0 percent to 9.7 percent within the ROI from 2008 to 2012. A reduction of 8,000 Soldiers and civilians may negatively impact the Fort Bragg region by reducing home values if the housing demand declined, and lead to increased regional

unemployment of service sector jobs that service Soldiers and their Families. Nationally, unemployment has been trending lower since 2010. In April 2010, the national unemployment rate was 9.9 percent and as of October 2012 it was reported as 7.8 percent (Bureau of Labor Statistics, 2012). Under Alternative 1, the loss of 8,000 Soldiers in conjunction with other reasonably foreseeable proposals would have less than significant adverse impact. The potential reductions in Army Soldiers, when combined with other potential reductions, would have a cumulative economic impact, though it would not likely be significant.

4.4 FORT CAMPBELL, KENTUCKY

4.4.1 Introduction

Fort Campbell is an Army installation located on approximately 105,000 acres in Montgomery and Stewart counties, in Tennessee, and Trigg and Christian counties, in Kentucky (Figure 4.4-1). About 14 percent of the installation is developed, while about 86 percent is undeveloped area maintained for military training. In the training area, forests, streams, fields, and other natural settings are maintained to provide a realistic context for training activities. The training area contains about 26,000 acres of ranges and impact areas, and approximately 64,000 acres of light maneuver areas. Except for roads, cleared areas, and structures associated with training ranges, heliports, storage, and support facilities, most of the training area consists of natural habitat including forests, fields, fields leased for agriculture, lakes, streams and wetlands.

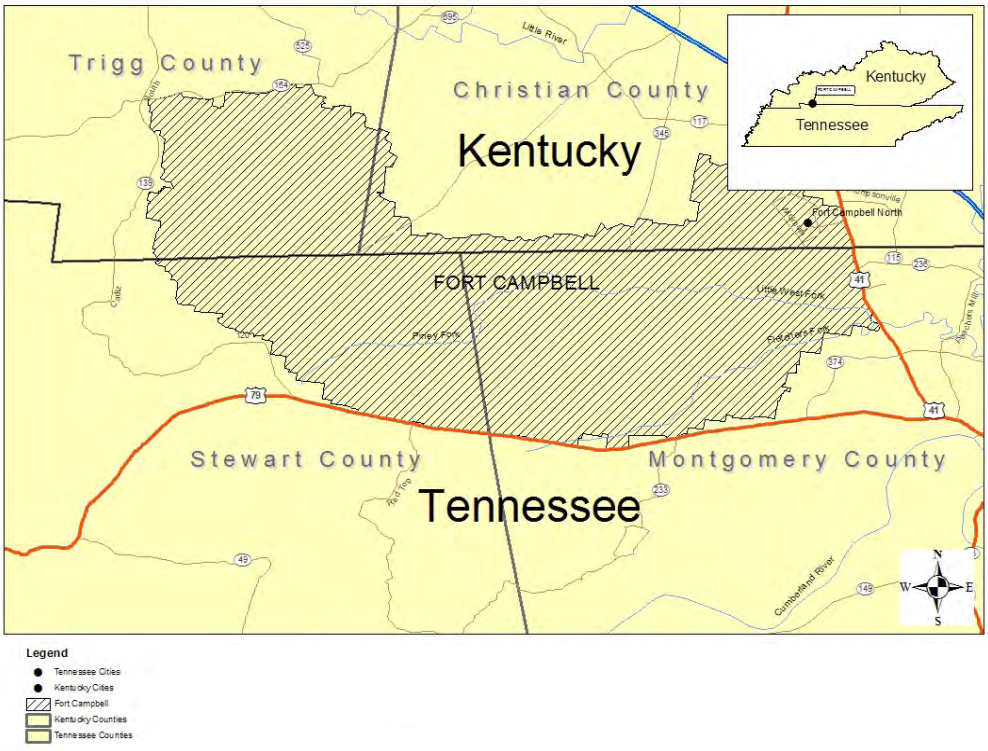

Figure 4.4-1. Fort Campbell

Fort Campbell has several areas identified as "drop zones" and "landing zones" used primarily for parachute training and air assault (helicopter operations) training.

Approximately 15,000 acres of the installation is cantonment area, which includes the main post, as well as the Campbell Army Airfield and Sabre Heliport. Vegetation in the cantonment area is primarily ornamental lawns, shrubs, and trees cultivated for aesthetic purposes; there are no natural terrestrial or aquatic communities in the cantonment area.

Fort Campbell is the home of the Screaming Eagles of the 101st Airborne Division (Air Assault) and tenant units totaling approximately 34,400 Active Duty personnel. Fort Campbell is the home of the 1/2/3/4 BCTs, 101st CAB, 159th CAB and 101st SUSBDE. Tenant Unit's consist of the 5th Special Forces Group (SFG) (Airborne), 160th Special Operations Aviation Regiment, 52nd Ordnance Group, 31st Military Police Detachment, 326th Engineer Battalion, 902nd Military

Intelligence Group, 86th Combat Support Hospital, 716th Military Police Battalion and 2d Battalion, 44th Air Defense Artillery Regiment. The U.S. Air Force has four units at Campbell Army Airfield: 19th Air Support Operation Squadron, 621st Air Mobility Operations Group, 2nd Detachment, 10th Combat Weather Squadron and 4th Detachment, 18th Weather Squadron.

Fort Campbell's primary mission is to advance the combat readiness of the 101st Airborne Division (Air Assault) and the non-divisional units posted at the installation through training, mobilization, and deployment. Fort Campbell is capable of deploying combat equipped Soldiers, tactical vehicles, weapons and ammunition, and logistical equipment to sustain thousands of Soldiers in a tactical environment for an extended period of time. The installation serves as a Premier Power Projection Platform for the 101st Airborne Division and for Special Operations Command units.

4.4.1.1 Valued Environmental Components

For alternatives the Army is considering as part of Army 2020 force structure realignments, Fort Campbell does not anticipate any significant adverse environmental impacts as a result of the implementation of Alternative 1 (Force reduction of up to 8,000 Soldiers and Army Civilians) or Alternative 2 (Installation gain of up to 3,000 Soldiers). Fort Campbell anticipates significant socioeconomic impacts to economic activity, employment, and population as a result of Alternative 1. Table 4.4-1 summarizes the anticipated impacts to VECs for each alternative.

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

Valued Environmental Component	No Action Alternative	Alternative 1: Force Reduction of up to 8,000	Alternative 2: Growth of up to 3,000
Air Quality	Negligible	Negligible	Negligible
Airspace	Negligible	Negligible	Negligible
Cultural Resources	Negligible	Negligible	Negligible
Noise	Negligible	Negligible	Negligible
Soil Erosion	Minor	Beneficial	Minor
Biological Resources	Negligible	Negligible	Negligible
Wetlands	Negligible	Negligible	Negligible
Water Resources	Minor	Beneficial	Minor
Facilities	Negligible	Beneficial	Less than Significant
Socioeconomics	Minor	Significant	Beneficial
Energy Demand and Generation	Negligible	Beneficial	Minor
Land Use Conflict and Compatibility	Negligible	Negligible	Negligible
Hazardous Materials and Hazardous Waste	Negligible	Negligible	Negligible
Traffic and Transportation	Negligible	Beneficial	Significant but Mitigable

4.4.1.2 Valued Environmental Components Dismissed from Detailed Analysis

For the VECs discussed in this section below, no more than a beneficial or negligible impact would be anticipated. Therefore, these VECs are not being carried forward for detailed analysis, as no potential for significant impacts exists.

- ***Air Quality.*** The Proposed Action and alternatives considered are not anticipated to adversely impact regional air quality. Current installation air emissions are well below limits agreed upon between Fort Campbell and the states of Kentucky and Tennessee. Minimal impacts on NAAQS pollutants from both stationing alternatives are anticipated.
- ***Airspace.*** The Proposed Action and alternatives would have no effect on the existing airspace. No addition or reduction in current aviation assets would occur as a result of any of the alternatives considered. Only negligible increase or decrease in UAS training may occur, if there were any change at all in airspace use requirements.
- ***Cultural Resources.*** The Proposed Action and alternatives are not anticipated to adversely impact cultural resources. Existing protocols and procedures for site placement at Fort Campbell make the unintentional damage of a historic property, either through demolition or construction, unlikely. Fort Campbell periodically monitors significant archaeological sites and known prehistoric burials for compliance with the ARPA and NAGPRA.
- ***Noise.*** No adverse noise impacts are anticipated from the Proposed Action and alternatives. 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. The installation already has mitigations in place to help reduce current noise.
- ***Biological Resources.*** The Proposed Action and alternatives would not adversely impact endangered species or their habitat. The installation has developed an Endangered Species Management Component in coordination with the USFWS and coordinates all activities that may have an adverse impact with the USFWS. Management controls are in place to reduce the chance of a violation.
- ***Wetlands.*** No impacts to installation wetlands are anticipated as a result of the Proposed Action and alternatives. Wetlands are designated as non-training areas and Soldiers are provided instruction on authorized activities around wetland areas through the Directorate of Plans, Training, Mobilization, and Security, Range Division, ITAM program. Fort Campbell proactively monitors wetland areas and ensures that required training does not impact wetlands areas.
- ***Land Use Conflict and Compatibility.*** No significant impacts to existing land uses on and around the installation are anticipated as a result of the Proposed Action and alternatives. Although Fort Campbell has a training land deficit, the installation Range Division has the capability to schedule multiple activities within the training lands to meet the requirements of the Proposed Action. A reduction in troop strength would not alter existing land use nor cause compatibility issues with adjacent land uses.
- ***Hazardous Material and Hazardous Waste.*** The Proposed Action and alternatives would not negatively impact the current hazardous waste handling capabilities on Fort Campbell. Materials used, stored, and handled may increase; however, existing procedures, regulations, and facilities are able to meet storage, use, and handling requirements. Adequate hazardous waste disposal facilities are available to manage an increase in hazardous waste.

Fort Campbell anticipates that the implementation of any of the alternatives would result in negligible impacts for those VECs discussed above. The following provides a discussion of the

VECs requiring a more detailed analysis, as they are anticipated to have the potential of a higher level of impact as a result of the implementation of the Proposed Action alternatives.

4.4.2 Soil Erosion

4.4.2.1 Affected Environment

Fort Campbell is located near the boundary of the Lexington Plain of southwestern Kentucky and the Highland Rim Plateau of northwestern Tennessee. The installation is within the Western Highland Rim, which surrounds the Pennyroyal Plateau. Landscape topography includes gently rolling hills with steep dissected hilly land along the western boundary. Elevation ranges from 400 feet to 700 feet.

The USDA soil map for Fort Campbell identifies 30 soil mapping units on the installation. The major soil associations are Pembroke-Crider, Nicholson, and Dickson-Mountview (USDA, 1975; USDA, 1981). Pembroke-Crider soils are found in areas identified as barrens on the eastern side of the installation. Nicholson soils are found on ridges, plateaus, and slopes adjacent to streams. Dickson-Mountview soils are found on the gently rolling plains that constitute the majority of the installation.

Soil information for Fort Campbell indicates that the potential for erosion for over half of the soil mapping units on the installation is moderate to severe. Because of a high degree of topographic variation within soil mapping units, erosion potential varies considerably among locations within units. Most problems associated with soil erosion on Fort Campbell result from the removal of vegetation on moderate to severe slopes or on long gradual slopes.

Erosion is influenced by the soil composition, slope, and annual rainfall. At one time Fort Campbell used a firebreak system which heavily influenced soil erosion rates. The installation has closed the firebreak system through obliteration of breaks by land smoothing and reseeding. Some of the breaks were upgraded to gravel forest access roads.

Unauthorized stream crossings have been closed and revegetated. The installation was notified of a 401D Violation in regards to the sediment in the streams exceeding the CWA standards. Most of the wheeled vehicle traffic on the installation is on gravel secondary roads and range access roads.

4.4.2.2 Environmental Consequences

No Action Alternative

No changes in current installation erosion conditions are anticipated under the No Action Alternative. Fort Campbell would continue identifying and repairing erosion locations through the installation through the ITAM program. Sediment transport would continue to be monitored and funding of corrective actions would continue.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

The decrease in troop numbers would be beneficial to soil erosion impacts currently being experienced at Fort Campbell. Seventy-five percent of the installation consists of highly erodible soils and areas of severe erosion exist. Reduction of off-road traffic could improve soil conditions and reduce the potential of sedimentation into surface waters within and surrounding the installation. The ITAM program would continue to identify and repair existing erosion sites. The reduction of 8,000 Soldiers, including a BCT, would provide land rehabilitation crews with more access to assist in training area rehabilitation and would allow more time for natural revegetation to occur. Training use in the training areas would be anticipated to decrease slightly in intensity and, therefore, result in less soil compaction and loss of vegetative cover, thereby reducing some water and wind erosion of soils.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

There would be minor impacts on soils as a result of the implementation of Alternative 2. The addition of up to 3,000 Soldiers may increase training area usage by up to 10 percent over current levels; however, it is anticipated that much of the mounted training would be conducted on roads and hardened surfaces. Exercises that require some off-road training may result in minor soil impacts. The terrain would likely show the impact from the vehicle maneuvers, turns and traction, digging, and deep ruts. These areas could then be more prone to water erosion; however, off-road activities are monitored through the ITAM program and their effects are minimized by the use of appropriate BMPs for controlling runoff, erosion, and sedimentation. Although erosion occurs, it is contained and repaired. The condition of existing (unimproved) range roads and their ability to support for heavy truck traffic would have to be evaluated.

4.4.3 Water Resources

4.4.3.1 Affected Environment

Fort Campbell's major water usages are for water supply, recreation, training, and aquatic habitat. Vehicular traffic is limited to crossings at bridges and hardened stream crossings within these areas. The majority of streams are impaired by on-going military and non-military activities.

Surface Water and Watersheds. The surface water systems of Fort Campbell consist of 422 stream miles and four small man-made lakes at scattered locations. Major streams are perennial with substrates ranging from unconsolidated sediments to cobble (Fort Campbell, 1999). All streams are impaired and listed as state priority waterways for TMDL development. Many of the streams are impaired as a result of too much sediment in the water. The installation is divided into three subwatersheds; Little West Fork Creek, Saline Creek, and Casey Creek, all of which drain to the Cumberland River. The Cumberland River is approximately 9 miles south of the installation and flows into the Ohio River, ultimately reaching the Gulf of Mexico through the Mississippi River system (U.S. Army, 1994). The Little West Fork Creek watershed covers most of the installation, including the cantonment area, Campbell Army Airfield, training areas, ranges, and impact areas. The Saline Creek and Casey Creek watersheds drain the northwest portion of the post, which encompasses training areas, ranges, and impact areas (Fort Campbell, 2004).

Peak water flow typically occurs during the period from December through April, then gradually receding during the low flow period of August through October. Stream flow during dry periods is maintained by springs (Fort Campbell, 1999). There is a strong connection between surface waters and groundwater on Fort Campbell. Because of the karst terrain, streams may exhibit losing characteristics (flow is lost to groundwater) and gaining reaches (groundwater discharge increases stream flow). Subsequently, these streams can, and often do, reappear in another location as a spring. Disappearing streams are more likely to occur during drought conditions in late summer and early fall when the water table drops (Fort Campbell, 1999).

Surface water quality is moderately impacted by installation activities. The amount of sedimentation in streams resulting from erosion can be moderate to severe, as determined by the loss of rocky substrates in streams through burial by sediments. Sedimentation is the most serious issue impacting water quality at Fort Campbell. Steps being implemented to minimize water quality degradation include cessation of grading bare soil firebreaks twice yearly, which allows these areas to develop vegetative cover to hold the soil; and aggressive enforcement of erosion controls requirements on construction projects in the cantonment area. Sediment accumulation data has been collected at several locations as part of the Land Condition Trend

Analysis program. Monitoring results show that sedimentation has been affecting biotic communities and compromising the aquatic systems at Fort Campbell (BHATE Environmental Associates, Inc., 2004).

Water Supply. Boiling Spring is Fort Campbell's primary source of drinking water. It receives groundwater from the Boiling Spring groundwater basin that is approximately 50 square miles. Fort Campbell's drinking water system is a privatized system with a 7.6 mgd capacity.

Wastewater. Fort Campbell's privatized WWTP services the cantonment area, Campbell Army Airfield, and Sabre Heliport. The 4 mgd facility provides both primary and secondary treatment and meets all applicable water quality standards. Additional generation of solid wastes are within the capacity of local and regional waste disposal facilities.

Stormwater. Surface soil erosion caused by stormwater leads to considerable surface water impacts at Fort Campbell. Impacts are mitigated by sediment and erosion controls at construction locations. The installation and the USACE are working with construction contractors to ensure that proper stormwater controls are constructed and utilized, operated, and maintained at construction sites. The ability of the installation and USACE to properly enforce these requirements has been limited in the past, but is improving. Other activities that may be contributing to the sediment and erosion problems include runoff from agricultural operations, military training, vehicle fluid spillage, pesticides, fertilizers, and animal waste.

4.4.3.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, no change from existing conditions would occur. Fort Campbell would continue to monitor surface water quality and develop projects to improve existing conditions. Minor impacts to surface waters would result from the No Action Alternative.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

A decrease in Army forces would be beneficial to water resources. Reduction in Soldier and civilian strength would reduce overall Fort Campbell water consumption and requirements for water treatment. Although existing watershed impairments exist, no additional impacts to the watershed would be anticipated, and in fact, the potential reduction of off-road maneuver days may reduce the potential for sediment runoff.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

Minor impacts to water resources are anticipated as a result of the implementation of Alternative 2. The addition of 3,000 personnel would increase water demand for consumption. Water demand is anticipated to increase with a higher amount of Soldiers stationed at the installation. There would also be a potential impact on watersheds as all streams are listed as state priority waterways for TMDL development. Training area surface water impacts are monitored by the DPW, Environmental Division in support of natural resource management. The installation conducts management meetings to discuss solutions to existing impacts and to develop preventative measures that support mission critical training exercises. Sufficient management controls exist to prevent unpermitted sediment deposition into waters of the U.S. The Fort Campbell DPW, Environmental Division has developed a comprehensive construction site inspection program to ensure compliance with installation water quality permits.

4.4.4 Facilities

4.4.4.1 Affected Environment

Fort Campbell is located approximately 1 mile south of Hopkinsville, Kentucky and abuts Oak Grove, Kentucky and Clarksville, Tennessee. The post straddles the Kentucky-Tennessee border; approximately 70,000 acres (two-thirds of the total area) of the installation are located in Tennessee.

Built-up areas include the cantonment area, the former Clarksville Base, the installation construction debris landfill, and several small solid waste management units. A variety of small land uses are located in the built-up areas including administration, operational training and maintenance, landing strips for fixed-wing aircraft and helicopters, motor pools, supply and storage, maintenance, commercial and medical services, industrial, community facilities, Soldier and Family housing, recreation, and open space.

The Master Plan for Fort Campbell is currently supporting four infantry brigades, two aviation brigades, one SUSBDE, two special operations brigades, and miscellaneous tenants. There is buildable space on the installation to support additional growth, but not within existing areas designated for facilities construction. Fort Campbell faces mission support facility challenges. Units are operating at approximately 50 percent of their authorized space on average: this shortfall includes relocatable and temporary structures. Fort Campbell has only 39 percent of the total maneuver area needed to train the 101st Division's platoon, company, and battalion mission essential tasks. The shortage of maneuver area is even greater when adding the maneuver area requirements of the 5th SFG (A). Fort Campbell does however have sufficient range throughput capability to support Alternative 2, when scheduling work-arounds and other training management measures are implemented.

4.4.4.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, no change from existing conditions would occur. Fort Campbell would continue to utilize existing space to support administrative and billeting needs of the Fort Campbell community. Current planning documents adequately support space requirements on the installation.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Overall beneficial impacts to facilities and infrastructure are anticipated. A reduction of up to 8,000 Soldiers would provide the installation the opportunity to reduce aging and relocatable facilities. Some units, currently in facilities that are well below the authorized requirement, would have the opportunity to relocate to a more appropriately configured building or facility. No adverse impacts to the existing utility system are anticipated. Energy efficiency may be gained by demolition of selected World War II wooden facilities. Other more modern facilities may be re-purposed for new uses to provide units and tenants with more facility space to conduct operations.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

Less than significant impacts to facilities and infrastructure are anticipated. An increased Soldier strength of 3,000 would be reflected through increased infrastructure requirements throughout the cantonment area. The addition of 3,000 Soldiers would require new MILCON to support this alternative, as the current facilities shortfall for existing units is pervasive and would not permit additional sharing of facilities to meet the mission requirements of new units. Very limited

administrative and billet space is available to support an additional 3,000 Soldiers as a result of this alternative.

4.4.5 Socioeconomics

4.4.5.1 Affected Environment

The ROI consists of Fort Campbell and the surrounding communities, including Christian and Trigg counties in Kentucky and Montgomery and Stewart counties in Tennessee. Fort Campbell straddles the Kentucky-Tennessee border between Hopkinsville, Kentucky and Clarksville, Tennessee.

Population and Demographics. The Fort Campbell population is measured in three different ways. The daily working population is 32,289, and consists of full-time Soldiers and Army civilian employees working on post. The population that lives on Fort Campbell consists of 13,939 Soldiers and an estimated 12,866 dependents, for a total on-post resident population of 26,805. Finally, the portion of the ROI population related to Fort Campbell is 46,222 and consists of Soldiers, civilian employees, and their dependents living off post.

The ROI county population is approximately 280,000. Compared to 2000, the 2010 population increased in Christian, Trigg, Montgomery, and Stewart counties (Table 4.4-2). The racial and ethnic composition of the ROI is presented in Table 4.4-3.

Table 4.4-2. Population and Demographics

Region of Influence Counties	Population 2010	Population Change 2000-2010 (Percent)
Christian	75,000	+ 2.3
Trigg	15,000	+ 13.8
Montgomery	175,000	+ 27.9
Stewart	15,000	+7.7

Table 4.4-3. Racial and Ethnic Composition

State and Region of Influence Counties	Caucasian (Percent)	African American (Percent)	Native American (Percent)	Hispanic (Percent)	Asian (Percent)	Multiracial (Percent)	Other (Percent)
Kentucky	86	8	1	3	0	1	0
Tennessee	76	17	1	5	0	1	0
Christian	69	21	0	6	1	3	0
Trigg	88	8	0	1	0	2	0
Montgomery	67	19	0	8	2	3	1
Stewart	94	1	1	2	1	2	0

Data taken from the U.S. Census Bureau website, 22 February 2012.

Permanent party Soldiers and full-time civilians generate demand for housing, enroll their children in local schools, and require municipal services like other households in the region. Temporary duty (TDY) personnel and transient military and civilian populations generate increased demand for lodging, dining, and retail services in the area.

Employment, Income, and Housing. Compared to 2000, the 2009 employment (private nonfarm) increased in Montgomery and Stewart counties.

Regionally, off-post unemployment has risen from 5.0 percent to 8.2 percent within the ROI from 2005 to 2012. Unemployment increased in Christian and Trigg counties, as well as in Kentucky and Tennessee (Table 4.4-4). Employment, median home value, household income, and poverty levels are presented in Table 4.4-4.

Table 4.4-4. Employment, Housing, and Income

State and Region of Influence Counties	2009 Total Nonfarm Employment (Employees)	Employment Change 2000-2009 (Percent)	Median Home Value 2005-2009 (Dollars)	Median Household Income 2009 (Dollars)	Population Below Poverty Level 2009 (Percent)
Kentucky	1,486,545	- 1.8	113,100	40,061	18.40
Tennessee	2,317,986	- 3.0	128,000	41,715	17.20
Christian	22,186	- 1.8	92,100	35,785	19.00
Trigg	2,352	- 14.2	98,300	41,825	13.00
Montgomery	37,864	+ 13.0	122,700	46,523	13.80
Stewart	1,205	+ 3.4	105,900	40,214	17.10

Fort Campbell has Family quarters totaling 4,457 for officers and 4,010 for enlisted personnel, through an RCI partnership. Barracks spaces for unaccompanied personnel total 9,731. Off-post housing consists predominately of single-family dwellings with limited multi-family dwellings. The surrounding counties have numerous single-family housing developments under construction with limited multi-family construction in the ROI.

Schools. Children of military personnel attend either the Fort Campbell School System or school systems within ROI communities. The ROI includes four public school districts supporting 35 elementary, 12 middle, 12 high, and two alternative schools (Table 4.4-5). Numerous private schools are located throughout the ROI. Clarksville-Montgomery County School System, the largest system in the ROI, plans to open two new elementary schools to support the growing K-5 student population. School systems within the ROI receive significant federal funding based on the number of military dependents they support.

Table 4.4-5. Public School Systems within the ROI

Public School System	Elementary	Middle	High	Alternative	Total
Christian County School System	10	3	2	1	**16**
Clarksville-Montgomery County School System	22	7	8	1	**38**
Stewart County School System	2	1	1	0	**4**
Trigg County School System	1	1	1	0	**3**
TOTAL	**35**	**12**	**12**	**2**	**61**

Public Health and Safety

- ***Police.*** The Fort Campbell Police Department, a part of the Directorate of Emergency Services, provides law enforcement and property protection at Fort Campbell. 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.*** The Fort Campbell Fire Department, a part of the Directorate of Emergency Services (DES), provides emergency firefighting and rescue services at Fort Campbell. The Fort Campbell Fire Department responds to emergencies involving structures, facilities, transportation equipment, hazardous materials, and natural and man-made disasters, and directs fire prevention activities; and conducts public education programs. The DES has mutual aid agreements with Kentucky and Tennessee Departments of Forestry, USFS and local counties and cities within the ROI.
- ***Medical.*** Fort Campbell supports a range of medical services. The Blanchfield Army Community Hospital (BACH) provides healthcare services for military personnel, military dependents, and to military retirees and their dependents. BACH services include audiology/speech pathology, dermatology, dietetics, emergency services, family medicine, internal medicine, OB/GYN, occupational therapy, ophthalmology, optometry, orthopedics, otolaryngology, pediatrics, physical therapy, psychiatry, surgery, podiatry, psychology, social work, and substance abuse. Fort Campbell also provides dental services for Soldiers and their dependents.

Family Support Services. The Fort Campbell FMWR and ACS provide programs, activities, facilities, services, and information to support Soldiers and Families. Services provided at Fort Campbell 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. Fort Campbell recreational facilities include fitness centers, swimming pools, athletic fields, golf course, bowling center, outdoor recreation opportunities, and sports teams. The installation supports numerous fee and non-fee recreational programs for Soldiers and their dependents annually.

4.4.5.2 Environmental Consequences

No Action Alternative

There would be no change or minor impacts anticipated under the No Action Alternative. Fort Campbell would be anticipated to continue providing a positive economic impact to the surrounding community under the No Action Alternative. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated. Fort Campbell's continuing operations represent a beneficial source of regional economic activity and any increase in Soldiers would beneficially affect socioeconomics in the region.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Economic Impacts. Alternative 1 would result in the loss of up to 8,000 military employees (Soldier and Army civilian employee), each with an average annual income of $41,830. In addition, this alternative would affect an estimated 4,464 spouses and 7,680 dependent children for a total estimated potential impact to 12,144 dependents. The total population of military employees and their dependents directly affected by Alternative 1 would be 20,144.

Based on the EIFS analysis, there would be significant impacts for employment and population for this alternative. There would be no significant socioeconomic impacts for sales volume or income in the ROI. The range of values that represents a significant economic impact in accordance with the EIFS model are presented in Table 4.4-6, along with predicted percentages for Alternative 1. Table 4.4-7 presents the projected economic impacts to the region for Alternative 1 as assessed by the Army's EIFS model.

Table 4.4-6. Economic Impact Forecast System and Rational Threshold Value Summary of Implementation of Alternative 1

Region of Influence Economic Impact Significance Thresholds	Sales Volume (Percent)	Income (Percent)	Employment (Percent)	Population (Percent)
Economic Growth Significance Value	13.63	12.75	11.51	7.59
Economic Contraction Significance Value	- 8.6	- 6.99	- 5.25	- 1.62
Forecast Value	- 7.42	- 6.24	- 10.32	- 7.19

Table 4.4-7. Economic Impact Forecast System: Summary of Projected Economic Impacts of Implementation of Alternative 1

Region of Influence Impact	Sales Volume	Income	Employment	Population
Total	- $363,278,500	- $369,068,500	- 8,855 (Direct) - 1,044 (Indirect) - 9,899 (Total)	- 20,144
Percent	- 7.42 (Annual Sales)	- 6.24	- 10.32	- 7.19

The total annual loss in sales volume from direct and indirect sales reductions in the ROI represents an estimated -7.42 percent reduction. State tax revenues would decrease by approximately $21.8 million as a result of decreased sales. Some counties within the ROI supplement the state sales tax of 6 percent by varying percentages, and these additional local tax revenues would be lost at the county and local level. Regional income would decrease by an estimated 6.24 percent. While 8,000 direct Soldier and Army civilian positions would be lost within the ROI, EIFS estimates another 855 military contract service jobs would be lost as a direct result of the implementation of Alternative 1, and an additional 1,041 job losses would occur from a reduction in demand for goods and services in the ROI. The total reduction in demand for goods and services within the ROI is projected to lead to a loss of 9,899 non-farm jobs, or a -10.32 percent change in regional non-farm employment. This is a significant adverse economic impact. The total number of employed non-farm positions in the ROI is estimated to be 95,896. A significant population reduction of 7.19 percent within the ROI is anticipated as a result of this alternative. Of the approximately 280,000 people (including those residing on Fort Campbell) that live within the ROI, 20,144 military employees and their dependents would no longer reside in the area following the implementation of Alternative 1. This could lead to a decrease in demand for housing, and increased housing availability in the region. This would lead to a slight reduction in median home values. It should be noted that this estimate of population reduction includes Army civilian and military members and their dependents. This number likely overstates potential population impacts, as some of the people no longer employed by the military would continue to work and reside in the ROI, working in other economic sectors; however, this would in part be counterbalanced by the fact that some of the indirect impacts would include the relocation of local service providers and businesses to areas outside the ROI.

Table 4.4-8 shows the total projected economic impacts, based on the RECONS model, that would occur as a result of the implementation of Alternative 1.

Table 4.4-8. Regional Economic System: Summary of Projected Economic Impacts of Implementation of Alternative 1

Region of Influence Impact	Sales Volume	Income	Employment
Total	- $365,808,847 (Local) - $577,235,056 (State)	- $406,640,553	- 9,037 (Direct) - 1,152 (Indirect) - 10,189 (Total)
Percent	- 7.48 (Total Regional)	- 6.88	- 10.63

The total annual loss in direct and indirect sales in the region represents an estimated -7.48 percent change in total regional sales volume according to the RECONS model, an impact that is approximately 0.06 percentage points more than projected by EIFS; however, it is estimated that gross economic impacts at the state level would be greater. Extrapolating from sales volume numbers presented in the RECONS model, state tax revenues would decrease by approximately $34.63 million as a result of the loss in revenue from sales reductions, which is $12.63 million more in lost state sales tax revenue than projected by the EIFS model. Regional income is projected by RECONS to decrease by -6.88 percent, slightly more than the -6.24 percent reduction projected by EIFS. While 8,000 direct Soldier and Army civilian employee positions would be lost within the ROI, RECONS estimates another 1,037 direct contract and service jobs would be lost, and an additional 1,152 job losses would occur indirectly from a reduction in demand for goods and services in the ROI. The total estimated reduction in demand for goods and services within the ROI is projected to lead to a loss of 10,189 jobs, or a -10.63 percent change in non-farm regional employment, which is 0.32 percentage points greater than projected under the EIFS model.

When assessing the results together, both models indicate that the economic impacts of the implementation of Alternative 1 would lead to an overall reduction of economic activity within the ROI of roughly the same magnitude.

***Population and Demographics*.** Fort Campbell anticipates a significant loss in military population and training throughput as a result of the implementation of Alternative 1. A reduction in Fort Campbell's civilian population may be implemented due to the loss of civilian support requirements. Installation population and demographic composition is subject to further change with future guidance from higher headquarters.

Housing. Alternative 1 would increase the availability of barracks space for unaccompanied personnel and the increase the availability of Family quarters. Those outcomes would likely decrease the off-post demand for rentals and purchases of housing.

Schools. Fort Campbell anticipates the potential for significant adverse impact to the school districts located within the ROI under Alternative 1. More than 9,700 military-connected students attend off-post public schools (Table 4.4-9). The school districts within the ROI receive significant federal and DoD funding based on the number of military-connected children they support. Impacts to school district funding would be seen throughout the ROI. The proposed reduction would affect the Clarksville-Montgomery County School System disproportionately due to the large number of military-connected children, 8,310 or 27.2 percent of the total student population, attending this system. CMCSS has invested significant local funds to construct new schools in support of the growing student population. Loss of funds in support of military-connected children to school districts within the ROI would lead to adverse impacts to school funding if Alternative 1 is implemented.

Table 4.4-9. Military-connected Students Attending Public School Systems within the ROI

Public School System	Population (Students)	Military-connected (Students)	Military-connected (Percent)
Christian County School System	8,772	1,185	13.5
Clarksville-Montgomery County School System	30,450	8,310	27.2
Stewart County School System	2,263	113	4.9
Trigg County School System	2,055	146	7.1
TOTAL	**43,540**	**9,754**	**22.4**

Public Health and Safety. As a result of the implementation of Alternative 1, resident and daytime population levels on Fort Campbell would decrease. This decrease could potentially reduce demand on law enforcement, fire and emergency service providers, and medical care providers on and off post. Fort Campbell anticipates less than significant impacts to public health and safety under the Alternative 1.

***Family Support Services*.** As a result of the implementation of Alternative 1, a reduction in permanent-party Soldiers could reduce demand on Family support service providers on post. Active Duty military, remaining permanent party Soldiers, retirees and their dependents would continue to demand child care and other ACS programs. Off-post Family support services throughout the region would not likely experience a significant decrease in clients. Fort Campbell anticipates less than significant impacts to Family support services under the Alternative 1.

Recreation Facilities. A reduction in permanent-party Soldiers could potentially decrease use of recreation facilities on post. Any decrease in utilization would be minor. Fort Campbell does not anticipate significant adverse or beneficial impacts to recreation facilities under the Alternative 1.

Environmental Justice. As a result of the implementation of Alternative 1, Fort Campbell does not anticipate a disproportionate adverse impact to minorities, economically disadvantaged populations or children would occur in the ROI. Fort Campbell anticipates that job loss would be felt across economic sectors and at all income levels and spread geographically throughout the ROI. The proposed force reduction in military authorizations on Fort Campbell would not have disproportionate or adverse health effects on low-income or minority populations in the ROI. Christian County has a higher proportion of African American and Hispanics than Kentucky as a whole. Montgomery County has a higher proportion of African American and Hispanics compared to Tennessee. On a state-wide level, adverse impacts under Alternative 1 could be seen as having a disproportionate adverse impact on these minority groups.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

Economic Impacts. Alternative 2 would result in the gain of up to 3,000 Soldiers, with an average annual income of $41,830 each. In addition, this alternative would affect an estimated 1,674 spouses and 2,880 dependent children for a total estimated potential impact to 4,554 dependents. The total population of military employees and their dependents directly affected by Alternative 2 would be 7,554.

Based on the EIFS analysis, there would be no significant impacts for sales volume, income, population, or employment. The range of values that represents a significant economic impact in accordance with the EIFS model are presented in Table 4.4-10, along with the predicted

percentages for Alternative 2. Table 4.4-11 presents the projected economic impacts to the region for Alternative 1 as assessed by the Army's EIFS model.

Table 4.4-10. Economic Impact Forecast System and Rational Threshold Value Summary of Implementation of Alternative 2

Region of Influence Economic Impact Significance Thresholds	Sales Volume (Percent)	Income (Percent)	Employment (Percent)	Population (Percent)
Economic Growth Significance Value	13.63	12.75	11.51	7.59
Economic Contraction Significance Value	- 8.6	- 6.99	- 5.25	- 1.62
Forecast Value	2.78	2.34	3.87	2.70

Table 4.4-11. Economic Impact Forecast System: Summary of Projected Economic Impacts of Implementation of Alternative 2

Region of Influence Impact	Sales Volume	Income	Employment	Population
Total	$136,229,400	$138,400,700	3,321 (Direct) 391 (Indirect) 3,712 (Total)	7,554
Percent	2.78 (Annual Sales)	2.34	3.87	2.70

The total annual gain in sales volume from direct and indirect sales increases in the ROI would represent an estimated 2.78 percent increase. State tax revenues would increase by approximately $8.1 million as a result of increased sales. Some counties within the ROI supplement the state sales tax of 6 percent by varying percentages, and these additional local tax revenues would be gained at the county and local level. Regional income would increase by 2.34 percent. While 3,000 Soldiers would be directly gained within the ROI, EIFS estimates another 321 military contract service jobs would be gained directly as a result of Alternative 2, and an additional 391 jobs would be created from an increase in demand for goods and services in the ROI. The total estimated increase in demand for goods and services within the ROI is projected to lead to a gain of 3,712 non-farm jobs, or a 3.87 percent change in regional non-farm employment. The total number of employed non-farm positions in the ROI is estimated to be 95,896. A population increase of 2.70 percent within the ROI is anticipated as a result of this alternative. Of the approximately 280,000 people (including those residing on Fort Campbell) that live within the ROI, 7,554 military employees and their dependents would begin to reside in the area following the implementation of Alternative 2. This would lead to an increase in demand for housing, and decreased housing availability in the region. This would lead to a slight increase in median home values.

Table 4.4-12 shows the total projected economic impacts, based on the RECONS model for Alternative 2.

Table 4.4-12. Regional Economic System: Summary of Projected Economic Impacts of Implementation of Alternative 2

Region of Influence Impact	Sales Volume	Income	Employment
Total	$137,178,317 (Local) $216,463,146 (State)	$152,490,207	3,389 (Direct) 432 (Indirect) 3,821 (Total)
Percent	2.80 (Total Regional)	2.58	3.98

The total annual gain in direct and indirect sales in the region represents an estimated 2.80 percent change in total regional sales volume according to the RECONS model, an impact that is only 0.02 percentage points greater than projected by EIFS; however, gross economic impacts at the state level would be greater. Extrapolating from sales volume numbers presented in the RECONS model, state tax revenues would increase by approximately $12.99 million as a result of the gain in revenue from sales reductions, which would be $4.89 million more than the additional state sales tax revenue projected by the EIFS model. Regional income is projected by RECONS to increase by 2.58 percent, slightly more than the 2.34 percent increase projected by EIFS. While 3,000 Soldiers would be directly gained within the ROI, RECONS estimates another 389 direct contract and service jobs would be gained, and an additional 432 jobs would be created from indirect increases in demand for goods and services in the ROI as a result of population increase. The total estimated increase in demand for goods and services within the ROI would lead to a gain of 3,821 jobs, or a 3.98 percent change in regional employment, which is 0.11 percentage points greater than projected under the EIFS model.

When assessing the results together, both models indicate that the economic impacts of the implementation of Alternative 2 would lead to a net increase of economic activity within the ROI of roughly the same magnitude.

Population and Demographics. Under Alternative 2, Fort Campbell anticipates a minor increase in military population and training throughput.

Housing. Alternative 2 would likely add to the pool of Soldiers that want to live on post. Barracks space for unaccompanied personnel and quarters for Families would be available to a smaller percentage of Soldiers in the total Fort Campbell population. As a result, the demand for off-post rentals and purchases of housing would likely increase. Fort Campbell anticipates long-term, minor beneficial impacts in the ROI.

Schools. Fort Campbell anticipates the potential for minor impacts to the school systems within the ROI under Alternative 2. Local school districts have integrated higher numbers of students into their schools due to the recent Army growth of Fort Campbell in recent years. Alternative 2 would further challenge local school districts to a minor degree.

Public Health and Safety. Under Alternative 2, the anticipated population increase at Fort Campbell would likely increase the demand for law enforcement services, fire and emergency services, and medical care services on and off post. Fort Campbell anticipates minor impacts to public health and safety under the Alternative 2.

Family Support Services. Under Alternative 2, Fort Campbell anticipates an increased demand for FMWR and ACS programs on post. The demand for Family support services off post would likely increase also. Fort Campbell anticipates minor impacts to Family support services under Alternative 2.

Recreation Facilities. Use of recreation facilities on post would likely increase under Alternative 2. Some facilities could become crowded and less user-friendly during peak use hours. Fort Campbell anticipates that utilization increases would be minor.

Environmental Justice. As a result of the implementation of Alternative 2, Fort Campbell does not anticipate a disproportionate adverse impact to minorities, economically disadvantaged populations or children would occur in the ROI. Fort Campbell anticipates that job losses would be felt across economic sectors and at all income levels and spread geographically throughout the ROI. The proposed force reduction in military authorizations on Fort Campbell would not have disproportionate or adverse health effects on low-income or minority populations in the ROI.

4.4.6 Energy Demand and Generation

4.4.6.1 Affected Environment

Fort Campbell's energy needs are currently met by a combination of electric power and natural gas. Although there are multiple providers of electricity at Fort Campbell, large scale demand electricity is provided by the Tennessee Valley Authority and natural gas is supplied by the Defense Logistics Agency.

Electricity. Electric power is supplied to Fort Campbell via two 69 kV transmission lines, each having a capacity of 83 kV ampere. Each individual line has sufficient capacity to power Fort Campbell during peak demand periods. Fort Campbell is contractually limited with Tennessee Valley Authority to a peak demand of 62 MW.

Natural Gas. The natural gas distribution system is privatized at Fort Campbell and is owned by Clarksville Gas and Water Department. This system distributes natural gas throughout the cantonment area.

4.4.6.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, no change in energy demand or usage is anticipated. Fort Campbell would continue to implement energy saving programs and projects that support the Army's long-term energy reduction goals. No new energy infrastructure would be required.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

A decrease in troop strength would be beneficial to energy demand and generation. Reduction in Soldier strength would result in a proportionate reduction in overall Fort Campbell energy consumption. With a total full time population of more than 39,000 full time civilian and military employees, a force reduction of up to 8,000 Soldiers could reduce energy consumption by almost 20 percent of the installations current usage, particularly if the Fort Campbell continues to aggressively pursue energy efficiency and conservation measures.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

Minor impacts to energy demand and generation are anticipated as a result of implementation of Alternative 2. An addition of up to 3,000 Soldiers may require minimal new electrical and natural gas infrastructure construction to support the associate space requirements. Energy demand requirements are anticipated to increase slightly as a result of the implementation of this alternative.

4.4.7 Traffic and Transportation

4.4.7.1 Affected Environment

The ROI for this Proposed Action includes Fort Campbell, Christian and Trigg counties in Kentucky, and Montgomery and Stewart counties in Tennessee. The largest cities within the ROI are Clarksville, Tennessee, Hopkinsville, Kentucky and Oak Grove, Kentucky, which are adjacent to Fort Campbell's eastern boundary. Other communities adjacent to Fort Campbell include Dover in Tennessee and Lafayette, Pembroke and Cadiz in Kentucky.

Fort Campbell is easily accessible by highway from generally every area in the mid-western and southeastern U.S. I-24 is located a short distance north and east of the installation. U.S. Route 41A runs north and south along the eastern boundary of the installation, and U.S. Route 79 runs east and west along the southern boundary. There are no waterways or maritime shipping at this installation. Due to recent community development projects on or near the installation, the Regional Planning Commission concluded a likely increase in traffic levels at Fort Campbell would exceed the current threshold and warrant further analysis and growth master planning.

4.4.7.2 Environmental Consequences

No Action Alternative

No changes in current installation traffic and transportation conditions are anticipated under the No Action Alternative. Fort Campbell and its ROI would continue to experience the current levels of service on existing roadways and at installation ACPs.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

A reduction of up to 8,000 Soldiers would have beneficial impacts on existing traffic and transportation conditions. A reduction of this magnitude would significantly decrease traffic congestion within the cantonment area and ROI road network resulting in safer shorter commutes with a decreased potential of vehicle accidents and delays on post and at installation ACPs.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

An increase of up to 3,000 Soldiers and their Family members would have significant but mitigable short- and long-term environmental impacts on traffic and transportation systems on the installation. Mitigations projects to ease traffic congestion at key intersections and points of congestion would be needed to reduce traffic impacts. A large percentage of the (incoming) unit's married population and unmarried Soldiers would likely reside in off-post housing. Spread across the (four-county) ROI, this population increase would have minimal impact on the transportation network of the neighboring communities. The additional off-post population; however, would contribute to increased traffic congestion on the roads leading to the installation's cantonment area, particularly during peak morning and evening hours. The increased population would greatly affect traffic congestion on the installation's transportation system and could lead to a decrease in LOS on post and increased delays at installation access points. Based upon the 2009 Fort Campbell Traffic Study, an increase in population of 3,000 Soldiers and their dependents cannot be supported without upgrades in road infrastructure to reduce on-post congestion.

4.4.8 Cumulative Effects

Region of Influence

The ROI for this cumulative impact analysis consists of the four counties within which Fort Campbell is located. Clarksville, Tennessee and Hopkinsville, Kentucky are the largest cities within the ROI. Clarksville is the center for commercial manufacturing, transportation, and medical activities in the area. Fort Campbell has long been a key component of the economy of the regional area, employing several thousand Soldiers and civilian employees within the ROI. Fort Campbell has been in operation supporting the Army since 1942.

There are numerous planned or proposed actions within the ROI that have the potential to cumulatively add impacts to Army Force 2020 alternatives. These actions are either in progress or reasonably could be initiated within the next 5 years. A number of the Army's proposed projects have been previously identified in the installation's Real Property Master Planning Board and are programmed for future execution. A list of projects below presents some of the projects which may add to the cumulative impacts of the implementation of Army 2020 realignment alternatives.

Fort Campbell Projects (Past, Present, and Reasonably Foreseeable):

- ***Force Structure Modifications and Growth.*** The Army completed a programmatic EIS (PEIS) in support of the Army's Growth and Force Structure Realignment in 2007. Fort Campbell troop strength increased by 3,500 Soldiers starting in 2008 and ending in 2010. Several future minor stationing actions are planned at Fort Campbell. These actions, although are additions to the existing force, are considered minor in nature. Force structure modifications are typically unit specific and may include reductions or increases in troop strength. Force structure modifications planned for the future are:
    - FY 2007/2008 Force Structure Modifications (increase of 1,707 personnel);
    - FY 2009 Force Structure Modifications (increase of 70 personnel);
    - FY 2009/2011 160th Special Operations Aviation Regiment Force Structure Modifications (increase of 326 personnel);
    - FY 2010 Force Structure Modifications (increase of 7 personnel);
    - FY 2011 Force Structure Modifications (decrease of 48 personnel);
    - FY 2012 Force Structure Modifications (decrease of 91 personnel);
    - FY 2012 USAR Stationing Action (increase of 12 personnel);
    - FY 2013 Force Structure Modifications (decrease of 400 personnel);
    - FY 2014 Force Structure Modifications (decrease of 215 personnel); and
    - FY 2014 160th Force Structure Modifications (increase of 340 personnel).
- ***Military Construction Projects.*** Construction in support of the Army's Growth and Force Structure Realignment (2008-2012) is nearing completion. Construction costs to support the Army's needs exceeded $800 million. Minimal future construction is anticipated to support the needs of Fort Campbell. Major construction projects from the past 2 years (some of which are ongoing) are listed below in Table 4.4-13. A majority of construction projects supporting the Grow the Army initiative were completed between 2008 to 2010.

1 **Table 4.4-13. Past, Present, and Future Major Construction Projects**

Year	Project Title
FY 2011	Echelon Above Brigade Complex
FY 2011	New Clarksville Base, Phase 3
FY 2011	New Clarksville Base, Phase 4
FY 2011	BCT 1 Complex (TEMF)
FY 2011	BN and CO Ops Complex Ph 5 (5th SFG)
FY 2011	Urban Assault Course
FY 2011	SOF Rapelling Training Area
FY 2011	UMMCA Fire Training and Rescue Facility
FY 2011	Automated Sniper Field Fire Range
FY 2012	TEMF, 101 CAB
FY 2012	Sustainment Brigade Complex (Vehicle Maintenance Facility)
FY 2012	Clarksville Base Physical Fitness Facility
FY 2012	Barracks (EAB - 528 spaces)
FY 2012	Scout/Recce Gunnery Range
FY 2012	Barracks (5th SFG / 160th SOAR - 244 spaces)
FY 2012	UAS (160th SOAR)
FY 2012	MH47 Aviation Facility (160th SOAR)
FY 2012	Addition and Alteration to Blanchfield Army Community Hospital
FY 2012	TEMF, 101 CAB
FY 2013	Division (UEx) Barracks Complex
FY 2013	UAS (160th SOAR)
FY 2013	Live-Fire Shoothouse
FY 2013	Landgraf Hangar 7264 Extension (160th SOAR)
FY 2013	5th SFG GSTB and GSB Detachment
FY 2013	Barkley Elementary School
FY 2014	GSTB (5th SFG)
FY 2014	Wassom Middle School
FY 2014	Fort Campbell High School
FY 2014	Marshall Elementary School
FY 2014	18th Weather Squadron
FY 2014	19th ASOS Complex Air Force
FY 2015	TEMF - 101st CAB
FY 2015	101 CAB UAS (Sabre)
FY 2015	SIMO Building (160th SOAR)
FY 2015	Jackson Elementary School
FY 2016	Infantry Platoon Battle Course
FY 2016	Lincoln Elementary School
FY 2016	Replace Kentucky DSO
FY 2016	Logistic Support Facility (160th SOAR)
FY 2017	Multi-Purpose Machine Gun Range
FY 2017	Mahaffey Middle School Replacement

Other Agency (DoD and non-DoD) Actions (Past, Present, and Reasonably Foreseeable)

- Tennessee Valley Authority (TVA) Oakwood Switching Station and Transmission Line (2007). TVA constructed a 161-kV substation and transmission line to provide more reliable electrical service to the region.
- Expansion of U.S. Highway 79 in Montgomery and Stewart counties, Tennessee (2008). This regional project expanded the highway from two to four lanes to increase traffic flow and provide Fort Campbell with a definitive southern boundary. The development provided the region with increases commerce opportunities.

Fort Campbell is not aware of other future non-DoD Agency plans for the region.

Fort Campbell anticipates a range of cumulative effects resulting from the implementation of the Proposed Action and alternatives. Cumulative impacts for each alternative are:

No Action Alternative

Beneficial through minor adverse cumulative impacts would be anticipated from implementing the No Action Alternative. Under the No Action Alternative, no changes in military authorizations, or local environmental conditions would be anticipated. Installation facility shortages and excesses would remain at their currently planned levels without additional stationing or force reductions. The Army would continue to implement some facilities reductions of outdated/unused facilities. Under the No Action Alternative, no more than minor impacts would be anticipated for all VECs.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Cumulative impacts as a result of the implementation of Alternative 1 range from beneficial impacts to Significant. The following VEC areas are anticipated to experience either negligible or beneficial impacts as a result of the implementation of Alternative 1. These are: air quality, airspace, cultural resources, noise, soil erosion, biological resources, wetlands, water resources, facilities, energy demand and generation, land use, hazardous materials and hazardous waste, and traffic and transportation. The reduction of Soldiers on Fort Campbell would result in less training and a reduced frequency of garrison environmental support activities. When viewed in conjunction with other past, present and reasonably foreseeable projects, the overall cumulative effect of Alternative 1 are projected to be either beneficial or no more than minor adverse impacts. Discussion of cumulative impacts to VEC areas are below:

- ***Air Quality.*** Cumulative impacts of Alternative 1 are anticipated to lead to negligible adverse impact regional air quality. Current installation air emissions are well below limits agreed upon between Fort Campbell and the states of Kentucky and Tennessee. Minimal impacts on NAAQS from both stationing alternatives are anticipated even when considering traffic and transmission projects occurring in the ROI.
- ***Airspace.*** Impacts associated with Alternative 1 would have no effect on the existing airspace. No addition or reduction in current aviation assets would occur as a result of any of the alternatives considered. Only negligible increase or decrease in UAS training may occur, if there were any change at all in airspace use requirements.
- ***Cultural Resources.*** Cumulative impacts associated with Alternative 1 are not anticipated to adversely impact cultural resources. Existing protocols and procedures for site placement at Fort Campbell make the unintentional damage of a historic property, either through demolition or construction, unlikely. Fort Campbell periodically monitors significant archaeological sites and known prehistoric burials for compliance with the ARPA and NAGPRA. It is anticipated that transmission and road projects occurring in

the area would follow management procedures to identify and reduce potential impacts to cultural resources.

- ***Noise.*** Impacts associated with Alternative 1 are not anticipated to have adverse noise impacts on the region. 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. The installation already has mitigations in place to help reduce current noise. Installation noise, in conjunction with noise from other projects discussed above, would be projected to result in negligible cumulative environmental impacts.
- ***Soil Erosion.*** Impacts associated with Alternative 1 are considered to be beneficial to natural resources on the installation. The reduction in troop strength would reduce the total off-road maneuver days which would reduce the overall installation erosion potential. A reduction in soil loss potential would also reduce the rehabilitation and maintenance costs associated with off-road activities. There would be minor to moderate impacts to soils from transmission and roads projects in the ROI, however.
- ***Biological Resources.*** Impacts associated with Alternative 1 would not adversely impact endangered species or their habitat. The installation has developed an Endangered Species Management Component in coordination with the USFWS and coordinates all activities that may have an adverse impact with the USFWS. Management controls are in place to reduce the chance of a violation.
- ***Wetlands.*** No impacts to installation wetlands are anticipated as a result of the implementation of Alternative 1. Wetlands are designated as non-training areas and Soldiers are provided instruction on authorized activities around wetland areas through the Directorate of Plans, Training, Mobilization, and Security, Range Division, ITAM program. Fort Campbell proactively monitors wetland areas and ensures that required training does not impact wetlands areas.
- ***Water Resources.*** Beneficial impacts to water resources are anticipated from implementation of Alternative 1. Long-term reductions in water consumption as well as requirements for water treatment are anticipated. The potential reduction of off-road maneuver days may reduce the potential for sediment runoff and increase surface water quality.
- ***Facilities.*** Impacts associated with Alternative 1 are anticipated to be beneficial to the installation. A reduction in troop strength would provide the installation the opportunity to re-purpose selected facilities and demolish selected World War II wooden facilities. The reduction in facility numbers may provide increased energy efficiency, green space, and minimize the cantonment area footprint on Fort Campbell.
- ***Energy Demand and Generation.*** Implementation of Alternative 1 would provide beneficial effects to energy consumption on the installation and the region. Reduction in Soldier strength would result in a proportionate reduction in overall Fort Campbell energy consumption. This would provide a potential reduction in regional environmental impacts associated with energy production.
- ***Land Use Conflict and Compatibility.*** No significant impacts to existing land uses on and around the installation are anticipated from impacts associated with Alternative 1. Although Fort Campbell has a training land deficit, the installation Range Division has the capability to schedule multiple activities within the training lands to meet the requirements of the Proposed Action. A reduction in troop strength would not alter existing land use nor cause compatibility issues with adjacent land uses.
- ***Hazardous Material and Hazardous Waste.*** Impacts associated with Alternative 1 would not negatively impact the current hazardous waste handling capabilities on Fort

Campbell. Increased generation of hazardous materials used, stored, and handled may occur from increased levels of facilities demolition; however, existing procedures, regulations, and facilities are able to meet storage, use, and handling requirements. Adequate hazardous waste disposal facilities are available to manage an increase in hazardous waste.

- ***Traffic and Transportation.*** Implementation of Alternative 1 in conjunction with lane widening occurring on the South side of the installation, would provide beneficial impacts on existing traffic and transportation conditions. A reduction of this magnitude would significantly decrease traffic congestion within the cantonment area and ROI road network resulting in safer commutes with a decreased potential of vehicle accidents. Although the community of Clarksville continues to grow, the reduction in the number of vehicles utilizing the regional road network may provide some road maintenance relief for the surrounding counties.

As a result of Alternative 1, the Army anticipates significant cumulative adverse impacts to regional socioeconomics.

- ***Socioeconomics.*** In addition to the impacts described in Section 4.4.5.2, the cumulative socioeconomic impact within the ROI under Alternative 1 would be a significant adverse impact on the regional economy. Regionally, off-post unemployment has risen from 5.0 percent to 8.2 percent within the ROI from 2005 to 2012. Other actions, such as reduction in employment opportunities on the installation have contributed to a decline in employment within the ROI. A reduction of 8,000 Soldiers in conjunction with these actions would cumulatively have a negative impact on the regional local economy. Nationally, unemployment has been trending lower since 2010. In April 2010, the national unemployment rate was 9.9 percent and as of October 2012 it was reported as 7.8 percent (Bureau of Labor Statistics, 2012). Under Alternative 1, the loss of 8,000 Soldiers in conjunction with other reasonably foreseeable proposals would have a significant adverse impact to the ROI. Other than Fort Campbell, there are limited employment -based options upon which the community can rely meaning that the job loss cannot be absorbed by other employment sectors such as the case in more urban areas. In addition, adverse impacts to multiple regional community services and schools would be anticipated because they receive funding, support, time, donations, and tax revenue directly related to the number of military authorizations and their dependents.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

Cumulative impacts are projected to range from beneficial to significant but mitigable impacts. The following VEC areas are anticipated to experience either no impact or minor cumulative impact as a result of the implementation of Alternative 2. These VECs are: air quality, airspace, cultural resources, noise, soil erosion, biological resources, wetlands, water resources, socioeconomic, energy demand and generation, land use, hazardous materials and hazardous waste.

- ***Air Quality.*** Less than significant cumulative impacts are anticipated within the ROI. Additional emissions from the implementation of Alternative 2 at Fort Campbell, in conjunction with the construction of additional facilities, transmission, and roads projects discussed in this section are not anticipated to result in significant cumulative impacts. Air quality would be adversely impacted by an increase in O_3, PM, and fugitive dust, throughout the airshed to less than significant levels. The region would be projected to remain in attainment for these CAPs.

- ***Airspace.*** Impacts associated with Alternative 2 are not anticipated to negatively affect the existing airspace. No addition or reduction in current aviation assets would occur as a result of Alternative 2. Only negligible increase in UAS training would occur, if there were any change at all in airspace use requirements.
- ***Cultural Resources.*** Impacts associated with Alternative 2 are not anticipated to adversely impact cultural resources. Existing protocols and procedures for site placement at Fort Campbell make the unintentional damage of a historic property, either through demolition or construction, unlikely. Fort Campbell periodically monitors significant archaeological sites and known prehistoric burials for compliance with the ARPA and NAGPRA. Highway improvements and the construction of transmission lines by TVA may disturb some cultural resources, but surface surveys should assist in the avoidance of impacts to eligible cultural resources.
- ***Noise.*** Impacts associated with Alternative 2 are not anticipated to have adverse noise impacts on the region. 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. The installation already has mitigations in place to help reduce current noise. Noise from training may have an additive effect when considering noise from road construction on the south side of post, but noise impacts would remain cumulatively, less than significant.
- ***Soil Erosion.*** Impacts associated with Alternative 2 are anticipated to be minor to soils on the installation. The installation has implemented protocols and procedures to identify and repair areas of erosion on the installation. The Installation Range Division actively inventories and rehabilitates areas impacted by military training activities to ensure minimal environmental impacts due to training. These impacts would be cumulatively less than significant when considering the environmental impacts of road and electrical transmission projects. Proper procedures to cover exposed soils and limit soil erosion would be implemented to limit soil erosion.
- ***Biological Resources.*** Impacts associated with Alternative 2 or other projects discussed above would not adversely impact endangered species or their habitat. The installation has developed an Endangered Species Management Component in coordination with the USFWS and coordinates all activities that may have an adverse impact with the USFWS. Management controls are in place to reduce the chance of a violation.
- ***Wetlands.*** No impacts to installation wetlands are anticipated as a result of the implementation of Alternative 2 in conjunction other projects evaluated as part of the cumulative effects analysis. Wetlands are designated as non-training areas and Soldiers are provided instruction on authorized activities around wetland areas through the Directorate of Plans, Training, Mobilization, and Security, Range Division, ITAM program. Fort Campbell proactively monitors wetland areas and ensures that required training does not impact wetlands areas.
- ***Water Resources.*** Minor impacts to water resources are anticipated from implementation of Alternative 2. Fort Campbell streams have been designated as impaired by sediment from the Tennessee Department of Environment and Conservation and placed on the EPA's 303(d) list. Increases in Soldier strength could potentially decrease water quality through increased sedimentation from soil erosion caused by off-road maneuvers. Further deterioration of water quality would likely have a negative impact on regional water quality. Internal controls are in place to minimize the impacts to surface waters although installation costs to minimize impacts may be

greater. When considering other soil disturbing projects in the ROI, overall cumulative impacts to surface waters through sedimentation would be less than significant.

- ***Socioeconomics*.** Implementation of Alternative 2 would result in the gain of up to 3,000 military personnel, with an average annual basic income of $41,830. The addition of up to 3,000 Soldiers at Fort Campbell combined with indirect employment opportunities created by increased demand for goods and services, would beneficially affect employment in the region. Tax revenues would increase proportionally, especially through sales taxes. There would be no significant socioeconomic impacts for this alternative.
- ***Energy Demand and Generation*.** Impacts associated with Alternative 2 are anticipated to be minor. An addition of up to 3,000 Soldiers may require minimal new electrical and natural gas infrastructure construction to support the associate space requirements. Energy demand requirements are anticipated to increase slightly as a result of construction of facilities to support the implementation of this alternative.
- ***Hazardous Material and Hazardous Waste.*** Impacts associated with Alternative 2 would not negatively impact the current hazardous waste handling capabilities on Fort Campbell. Materials used, stored, and handled may increase; however, existing procedures, regulations, and facilities are able to meet storage, use, and handling requirements. Adequate hazardous waste disposal facilities are available to manage an increase in hazardous waste.
- ***Facilities*.** Less than significant impacts to facilities and infrastructure are anticipated from implementation of Alternative 2. Increases in infrastructure requirements are anticipated as a result of Alternative 2. The addition of 3,000 Soldiers would require new MILCON to support this alternative, as the current facilities shortfall for existing units is pervasive and would not permit additional sharing of facilities to meet the mission requirements of new units. Very limited administrative and billet space is available to support an additional 3,000 Soldiers as a result of this alternative. An increase in Soldier strength would potentially lead to new developments outside the installation boundary to accommodate this level of growth, resulting in a greater degree of encroachment above which the installation is already experiencing.
- ***Traffic and Transportation*.** An increase of up to 3,000 Soldiers and their family members would have significant but mitigable short- and long-term environmental impacts on traffic and transportation systems on the installation. Mitigation projects to ease traffic congestion at key intersections and points of congestion would be needed to reduce traffic impacts. A large percentage of the (incoming) unit's married population and unmarried Soldiers would likely reside in off-post housing. Spread across the (four-county) ROI, this population increase would have minimal impact on the transportation network of the neighboring communities. The additional off-post population; however, would contribute to increased traffic congestion on the roads leading to the installation's cantonment area, particularly during peak morning and evening hours. The increased population would greatly affect traffic congestion on the installation's transportation system and could lead to increased delays at installation access points. Based upon the 2009 Fort Campbell Traffic Study, a 3000 Soldier increase in population cannot be supported without upgrades in installation road infrastructure. Additional traffic project improvements, in addition to lane widening occurring to the South of the installation, would be needed to reduce congestion.

4.5 FORT CARSON, COLORADO

4.5.1 Introduction

Fort Carson, located in central Colorado, has approximately 90,000 acres of maneuver area suited for vehicle and non-vehicular military training (Figure 4.5-1). It has long supported armored/mechanized unit training and dismounted infantry unit training.

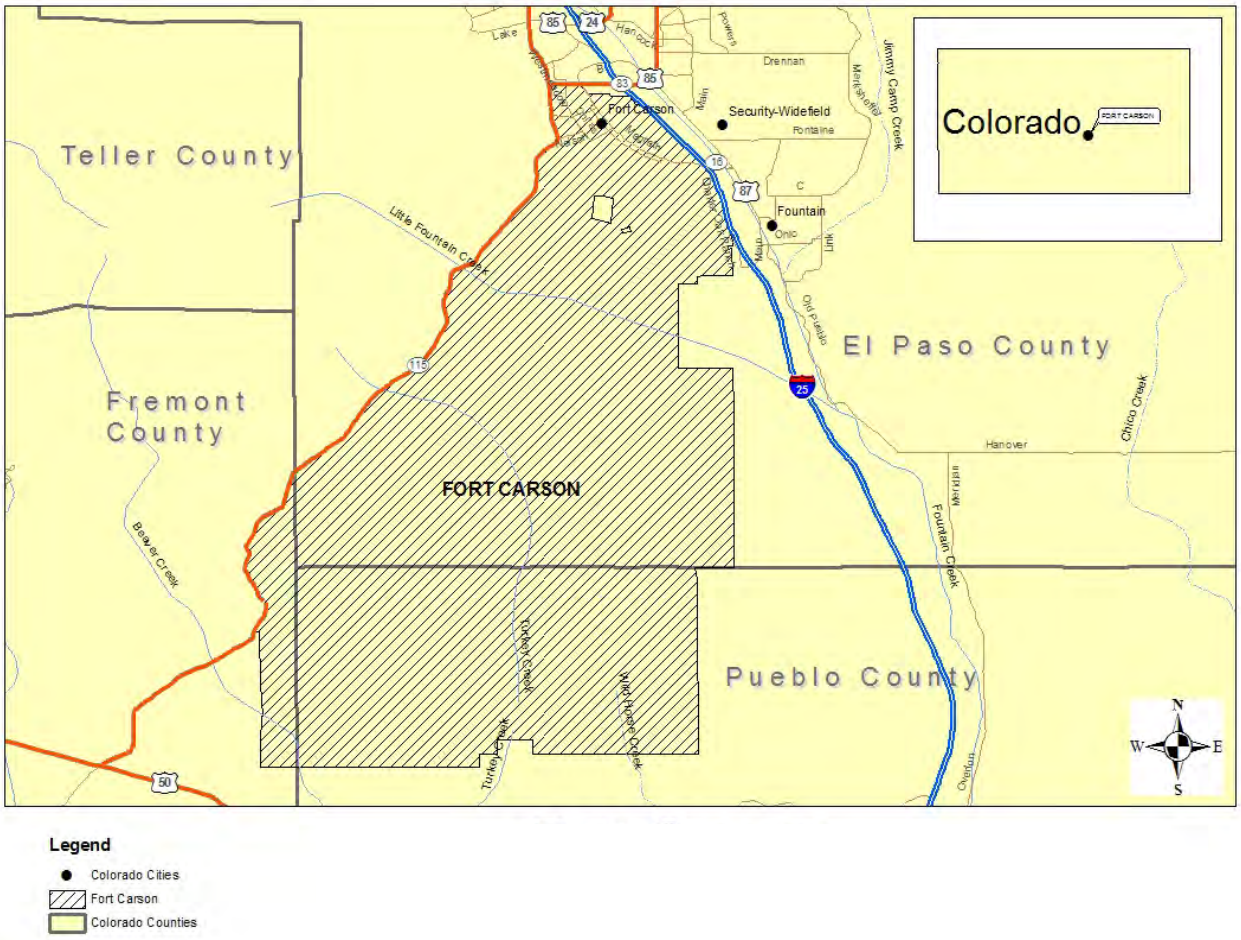

Figure 4.5-1. Fort Carson

Currently, the major units stationed at Fort Carson include the 4th Infantry Division; the 10th Combat Support Hospital; the 43rd SUSBDE, the 10th SFG (Airborne); the 4th and 52nd Engineer Battalions; the 759th Military Police Battalion; and the 71st Explosive Ordnance Detachment Group. Fort Carson possesses a well-developed range infrastructure designed to support both conventional Army and Special Forces units. Piñon Canyon Maneuver Site (PCMS) is a satellite maneuver training area which is primarily used to meet the maneuver training requirements of units stationed at Fort Carson. Potential impacts to resources at PCMS resulting from training of newly stationed units at Fort Carson are evaluated in this section along with the projected impacts to Fort Carson.

4.5.1.1 Valued Environmental Components

For alternatives the Army is considering as part of Army 2020 force structure realignments, Fort Carson does not anticipate any significant adverse environmental impacts as a result of

Alternative 1 (Force reduction of up to 8,000 Soldiers and Army Civilians) or Alternative 2 (Installation gain of up to 3,000 Soldiers). However, Fort Carson anticipates significant socioeconomic impacts to economic activity and population as a result of Alternative 1. Tables 4.5-1 and 4.5-2 summarize the anticipated impacts to VECs from each alternative at Fort Carson and the PCMS.

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

Valued Environmental Component	No Action Alternative	Alternative 1: Force Reduction of up to 8,000	Alternative 2: Growth of up to 3,000
Air Quality	Less than Significant	Beneficial	Significant but Mitigable
Airspace	Negligible	Beneficial	Less than Significant
Cultural Resources	Negligible	Beneficial	Minor
Noise	Negligible	Beneficial	Minor
Soil Erosion	Less than Significant	Beneficial	Significant but Mitigable
Biological Resources	Negligible	Beneficial	Less than Significant
Wetlands	Minor	Beneficial	Minor
Water Resources	Minor	Beneficial	Minor
Facilities	Minor	Beneficial	Significant but Mitigable
Socioeconomics	Negligible	Significant	Beneficial
Energy Demand and Generation	Negligible	Beneficial	Minor
Land Use Conflict and Compatibility	Negligible	Negligible	Minor
Hazardous Materials and Hazardous Waste	Minor	Beneficial	Minor
Traffic and Transportation	Less than Significant	Beneficial	Significant but Mitigable

Table 4.5-2. Piñon Canyon Maneuver Site Valued Environmental Components Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1: Force Reduction of up to 8,000	Alternative 2: Growth of up to 3,000
Air Quality	Minor	Beneficial	Less than Significant
Airspace	Negligible	Beneficial	Minor
Cultural Resources	Negligible	Beneficial	Minor
Noise	Negligible	Beneficial	Minor
Soil Erosion	Less than Significant	Beneficial	Significant but Mitigable
Biological Resources	Negligible	Beneficial	Less than Significant
Wetlands	Negligible	Beneficial	Negligible
Water Resources	Negligible	Beneficial	Minor
Facilities	Negligible	Negligible	Negligible
Socioeconomics	Negligible	Negligible	Negligible
Energy Demand and Generation	Negligible	Negligible	Negligible
Land Use Conflict and Compatibility	Negligible	Negligible	Negligible
Hazardous Materials and Hazardous Waste	Minor	Beneficial	Minor
Traffic and Transportation	Negligible	Beneficial	Negligible

4.5.2 Air Quality

4.5.2.1 Affected Environment

Fort Carson

Fort Carson is within the air quality control areas of El Paso, Fremont, and Pueblo counties, including the City of Colorado Springs. Both Fremont and Pueblo counties are in attainment for all criteria pollutants. The City of Colorado Springs in El Paso County is in attainment (meeting air quality standards) for all NAAQS criteria pollutants. It was classified; however, as a maintenance area for CO in 1999 due to a 1988 violation of the 8-hour CO standard. This CO maintenance area includes the majority of Fort Carson's main post area (north of Titus Boulevard and Specker Avenue). This designation is currently set to run through 2019 (CDPHE, 2009). In December 2009, the Colorado Department of Public Health and Environment (CDPHE) approved Revised Carbon Monoxide Attainment/Maintenance Plan, Colorado Springs Attainment/Maintenance Area, the most current SIP for the maintenance area (CDPHE, 2009). In the future, this area may become part of an O_3 non-attainment area. Local O_3 monitors show violation of the proposed 2010 standards. The proposed 2010 standards are more stringent

than the current standard. The federal government will wait until 2013 to decide to implement the 2010 standard. Additionally, the federal government will scrutinize NO_x and VOC emissions to ensure future compliance with the general conformity rule, if the 2010 standard is implemented.

Fort Carson stationary and fugitive emission sources, in general, include boilers, high temperature hot water generators, furnaces and space heaters, emergency generators, paint spray booths, fuel storage and use operations, facility-wide chemical use, road dust, military munitions, and smokes and obscurants. The Army is also considering the construction of a central power plant at Fort Carson to provide the installation with a cleaner more secure energy supply to support future operations. Fort Carson's air pollutant emissions generation occurs through the combustion of fossil fuels via equipment such as boilers (a stationary source) and motorized vehicles (a mobile source). Combustion products mainly include GHGs (calculated as carbon dioxide equivalent (CO_2e), CO; NO_x; sulfur dioxide (SO_2); PM, PM_{10} and PM smaller than 2.5 micrometers ($PM_{2.5}$). In addition to fuel combustion emissions generated by the use of unpaved roads generates PM_{10}. Another contributing source of emissions at Fort Carson is the firing of munitions. This activity contributes to the criteria pollutants detailed above and trace amounts of lead emissions. In 2010, the ambient air emissions standard for lead was lowered from 1 tpy to 0.5 tpy. The EPA found Fort Carson emits too little lead to further investigate the potential of Fort Carson exceeding the new lead standards.

Fort Carson manages its air emissions per regulatory requirements, management plans, and BMPs. Key among these is its Title V operating permit (No. 95OPEP110). This type of permit is required of facilities located in an attainment area with the potential to emit (i.e., the maximum emissions a facility could emit given physical, enforceable, and permitting constraints) more than 100 tpy of a criteria pollutant. A Title V permit regulates the amount of pollutants from significant emission sources in various ways, depending on the source type (e.g., restricting operating hours, fuel type, throughput amount, and emission rates). As a Title V source, Fort Carson must submit a permit application for renewal every 5 years. The Title V Permit Renewal Application package was completed and submitted to the CDPHE on June 30, 2011 to renew the installations Title V permit. For new sources construction on site after issuance of the Title V Permit a permit modification application is due to the state within a year of construction.

Any net increase of criteria pollutants that would result in a "major modification" would subject Fort Carson to the PSD review requirements (40 CFR 52.21). Should Fort Carson make changes that increase their stationary plus mobile CO emissions within Fort Carson's CO maintenance area, Fort Carson may have to limit CO emissions to show conformity.

As part of Fort Carson's Title V operating permit, the installation is permitted as a minor (area) source of HAPs as it does not emit more than eight tons of any single HAP (of 186 regulated HAPs) or 20 tons of total HAPs per year.

To aid compliance with the Title V permit, Fort Carson has implemented a number of BMPs. These plans include Dust Management Plan, Ozone Depleting Compounds Plan, Paint Booth Operating Plan and Prescribed Burning Plan. The burning plan expires in 2013; the dust management plan was implemented in 2005.

Also of note, the Title V permit limits use of smoke munitions and the generation of fog oil smoke for training exercises, activities that are typically unique to the military.

Fort Carson's predominant stationary Scope 1 GHG emission sources are on-post boilers. Scope 2 includes emissions from utilities in providing power to Fort Carson. In 2008, the Army estimated these emissions (Scope 1 and Scope 2) to be about 100,000 tons CO_2e per year. These represent circa 0.000015 percent of total U.S. emissions.

The GHG reporting rule, published in October 2009 and most recently amended in November 2010, requires major emitters of GHGs (i.e., carbon dioxide (CO_2) and others) to collect and report GHG emissions data to the EPA. The GHG reporting rule is codified in the CFR in 40 CFR 98.

Fort Carson is required to report GHG emissions, because the aggregate maximum rated heat input capacity of the facility's stationary fuel combustion units is equal to or greater than 30 million British thermal units per hour, and Fort Carson's GHG emissions are over 25,000 metric tons of CO_2e. This applicability is based on 40 CFR 98.2 (a)(3).

Specifically, Fort Carson is required to report emissions of three GHGs - CO_2, methane (CH_4), and nitrous oxide (N_2O) - from stationary combustion sources on an annual basis. This is based on 40 CFR 98.32.

The GHG report is due annually on March 31 of each year for the previous calendar year (40 CFR 98.3 (b)), beginning March 31, 2011 for calendar year 2010. The calendar year 2010 CO_2e reported to the EPA was 65,402 tons.

Piñon Canyon Maneuver Site

At the PCMS vehicle exhaust is the major source for VOCs, NO_x, and SO_2. The permitted air sources at PCMS include two emergency generators, a fuel loading rack and associated fuel storage tank, and smoke and obscurant usage (identical to the smoke and obscurant usage at Fort Carson). Combustion from wildfires is the major source for CO, and fugitive dust from unpaved roads is the major source for PM_{10}.

The surrounding air quality region is classified as being in attainment for all criteria pollutants. Currently, there is no requirement for PSD analysis for PCMS because it is located in an attainment area and it is not a major source of air pollutants under the provisions of the CAA.

Prescribed Burn Permits. In addition to PCMS acreage being managed by Fort Carson, the Fort Carson Fire and Emergency Services Prescribed Fire Plan addresses PCMS as well. Fort Carson is divided into three quadrants, and its fourth quadrant is PCMS. In addition to the required notifications to the Air Pollution Control Division prior to and after a burn, Fort Carson Fire Department personnel notify the appropriate personnel in Las Animas County. Controlled burns are used to minimize the risk of large fires by reducing fuel loads and breaking up the continuity of fuels. Prescribed burning targets areas with heavy fuel buildups that are the most likely to ignite from range operations. A Prescribed Burn Planning Document is submitted to meet the requirements of Air Quality Control Commission Regulation No. 9, Open Burning, Prescribed Fire and Permitting, and procedures within the INRMP are followed for each prescribed burn event. This activity is responsible for the majority of PCMS's CO emissions.

4.5.2.2 Environmental Consequences

Fort Carson

No Action Alternative

There would continue to be less than significant short- and long-term fugitive dust impacts from training and emissions from mobile and stationary sources required to support installation operations and training. These impacts would not exceed threshold levels at Fort Carson. Permit conditions would continue to be monitored and met, but no changes to emission sources are anticipated, other than those mandated by maintenance, replacement, or elimination of sources as they age or are removed from service.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

There would be an anticipated beneficial impact to regional air quality from reduced numbers of mobile emission sources, as well as reduced usage of existing stationary sources. There would be less combustion and generation of NAAQS regulated pollutants and HAPs associated with military training. In addition there would be less fugitive dust generated from fewer training events. The reduction in off-post traffic and mobile source emissions as a result of the implementation of Alternative 1 would reduce the risk of exceeding regulatory thresholds.

Long-term beneficial impacts are anticipated from the decreased use of tactical mobile sources, as resulting from decreased training exercises. Tactical mobile sources and the associated training activities have the potential to result in beneficial impacts to air quality from decreased emissions of fugitive dust (PM) from unpaved roads and vehicle exhaust.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

There would be a significant but mitigable adverse impact on air quality in the airsheds surrounding Fort Carson as a result of the implementation of Alternative 2. There would be an anticipated increase in air emissions from both mobile and stationary sources that would be generated to support additional Soldiers and their Families. The limits of the permit would not be exceeded, however. Any new sources (boilers/generators) would be permitted with CDPHE and incorporated into the Title V Permit.

Mobile source emissions are anticipated to increase on the installation and the surrounding area due to the influx of Soldiers and their Families. Vehicles traversing I-25, located on the eastern edge of the installation, are also a contributor to mobile source emissions in surrounding area. Infrastructure upgrades required to support the influx of Soldiers and their Families are anticipated to result in an increase of combustion emissions from stationary sources.

Fugitive dust emissions remain a concern and any increased emissions would add to the measures the installation already implements for fugitive dust emissions. If the installation were to receive a gain in Soldiers as a result of Headquarters, DA stationing decisions as a result of Alternative 2, the installation would need to re-evaluate the Fugitive Dust Plan to ensure the fugitive dust and opacity requirements, as defined by CDPHE, are adhered to. This would include implementation of BMPs such as dust suppressant applications and reduced vehicle speed on unpaved surfaces. With BMPs currently in place to reduce opacity and fugitive dust, impacts would be less than significant.

Piñon Canyon Maneuver Site

No Action Alternative

There would continue to be minor short- and long-term fugitive dust impacts from training and emissions from mobile and stationary sources required to support PCMS operations and training. These impacts would not exceed threshold levels at PCMS. Air quality would continue to be monitored, but no changes to emission sources are anticipated.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Long-term minor (low) beneficial impacts to air quality are anticipated for training activities as a result of the implementation of Alternative 1. Reduction of 8,000 Soldiers at Fort Carson that would train at the PCMS would decrease off-road activity and fugitive dust emissions at PCMS. Air quality emissions from mobile sources would also be anticipated to decrease as a result of this alternative.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

Due to PCMS's topography, semi-arid climate conditions, soil types, and training requirements, short-term minor impacts to air quality would be anticipated from an increase in number of vehicles training at PCMS. Fort Carson leadership has made the decision that training at PCMS will not exceed the 4.7 months of mechanized maneuver training. This level of training was first analyzed and adopted when the training land at PCMS was acquired. Stationing of additional Soldiers at Fort Carson would not require the exceedance of this training threshold at PCMS. Stationing at Fort Carson; however, could increase the number of vehicles training at PCMS (intensity of use) during training rotations if additional units are added to the structure of BCTs. This increase in intensity of use could lead to increased generation of fugitive dust and PM from addition mounted maneuvers on unpaved roads and trails and from training with smoke and obscurants from an increased number of vehicles using PCMS during BCT training rotations. Any impacts as a result of implementation of the Proposed Action would be mitigable to a level that would be less than significant.

New stationary sources would not be constructed as a result of the implementation of Alternative 2 at PCMS. Additional changes are not anticipated to be needed for the few permitted sources at PCMS as they are operated well under their permitted capacity. The slight increase over the next few years for prescribed burn activities that currently occur are not related to the Proposed Action, as they are dependent on uncontrollable climate factors such as drought and meteorological conditions. The implementation of Alternative 2 would not add to air quality impacts at PCMS from prescribed burning, as these would occur regardless of unit stationing discussed as a result of this alternative. Alternative 2, however, would cause an increase in air quality impacts from the following activities related to increased training:

- Fugitive dust emissions from use of training ranges and maneuver areas (an increase in duration and frequency);
- Fugitive dust emissions from convoy travel along unpaved roads along boundary and in downrange areas; and
- Vehicle exhaust from convoy travel on paved roads between PCMS and Fort Carson.

The increase in convoy traffic between Fort Carson and PCMS would be on approximately 150 miles of paved public roads. The emissions resulting from the increase in convoys would be low, temporary, and dispersed over a great distance. The increases represent no more than 1 percent of total traffic and 10 percent of heavy vehicle traffic on the portions of road near the PM_{10} air monitors. PM_{10} is monitored in the Colorado Springs area and is representative of the ambient air conditions along the public road where convoy traffic is anticipated to occur. Currently, emissions from the average daily traffic do not cause exceedances of the 24-hour standard; therefore, any temporary incremental emission activity from the increased convoy transits is not anticipated to affect the current monitored compliance levels and would not result in adverse impacts to air quality.

4.5.3 Airspace

4.5.3.1 Affected Environment

Fort Carson

Fort Carson has 152 square miles of FAA-designated Permanent Restricted Use and SUA, up to but not including 60,000 feet AGL. The installation has access to this airspace with a 96 hour request through the FAA.

Fort Carson airspace includes helicopter, rotary- and fixed-wing, transient aircraft flights, UASs, parachute drops of equipment and personnel, high angle live fire, indirect fire, direct fire, surface-to-air and air-to-ground live fire. The U.S. Air Force, Air National Guard, U.S. Marines, Reserves and other federal agencies use the reservation's airspace. FAA and Fort Carson established permanent restricted airspace over the installation to prevent flights from unauthorized aircraft entry. Civilian aircraft are restricted from entry and military aircraft are permitted under closely coordinated and controlled conditions while firing of weapons, including artillery, mortar, and missile projectiles, is in process. Airspace adjacent to Fort Carson is used by commercial and military institutions (U.S. Army, 1995).

Aviation training ranges on Fort Carson consist of multiple air-to-ground integration live-fire ranges.

Piñon Canyon Maneuver Site

Currently, there is no restricted, military-controlled airspace over PCMS; however, there is a MOA for military training activities. Airspace at the PCMS is scheduled for use with the FAA and activated for helicopter exercises, parachute drops of equipment and personnel, small UAS training exercises, and tactical training for fixed-wing military aircraft. This MOA extends from 100 feet AGL to an altitude of 10,000 feet. Two commercial air routes exist at 30,000 feet in the airways above and adjacent to the maneuver site. There are no restricted designations for military or civilian use of airspace over the PCMS.

4.5.3.2 Environmental Consequences

Fort Carson

No Action Alternative

The No Action Alternative would have negligible impacts and would not produce any conflicts with overlying restricted airspace.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Airspace would not change significantly with the loss of ground units as a result of the implementation of Alternative 1. Long-term minor beneficial impacts to airspace use are anticipated. It is anticipated that the activities associated with a decrease of 8,000 Soldiers would moderately decrease activities requiring airspace within the main post and training and range areas. Aviation and UAS would continue to require airspace to support training. This implementation of Alternative 1 would not result in a decreased requirement for airspace, but rather result in slightly lower utilization and requirements for airspace use resulting from a slight reduction in UASs that are part of Army BCTs.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

Short- and long-term impacts to airspace use are anticipated to be less than significant. An increase of Soldier strength by 3,000 would be reflected within the main post and increased usage of the training and range areas. This would be anticipated to further limit airspace availability for aviation and UAS training. Activities requiring airspace would be coordinated with existing mission activities to minimize live-fire training and aviation training conflicts and ensure required training events could occur.

Piñon Canyon Maneuver Site

No Action Alternative

The No Action Alternative would have negligible impacts and would not produce any conflicts with overlying restricted airspace.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

There would be minor beneficial impacts to airspace use resulting from a slight decrease in UAS use at PCMS. There would be no changes to current military operational airspace required as a result of the implementation of this alternative.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

There would be minor impacts to airspace use resulting from a slight increase in UAS use at PCMS. There would be no changes to current military operational airspace required as a result of the implementation of this alternative.

4.5.4 Cultural Resources

4.5.4.1 Affected Environment

Cultural resources management on Fort Carson encompasses conservation of resources of significance to the history or prehistory of the U.S. and of traditional, religious, and cultural importance to Native Americans including those which have been formally designated as traditional cultural properties (TCPs) and/or sacred sites. The Army manages cultural resources associated with all major prehistoric and historic cultural periods recognized on the southern Great Plains and Rocky Mountains at both Fort Carson and its maneuver site.

The installation has identified 13 federally-recognized Indian Tribes with cultural affiliations to the land at Fort Carson and PCMS. A Comprehensive Agreement between Fort Carson and 10 Tribes regarding tribal access, privacy, inadvertent discovery of human remains, and other cultural concerns was finalized and signed in 2004. A separate Comprehensive Agreement with the Jicarilla Apache Nation was signed in 2005.

Two documents guide the Army's cultural resources management on Fort Carson and PCMS: a Memorandum of Agreement between Fort Carson, the SHPO, and the Advisory Council on Historic Preservation (Fort Carson, 1980) and the ICRMP (Fort Carson, 2002) which is being updated and revised during FY 2012. Attempts have been made by Fort Carson to develop a streamlined approach to Section 106 (36 CFR 800 Subpart B) of the NHPA, including a consideration of implementing the Army Alternate Procedures in 2007, which was discarded. Fort Carson is currently in consultation to develop a NHPA Programmatic Agreement for compliance with Section 106 in accordance with 36 CFR 800.14(b).

Fort Carson

Prehistoric, historic, and multi-component sites eligible for inclusion in the NRHP occur throughout Fort Carson. Approximately 94,300 acres of Fort Carson has been inventoried for cultural properties identified in the following categories: districts; buildings; structures; and historic, prehistoric, and multi-component archaeological sites. There is a presence of both archaeological and architectural NRHP-eligible resources. The entire main post area of Fort Carson; has been surveyed for cultural resources and is devoid of known prehistoric sites eligible for inclusion in the NRHP. The Incinerator Complex (ca. 1942) is the only historic district located within the main post. Approximately 25,100 acres of down range Fort Carson are as yet unsurveyed for archaeological resources that are not inside the Artillery Impact/Buffer Area

(approximately 13,000 acres) or the Small Arms Impact Area (approximately 5,200 acres). To date, there are over 1,250 archaeological sites identified at Fort Carson, with 140 determined eligible for inclusion in the NRHP and an additional 56 sites that are potentially eligible pending additional evaluation. One sacred site location has been identified at Fort Carson.

Piñon Canyon Maneuver Site

Prehistoric, historic, and multi-component sites eligible for inclusion in the NRHP occur throughout PCMS.

Approximately 211,900 acres of PCMS has been inventoried for cultural properties identified in the following categories: historic, prehistoric, and multi-component archaeological sites. There is a presence of both archaeological and architectural NRHP-eligible resources. The cantonment area, consisting of 1,660 acres at PCMS has been completely surveyed for cultural resources and contains no sites eligible for inclusion in the NRHP (Fort Carson, 2009b). Studies of the cantonment area structures have not been conducted, since these structures are less than 50 years of age (ca. mid 1980s). Approximately 23,900 acres of PCMS are as yet unsurveyed for archaeological resources. To date, there are over 4,150 archaeological sites identified at PCMS, with 624 determined eligible for inclusion in the NRHP and an additional 52 sites that are potentially eligible pending additional evaluation. Five sacred site locations have been identified at PCMS, along with three TCPs and two Areas of Concern.

4.5.4.2 Environmental Consequences

Fort Carson

No Action Alternative

Impacts to cultural resources under the No Action Alternative are anticipated to be negligible. Fort Carson's Cultural Resources Manager (CRM) evaluates all activities to identify resources that may be affected, determines effects, and initiates the Section 106 consultation process as mandated by the NHPA, prior to the initiation of ground-disturbing activities. At Fort Carson the inventory and evaluation of historic properties through the Cold War era is ongoing. Activities with the potential to affect cultural resources are monitored and regulated through a variety of preventative and minimization measures.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Minor beneficial impacts are anticipated as a result of the implementation of Alternative 1 at Fort Carson. Removal of temporary facilities would have a very low potential for adverse effects to historic buildings and/or archeological resources. As discussed above, the Incinerator Complex is the only area designated as a historic district on the main post and this is unlikely to be affected by removal of outdated infrastructure and facilities demolition that could occur with force reduction. Any facilities demolition or disposal would occur after review by Fort Carson's CRM. Consultation with the SHPO would occur per 36 CFR 800 of the NHPA as required; therefore, there is a low potential for any eligible historic structures to be affected as a result of this action, and if such an action is proposed, full consultation with the SHPO would occur. The potential impact to NRHP-eligible archaeological sites as a result of less training is anticipated to be reduced.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

This level of growth at Fort Carson is anticipated to have minor impacts to cultural resources. Measures are in place to accommodate training to prevent adverse impacts to cultural resources. The types of training conducted by the additional Soldiers would not change, though

some training areas on Fort Carson might be used with more frequency or intensity compared with current baseline conditions. Fort Carson would continue to follow the procedures it has in place in order to protect cultural resources. The increase of range usage would potentially increase the impact to some cultural resources through small-scale ground disturbance activities. An increase in training activities would be anticipated to make monitoring of archaeological sites more challenging to schedule.

Piñon Canyon Maneuver Site

No Action Alternative

Impacts to cultural resources under the No Action Alternative are anticipated to negligible. Fort Carson's CRM evaluates all activities to identify resources that may be affected, determines effects, and initiates the Section 106 consultation process as mandated by the NHPA, prior to the initiation of ground-disturbing activities.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Minor beneficial impacts are anticipated as a result of the implementation of Alternative 1, as a result of the potential for reduced training usage of PCMS. No facilities demolition or disposal is anticipated as a result of this alternative and no impacts to historic structures would occur at PCMS which was established by the Army in 1983. There is a no potential for any potentially eligible historic structures to be affected as a result of this action, and implementation of Alternative 1 would reduce the potential for training activities to impact archaeological sites or other potentially eligible cultural resources.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

This level of growth at Fort Carson is anticipated to have minor impacts to cultural resources at PCMS. Measures are in place to accommodate training to prevent adverse impacts to cultural resources. The types of training conducted by the additional Soldiers would not change, though some training areas on PCMS might be used with more frequency or intensity compared with current baseline conditions as more vehicles and Soldiers could utilize these sites during BCT or battalion training events. Fort Carson would continue to follow the procedures it has in place in order to protect cultural resources at PCMS. The increase of range usage would potentially increase the impact to some cultural resources through small-scale ground disturbance activities.

4.5.5 Noise

4.5.5.1 Affected Environment

Fort Carson

Noise-sensitive areas adjacent to Fort Carson include Cheyenne Mountain State Park to the west; Colorado Springs to the north and west; and Security, Widefield, and the City of Fountain to the east. Other noise sensitive areas include Turkey Canyon Ranch and Red Rock Valley Estates along the western boundary and El Rancho and Midway Ranch along the eastern boundary. Noise-sensitive locations near the southern boundary of Fort Carson include the communities of Penrose and Pueblo West, which are located to the southwest and southeast, respectively. Noise-sensitive areas within Fort Carson are primarily located within the main post area, which is where a majority of Family housing, schools, office space, and child development centers are located. 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 Army Airfield.

Piñon Canyon Maneuver Site

There are limited noise receptors at the PCMS due to the character and nature of land surrounding the installation. Most of the area surrounding PCMS is agricultural ranch land. Noise-sensitive locations adjacent to PCMS consist of a limited number of residences around the installation periphery. The primary sources of noise at PCMS are short-term military training exercises at the small-caliber weapons ranges and from military aircraft operations at the combat assault landing strip by C-130 aircraft. Large-caliber weapons are not fired at PCMS. The NZs for aircraft activity at PCMS do not extend beyond the boundary. The vast majority of live-fire weapons qualification takes place at Fort Carson, not PCMS. Weapons fired on small arms ranges located on the PCMS produce a low level of noise that does not register off post. Noise is also generated during maneuver training, including brigade-level large-scale force-on-force maneuvers, and dismounted Soldier training. Baseline environmental noise conditions at the PCMS are approximately 87 dB during periods of small caliber weapons training (USAPHC, 2012). Current noise levels at the PCMS are not significant. During all training operations at the PCMS, units undergo resource protection and stewardship training, including procedures that alleviate their noise impacts, such as aviation rules (USAPHC, 2012).

4.5.5.2 Environmental Consequences

Fort Carson

No Action Alternative

Negligible impacts from noise are anticipated under the No Action Alternative. The acoustic environment of Fort Carson would continue to be affected by small- and large-caliber weaponry, artillery, and aircraft overflight. Other activities, such as ground maneuver training and exercises resulting in noise created by personnel and vehicles, would continue to contribute noise on and surrounding Fort Carson, to the same levels and intensity as historically experienced.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Impacts from noise are anticipated to be minor and slightly beneficial. Existing ranges would still be utilized for firing the same types of weapons systems and conducting the same types of training though with slightly reduced intensity and frequency. Fort Carson's remaining BCTs would continue to conduct maneuver and live-fire training in the field, however, the number of weapons qualifications and maneuver training events could be anticipated to decrease in proportion with the number of Soldiers stationing at the installation. Noise impacts would likely remain comparable to current conditions, though less frequent. A reduction of 8,000 Soldiers would have no impact on the weaponry being utilized on existing ranges and would not be anticipated to change to current noise contours nor change the risk potential for noise impacts. The current frequency and activities of aviation training activities, a contributor of noise at the installation, would not be anticipated to change, as aviation units would not be impacted by these decisions. Noise contours are not anticipated to change as a result of the implementation of Alternative 1.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

There would be an anticipated minor impact on the installation and surrounding communities by the gain of up to 3,000 Combat/Combat Support Soldiers. No perceptible changes in noise contours that would affect sensitive receptor populations are anticipated given that there are no new types of activities that would occur as a result of stationing of these Soldiers, just an increase in the frequency of existing noise generating activities. The current frequency and activities of aviation training activities, a contributor of noise at the installation, would not be anticipated to change, as aviation units would not be impacted by these decisions. It is anticipated that wildlife on the installation would adjust, as the wildlife populations would not be exposed to any different noise impacts, just a slight increase in frequency to those impacts for which they are already habituated. Noise contours are not anticipated to change as a result of Alternative 1, and only minor impacts are anticipated to occur as a result of implementing this alternative.

Piñon Canyon Maneuver Site

No Action Alternative

Negligible impacts from noise are anticipated under the No Action Alternative. The acoustic environment of PCMS would continue to be affected by small-caliber weaponry and aircraft overflight. Other activities, such as ground maneuver training and exercises resulting in noise created by personnel and vehicles, would continue to contribute noise on and surrounding PCMS, to the same levels and intensity as historically experienced.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Impacts from noise are anticipated to be minor and slightly beneficial. Existing ranges would still be utilized for firing the same types of weapons systems and maneuver training though with slightly reduced intensity resulting from less usage by fewer Soldiers. Fort Carson's remaining BCTs would continue to conduct maneuver at PCMS and live-fire training in the field; however, the number of weapons qualifications and maneuver training events could be anticipated to decrease in proportion with the number of Soldiers stationing at the installation. Noise impacts would likely remain comparable to current conditions overall. A reduction of 8,000 Soldiers would have no impact on the weaponry being utilized on existing ranges and would not be anticipated to change to current noise contours nor change the risk potential for noise impacts. The current frequency and activities of aviation training activities, a contributor of noise at the installation, would not be anticipated to change, as aviation units would not be impacted by these decisions. Noise contours are not anticipated to change as a result of the implementation of Alternative 1.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

There would be an anticipated minor impact on the installation and surrounding communities by the gain of up to 3,000 Combat/Combat Support Soldiers. No perceptible changes in noise contours that would affect sensitive receptor populations are anticipated given that there are no new types of activities that would occur as a result of stationing of these Soldiers, just an increase in the frequency of existing noise generating activities. The current frequency and activities of aviation training activities, a contributor of noise at the installation, would not be anticipated to change, as aviation units would not be impacted by these decisions. It is anticipated that wildlife in and around PCMS would adjust, as the wildlife populations would not be exposed to any different noise impacts, just a slight increase in frequency to those impacts for which they are already habituated. Noise contours are not anticipated to change as a result

of Alternative 2, and only minor impacts are anticipated to occur as a result of implementing this alternative.

4.5.6 Soil Erosion

4.5.6.1 Affected Environment

Fort Carson

Soil types commonly occurring in the region are aridisol (dry, desert-like soils) and entisol (soils that do not show any profile development and which are largely unaltered from their parent rock) soils (USACE, 2002). These soil types are characterized by moderate-to-severe erodibility, landslides, and unstable clay formation movement due to variations in moisture content and temperature (USACE, 2002).

Thirty-four soil categories and 65 soil associations have been recognized on Fort Carson. Predominant soil associations identified are the Penrose-Minnequa Complex, Penrose-Rock Complex, Schamber-Razor Complex, and Razor-Midway Complex (Fort Carson, 2007). The Penrose-Minnequa and Penrose-Rock complexes occur in the southern portion of Fort Carson, in Pueblo and Fremont counties (USDA, 1981).

The main post, located in the northern portion of Fort Carson, is the most highly developed area on the installation and contains post housing, administration, recreational, and other support facilities. Native soils and vegetation occur throughout the main post, primarily in the southern portion, and are broken up by local areas of disturbed soils.

Butts Army Airfield, located on the eastern side of the post adjacent to and south of Wilderness Road, is semi-developed. The airfield contains a landing strip, paved areas, and support facilities. The land surrounding Butts Army Airfield contains native soils and vegetation that are broken up by local areas of disturbance. The least-disturbed soils at Butts Army Airfield occur in the southwestern portion of the airfield.

The downrange area on Fort Carson covers the majority of land on post, is relatively undeveloped, and supports the greatest area of native undisturbed soils. The downrange area has a high degree of wind erosion associated with disturbed soils (areas of concentrated training operations, including berms and dirt roads).

Soil erosion is a problem at Fort Carson. Soils of greatest concern for erosion are clays, silty clays, and clay loams. In particular, the eastern portion of Fort Carson, located within the Fountain Creek Watershed, and the southwest corner of the post draining to Beaver Creek, contains soils that have been identified as being moderately to highly susceptible to erosion (Fort Carson, 2007). Additional information on Fort Carson soil types can be found in the INRMP, and specific information can be obtained from the Natural Resources Conservation Service soil surveys for El Paso, Pueblo, and Fremont counties.

Piñon Canyon Maneuver Site

The PCMS is distinguished by topographic features such as mesas, cuestas, dissected plateaus, deep canyons, and volcanic formations. The soils are formed from parent material of shale, sandstone, and limestone. The type of parent material is a major determinant of soil type and texture at PCMS. Soil types commonly occurring are aridisol and entisol soils. These soil types are characterized by moderate to severe soil erodibility, landslides, and unstable clay formation movement attributable to variations in moisture content and temperature (Fort Carson, 2009b). Extensive overgrazing (prior to 1983), vegetation removal, and soil compaction from mechanized training have contributed to erosion and erosion potential. Additional information on

PCMS soil types can be found in the INRMP, and specific information can be obtained from the Natural Resources Conservation Service soil surveys for Las Animas County.

4.5.6.2 Environmental Consequences

Fort Carson

No Action Alternative

Less than significant adverse impacts are anticipated under the No Action Alternative. Fort Carson would continue its infantry and mechanized 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. The installation's ITAM program conducts monitoring, rehabilitation, and maintenance and repair on areas of high use such as drop zones, artillery firing positions, observation points, and ranges.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Impacts from soil erosion are anticipated to be minor and potentially beneficial. Alternative 1 includes the reduction of no longer needed facilities that could result in short-term adverse impacts from demolition and temporary exposure of bare soils to rain and water and wind erosion. These impacts; however, would be short term in duration. Overall, there would be anticipated beneficial long-term impacts from reduced training and more opportunities for land rehabilitation and natural rest and recovery of the landscape. It is anticipated that there would be less soil erosion and sedimentation attributable to training activities.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

There is anticipated to be significant but mitigable impacts to soil resources at Fort Carson as a result of the implementation of Alternative 2. Exposed soils from increased training would become more susceptible to erosion, and soil productivity (i.e., the capacity of the soil to produce vegetative biomass) may decline in disturbed areas. With the potential addition of more maneuver and support units, more vehicles would impact Fort Carson's training areas. More vegetation would be denuded from the training areas by vehicular traffic and more bare soils would be exposed to water and wind erosion. A greater amount of sedimentation would be anticipated to occur in the regional surface waters. Areas with a slope of greater than 30 percent would not be affected by vehicles. Flat to relatively flat areas (vegetation and surface crust) would show the impact from the vehicle maneuvers, turns and traction and increased levels of vegetation loss and compaction from staging areas and assembly areas. Training when soils are wet would adversely impact vegetation, compact soils, accelerate erosion and create ruts that could lead to increased soil loss and gullying. Hull defilades, trenches and other soil disturbing activities would alter the soil profile and remove vegetation. These areas may then be prone to wind and water erosion. Conditions for potential erosion and compaction would increase in areas with increased use. Fort Carson's ITAM program would continue to monitor training lands for disturbance, and would plan and implement rehabilitation and erosion control measures in areas of high use.

Piñon Canyon Maneuver Site

No Action Alternative

Less than significant adverse impacts are anticipated under the No Action Alternative. Fort Carson would continue its infantry and mechanized training at PCMS, to include impacts to soils from removal of or damage to vegetation, digging activities, ground disturbance from vehicles,

and ammunition used in training events. The installation's ITAM program conducts monitoring, rehabilitation, and maintenance and repair on areas of high use such as drop zones and ranges.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Impacts from soil erosion are anticipated to be minor and potentially beneficial. With less training and fewer vehicles at PCMS, it is anticipated that there would be reduced soil erosion and sedimentation attributable to training activities.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

There is anticipated to be significant but mitigable impacts to soil resources at PCMS resulting from of the implementation of Alternative 2. Exposed soils from increased vehicles and Soldiers training during maneuver training events would make soils more susceptible to erosion, and soil productivity (i.e., the capacity of the soil to produce vegetative biomass) may decline in disturbed areas. With the potential addition of another maneuver battalion, engineer units and other support units to a BCT, more vehicles would impact PCMS training areas. More vegetation would be denuded from the training areas by vehicular traffic and more bare soils would be exposed to water and wind erosion. A greater amount of sedimentation would be anticipated to occur in the regional surface waters. Areas with a slope of greater than 30 percent would not be affected by vehicles. Flat to relatively flat areas (vegetation and surface crust) would show the impact from the vehicle maneuvers, turns and traction and increased levels of vegetation loss and compaction from staging areas and assembly areas. Training when soils are wet would adversely impact vegetation, compact soils, accelerate erosion and create ruts that could lead to increased soil loss and gullying. Hull defilades, trenches and other soil disturbing activities would alter the soil profile and remove vegetation. These areas may then be prone to wind and water erosion. Conditions for potential erosion and compaction would increase in areas with increased use. However, this alternative would not increase the frequency of training above the historical limits of 4.7 months of mechanized maneuvers at PCMS. Fort Carson's ITAM program would continue to monitor training lands for disturbance, and would plan and implement rehabilitation and erosion control measures in areas of high use.

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

4.5.7.1 Affected Environment

Fort Carson

Fort Carson is located at the western edge of the Central Shortgrass Prairie Ecoregion and is within the upper regions of the Prairie Grasslands Plant Zone. Fort Carson consists of approximately 45 percent grasslands, 29 percent shrublands, 37 percent forest and woodlands, and 4 percent other. Fort Carson habitat supports, among others, the Mexican spotted owl (*Strix occidentalis lucida*), a rare winter resident to Fort Carson (Fort Carson, 2007). Details on vegetation, including noxious weeds, are available in the 2009 *Fort Carson Grow the Army FEIS* (Fort Carson, 2009a).

The federally-threatened Mexican spotted owl (*Strix occidentalis lucida*) is the only listed species known to occur at Fort Carson. Species under consideration for listing and not yet protected under the ESA are the mountain plover (*Charadrius montanus)* (proposed threatened), Arkansas darter (*Etheostoma cragini*) (candidate), and northern leopard frog (*Lithobathes pipiens)* (petitioned). State-listed species on Fort Carson include Arkansas darter (threatened), southern redbelly dace (endangered), and burrowing owl (threatened). The Triploid checkered whiptail (*Cnemidophorus neotesselatus*), designated as a Species at Risk by

the Army, occurs at Fort Carson and PCMS. The *Fort Carson and Piñon Canyon Maneuver Site Integrated Natural Resources Management Plan 2007-2011*, approved by the USFWS and the CDOW, discusses management of rare and listed species, to include the Mexican spotted owl. The threatened Preble's meadow jumping mouse (*Zapus hudonius preblei*) and the Gunnison's prairie dog (*Cynomys gunnisoni*), a candidate for ESA listing, are not known to occur on Fort Carson. The mountain plover (proposed threatened) occurs on Fort Carson and PCMS during the breeding and migratory seasons. It is rare on both locations, nesting at only a few sites.

Wildland fire management, in the form of prescribed burning, is one of the tools used to manage habitat and reduce the risk of wildfires that pose a threat to life and property, which includes sensitive ecosystems, cultural resource sites, and training areas. The training areas on the installation require the use of munitions and weapons systems that increase the chance of wildfire ignition and may damage important resources. The installation's Integrated Wildland Fire Management Plan, with update completed in 2011, lays out specific guidance, procedures, and protocols for the prevention and suppression of wildfires and management of wildland fuels on all Fort Carson training lands, including PCMS (Fort Carson, 2010).

Piñon Canyon Maneuver Site

Like Fort Carson, PCMS is located within the Central Shortgrass Prairie Ecoregion and is within upper regions of the Prairie Grasslands Plant Zone. PCMS consists of approximately 41 percent grasslands, 33 percent shrublands, 17 percent forest and woodlands, and 9 percent other (Fort Carson, 2007). Approximately 25 percent of the cantonment area is mowed native grasses and landscaping plants. No plant species appear on the USFWS list of federally-listed endangered, threatened, and candidate species for Las Animas or Otero counties (USFWS, 2010), a status that remains unchanged since the 2011 *CAB Stationing PEIS*. The African rue (*Peganum harmala*) (A-List species) has been eradicated from PCMS, but continued surveying is conducted due to populations on nearby property. Russian knapweed, Canada thistle, spotted knapweed, and perennial pepperweed are the weed species of most concern at PCMS. No effective biological controls exist for Russian knapweed, and control efforts concentrate on mechanical and chemical methods. Canada thistle is managed using integrated pest management techniques including; biological control, herbicide application, burning, and mowing.

The status of wildlife species on PCMS also remains consistent with that reported in the 2011 *CAB Stationing PEIS*. As part of lower reaches of the Purgatoire River watershed, PCMS supports a relatively intact large mammal community (e.g., elk, mountain lion, pronghorn, bighorn sheep, black bear, mule, and white-tailed deer). Black-tailed prairie dog (*Cynomys ludovicianus*) on PCMS provide food for the bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), burrowing owl (*Athene cunicularia*), and ferruginous hawk (*Buteo regalis*). There are species currently listed as endangered or threatened under the ESA that are found in Las Animas and Otero counties; however, none are known to occur on PCMS. As mentioned previously for Fort Carson, the mountain plover, proposed to be listed as a threatened species, occurs on Fort Carson and PCMS during the breeding and migratory seasons. It is rare on both installations, nesting at only a few sites. Further information on PCMS wildlife, to include the Triploid checkered whiptail (*Cnemidophorus neotesselatus*), designated as a Species at Risk by the Army, and Colorado State Species of Concern, such as the peregrine falcon, is available from the installation's INRMP and the 2009 *Fort Carson Grow the Army FEIS.*

Wildland fire management occurs at PCMS. When severe wildfires occur, as during the 2008 fire season at PCMS, the installation takes action, as appropriate, to evaluate damages,

implement rehabilitation efforts, and monitor impacts of both the wildfire and subsequent rehabilitation.

4.5.7.2 Environmental Consequences

Fort Carson

No Action Alternative

Negligible adverse effects would occur at Fort Carson as a result of the implementation of the No Action Alternative. Fort Carson would continue to adhere to its existing resource management plans to further minimize and monitor any potential effects. Units are briefed prior to each training event regarding sensitive areas on post, such as protected species habitat, and activities that are prohibited within certain areas.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Minor beneficial impacts are anticipated to biological resources as a result of the implementation of Alternative 1. Scheduling conflicts for training area access to conduct resource monitoring would be reduced. Proactive conservation management practices would be more easily accomplished with reduced mission throughput. A reduction in training may lessen damage to wildlife habitat and decrease the current levels of displacement and disturbance of wildlife during training events. Current levels of impact to ground nesting birds may also decrease from reduced ground maneuver training.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

Less than significant adverse impacts are anticipated as a result of the implementation of Alternative 2 for most wildlife species. Non-mitigable impacts to ground nesting birds would be anticipated (Tazik, 1991). The increase in the number of Soldiers represents less than a 15 percent increase above the current level of Soldier stationing at Fort Carson. While this moderate force augmentation would increase traffic in the training lands and ranges, it would not cause significant degradation or destruction of sensitive species habitats. Fort Carson proactively manages its conservation programs within the installation's training areas. Access to training lands and ranges for conservation and habitat management; however, would become more difficult with increased training throughput.

A gain of 3,000 Combat/Combat Support Soldiers would likely increase the displacement of wildlife and increase damage to wildlife habitat. Trees and shrublands are likely to have decreased recruitment rates and a subsequent decline in available habitat. Wildfire associated with range operations could lead to increased loss of winter habitat potentially available for future use by Mexican Spotted Owls. For some raptors there would likely be a decrease in site selection and an increase in nest abandonment. Disturbance adapted species would likely increase while populations that are disturbance prone would be adversely impacted from the slight increase in training activities. Training would have a slightly negative effect on the species such as burrowing owls, prairie dogs, mountain plover, because bivouac, dismounted and off-road vehicle training would increase in frequency and/or duration. Mule deer, elk, pronghorn, and many species of raptors are more readily flushed or displaced by pedestrians than by moving vehicles. Wildlife species may be affected by increased mounted military training through direct disturbance, mortality caused by vehicles, and by indirect alteration of their habitat. Increased Soldier presence may disrupt wildlife species and game populations from foraging or reproducing.

Piñon Canyon Maneuver Site

No Action Alternative

Negligible adverse effects would occur at PCMS as a result of the No Action Alternative. Fort Carson would continue to adhere to its existing resource management plans at PCMS to further minimize and monitor any potential effects. Units are briefed prior to each training event regarding sensitive areas on post, such as protected species habitat, and activities that are prohibited within certain areas.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Minor beneficial impacts to biological resources as a result of the implementation of Alternative 1 are anticipated. A reduction in training intensity from less Soldiers and vehicles may lessen damage to wildlife habitat and decrease the current levels of displacement and disturbance of wildlife during training events. Current levels of impact to ground nesting birds may also decrease from reduced ground maneuver training.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

Less than significant adverse impacts are anticipated as a result of the implementation of Alternative 2. The increase in Soldiers and vehicles training at PCMS would not lead to significant degradation or destruction of sensitive species habitats. Fort Carson proactively manages its conservation programs within PCMS training areas.

A gain of 3,000 Combat/Combat Support Soldiers would likely increase the displacement of wildlife and game populations and increase slightly damage to wildlife habitat. Trees and shrublands are likely to have decreased recruitment rates and a subsequent decline in available habitat. Invasive species populations at PCMS could increase as a result of increased disturbance. For some raptors there would likely be a decrease in site selection and an increase in nest abandonment. Disturbance adapted species would likely increase while populations that are disturbance prone would be adversely impacted from the slight increase in training activities. Training would have a slightly negative effect on the species such as Burrowing Owls, Prairie Dogs, Mountain Plover, because bivouac, dismounted and off-road vehicle training would increase in frequency and/or duration. Mule deer, elk, pronghorn, and many species of raptors are more readily flushed or displaced by pedestrians than by moving vehicles. Wildlife species may be affected by increased mounted military training through direct disturbance, mortality caused by vehicles, and by indirect alteration of their habitat. Increased Soldier presence may disrupt wildlife species and game populations from foraging or reproducing.

4.5.8 Wetlands

4.5.8.1 Affected Environment

Fort Carson

Fort Carson is included in the NWI database maintained by the USFWS. Original data showed 487.9 acres of wetlands on Fort Carson. There has been considerable ground-truthing of sites to improve the quality of the original data. Surveys have increased the estimate of wetlands on Fort Carson and current estimates indicate that Fort Carson has approximately 1,028 acres of wetlands (Fort Carson, 2007). Wetlands are generally characterized as linear (e.g., streambeds) or small and isolated. Linear wetlands occur along intermittent and perennial stream channels and tributaries, primarily Rock, Little Fountain, Turkey, Little Turkey, Red, Sand, and Wild Horse creeks. Isolated wetlands usually occur where a dam has been built for erosion control or for water storage; most are only 1-2 acres in size. The largest downrange

wetland is on the upper reaches of Teller Reservoir, encompassing approximately 100 acres. In addition to cattails, common wetland species are cottonwood and willow. Some wetlands have been invaded by tamarisk, a noxious weed of primary wetland management concern. About six springs occur on Fort Carson, and they have very small associated wetlands. There are also a number of wetland areas scattered throughout the main post, typically in natural or stormwater runoff drainages and in an area south of Butts Army Airfield.

As described in the 2007-2011 INRMP, the wetland and riparian area buffers are generally protected from vehicular and mechanized training due to the surrounding topography, which makes these areas unsuitable for this type of training. Due to the avoidance and minimization efforts the Army currently implements as part of its INRMP and ITAM procedures, direct effects to wetlands do not normally occur.

Piñon Canyon Maneuver Site

Natural water bodies and wetlands are generally small and infrequent on PCMS but are important in contributing to wildlife habitat diversity. The total wetland area on PCMS is estimated to be 361 acres, of which approximately 290 acres are man-made (Fort Carson, 2007). Most wetlands on PCMS are associated with side canyons of the Purgatoire River and water developments such as erosion control dams, rock check dams and other erosion control features. Playas (flat-bottomed depressions that are periodically covered by water) are also present, and additional small wetlands are associated with springs and other water bodies, such as erosion control impoundments, stock watering ponds, and the overflow from windmills.

4.5.8.2 Environmental Consequences

Fort Carson

No Action Alternative

The No Action Alternative would have a minor adverse effect to wetlands on Fort Carson. Wetlands impacts from projects already under construction (or for which NEPA is complete and construction pending) have been assessed and, if required, appropriate mitigation and permitting have occurred. Additionally, training, personnel operations, and routine maintenance and monitoring activities on Fort Carson would continue to occur, resulting in minimal impacts to wetlands. These are minimized by BMPs and regular maintenance of roads, ranges, training lands, and developed areas.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Minor beneficial impacts to wetlands as a result of the implementation of Alternative 1 are anticipated. A force reduction at Fort Carson would mean tank roads, ranges, and training areas would be less utilized. Less soil would be denuded of vegetation and less sediment would run off into wetlands to impair their ecological function. As such, the loss or degradation of wetland systems would occur less frequently or to a decreased extent. Currently, degraded wetlands would have more time to recover their function between training events and there would be less risk of inadvertent wetland loss from training damage.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

There would be a minor impact to wetland areas as a result of the implementation of Alternative 2. Training throughput would increase. Prior to scheduling training area for unit exercises; however, Fort Carson range and environmental personnel would continue to coordinate to avoid and minimize sensitive resource impacts when planning for training events. If it appears that wetland impacts are unavoidable, the appropriate level of permitting and mitigation would be

obtained prior to the training event. Riparian buffers would continue to be protected from vehicular and mechanized training to minimize direct impacts. Direct and indirect impacts to wetlands, as a result of this alternative, would include increased disturbance to wetland vegetation and increased erosion and discharge into the wetlands. Indirect impacts to wetlands would occur from increased downrange training causing erosion and sedimentation processes in drainages. Construction and maintenance of erosion-control dams would catch sediment and limit wetland siltation impacts from increased training.

Piñon Canyon Maneuver Site

No Action Alternative

The No Action Alternative would have a negligible effect to wetlands at PCMS. Wetlands impacts are minimized by BMPs, such as erosion control dams, and regular maintenance of roads, ranges, training lands, and developed areas. A minimal amount of wetlands exist on PCMS with some areas being designated as ephemeral wetlands.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Minor beneficial impacts to wetlands as a result of Alternative 1 are anticipated. A force reduction at Fort Carson would mean tank roads, ranges, and training areas would be less utilized at PCMS. Less vegetation would be denuded and less sediment would run off into wetlands to impair their ecological function. As such, the loss or degradation of wetland systems would occur less frequently or to a decreased extent. Degraded wetlands would have more time to recover their function between training events and there would be less risk of inadvertent wetland loss from training damage.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

There would be a negligible impact to wetland areas as a result of the implementation of Alternative 2. Training intensity would increase at PCMS. Riparian buffers would continue to be protected from vehicular and mechanized training to minimize direct impacts. Direct and indirect impacts to wetlands may increase slightly due to increased disturbance to vegetation and increased erosion and discharge into the wetlands.

4.5.9 Water Resources

4.5.9.1 Affected Environment

Fort Carson

Potable Water. Fort Carson purchases its drinking water from Colorado Springs Utilities. Colorado Springs Utilities maintains an extensive testing program that assures full compliance with the requirements of the SDWA. In addition, Fort Carson Support Services performs routine supplementary testing for chlorine levels, coliform contamination, and chlorination byproducts on the drinking water distribution system with the goal of providing water that is safe to drink for all Fort Carson consumers. On an annual schedule, testing for lead and copper is conducted on water samples collected from schools, child development centers, and Family housing.

Fort Carson, to include the privatized housing on Fort Carson, used approximately 900 million gallons of water in calendar year 2011. Even with all the growth on Fort Carson, water use since 2001 has been reduced by more than 20 percent through proactive garrison and housing watering policies and initiatives such as rain sensors on irrigation systems. The Fort Carson Cheyenne Shadows Golf Course is being irrigated with treated effluent from the installation's sewage treatment plant, which conserves the use of potable water. Water storage tanks and unit transported potable water serve downrange training areas and ranges.

Fort Carson has recently completed a major upgrade of the potable water system that serves the new Wilderness Road complex and the Butts Army Airfield expansion. In addition, older leak-prone water mains in the cantonment are being replaced under the Sustainment, Restoration and Modernization Program.

Wastewater. The installation operates and maintains a sanitary sewage treatment plant that services the main post area, the Family housing area, Butts Army Airfield, and the Range Control complex. This system also services Cheyenne Mountain Air Station under an Inter-Service Support Agreement.

The installation operates a well-managed central vehicle wash facility for effective heavy equipment cleaning and there are individual washracks and wash bays at the various motorpools. Fort Carson's industrial waste treatment facility (IWTF) provides the capability for the centralized treatment of motorpool wastewater. Treated IWTF water is directed to the sewage plant for further treatment. Most motor pool washracks and some floor drain wastewaters are connected to the IWTF.

The Wilderness Road Complex, the Colorado Army National Guard Centennial Training Site and 10th SFG Complex (all south of the main post area) are served by individual oil/water separators and are not connected to the IWTF. A limited industrial system at Butts Army Airfield is combined with the sanitary sewer and both are pumped back to the main sewage treatment plant. There are plans in place for an upgraded industrial system at Butts Army Airfield that will be served by a dedicated sewer line connection to the IWTF.

Stormwater. The northern and eastern portions of the installation are located within the Fountain Creek watershed of the Arkansas River Basin and drain southeasterly into Fountain Creek. Stormwater runoff in the northern portion of the installation flows into one of four main drainages: B-Ditch, Clover Ditch, Central Unnamed Ditch, or Rock Creek, which are all tributaries to Fountain Creek. The southern and western portions of the installation drain directly into the Arkansas River to the south. These northern drainages have historically been considered ephemeral or intermittent, in which no flow occurs in some reaches of these drainages for long periods of time during the year, and with the high flow occurring between April and September. Modern day conditions within the watershed, however, have changed the system dynamics, which now typically exhibit perennial flows in most areas of these northern-most drainages. The majority of flows in these drainages consist of runoff from precipitation and snowmelt, which has been increased due to the higher percentages of impervious areas within the watershed. Groundwater seepage and return flows also contribute to baseflows in these drainages.

As a requirement of AR 200-1, it is the policy of the installation to comply with applicable federal, state, and local regulations regarding water resources management and permitting. As described in the Stormwater Management Plan (SWMP) (Fort Carson, 2011b) all work performed at Fort Carson is subject to stoppage by installation environmental officials for failure to comply with federal, state, County, local, or Fort Carson stormwater requirements. Three stormwater permits are utilized at Fort Carson as part of the stormwater program: the NPDES General Permit for Stormwater Discharges for Construction Activity in Colorado- COR12000F, MS4 Permit Number COR042001, and the EPA's Multi-Sector General Permit (MSGP 2000). The SWMP is designed to reduce the discharge of pollutants from Fort Carson to the maximum extent practicable and to protect water quality. Included in the document are management practices, control techniques, system design, engineering methods, and other provisions appropriate for the control of pollutants in discharges from Fort Carson.

Groundwater. Groundwater at Fort Carson exists in both alluvial and bedrock aquifers. The primary aquifer at Fort Carson is the Dakota-Purgatoire bedrock aquifer. In general, the quality

of the groundwater on Fort Carson is in good quality with the exception of localized areas of elevated nitrates, high dissolved solids, and sulfates exceeding drinking water standards.

Water Rights. Fort Carson retains approximately 50 surface and subsurface waters rights on Fort Carson. Some of these water rights support the training mission by assuring adequate water supplies.

Piñon Canyon Maneuver Site

Potable Water. PCMS purchases treated potable water from the City of Trinidad for use in the cantonment area. The water pipeline from Trinidad to the PCMS along U.S. 350 has recently been upgraded by a repair and replacement project. After the water is delivered to the PCMS, it is stored in a 500,000-gallon tank. The potable water system is adequate to support a maximum of approximately 5,000 personnel based on a water consumption rate of 35 gallons per day (gpd) per person and other installation-related support activities (such as dust control and emergency fire suppression) (Fort Carson, 2009b). The water storage tank and potable water distribution system in the main post is currently operating within capacity.

Wastewater. PCMS discharges sanitary wastewater to its evaporative lagoons. The cantonment primarily uses evaporative, nondischarging treatment and oxidation ponds, constructed in 1985 and upgraded in 2006 for sanitary wastewater and some stormwater treatment (Fort Carson, 2005). The combined treatment facility is located in the southwestern corner of the cantonment. The treatment/oxidation ponds are currently operating at levels below their capacity (Fort Carson, 2009b).

The bulk fuel facility directs stormwater and potential fuel spills to a separate lined lagoon served by an oil water separator. The effluent from this lagoon is then directed to the treatment/oxidation ponds. Most facilities located outside of the cantonment area have septic systems and leach fields (Fort Carson, 2009b). Portable toilets are used in the training areas when septic systems are not available.

Stormwater. The PCMS stormwater system is summarized in the 2011 *CAB Stationing PEIS*. As water resource mitigation measures are part of the 2011 *CAB Stationing ROD,* the installation is working towards the goal of developing a SWMP for PCMS to develop management recommendations for water resources in and around PCMS.

Groundwater. The primary source of groundwater is the Dakota-Purgatoire aquifer. Recharge on PCMS occurs through precipitation and subsurface inflow from nearby aquifers. Water quality testing of groundwater determined that the groundwater beneath PCMS contains concentrations of dissolved solid, sulfate, iron, manganese, nitrate, chloride, fluoride, Se, and radionuclide constituents that exceed domestic or public-use water quality standards. Additionally, there are 95 wells at PCMS, but few are currently functional.

Floodplains. Floodplains have not been mapped at PCMS. There are flood prone areas along the drainages in the training areas, but the cantonment area does not typically flood.

4.5.9.2 Environmental Consequences

Fort Carson

No Action Alternative

The No Action Alternative would have minor adverse impacts to water resources. No change from existing conditions would occur and all construction, operation, and maintenance projects already under way have obtained the NPDES permit and other applicable permits and are operating in adherence to their guidance. Training activities would continue, both on ranges and training lands, with adverse impacts mitigated via the ITAM land rehabilitation program.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Minor beneficial impacts are anticipated as a result of the implementation of Alternative 1. A loss of up to 8,000 Soldiers would reduce training area, decreasing the chance of potential surface water impacts to occur at Fort Carson. The demand for potable water would also be diminished, as a result of the implementation of Alternative 1 would create additional treated wastewater capacity for other uses at the installation and decrease the amount of wastewater that required treatment.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

Overall, minor impacts are anticipated as a result of the implementation of Alternative 2. Fort Carson currently has the water and waste-water capacity to meet increased water demand. No new major construction would occur under this alternative; however, an increase in training would require using existing road, trail, and training areas with greater intensity. This could lead to minor increased sedimentation and surface water impacts attributable to soils compaction, increased vegetation loss, and increased sheet flow during rain events. Based on an average daily use of 109 gpd per person, it is anticipated that wastewater would increase by 327,000 gpd with an increase in 3,000 Soldiers, well within the permitted limits even when considering the potential increase in the numbers of Family members and dependents. Impacts from increased erosion and discharge during construction would be anticipated to be minor for any limited construction required to support Soldier stationing. Increased runoff and intensity of that runoff post-construction would occur due to increased impervious area, but would be minor impacts. Fort Carson would follow procedures outlined in the EPA General Construction Permit and Section 438 of the Energy Independence and Security Act, both of which are requirements.

Piñon Canyon Maneuver Site

No Action Alternative

The No Action Alternative would have negligible adverse effects to water resources. No change from existing conditions would occur and all construction, operation, and maintenance projects already under way have obtained the NPDES permit and other applicable permits and are operating in adherence to their guidance. Training activities would continue, both on ranges and training lands, with adverse impacts mitigated via the ITAM land rehabilitation program.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

A reduction of 8,000 Soldiers would result in minor beneficial impacts and would result in decreased water consumption and wastewater generation requirements.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

Water resources impacts are anticipated to have a minor impact to PCMS. Increased training intensity would lead to a minor impact from additional sediment deposition into surface waters. Fort Carson would review and revise the PCMS SWPPP to ensure its adequacy and continue to incorporate BMPs for any new training activities at PCMS.

4.5.10 Facilities

4.5.10.1 Affected Environment

Fort Carson

Fort Carson is an active military training facility that supports garrison administrative functions, Soldiers and their Families, and training readiness. The main post area contains most of the facilities on Fort Carson such as Soldier and Family housing, administrative, maintenance, community support, recreation, and supply and storage facilities, utilities, and classroom and simulation training facilities. For the most part, industrial operations take place at the east side of the main post area, the north end of the main post area, and at Butts Army Airfield. Limited facilities are located downrange. Over the past decade facilities construction has taken place south of the main post, including the 10th SFG Complex, Range Control Complex, the Colorado Army National Guard Centennial Training Site, mock villages for urban warfare training and range construction and upgrades. Considerable construction occurred to support BRAC 2005 stationing, Grow the Army stationing, and is planned to support Army decisions to station a CAB at Fort Carson. Major construction efforts are planned to support CAB complex build-out in the vicinity of Butts Army Airfield.

Piñon Canyon Maneuver Site

The PCMS occupies approximately 235,000 acres and is located about 150 miles southeast of Fort Carson within Las Animas County, Colorado. The 1,670-acre cantonment area is located at the west central edge of PCMS. The cantonment area contains administrative buildings and support facilities that are used during training exercises.

4.5.10.2 Environmental Consequences

Fort Carson

No Action Alternative

Impacts to facilities would be minor under the No Action Alternative. Fort Carson's current facility shortfalls have been prioritized and are seeking or have received Army funding. The installation would continue to implement the Army's FRP and select demolition of outdated facilities.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Minor beneficial impacts are anticipated as a result of the implementation of Alternative 1. An increase in the FRP and facilities demolition at Fort Carson would occur as a result of Alternative 1. Older, less efficient facilities nearing the end of their life-cycle would be demolished when no longer needed to support Soldiers or their Families to save the Army on maintenance and energy requirements. Facility usage and availability for the remaining population would not be affected. Some facilities could be re-purposed to reduce crowding or support other units. Sewer collection systems and water distribution systems could experience problems if underutilized and may need to be monitored to ensure efficient operation.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

There would be significant but mitigable impacts to facilities. Increased Soldier strength of 3,000 would be reflected through increased usage throughout the cantonment area and increased usage of training facilities. The Real Property Master Plan would require modifications to allow for implementation of this alternative. Some additional construction of facilities would be needed to support new Soldiers stationed at Fort Carson to implement

Alternative 2. Some of these facilities would include a battalion headquarters facility, company operations facility, motorpool, and barracks. Fort Carson legacy facilities, which are undersized and inefficient, would need to be utilized heavily in accommodating the growth of additional Soldiers.

Piñon Canyon Maneuver Site

No Action Alternative and Alternatives 1 and 2

There would be negligible anticipated impacts for all of the alternatives. No new facilities would be required.

4.5.11 Socioeconomics

4.5.11.1 Affected Environment

Fort Carson

Fort Carson's ROI consists of El Paso, Pueblo, and Fremont counties. Fort Carson is an Army post located near Colorado Springs, primarily in El Paso County, Colorado, and extending south into Pueblo and Fremont counties.

Population and Demographics. The Fort Carson population is measured in three different ways. The working population is 25,718, and consists of Soldiers and Army civilians working on post. The population that lives on Fort Carson consists of 8,162 Soldiers and 12,406 dependents, for a total of 20,568. Finally, the portion of the ROI population related to Fort Carson is 44,200 and consists of Soldiers, civilian employees, and their dependents living off post.

The ROI county population is 825,000. Compared to 2000, the ROI's 2010 population increased in El Paso, Pueblo, and Fremont counties (Table 4.5-3). The racial and ethnic composition of the ROI is presented in Table 4.5-4.

Table 4.5-3. Population and Demographics

Region of Influence Counties	Population 2010	Population Change 2000-2010 (Percent)
El Paso	620,000	+ 20.4
Pueblo	160,000	+ 12.4
Fremont	45,000	+ 1.5

Table 4.5-4. Racial and Ethnic Composition

State and Region of Influence Counties	Caucasian (Percent)	African American (Percent)	Native American (Percent)	Hispanic (Percent)	Asian (Percent)	Multiracial (Percent)	Other (Percent)
Colorado	70	4	3	21	1	2	0
El Paso	72	6	1	15	3	3	0
Pueblo	54	2	1	41	3	1	0
Fremont	80	4	1	12	1	1	0

Permanent party Soldiers and full-time civilians generate demand for housing, enroll their children in local schools, and require municipal services like other households in the region.

Temporary duty (TDY) personnel and transient military and civilian populations generate increased demand for lodging, dining, and retail services in the area.

Employment, Income, and Housing. Compared to 2000, the 2009 employment (private nonfarm) increased in the State of Colorado and El Paso County, and decreased in Pueblo and Fremont counties (Table 4.5-5). Employment, median home value and household income, and poverty levels are presented in Table 4.5-5.

Table 4.5-5. Employment, Housing, and Income

State and Region of Influence Counties	2009 Total Nonfarm Employment (Employees)	Employment Change 2000-2009 (Percent)	Median Home Value 2005-2009 (Dollars)	Median Household Income 2009 (Dollars)	Population Below Poverty Level 2009 (Percent)
Colorado	2,005,578	+ 4.80	234,100	55,735	12.60
El Paso	216,331	+ 3.00	211,900	55,621	11.50
Pueblo	46,927	- 2.90	138,100	39,016	16.90
Fremont	7,863	- 2.30	152,200	39,714	18.10

Fort Carson on-post housing accommodates approximately 25 percent of the permanent party Soldier population with dependents who are assigned to Fort Carson. There are currently 3,260 Family housing units on Fort Carson, which are managed through an RCI partnership. This partnership has been in effect since September 1999. Fort Carson Soldiers occupy approximately 91 to 95 percent of the available units in Family housing. As of 30 June 2012; 2,989 accompanied Soldiers resided in Fort Carson Family housing. The number of dual military households living on-post is unknown and is not tracked. Currently, there is a waiting list for on-post housing. This list is especially long for the 3- and 4-bedroom homes for junior enlisted Soldiers.

Unaccompanied Personnel Housing on Fort Carson has 6,035 single Soldiers (unaccompanied) living in on-post barracks. All are in the private (E1) to sergeant (E5) ranks. All unaccompanied Soldiers, Staff Sergeant and above, must live off-post. Fort Carson does not possess any single senior enlisted housing or single officer housing. This is by design as Colorado Springs can accommodate these populations.

Off-post housing consists predominately of apartments. The 2008 Fort Carson Regional Growth Plan (PPACG, 2008) identified that the community, based on the number of housing units under construction and planned, would be able to meet the housing demand through 2011. The number of rental units was also anticipated to be sufficient. However, the Plan identified issues regarding affordability of single family homes and the availability of quality, affordable multifamily housing for some new troops and Families.

***Schools*.** According to PPACG's growth plan, in 2010 – 2011, approximately 10,200 children attended school in seven local school districts (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 percent of dependents attended Fountain-Fort Carson D-8 with 43 percent of the total in attendance.

Public Services, Health and Safety. Fort Carson's Directorate of Emergency Services (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 opened in 1986 and serves all Active Duty personnel, their dependents, and retirees. It also serves the Fort Carson's Warrior Transition Unit and Army elements in Pueblo, Colorado and Utah. The hospital was first accredited in October 1954 and has placed in the top 10 percent of all healthcare organizations in the country during its most recent accreditation.

Fort Carson ACS is a human service organization with programs and services dedicated to assisting Soldiers and their Families under the FMWR. The FMWR is a comprehensive network of support and leisure services designed to enhance the lives of Soldiers (Active, Reserve, and Guard), 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. The Child, Youth, and School Services (CYSS) is a division within the FMWR that provides Child Development Centers (CDCs) 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.

Fort Carson offers its military and their dependents 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 open to the public as well).

Piñon Canyon Maneuver Site

PCMS has no Active Duty or permanent party likely to be affected as a maneuver training site.

4.5.11.2 Environmental Consequences

Fort Carson

No Action Alternative

There would be negligible impacts anticipated under the No Action Alternative. This alternative would be 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 is anticipated.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Economic Impacts. Alternative 1 would result in the loss of up to 8,000 military (uniformed Soldier and DoD civilian) positions, each with an average annual income of $41,830. In addition, this alternative would affect an estimated 4,464 spouses and 7,680 dependent children, for a total estimated potential impact to 12,144 dependents. The total population of military employees and their dependents directly affected by Alternative 1 is projected to be 20,144.

Based on the EIFS analysis, there would be significant socioeconomic impacts for population in the ROI for this alternative. There would be no significant impacts for sales volume, employment, or income. The range of values that would represent a significant economic impact in accordance with the EIFS model are presented in Table 4.5-6. Table 4.5-7 presents the estimated economic impacts to the region for Alternative 1 as assessed by the Army's EIFS model.

Table 4.5-6. Economic Impact Forecast System and Rational Threshold Value Summary of Implementation of Alternative 1

Region of Influence Economic Impact Significance Thresholds	Sales Volume (Percent)	Income (Percent)	Employment (Percent)	Population (Percent)
Economic Growth Significance Value	7.56	8.06	3.74	3.21
Economic Contraction Significance Value	- 8.16	- 7.74	- 4.23	- 1.57
Forecast Value	- 2.16	- 1.93	- 3.66	- 2.44

Table 4.5-7. Economic Impact Forecast System: Summary of Projected Economic Impacts of Implementation of Alternative 1

Region of Influence Impact	Sales Volume	Income	Employment	Population
Total	- $554,736,100	- $417,692,300	- 8,844 (Direct) - 2,017 (Indirect) - 10,861 (Total)	- 20,144
Percent	- 2.16 (Annual Sales)	- 1.93	- 3.66	- 2.44

The total annual loss in sales volume from direct and indirect sales reductions in the ROI represents an estimated -2.16 percent change in total sales volume from the current sales volume of $25.6 billion within the ROI. State tax revenues would decrease by approximately $16.08 million as a result of the loss in revenue from sales reductions. Some counties within the ROI supplement the state sales tax of 2.9 percent by varying percentages, and these additional local tax revenues would be lost at the county and local level. Regional income would decrease by 1.93 percent. While 8,000 direct military and government civilian positions would be lost within the ROI, EIFS estimates another 844 direct contract service jobs would be lost, and an additional 2,017 job losses would occur from a reduction in demand for goods and services in the ROI as a result of the indirect impacts of force reduction. The total estimated reduction in demand for goods and services within the ROI is projected to lead to a loss of 10,861 jobs, or a -3.66 percent change in regional employment. The total number of employed positions (military and private employment) in the ROI is estimated to be approximately 297,000. A significant population reduction of 2.44 percent within the ROI would be anticipated as a result of this alternative. Of the approximately 825,000 people (including those residing on Fort Carson) that live within the ROI, 20,144 military employees and their dependents would no longer reside in the area following the implementation of Alternative 1. This would lead to a decrease in demand for housing, and increased housing availability in the region. This could lead to a slight reduction in median home values. It should be noted that this estimate of population reduction includes civilian and military employees and their dependents. This number likely overstates potential population impacts, as some of the people no longer employed by the military would continue to work and reside in the ROI, working in other economic sectors; however, this would in part be counterbalanced by the fact that some of the indirect impacts would include the relocation of local service providers and businesses to areas outside the ROI.

Table 4.5-8 shows the total projected economic impacts, based on the RECONS model, that occur as a result of the implementation of Alternative 1.

Table 4.5-8. Regional Economic System: Summary of Projected Economic Impacts of Implementation of Alternative 1

Region of Influence Impact	Sales Volume	Income	Employment
Total	- $365,808,847 (Local) - $647,147,505 (State)	- $406,640,553	- 9,037 (Direct) -1,152 (Indirect) -10,189 (Total)
Percent	- 1.42 (Total Regional)	- 1.88	- 3.4

The total annual loss in sales volume from direct and indirect sales reductions in the region represents an estimated -1.42 percent change in total regional sales volume according to the RECONS model, an impact that is approximately 0.74 percentage points less than estimated by EIFS; however, it is estimated that gross economic impacts at the state level would be greater. Extrapolating from sales volume numbers presented in the RECONS model, it is anticipated that state tax revenues would decrease by approximately $18.77 million as a result of the loss in revenue from sales reductions, which is $2.96 million more in lost state sales tax revenue than projected by the EIFS model. Regional income is projected by RECONS to decrease by 1.88 percent, slightly less than the 1.93 percent reduction projected by EIFS. While 8,000 direct military and government civilian positions would be lost within the ROI, RECONS estimates another 1,037 direct contract and service jobs would be lost, and an additional 1,152 job losses would occur from indirect reduction in demand for goods and services in the ROI as a result of force reduction. The total estimated reduction in demand for goods and services within the ROI is projected to lead to a loss of 10,189 jobs, or a -3.4 percent change in regional employment, which would be 0.91 percentage points less than projected by the EIFS model.

When assessing the results together, both models indicate that the economic impacts of the implementation of Alternative 1 would lead to a net reduction of economic activity within the ROI.

***Population and Demographics*.** There would be significant socioeconomic impacts for population in the ROI for this alternative.

Housing. Alternative 1 would increase availability of single occupancy barracks and single Soldier housing. If the number of permanent party Soldiers were reduced on Fort Carson, there is a possibility that vacancies could occur in on-post Family housing. Once the Active Duty military waiting lists are empty, remaining units would be filled according to the "waterfall" priority list outlined in Section 4.5.11.1. Fort Carson anticipates minor adverse impacts to the housing and rental market in the region. This would have the most impact in El Paso County where rental vacancy and current military tenant populations are highest.

***Schools*.** Fort Carson anticipates the potential for significant adverse economic impacts to Fountain-Fort Carson (D8) Public School that supports about 4,300 Fort Carson dependents (43 percent of the total student population) as a result of the implementation of Alternative 1 (PPACG, 2008). Fountain-Fort Carson receives significant federal and DoD funding based on the number of military-connected children it supports. Considering that on-post housing can support 25 percent of Fort Carson's current permanent party Soldiers, the impact of Alternative 1 on the number of military personnel and associated dependents who would live on-post is unknown. For this reason, the impact of Alternative 1 is also unknown. There are sixother local school districts within the ROI (PPACG, 2008). Fort Carson anticipates less than significant adverse impacts to school funding in the region as a whole if Alternative 1 is implemented.

Public Health and Safety. As a result of the implementation of Alternative 1, resident and daytime population levels on Fort Carson would decrease and could potentially reduce demand on law enforcement, fire and emergency service providers, and on medical care providers on and off post, but there would continue to be a demand for these services. Fort Carson anticipates less than significant impacts to public health and safety.

***Family Support Services*.** As a result of the implementation of Alternative 1, a reduction in permanent-party Soldiers could reduce demand on select Family support service providers on post. But there would continue to be a demand for child care and other ACS programs. Off-post Family support services throughout the region would not likely experience a significant decrease in clients. Fort Carson anticipates less than significant impacts to Family support services under this alternative.

Recreation Facilities. A reduction in permanent-party Soldiers could potentially decrease use of recreation facilities on post. Any decrease in utilization would be minor. Fort Carson does not anticipate significant adverse or beneficial impacts to recreation facilities under this alternative.

Environmental Justice. As a result of the implementation of Alternative 1, Fort Carson does not anticipate a disproportionate adverse impact to minorities, economically disadvantaged populations or children would occur in the ROI. Fort Carson anticipates that job loss would be felt across economic sectors and at all income levels and spread geographically throughout the ROI. The proposed force reduction in military authorizations on Fort Carson would not have disproportionate or adverse health effects on low-income or minority populations in the ROI. The African-American population of El Paso County is slightly above the average for the state, while the Hispanic proportion is lower. Given this, the adverse effects of Alternative 1 would be negligible.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

Economic Impacts. Alternative 2 would result in the gain of up to 3,000 military (uniformed Soldier and DoD civilian) positions, each with an average annual income of $41,830. In addition, this alternative would affect an estimated 1,674 spouses and 2,880 dependent children, for a total estimated potential impact to 4,554 dependents. The total population of military employees and their dependents directly affected by Alternative 2 would be projected to be 7,554 military employees and their dependents.

Based on the EIFS analysis, there would be no significant impacts for sales volume, income, population, and employment. The range of values that would represent a significant economic impact in accordance with the EIFS model are presented in Table 4.5-9. Table 4.5-10 presents the estimated economic impacts to the region for Alternative 2 as assessed by the Army's EIFS model.

Table 4.5-9. Economic Impact Forecast System and Rational Threshold Value Summary of Implementation of Alternative 2

Region of Influence Economic Impact Significance Thresholds	Sales Volume (Percent)	Income (Percent)	Employment (Percent)	Population (Percent)
Economic Growth Significance Value	7.56	8.06	3.74	3.21
Economic Contraction Significance Value	- 8.16	- 7.74	- 4.23	- 1.57
Forecast Value	0.81	0.72	1.37	0.92

Table 4.5-10. Economic Impact Forecast System: Summary of Projected Economic Impacts of Implementation of Alternative 2

Region of Influence Impact	Sales Volume	Income	Employment	Population
Total	$208,026,000	$156,634,600	3,316 (Direct) 756 (Indirect) 4,072 (Total)	7,554
Percent	0.81 (Annual Sales)	0.72	1.37	0.92

The total annual gain in sales volume from direct and indirect sales increases in the ROI would represent an estimated 0.81 percent change in total sales volume from the current sales volume of $25.6 billion within the ROI. It is estimated that state tax revenues would increase by approximately $10.5 million as a result of the gain in revenue from sales increases. Some counties within the ROI supplement the state sales tax of 2.9 percent by varying percentages, and these additional local tax revenues would be gained at the county and local level. Regional income would increase by 0.72 percent. While 3,000 direct military and government civilian positions would be gained within the ROI, EIFS estimates another 316 direct contract service jobs would be gained, and an additional 756 new jobs would be created from an increase in demand for goods and services in the ROI as a result of the indirect impacts of force increases. The total estimated increase in demand for goods and services within the ROI is projected to lead to a gain of 4,072 jobs, or a 1.37 percent change in regional employment. The total number of employed positions (military and private employment) in the ROI is estimated to be approximately 297,000. A population increase of 0.92 percent within the ROI would be anticipated as result of this alternative. Of the approximately 825,000 people (including those residing on Fort Carson) that live within the ROI, and additional 7,554 military employees and their dependents would reside in the area following the implementation of Alternative 2. This would lead to an increase in demand for housing, and decreased housing availability in the region. This would lead to a slight increase in median home values. It should be noted that this estimate of population increase includes civilian and military employees and their dependents.

Table 4.5-11 shows the total projected economic impacts, based on the RECONS model, that would be estimated to occur as a result of the implementation of Alternative 2.

Table 4.5-11. Regional Economic System: Summary of Projected Economic Impacts of Implementation of Alternative 2

Region of Influence Impact	Sales Volume	Income	Employment
Total	$137,178,317 (Local) $242,680,314 (State)	$152,490,207	3,821 (Total) 3,389 (Direct) 432 (Indirect)
Percent	0.54 (Total Regional)	0.70	1.29

The total annual gain in sales volume from direct and indirect sales increases in the region would represent an estimated 0.54 percent change in total regional sales volume according to the RECONS model, an impact that is approximately 0.27 percentage points less than estimated by EIFS; however, it is estimated that gross economic impacts at the state level would be greater. Extrapolating from sales volume numbers presented in the RECONS model, it is anticipated that state tax revenues would increase by approximately $7.04 million as a result

of the gain in revenue from sales reductions, which would be $3.46 million less than the additional state sales tax revenue projected by the EIFS model. Regional income is projected by RECONS to increase by 0.70 percent, slightly less than the 0.72 percent increase anticipated under EIFS. While 3,000 direct military and government civilian positions would be gained within the ROI, RECONS estimates another 389 direct contract and service jobs would be gained, and an additional 432 new jobs would be created from indirect increases in demand for goods and services in the ROI as a result of force increases. The total estimated increase in demand for goods and services within the ROI is projected to lead to a gain of 3,821 jobs, or a 1.29 percent change in regional employment, which would be 0.36 percentage points greater than projected by the EIFS model.

When assessing the results together, both models indicate that the economic impacts of the implementation of Alternative 2 would lead to a net increase of economic activity within the ROI.

***Population and Demographics*.** There would be no significant socioeconomic impacts for population in the ROI for this alternative.

Housing. This alternative would decrease availability of single occupancy barracks and single Soldier housing. If the number of permanent party Soldiers were to increase on Fort Carson, the Active Duty military waiting lists would be longer. Fort Carson anticipates minor beneficial impacts to the housing and rental market in the region, with the most impact in El Paso County where rental vacancy and current military tenant populations are highest.

***Schools*.** Fort Carson anticipates that there would be minor beneficial impacts to all the schools within the ROI with the implementation of Alternative 1. Fort Carson anticipates less than significant adverse impacts to schools in the region as a result of growth and the potential for overcrowding as a result of the implementation of Alternative 2.

Public Health and Safety. As a result of the implementation of Alternative 2, resident and daytime population levels on Fort Carson would increase and could potentially increase demand on law enforcement, fire and emergency service providers, and on medical care providers on- and off-post. Fort Carson anticipates less than significant impacts to public health and safety.

***Family Support Services*.** As a result of the implementation of Alternative 2, an increase in permanent-party Soldiers could increase demand on select Family support service providers on post. There would be more demand for child care and other ACS programs. Off-post Family support services throughout the region would not likely experience a significant increase in clients. Fort Carson anticipates less than significant impacts to Family support services under this alternative.

Recreation Facilities. An increase in permanent-party Soldiers could potentially increase use of recreation facilities on post. Any increase in utilization would be minor. Fort Carson does not anticipate significant adverse or beneficial impacts to recreation facilities under this alternative.

Environmental Justice. As a result of the implementation of Alternative 2, Fort Carson does not anticipate a disproportionate adverse impact to minorities, economically disadvantaged populations or children would occur in the ROI. Fort Carson anticipates that job changes would be felt across economic sectors and at all income levels and spread geographically throughout the ROI. The proposed force increase in military authorizations on Fort Carson would not have disproportionate or adverse health effects on low-income or minority populations in the ROI.

Piñon Canyon Maneuver Site

No Action Alternative and Alternatives 1 and 2

These alternatives would result in negligible impacts to existing socioeconomic resources. Soldiers training at PCMS train there for a short time window of a few days or weeks.

Dependents do not accompany Soldiers; therefore, there would be limited impact on community services, schools, or economic impact in general.

4.5.12 Energy Demand and Generation

4.5.12.1 Affected Environment

Fort Carson

Fort Carson's energy needs are currently met by a combination of electrical power and natural gas, both of which are provided by municipal utility. Fort Carson has 3 MW solar power array that supports a portion of its energy needs and is pursuing projects that increase the amount of renewable energy generated and consumed on the installation.

Electricity. Power is supplied to Fort Carson from three recently constructed or upgraded substations in the main post area. The peak historical electrical demand is 37 MWs. Fort Carson's electrical infrastructure has been upgraded to provide reliable and sufficient electrical services to support its recent growth. Additional electrical infrastructure improvements are planned to support CAB construction. These improvements are planned for FY 2012 - 2016.

***Natural Gas*.** Fort Carson receives natural gas from Colorado Springs Utilities via four feeds (two on the north end of the installation, near Gate 4, one at Gate 5, and one at Gate 5). The peak historical daily consumption of natural gas at Fort Carson 13,000 thousand cubic feet, and the peak historical monthly consumption is 214,000 thousand cubic feet. The natural gas is metered and piped through a series of gas mains and distribution lines to support heating requirements throughout Fort Carson. Fort Carson's gas infrastructure has been upgraded to provide reliable and sufficient electrical services in support of its recent growth.

Piñon Canyon Maneuver Site

The PCMS's energy needs are currently met by electric power provided by a public utility service. The electricity is delivered via high voltage overhead power lines.

4.5.12.2 Environmental Consequences

Fort Carson

No Action Alternative

The No Action Alternative would result in negligible energy demand and generation effects. Fort Carson's ranges and garrison area would continue to consume the same types and amounts of energy. Maintenance of existing utility systems would continue.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Alternative 1 would have minor beneficial impacts to energy demand. There would be less of a requirement for energy and less on-post usage of energy. Utility systems, recently upgraded for Grow the Army would support utility and energy demand requirements of this alternative. Fort Carson would continue to search for innovative ways to conserve energy and would continue with separate initiatives as part of the Army's Net Zero initiative to increase renewable energy generation and the installations energy security.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

Growth of up to 3,000 Soldiers is anticipated to have a minor impact resulting from energy demand and generation. Fort Carson's existing energy infrastructure has sufficient excess capacity, diversity, and scalability to readily absorb growth in Soldier and associated dependents at this level.

Piñon Canyon Maneuver Site

No Action Alternative and Alternatives 1 and 2

Negligible impacts anticipated as a result of the implementation of all alternatives. Minimal increased energy demand would occur.

4.5.13 Land Use Conflicts and Compatibility

4.5.13.1 Affected Environment

Fort Carson

Fort Carson occupies approximately 137,000 acres of land. The land uses consist of three categories: Improved lands, semi-improved lands, and unimproved lands. Land is used almost exclusively for military purposes and non-training uses. In addition, the Army maintains easements and special use permits on private lands. These easements and permits allow Fort Carson to maintain water rights, conduct monitoring on buffer lands, and use other federal properties for military purposes. The installation is divided into 56 training areas, three impact areas, the main post area, and areas from which training is restricted. The main post is located in the northern portion of the base, comprises approximately 6,000 acres, and contains most of the infrastructure, such as Soldier and Family housing; administrative, maintenance, community support, recreation, supply, and storage facilities; utilities; and classroom and simulation training facilities. Principal industrial operations include the repair and maintenance of vehicles.

The downrange area consists of approximately 131,000 acres of unimproved or open lands that are used for large caliber and small-arms live-fire individual and collective training; aircraft, wheeled and tracked vehicle maneuver operations; and mission readiness exercises. Additionally, Butts Army Airfield is located in the northeast quadrant of the downrange area and is used for command and control of flight operations as well as maintenance and repair of aircraft. Remaining land is used for recreation and other purposes.

Piñon Canyon Maneuver Site

Land use at PCMS has been divided into two primary categories, the cantonment and the training areas. The cantonment area consists of 1,660 acres of developed land; the training areas consist of open land. The cantonment area provides limited, austere Soldier and support facilities; military training is restricted in this area. The training areas consist of approximately 230,000 acres of unimproved or open lands that is used for military training maneuvers and small-arms live-fire activities. The terrain at the PCMS varies widely with open, rolling prairies, limestone-shale pinyon-juniper hills, sandstone canyons/breaks, and semi-arid, basaltic hills. To a large degree, the terrain defines the suitability of training activities that occur within the training areas. The four main training land use types within the training areas include maneuver training, dismounted training, small-arms live-fire ranges, and restricted areas. Maneuver training lands comprise the majority of training land at PCMS.

Restricted areas protect lands that support wildlife, ecosystems, soils, facilities, and cultural resources. Varying degrees of training use are allowed in restricted areas. For example, in areas with known occurrences of buried cultural resources, digging is not permitted (Fort Carson, 2009b).

Some areas within the PCMS are accessible to the public for recreational use when training activities do not occur. Currently, the recreational uses on the PCMS include hunting and camping (hunters only). According to the 2010 Fort Carson Regulation 200-6, camping for hunters is allowed only at designated sites. Currently, this is a dedicated campground at the Hill Ranch, approximately 1 mile south of the main gate at PCMS.

4.5.13.2 Environmental Consequences

Fort Carson

No Action Alternative

Under the No Action Alternative, no changes to land use conditions would occur; therefore, negligible impacts are anticipated.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Negligible impacts to land use are anticipated as a result of the implementation of Alternative 1. No changes to land use would be anticipated to occur through implementation of this alternative at Fort Carson. A reduction in training land use would be anticipated that roughly correlates with the number of Soldiers inactivated or realigned as a result of this alternative.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

There would be an anticipated minor short- and long-term environmental impact on installation land use due to the presence of an additional 3,000 Soldiers and their Families assigned to the installation. Facility construction for the additional Soldiers would occur within the main post area. There would be no change in land use from this construction. Indirect impacts may occur as a result of increased utilization of range facilities, which in turn would decrease the availability of maneuver land area at Fort Carson due to range surface danger zone activation while the ranges are in use.

Piñon Canyon Maneuver Site

No Action Alternative

Under the No Action Alternative, no changes to land use conditions would occur; therefore, negligible impacts are anticipated.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Negligible impacts are anticipated as a result of the implementation of Alternative 1. No changes to land use would be anticipated to occur through implementation of this alternative at PCMS. A reduction in training land use would be anticipated that roughly correlates with the number of Soldiers inactivated or realigned as a result of this alternative.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

There would be negligible impacts to land use conflicts and compatibility anticipated as a result of this alternative as this alternative would not increase the frequency of training above the historical limits of 4.7 months of mechanized maneuvers at PCMS.

4.5.14 Hazardous Materials and Hazardous Waste

4.5.14.1 Affected Environment

Fort Carson

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. Hazardous and toxic materials used at Fort Carson include gasoline, batteries, paint, diesel fuel, oil and lubricants, chemical agents, explosives, JP-8 jet fuel, pyrotechnic devices used in

military training operations, radiological materials at medical facilities, radioactive materials, pesticides, and toxic or hazardous chemicals used in industrial operations.

Both Fort Carson and PCMS operate under a Hazardous Waste Management Program that manages hazardous waste to promote the protection of public health and the environment. Army policy is to substitute nontoxic and nonhazardous materials for toxic and hazardous ones; ensure compliance with local, state, and federal hazardous waste requirements; and ensure the use of waste management practices that comply with all applicable requirements pertaining to generation, treatment, storage, disposal, and transportation of hazardous wastes. The program reduces the need for corrective action through controlled management of solid and hazardous waste (Fort Carson, 2011a).

Piñon Canyon Maneuver Site

Hazardous materials used at the PCMS include gasoline, diesel fuel, oil, and lubricants used during routine maintenance; pesticides, as well as tear gas, which is used for chemical defense training. Pyrotechnic training devices are employed in military training operations at PCMS; however, high explosives are not used. Residual hazardous materials including diesel fuel, oil, lubricants, solvents and batteries generated during routine maintenance are recovered for reuse or recycling. Other hazardous materials brought to the PCMS by units are recovered as material and taken to their home station for further use, or classification and turned-in for reissue or proper disposal (Fort Carson, 2009b).

4.5.14.2 Environmental Consequences

Fort Carson

No Action Alternative

Overall, minor 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 HWMP.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Minor beneficial impacts are anticipated as a result of the implementation of Alternative 1. In the short term, there would be an increase in the demolition of outdated and no longer needed facilities. This would increase the volume of solid waste generated. In addition, an increase in asbestos and LBP disposal is anticipated until facility reduction is completed as a result of this alternative. Construction workers and Army personnel would take measures to dispose materials in accordance with regulatory requirements installation management plans. Minor beneficial long-term impacts would be anticipated as the reduction in Soldiers would result in a reduction of hazardous material and waste generated.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

There may be minor long-term impacts from hazardous materials and waste. It is anticipated that Fort Carson would not considerably increase its storage and use of hazardous chemicals during training exercises and installation maintenance with an increase of 3,000 Soldiers. Waste collection, storage, and disposal processes would remain mostly unchanged, and current waste management programs would continue. Direct beneficial and adverse impacts would be anticipated. Direct beneficial impacts include activities associated with land transactions where the Army would continue to operate under its RCRA program to return contaminated lands to fully usable status. Direct adverse impacts include increased facility construction and

modification. The increase in these wastes would be anticipated to result in no adverse impacts because the wastes would be managed in accordance with current standards and regulations. The training of an additional 3,000 Soldiers would result in an increase in special hazards, specifically munitions and UXO. Fort Carson's munitions storage areas would accommodate the increased storage requirement of the additional throughput on existing ranges, range construction, upgrades, and improvements.

Piñon Canyon Maneuver Site

No Action Alternative

Overall, minor 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 at PCMS. Fort Carson staff would continue to manage existing sources of hazardous waste in accordance with the installation HWMP.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

There may be minor long-term beneficial impacts from the reduction of 8,000 Soldiers as it would result in a reduction of hazardous materials and waste generated.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

Increased live-fire activities as a result of the implementation Alternative 2 would result in the generation of small amounts of additional expended small arms ammunition. Small arms munitions consist primarily of brass bullet casings and lead bullet cores. A majority of brass bullet casings are picked up and turned in. Minor long-term adverse impacts from these increased activities would be anticipated. The proposed gain would not result in an increase use at PCMS by mechanized ground units above the 4.7 months originally analyzed in 1980.

4.5.15 Traffic and Transportation

4.5.15.1 Affected Environment

Fort Carson

Fort Carson is located in central Colorado, approximately 65 miles south of Denver, and adjacent to the City of Colorado Springs. The ROI of the affected environment for traffic and transportation aspects of the Proposed Action include Fort Carson and the western portion of El Paso County, to include the communities of Colorado Springs, Stratmoor, Cimarron Hills, Fountain, Widefield, Security and the City of Fountain. Major roads that border Fort Carson are I-25 to the east, State Highway 115 to the west, and Academy Boulevard to the north. Other major routes in the area include U.S. 24, State Highway 85, State Highway 16, and State Highway 21.

A number of improvements have been made to the roadways surrounding Fort Carson to support the projected traffic increases resulting from the 2005 BRAC and various re-stationing initiatives. These include recently completed major capacity improvements on State Highway 16 and Academy Blvd as well as ongoing safety and capacity improvements to State Highway 115. These on-going improvements are scheduled for completion in December 2012. The combined projects along these three routes are anticipated to meet projected off-post traffic demands as well as provide greatly improved access to Fort Carson's seven existing ACPs.

In order to support on-going development of the locations south of the post's main post area and the planned arrival of a CAB, Fort Carson plans to open an additional ACP, Gate 19, in the near future. This gate will be accessed via Carter Oak Ranch Road, an El Paso County road

linking the gate with I-25 and the City of Fountain. Improvements to this road will be completed under a pending project being funded through the Defense Access Road program.

Piñon Canyon Maneuver Site

The PCMS is set in rural Colorado near the state's southern border with New Mexico, with the nearest town being Trinidad, Colorado, located approximately 30 miles west, southwest of the maneuver site. The ROI of the affected environment for traffic and transportation aspects of the Proposed Action include PCMS, the surrounding network of rural roads leading to the installation, and the Town of Trinidad, Colorado. Major roads in the area include I-25, a north-south interstate highway that provides a direct link between Fort Carson and the Town of Trinidad, as well as U.S. 350 and U.S. 160 that connect PCMS to Trinidad.

4.5.15.2 Environmental Consequences

Fort Carson

No Action Alternative

Less than significant impacts are anticipated under the No Action Alternative. Surveys and studies conducted on the existing Fort Carson on-post transportation system determined that it is heavily congested, particularly during peak traffic hours. Recommendations to improve the system are being pursued. The installation has already completed both the NEPA review and/or construction for many projects to support recent Soldier and military dependent population increases as part of BRAC 05 implementation, Grow the Army and CAB stationing. Deficiencies in road capacity, access points, parking, and on and off-post traffic continue to be addressed.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Alternative 1 would have significant beneficial traffic impacts resulting from a reduction in congestion and transportation system use at Fort Carson. It is anticipated that traffic congestion would be diminished and travel time would decrease. The roads would continue to be maintained and LOS for on and off-post commuters would improve as traffic volume decreased.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

There would be significant but mitigable short- and long-term impacts on traffic and transportation systems on the installation due to the presence of an additional 3,000 Soldiers. The increase in on-post traffic could contribute to a decrease in the LOS of the road network during peak morning and afternoon travel periods, and would cause a decrease in LOS on some of the installation's arterial routes.

The proposed gain of 3,000 Soldiers would result in increased peak hour traffic congestion and related delays at the ACPs and along major on-post roadways. This increase would also create an additional demand for POV parking.

Recent and on-going improvements to the off-post roads bordering Fort Carson would be anticipated to meet projected traffic requirements resulting from the proposed increase.

Additional processing lanes and other improvements would be required at the post's two busiest ACPs (at Gates 20 and 4), to provide the additional thru-put required to meet the increased traffic demand.

Roadway capacity improvements (additional lanes, traffic signals, etc.) would likely be required to handle the additional traffic demands. The location and nature of these improvements would be based on the locations of the new unit areas and projected travel patterns of the new personnel.

Piñon Canyon Maneuver Site

No Action Alternative

Negligible impacts to traffic are anticipated under the No Action Alternative. Soldiers would continue to convoy to and from PCMS to support training operations.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

The proposed loss of 8,000 Soldiers at Fort Carson would result in a decrease in the number of convoys travelling to and from PCMS resulting in minor beneficial impacts.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

The proposed gain of 3,000 Soldiers at Fort Carson would have negligible impact to traffic at PCMS. The alternative would slightly increase convoys to and from PCMS as the number of vehicles conducting training at PCMS would increase.

4.5.16 Cumulative Effects

Region of Influence

The ROI for this cumulative impact analysis encompasses El Paso, Fremont, and Pueblo counties, at Fort Carson. Colorado Springs and Pueblo are the largest cities within the ROI. Fort Carson has long been a key component of the economy of the metropolitan area, employing several thousand Soldiers and civilian employees within the ROI and has been in operation supporting the Army since 1942.

The PCMS is located about 150 miles south of Fort Carson. Soldiers training at PCMS are largely confined to the maneuver site, with limited impact to the surrounding county. The nearest local community approximately 30 miles away.

Fort Carson and Piñon Canyon Maneuver Site

Under the No Action Alternative there are no significant direct, indirect, and cumulative impacts identified. There would be minor to negligible beneficial impacts under Alternative 1 for the following VECs: land use, air quality, noise, geology and soils, water resources, biological resources (including special status species and wetlands), cultural resources, airspace, utilities, and hazardous materials and hazardous waste.

There is the potential for significant beneficial cumulative impacts to transportation in the ROI for Fort Carson, with negligible beneficial impacts from the reduction in convoy traffic to PCMS as a result of Alternative 1.

There would be no significant adverse cumulative impacts to socioeconomics in the ROI for Fort Carson anticipated under Alternative 1. Any impacts from a loss of up to 8,000 Soldiers and civilians would not change the installation's mission or significantly impact the Colorado Springs area which has a dynamic economy. There would be negligible cumulative impacts to the PCMS.

Fort Carson

Several projects have been identified that are either in progress now, or would be in progress within the next 5 years and have the potential to result in cumulative effects, when considered in conjunction with the Proposed Action. Most of these projects have been previously identified in the installation's Real Property Master Planning Board and preliminarily assessed for environmental impacts via the NEPA process; however, some of the projects are still pending

final approval and subsequent compliance with NEPA. The following projects have the potential to result in cumulative impacts:

Future Actions at Fort Carson:

- CAB associated construction including control tower, bulk fuel facility, hot refuel point, Central Energy Plant, and infrastructure;
- CAB stationing;
- Chapel at Fort Carson;
- Special Forces Tactical UAS Facility;
- Child Development Center;
- Biofuel Co-generation project;
- Turkey Creek Fire Station;
- Iron Horse Park Development;
- Net Zero Energy, Water, and Waste Projects;
- High Altitude Mountain Environmental Training agreement with the BLM;
- Rod and Gun Club; and
- Tactical UAS Hangar and Facility.

Future Actions at Piñon Canyon Maneuver Site:

- Vehicle Wash Facility;
- Helicopter concrete pads; and
- Equipment Staging Area.

Present Actions at Fort Carson:

- Soldiers Family Assistance Center; and
- Warriors in Transition Unit Complex (Barracks/Administrative).

Other Public/Private Actions (Present and Reasonably Foreseeable Actions):

- Southern Delivery System water pipeline construction bringing Arkansas River water stored in Pueblo Reservoir to Colorado Springs, Fountain, Security, and Pueblo West in 2016.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

Air Quality. Cumulative impacts to air quality at Fort Carson are a substantive issue as a result of continuing growth and development in the surrounding region. The Colorado Springs region is anticipated to grow in population by approximately 350,000 people by 2030, with more vehicles and stationary emissions sources being needed to support this increase. Main post construction projects listed above, such as the Child Development Center, the Rod and Gun Club facility, the Iron Horse Park development would require an air quality conformity analysis be conducted. This analysis is required for any project with the potential to impact air quality to ensure that projects are within designated thresholds for air quality attainment individually and cumulatively. Should the analysis result in a nonconformity finding, mitigation measures would be developed and implemented to reduce the impacts and achieve conformity. The conformity analysis and any subsequent required mitigation would prevent deterioration of air quality related to O_3 levels or other pollutants, resulting from the interaction of multiple projects. Other projects in the region, such as the construction of the Southern Delivery System water pipeline,

will add fugitive dust and vehicle emissions to the impacts to Fort Carson's projects in the installations airshed.

Airspace. The increased operations as a result of the implementation of Alternative 2, to include Tactical Unmanned Aerial Vehicle use and High Altitude Mountain Environmental Training could cause some minor impacts on air traffic flow within the Butts Army Airfield around Fort Carson.

Cultural Resources. Direct and indirect incremental impacts to cultural or historical resources would be projected to have less than significant cumulative consequences. Construction of the Southern Delivery System and Fort Carson projects, in conjunction with the implementation of Alternative 2 could directly damage unknown, undocumented artifacts, though surveys would be conducted to identify and avoid artifacts of cultural significance. A large portion of the installation is yet to be surveyed to identify potential impacts and mitigations. Adverse effects to cultural resources or historic properties would require additional consultation under 36 CFR 800.

Noise. Cumulatively, noise levels may be elevated during days of heavier training, heavy construction noise, and traffic associated with the implementation actions occurring within the ROI. Disturbance to wildlife receptors on or off post and to residential receptors is anticipated to be short term and not permanent. Though during these times of increased noise intensity, peak noise would not remain elevated, nor would this increase require a modification to the installation's noise plan.

Soil Erosion. Minor cumulative impacts to soil erosion and surface water would be anticipated from the combination of construction of facilities down range, such as those listed to support the CAB, the Turkey Creek fire station, and a tactical UAS hangar, and additional maneuver traffic. The installation anticipates the potential for increased siltation and sedimentation which could have water quality impacts, resulting in indirect impacts to many of the installation's federal and state-listed species, which rely on those water sources for foraging and survival.

Biological Resources. Since the additional 3,000 Soldiers would conduct training exercises already occurring on the installation, there would likely be no major modifications that would impact current sensitive species management practices. With recently constructed ranges and future planned construction such as the Special Forces tactical UAS facility; however, Alternative 2 could amplify scheduling difficulty to access training areas for wildlife management since there would be an increase in training area use. It is anticipated; however, that continuing communication with Range Control can help minimize adverse wildlife management impacts. Cumulative impacts are a substantive issue as a result of the large amount of recent Army population growth on Fort Carson and in the surrounding region. Some cumulative adverse impacts could occur to fish, wildlife, and plants populations. Cumulative adverse impacts to biological resources could occur, but can be mitigated through proper management.

Wetlands. Negligible cumulative impacts are anticipated.

Water Resources. Minor cumulative effects to water resources are anticipated to occur.

Ongoing and reasonable future construction actions have the potential to impact impaired water bodies and/or stream buffers; however, designs are thoroughly reviewed during construction planning to minimize any potential impacts to surface water. Effective implementation of the NPDES permit requirements, and the erosion and sedimentation pollution control plans during construction, and post-construction BMPs would also reduce the potential adverse impacts to surface water. With regards to water demand, the implementation of the Southern Delivery System should regionally increase the availability of water within the ROI. The project is scheduled for completion in 2016 and should bring additional water from the Pueblo Reservoir to the ROI to support regional population growth.

Facilities. Additional Soldiers are coming to Fort Carson as part of CAB stationing and these Soldiers would utilize facilities available on Fort Carson along with the 3,000 Soldiers to be stationed at Fort Carson as a result of Alternative 2. This would place additional strain on Fort Carson's existing facilities. Cumulative facilities impacts at Fort Carson would be less than significant. More outdated facilities would need to be retained on post, to accommodate the Soldier growth, and there would be less opportunity to demolish energy inefficient or low performing, outdated facilities.

Socioeconomics. Cumulative impacts would be anticipated to be minor beneficial. Fort Carson already accommodates a large Soldier population. If Fort Carson were to gain 3,000 Soldiers there would be limited impact from that increase, as the Colorado Springs area is projected to continue to grow rapidly through 2030. The communities of Colorado Springs and the business support services and schools are planning to accommodate this rapid regional growth. The Soldier growth in conjunction with other projects would lead to minor beneficial economic impacts from increased sales volume, income, and employment in the region.

Energy Demand and Generation. Minor cumulative impacts are anticipated. Ongoing and future construction such as the Net Zero Energy, Water, and Waste projects, the biofuel Co-generation project, and the central energy plant, would help increase energy efficiency, though regionally, there would be an increased projected demand for energy that would increase with an additional 3,000 Soldiers and their Family members. Materials and energy are not in short supply, however, and their increased use would have only a minor adverse impact upon continued availability of these resources.

Hazardous Materials and Hazardous Waste. Cumulative impacts from hazardous materials and waste would be minor (low). Hazardous materials and waste would increase with the addition of 3,000 Soldiers, as well as from ongoing and future construction and operation of the facilities listed above. Hazardous materials and waste management protocols would not change as a result of these actions, however. Units would continue to adhere to installation, state, and federal guidelines for hazardous materials and waste.

Traffic and Transportation. With the increase in military personnel from CAB stationing and rapid regional growth, there would be less than significant impacts to off-post traffic. There would be an associated increase of traffic on post, with significant but mitigable impacts. CAB stationing in conjunction with 3,000 Soldiers would add more than 5,000 Soldiers to Fort Carson between 2012 and 2020. Road and traffic improvements would be needed to support Alternative 2.

Cumulative impacts associated as a result of the implementation of Alternative 2 on PCMS are as follows:

There are no known projects ongoing, or in the foreseeable future, that would produce significant direct and indirect incremental environmental impact at PCMS. The proposed gain of 3,000 Soldiers at Fort Carson and the construction projects listed above for PCMS would have minor to negligible impact to most VECs at PCMS. There is the potential for significant, but mitigable impacts to soils and less than significant impacts to biological resources due to construction and training activities. However, impacts from construction would be temporary and training impacts would be mitigable. The proposed gain would not result in an increase use at PCMS by mechanized ground units above the 4.7 months originally analyzed in 1980.

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4.6 FORT DRUM, NEW YORK

4.6.1 Introduction

Fort Drum, located in northern New York, has approximately 107,265 acres, with 77,565 acres of maneuver area suited for vehicle and non-vehicular military training (Figure 4.6-1). Fort Drum supports armored and mechanized unit training, dismounted infantry unit training, aviation training, UAS training, and training simulations.

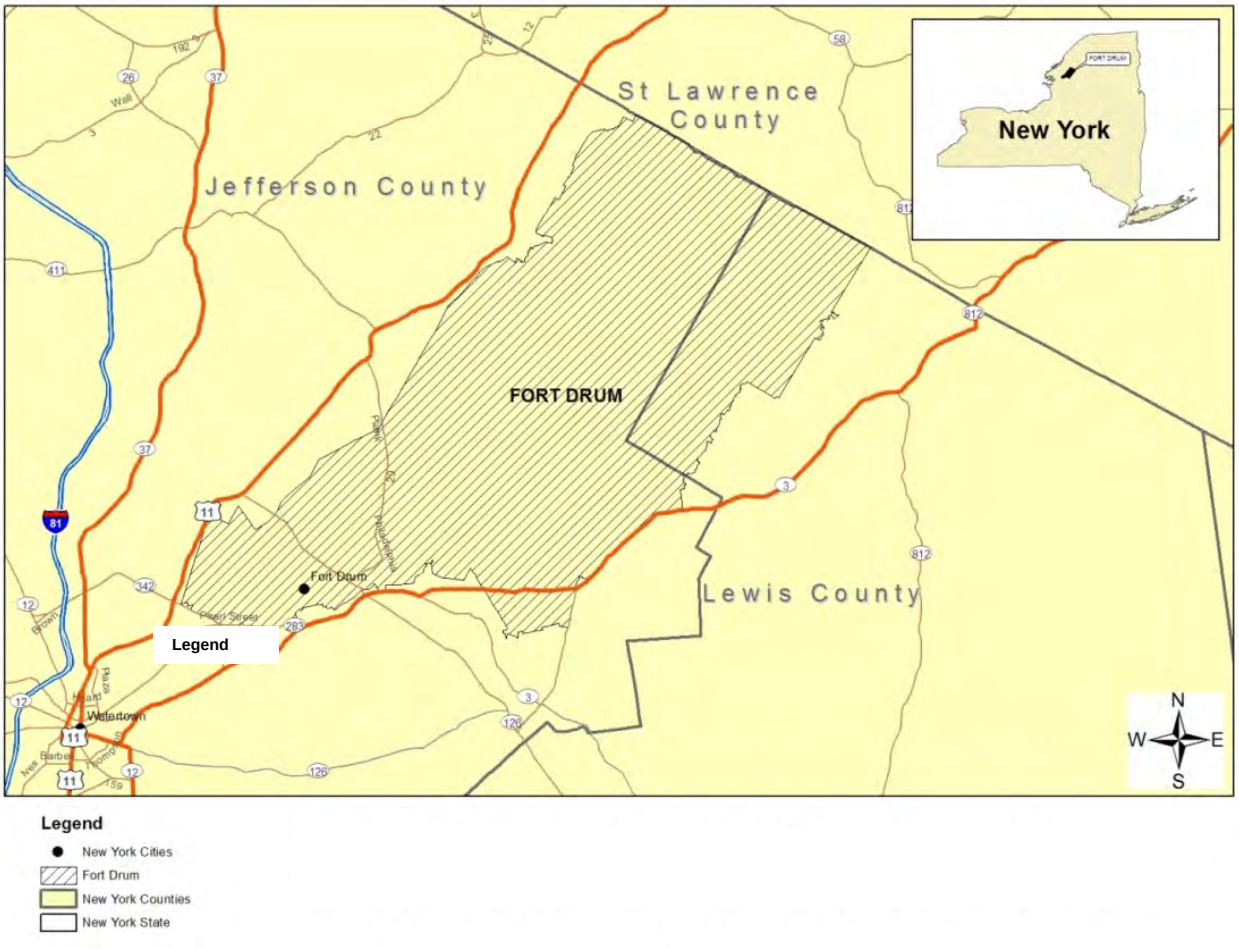

Figure 4.6-1. Fort Drum

Fort Drum's major units form a majority of the 10th Mountain Division (Light Infantry) and its headquarters. The Division consists of four IBCTs, a CAB, a SUSBDE, and a Headquarters and Headquarters Battalion. Three BCTs of the 10th Mountain Division are stationed at Fort Drum. The 4th BCT is stationed at Fort Polk, Louisiana.

Fort Drum has a well-developed range infrastructure. The ACUB Program, in 2010 secured three parcels under easement totaling 717 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 (U.S. Army, 2010). To date, 1,500 acres have ACUB easements and additional easements are planned to ensure that training range activities are not jeopardized from private development that occurs outside of the installation's fenceline.

4.6.1.1 Valued Environmental Components

For alternatives the Army is considering as part of Army 2020 force structure realignments, Fort Drum does not anticipate any significant adverse environmental impacts as a result of the implementation of Alternative 1 (Force reduction of up to 8,000 Soldiers and Army Civilians) or Alternative 2 (Installation gain of up to 3,000 Soldiers). However, significant socioeconomic impacts to sales volume, income, employment, population, and school districts are anticipated as a result of the implementation of the Alternative 1. Table 4.6-1 summarizes the anticipated impacts to VECs for each alternative.

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

Valued Environmental Component	No Action Alternative	Alternative 1: Force Reduction of up to 8,000	Alternative 2: Growth of up to 3,000
Air Quality	Minor	Minor	Minor
Airspace	Negligible	Negligible	Negligible
Cultural Resources	Minor	Minor	Minor
Noise	Negligible	Negligible	Negligible
Soil Erosion	Negligible	Negligible	Negligible
Biological Resources	Minor	Minor	Minor
Wetlands	Minor	Beneficial	Minor
Water Resources	Negligible	Negligible	Negligible
Facilities	Negligible	Beneficial	Minor
Socioeconomics	Minor	Significant	Less than Significant
Energy Demand and Generation	Minor	Beneficial	Less than Significant
Land Use Conflict and Compatibility	Negligible	Negligible	Minor
Hazardous Materials and Hazardous Waste	Negligible	Negligible	Negligible
Traffic and Transportation	Minor	Minor	Minor

4.6.1.2 Valued Environmental Components Dismissed from Detailed Analysis

For the VECs discussed in this section below, no more than a beneficial or negligible impact would be anticipated. Therefore, these VECs are not being carried forward for detailed analysis, as no potential for significant impacts exists.

- ***Airspace.*** The regional assets, supporting facilities, infrastructure, airspaces, and equipment make Fort Drum and Wheeler-Sack Army Airfield one of the best training area locations in the Army and possibly the DoD. The installation's base airspace complex includes generally the airspace within an approximate 40/50 mile-radius of Wheeler-Sack Army Airfield from the surface up to and including 10,000' MSL, as well as

Restricted Area 5201 (R-5201). This airspace is allocated by Boston Air Route Traffic Control Center to the Fort Drum Army Radar Approach Control (ARAC); the ARAC is one of only six ARACS in the Army. The ARAC provides air traffic control services for Fort Drum, Wheeler-Sack Army Airfield and the region. The ARAC airspace is adjoined and controlled by two Canadian Air Traffic Control Facilities, Syracuse Approach Control and Boston Air Route Traffic Control Center (White, 2012).

The Fort Drum extended airspace complex and the surrounding Approach Control, SUA, and MOA are considerable. The collective airspace of the Restricted Areas, (R-5201, R-5202A, R-5202B, MOAs and Air Traffic Control Assigned Airspace that surround Fort Drum to the North, East, and South provide more than 45,000 cubic miles of available airspace to conduct military operations; and when connected to the immediate west exceeds 95,000 cubic miles (White, 2012).

In addition to the ARAC airspace, Fort Drum manages and provides Airspace Management for Restricted Area 5201 (R-5201). R-5201 is 147 square miles of SUA, from the surface up to and including 23,000 feet MSL. In addition R-5201 is capped by R-5202A which is an additional 147 square miles of SUA, from the 23,000 feet MSL up to and including 29,000 feet MSL and abutted by R-5202B which is approximately an additional 105 square miles of SUA, from 6,000 feet up to and including 29,000 feet MSL. The installation has access to this airspace continuously, with minor restrictions based on normal established operation coordination procedures. The SUA is by law required to be controlled by the FAA's Boston Air Route Traffic Control Center; however day to day operational control is given to the Fort Drum Air Traffic Control Facility. Restricted airspace R-5201 and R-5202A are found within the installation boundary (White, 2012).

Installation airfield operations would be unchanged. Activities associated as a result of the alternatives would have no anticipated impact to air operations with the only exception being a potentially negligible decrease in requirements to train UAS .

- ***Noise.*** The noise environment on Fort Drum is characterized as aircraft, artillery, and blast such as the sound of a weapon firing or the 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, National Guard, and by the U.S. Air Force for aircraft training including air-to-ground weapons training (U.S. Army, 2007).

  The current noise contours for Fort Drum indicate that NZ II extends off the installation boundary into the Town of Diana; however, most development in this area remains agricultural with very low density single-family residences and further development is generally discouraged. NZ II also extends off post to the Town of Wilna along New York State Route 3 from artillery impact areas, and along the installation boundary into the Town of Rossie and north of the Village of Antwerp. No incompatible land uses occur in any of these three areas. NZ III created from blast noise or artillery fire does not extend off the installation boundary.

  Residential housing outside the installation is largely composed of Soldiers and their Families, and civilians associated with the installation. Noise generated from the airfield is heard off post to the north in the Town of Philadelphia along Great Bend Road. This area contains very few houses and one school. Aircraft flyover noise is also heard in the Town of Antwerp. Noise generated from helicopter operations within the training area is contained almost entirely on post with the exception of a small area south of the Village of Sprague ville (U.S. Army, 2007).

None of the alternatives involves 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. Substantial mission changes have occurred at the installation since September 11, 2001 that involve the realignment reduction of National Guard, Reserve, and Marine tank and aircraft operations that have lessened the noise generated by military training. Installation operations would be unchanged with a small increase in range and maneuver activities that would have virtually no impact on the installations current noise contours or on sensitive noise receptors. Activities associated with all of the alternatives would have negligible noise impacts.

- ***Soil Erosion.*** Fort Drum is located in the Lake Erie-Lake Ontario lowlands. Plainfield sands dominate this location, and they have a high permeability and low water holding capacity which leads to high water conductance. Wind erosion occurs in lowland unvegetated areas.

  Additional Soldiers and equipment would use the existing lands and facilities; however, there would be limited new exposure of soils projected as a result of the implementation of either alternative. Training during a good portion of the year would occur when the ground is frozen and more resistant to maneuver damage from Army vehicles. Land regeneration through physically seeding or planting trees in most areas would not be required. Land is monitored and managed to facilitate natural regeneration. The alternatives do not involve activities or projects that would result in more than negligible changes of soil resources.

- ***Water Resources.***

  Water Supply. Potable water is supplied to Fort Drum from the Development Authority of the North Country (DANC), which subcontracts water and sewer treatment services to the City of Watertown. Fort Drum estimates that the average current water usage from DANC to be approximately 1.35 mgd. DANC can supply up to 4 mgd through its 20-inch transmission main to the installation. The Black River supplies water to the Watertown water treatment plant, which has a capacity of 16 mgd (U.S. Army, 2011a).

  In addition to the existing water supply wells, Fort Drum has drilled several new wells. The on-post well field is a backup water supply that has a total combined groundwater extraction capacity of up to approximately 4 mgd. The chlorination plant at the well field is limited to a maximum throughput of 2.3 mgd. Total average well water use was approximately 0.3 mgd in FY 2008. Development within the on-post well field is restricted within 300 to 500 feet of a water supply well (U.S. Army, 2011a).

  DANC and the City of Watertown finished a regional study in 2007 for the water and sewer systems that determined that there is sufficient capacity in the transmission and treatment systems to support projected growth in Fort Drum and its immediate surrounding area. The existing infrastructure for water supply could easily support a 50 percent increase in demand (U.S. Army, 2011a). The impacts of an increase or a decrease in Soldiers would be anticipated to be negligible with regards to surface water and water supply.

  Wastewater. Fort Drum maintains separate sanitary and storm sewer systems to accommodate wastewater, and implements a number of policies and performs regular monitoring to prevent any unregulated contaminants from entering the sanitary and storm sewer systems. The average daily wastewater flow from Fort Drum in FY 2008 was approximately 1.6 mgd. The primary non-domestic discharges from Fort Drum

included oil and water separators and treated groundwater from environmental remediation sites (U.S. Army, 2011a).

Sanitary wastewater collected on Fort Drum is sent off post via four pump stations to a WWTP owned and operated by the City of Watertown. The rated capacity of the Watertown WWTP is 13.4 mgd, and usage averages 9.5 mgd. The existing wastewater conveyance infrastructure could easily support a 3,000 Soldier increase, and a decrease in Soldiers would also have negligible impacts.

Stormwater. Fort Drum's stormwater system conveys runoff through open drainage ditches and underground pipes that discharge directly to on-post grounds, streams, or ponds. In addition, man-made stormwater treatment ponds have been installed, as required in conjunction with the growth in facilities on the installation (U.S. Army, 2011a).

Fort Drum has obtained permit coverage for 42 stormwater discharge sites resulting from industrial activities under the New York State Pollutant Discharge Elimination System Multi-Sector Permit for Stormwater Discharges Associated Industrial Activity. Coverage for on-base individual construction projects that meet or exceed 1 acre of disturbance is obtained through the State Pollutant Discharge Elimination System Permit for Construction Activity. Currently, Fort Drum is not subject to a State Pollutant Discharge Elimination System Permit for MS4 (U.S. Army, 2011a).

With current management practices, it is unlikely that an unpermitted deposition of sediment into waters would occur outside of a natural disaster that exceeds current 100-year flood flow and discharge capacity construction standards.

All of the alternatives would have a negligible impact to the water resources or water waste streams at the installation. Given the population of Fort Drum and current level of system support, additional Units would not have significant impacts to water demand and associated treatment. There are adequate facilities at Fort Drum to accommodate this level of growth.

- ***Hazardous Materials and Hazardous Waste.*** The affected environment includes the use, storage, transport, and disposal of hazardous materials and wastes at Fort Drum. This includes hazardous materials and wastes from USTs and ASTs, deicers, pesticides, LBP, asbestos, PCBs, radon, and UXO.

  Maintenance support and specialized flight support operations currently use large quantities of aviation fuel, ground vehicle fuel, lubricants, hydraulic fluids, antifreeze, degreasers and solvents, chemical batteries, and paint-related materials. The volume of hazardous waste generated on an annual basis at Fort Drum qualifies the post as a large quantity generator. To handle this waste, Fort Drum utilizes two hazardous waste storage facilities. Fort Drum manages its hazardous waste as summarized in its HWMP updated every two years (U.S. Army, 2011a).

  All three alternatives would have negligible potential for adverse environmental impacts from hazardous materials and waste. Fort Drum has a new Hazardous Waste Management Facility that can handle the current waste generation rates as well as any future waste from an increase of 3,000 Soldiers and their resulting waste generating activities.

Fort Drum anticipates that the implementation of any of the alternatives would result in negligible impacts for those VECs discussed above. The following provides a discussion of the VECs requiring a more detailed analysis, as they are anticipated to have the potential of a higher level of impact as a result of the implementation of the Proposed Action alternatives.

4.6.2 Air Quality

4.6.2.1 Affected Environment

The affected environment includes air emissions associated with Fort Drum, and the counties of Lewis, St. Lawrence, and Jefferson, New York. Northern New York, including Fort Drum, is designated as a marginal O_3 nonattainment area due to its location within the Northeast Ozone Transport Region. New York State Department of Environmental Conservation recommended that Jefferson County be designated as an attainment area for the 2008 O_3 NAAQS. This recommendation was made because the O_3 monitoring in 2008 indicated that the air is in compliance with the national standard and the O_3 levels have not changed substantially since EPA made final designations for the 1997 O_3 NAAQS in 2008 (Snyder, 2011). All other criteria pollutants have been designated as being in attainment (EPA, 2011).

Actual emissions from stationary sources at Fort Drum fall below the thresholds for major source determination. Potential emissions from stationary sources at Fort Drum exceed the Major Facility threshold for CO, NO_x, SO_2, and VOCs. Because permitting requirements are determined based on a facility's "potential to emit," Fort Drum is considered a major facility and operates in accordance with an approved Title V permit. Since Fort Drum is a major source, the General Conformity Rule applies as a result of being in an O_3 nonattainment area. The General Conformity Rule requires analysis of total direct and indirect emissions of criteria pollutants, including precursors, when determining conformity of the Proposed Action. The rule does not apply to actions where the total direct and indirect emissions of criteria pollutants are at or below established *de minimis* levels (Page, 2012).

4.6.2.2 Environmental Consequences

No Action Alternative

There would continue to be minor short- and long-term air quality impacts from training and emissions from mobile and stationary sources required to support installation operations and training.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Short-term minor impacts to air quality from a force reduction could occur as personnel and equipment are moved from the installation and select facilities are demolished by Fort Drum as part of the Army's facilities reduction efforts. Additional air pollutant emissions could result from activities required to support the relocation. The remaining population and existing facilities would continue to operate in accordance with Fort Drum's Title V permit and maintain all state and/or federal air quality requirements. Thus, any impacts to air quality are anticipated to be minor as a result of the implementation of Alternative 1. Long-term beneficial impacts would be anticipated with a reduction in mobile source emissions and less air pollutants from a lower utilization rate of stationary sources.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

Short-term minor impacts to air quality from the addition of 3,000 Soldiers are anticipated as a result of the implementation of Alternative 2. The resulting increases in air emissions are proportional to the increase in population at the facility. Given the wide distribution of emissions, it is not anticipated that regional air quality would be significantly affected. Fort Drum is currently operating below the permit capacities and can accommodate three times the anticipated increase and still remain within the existing of its Title V permit capacities.

4.6.3 Cultural Resources

4.6.3.1 Affected Environment

The Fort Drum affected environment for cultural resources is the footprint of the installation. Fort Drum has completed archeological inventory of approximately 87 percent of its surveyable territory, excluding the permanent impact areas and the previously developed portion of the cantonment area. The archeological survey completed thus far has identified a total of 891 sites that began with earliest human occupation of the region approximately 11,000 years ago and continued through construction of World War II military training features in the 1940s (U.S. Army, 2010).

Fort Drum currently tracks a total of 940 archeological sites, one district with standing structures, and five archeological districts, and supports management of 13 historic cemeteries. Resources of concern include the historic districts, two TCPs, 13 cemeteries and an as-yet undetermined number of archeological sites considered eligible for listing on the NRHP (U.S. Army, 2010).

4.6.3.2 Environmental Consequences

No Action Alternative

Impacts to cultural resources under the No Action Alternative would be minor. Activities with the potential to affect cultural resources are monitored and regulated when anticipated through a variety of preventative and minimization measures.

Alternative 1: Force Reduction (Up to 8,000 Soldiers and Army Civilians)

Minor impacts are anticipated as a result of the implementation of Alternative 1 at Fort Drum. Removal of temporary facilities would have a very low potential for adverse effects to historic buildings and/or archeological resources. Removal of outdated infrastructure has the potential to affect historic structures, but such actions to demolish older structures would be conducted in accordance with the current agreements between Fort Drum and the state for consultation and management of historic structures. If the undertaking has the potential to adversely affect historic properties, formal consultation with the SHPO would occur.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

This level of growth on Fort Drum is anticipated to have a minor impact to cultural resources as a result of the implementation of Alternative 2. Measures are in place within the installation ICRMP 2011-2015 to accommodate training to prevent adverse impacts to cultural resources (U.S. Army, 2010). The types of training conducted by the additional Soldiers would not change, though some training areas on Fort Drum might be used with more frequency or intensity compared with current baseline conditions. Fort Drum would continue to follow the procedures it has in place in order to protect cultural resources. The installation ICRMP requires site-specific surveys prior to disturbance and provides evaluation criteria, management guidelines, and preservation and treatment strategies to facilitate positive and beneficial impacts on both archeological and architectural resources located on the installation. Review of projects by the CRM and the NEPA process are used to ensure protection of known and potential cultural resources.

It would not be anticipated that historic buildings would need to be demolished or reconfigured to accommodate more Soldiers as a result of the implementation of Alternative 2.

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

4.6.4.1 Affected Environment

There are 51 special status species of flora and fauna that are known to occur within the Fort Drum area, 10 federal and 41 state-listed species. Fort Drum currently records only one endangered species as contiguous to the installation, and on-site, the Indiana Bat (*Myotis sodalis*). The USFWS has prepared a Biological Opinion on the Effect of Proposed Activities on the Fort Drum Military Installation, Fort Drum, New York (2012-2014) for the federally-endangered Indiana Bat (*Myotis sodalis*) for Fort Drum, 6 February 2012 (USFWS, 2012). This document can be found at: http://www.fws.gov/midwest/Endangered/mammals/inba/bos/12_NY_FortDrum.pdf.

4.6.4.2 Environmental Consequences

No Action Alternative and Alternatives 1 and 2

None of the alternatives involves major changes to the installation operations and all alternatives would be anticipated to have only minor impacts to biological resources. Negligible or minor impacts are anticipated on listed Indiana Bat or other species recorded as occurring on the installation as a result of all the alternatives. There would not be a change in the types of activities conducted on Fort Drum as a result of any of the alternatives, only a slight increase in the frequency of training activities associated with Alternative 2. The installation 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.

4.6.5 Wetlands

4.6.5.1 Affected Environment

Wetlands are prevalent throughout the installation and comprise approximately 20 percent of the land area on Fort Drum. Fort Drum's landcover classifications indicate approximately 15,500 acres of wetlands exist on Fort Drum with another 4,675 acres of surface waters (U.S. Army, 2011a).

There are numerous wetland types (forested wetland, freshwater marshes, scrub-shrub, etc.) found throughout the installation. Wetland boundaries change frequently due to changing hydrology brought on by natural succession and beaver activity (U.S. Army, 2011a).

4.6.5.2 Environmental Consequences

No Action Alternative

The No Action Alternative would result in no additional impacts to wetlands on Fort Drum. Wetlands impacts from projects already under construction (or for which NEPA is complete and construction pending) have been assessed and, if required, appropriate mitigation and permitting have occurred. Additionally, training, personnel operations, and routine maintenance and monitoring activities on Fort Drum would occur, resulting in minimal impacts to wetlands. These are minimized by BMPs and regular maintenance of roads, ranges, training lands, and developed areas, although traffic through wetlands is avoided and activities in wetland restoration areas monitored to ensure restoration is not compromised.

Alternative 1: Force Reduction (Up to 8,000 Soldiers and Army Civilians)

Beneficial impacts to wetlands as a result of the implementation of Alternative 1 are anticipated. A reduction in force at Fort Drum would mean roads, ranges, and training areas would be less utilized. Less vegetation would be denuded and less sediment would run off into wetlands to impair their ecological function. As such, the loss or degradation of wetland systems would occur less frequently or to a decreased extent.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

There would be a minor impact to wetland areas as a result of Alternative 2. Training would increase. Prior to scheduling training area for unit exercises, however, Fort Drum range and environmental personnel would continue to coordinate to avoid and minimize sensitive wetland area impacts when planning for training events. If it appears that wetland impacts are unavoidable, the appropriate level of permitting and mitigation would be obtained prior to the training event.

4.6.6 Facilities

4.6.6.1 Affected Environment

Unaccompanied enlisted personnel housing, or barracks, is the Army's number one housing facilities priority. Fort Drum's barracks and other troop facilities are able to readily accommodate the baseline military population on the installation with capacity for additional Soldiers. The installation has an extensive inventory of relocatable buildings that could also serve additional requirements. These modular buildings are semi-permanent structures that are projected to remain as adequate facilities for several decades to come.

Community facilities is a broad term encompassing a variety of activities ranging from shopping, banking, education and recreation activities to police, fire protection and health care facilities. Community facilities on Fort Drum are dispersed throughout the cantonment area and Wheeler-Sack Army Airfield.

4.6.6.2 Environmental Consequences

No Action Alternative

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

Alternative 1: Force Reduction (Up to 8,000 Soldiers and Army Civilians)

Minor beneficial impacts would be anticipated from a force reduction as a decreased demand on facilities and utilities would result. A reduction in the installation's Soldier population would allow for the selective demolition of outdated or inefficient facilities, or the re-purposing of existing facilities to support tenant unit requirements.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments.

The anticipated population increase of this action would not increase the demands on facilities and utilities to levels greater than the capacities of the existing infrastructure. Overall, only minor impacts are anticipated as a result of the implementation of Alternative 2. Fort Drum's barracks and other troop facilities are able to accommodate the baseline military population on the installation as well as an additional 3,000 Soldier increase. The installation has 130 modular buildings that are available to provide for additional unit administrative and supply requirements.

4.6.7 Socioeconomics

4.6.7.1 Affected Environment

The ROI consists of Fort Drum and the surrounding communities, including Jefferson, Lewis, and St. Lawrence counties.

Population and Demographics. The Fort Drum population is measured in three different ways. The daily working population is 19,011, and consists of full-time Soldiers and Army civilian employees working on post. The population that lives on Fort Drum consists of 10,076 Soldiers and 13,169 dependents, for a total on-post resident population of 23,245. Finally, the portion of the ROI population related to Fort Drum is 22,642 and consists of Soldiers, Army civilian employees, and their dependents living off post.

The ROI county population is approximately 250,000. Compared to 2000, the 2010 population increased in Jefferson and Lewis counties, and stayed the same in St. Lawrence County (Table 4.6-2). The racial and ethnic composition of the ROI is presented in Table 4.6-3.

Table 4.6-2. Population and Demographics

Region of Influence Counties	Population 2010	Population Change 2000-2010 (Percent)
Jefferson	115,000	+ 4.0
Lewis	27,000	+ 0.5
St. Lawrence	112,000	0.0

Table 4.6-3. Racial and Ethnic Composition

State and Region of Influence Counties	Caucasian (Percent)	African American (Percent)	Native American (Percent)	Hispanic (Percent)	Asian (Percent)	Multiracial (Percent)	Other (Percent)
New York	58[3]	14	1	18	7	2	0
Jefferson	86	5	0	5	1	2	0
Lewis	97	1	0	1	0	1	0
St. Lawrence	93	2	1	2	1	1	0

Employment and Income. Compared to 2000, the 2009 employment (private nonfarm) increased in Jefferson County, and decreased in Lewis and St. Lawrence counties, and the State of New York (Table 4.6-4). Employment, median home value, and household income, and poverty levels are presented in Table 4.6-4.

[3] The number of Caucasian people include those who also report themselves as Hispanic is 71 percent.

Table 4.6-4. Employment, Housing, and Income

State and Region of Influence Counties	2009 Total Nonfarm Employment (Employees)	Employment Change 2000-2009 (Percent)	Median Home Value 2005-2009 (Dollars)	Median Household Income 2009 (Dollars)	Population Below Poverty Level 2009 (Percent)
New York	7,332,392	- 0.3	300,600	54,554	14.20
Jefferson	29,392	+ 11.40	108,900	42,926	16.50
Lewis	4,590	- 4.2	95,400	43,741	16.20
St. Lawrence	27,527	- 2.5	76,800	41,627	17.80

Housing. Fort Drum's RCI has developed and renovated approximately 3,900 homes to support housing needs for Families and Unaccompanied Single Soldiers (U.S. Army, 2011a). Construction on an additional 166 additional new homes has recently begun.

Off-post development has included additional housing. Well over 1,000 units are in construction or will break ground in the spring 2012. These projects Creekwood Apartments (96 units), Beaver Meadows Apartments (286 units), Eagle Ridge (39 additional units), Jefferson Apartments (402 units) and Morgan Townhouses (394 units). Together these projects, supported with local and New York State financial assistance, will eliminate the current housing deficit and more.

Schools. Children of military personnel attend public and private schools throughout the ROI communities. Installation housing falls within two area school districts, Carthage Central and Indian River Central. Of the children that reside on the installation, approximately 80 percent attend public schools (32.39 percent attend Carthage Central and 48.67 percent attend Indian River Central).

Public Health and Safety Emergency Services. The Fort Drum Directorate of Emergency Services 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 Directorate of Emergency Services provides for the protection of all critical assets and personnel and ensuring a safe environment for all who work or live on Fort Drum.

Medical. Fort Drum's on-post medical services are administered by MEDDAC at several facilities around the cantonment area. These facilities provide healthcare services for military personnel, military dependents, and to military retirees and their dependents. Services include: Guthrie Army Heath Clinic audiology/speech pathology, dermatology, dietetics, emergency services, family medicine, internal medicine, OB/GYN, occupational therapy, ophthalmology, optometry, orthopedics, pediatrics, physical therapy, psychiatry, surgery, podiatry, psychology, social work, and substance abuse, and dental services. The installation Warrior In Transition Unit provides command and control, administrative support and services, quality prime care and case management services for qualifying Soldiers. They synchronize clinical care, disposition and transition, and promote Soldier readiness to return to the Army or transition to civilian life.

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. The 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 DPW Environmental Division Natural Resources. FMWR's Adventure Training Program promotes periodic hunting and fishing trips to recreational areas off of the installation; the Outdoor Adventure Program directs and/or promotes other recreational activities on and off the installation and maintains shooting ranges; and Parks & Recreation manages Remington Park which offers beach swimming and boating, pavilions, lodges, tent, cabin, and RV sites, trails and outdoor equipment rental.

4.6.7.2 Environmental Consequences

No Action Alternative

There would be no change or minor impacts anticipated under the No Action Alternative. Fort Drum would be anticipated to continue providing a positive economic impact to the surrounding community. No additional impacts to housing, public and social services, public schools, public safety, or recreational activities are anticipated.

Alternative 1: Force Reduction (up to 8,000 Soldiers and Army Civilians)

Economic Impacts. Alternative 1 would result in the loss of up to 8,000 military employees (Soldiers and Army civilian employees), each with an average annual income of $41,830. In addition, this alternative would affect an estimated 4,464 spouses and 7,680 dependent children for a total estimated potential impact to 12,144 dependents. The total population of military employees and their dependents directly affected by Alternative 1 would be projected to be 20,144 military employees and their dependents.

Based on the EIFS analysis, there would be significant impacts for sales volume, income, employment, and population. The range of values that would represent a significant economic impact in accordance with the EIFS model are presented in Table 4.6-5. Table 4.6-6 presents the estimated economic impacts to the region for Alternative 1 as assessed by the Army's EIFS model.

Table 4.6-5. Economic Impact Forecast System and Rational Threshold Value Summary of Implementation of Alternative 1

Region of Influence Economic Impact Significance Thresholds	Sales Volume (Percent)	Income (Percent)	Employment (Percent)	Population (Percent)
Economic Growth Significance Value	15.54	13.09	5.29	3.18
Economic Contraction Significance Value	- 5.73	- 4.00	- 3.23	- 0.88
Forecast Value	- 7.73	- 7.10	- 12.56	- 8.06

Table 4.6-6. Economic Impact Forecast System: Summary of Projected Economic Impacts of Implementation of Alternative 1

Region of Influence Impact	Sales Volume	Income	Employment	Population
Total	- $384,551,600	- $375,977,100	- 8,900 (Direct) - 1,215 (Indirect) - 10,115 (Total)	- 20,144
Percent	- 7.73 (Annual Sales)	- 7.10	- 12.56	- 8.06

The total annual loss in volume of direct and secondary sales in the ROI represents an estimated -7.73 percent change in total sales volume from the current sales volume of $4.97 billion within the ROI. It is estimated that state tax revenues would decrease by approximately $15.36 million as a result of the loss in revenue from sales reductions. Some counties within the ROI supplement the state sales tax of 4 percent by varying percentages, and these additional local tax revenues would be lost at the county and local level. Regional income would decrease by an estimated 7.10 percent. While 8,000 direct Soldier and Army civilian positions would be lost within the ROI, EIFS estimates another 900 direct contract service jobs would be lost, and an additional 1,215 job losses would occur from a reduction in demand for goods and services in the ROI as a result of the indirect impacts of force reduction. The total estimated reduction in demand for goods and services within the ROI would to lead to a loss of 10,115 non-farm jobs, or a -12.56 percent change in regional non-farm employment. The total number of employed non-farm positions in the ROI is estimated to be approximately 80,520. A significant population reduction of 8.06 percent within the ROI is anticipated as a result of this alternative. Of the approximately 250,000 people (including those residing on Fort Drum) that live within the ROI, 20,144 military employees and their dependents would no longer reside in the area following the implementation of Alternative 1. This would lead to a decrease in demand for housing, and increased housing availability in the region. This could lead to a slight reduction in median home values. It should be noted that this estimate of population reduction includes Army civilian employees and their dependents. This number likely overstates potential population impacts, as some of the people no longer employed by the military would continue to work and reside in the ROI, working in other economic sectors; however, this would in part be counterbalanced by the fact that some of the indirect impacts would include the relocation of local service providers and businesses to areas outside the ROI.

Table 4.6-7 shows the total projected economic impacts, based on the RECONS model, that would be estimated to occur as a result of the implementation of Alternative 1.

Table 4.6-7. Regional Economic System: Summary of Projected Economic Impacts of Implementation of Alternative 1

Region of Influence Impact	Sales Volume	Income	Employment
Total	- $365,808,847 (Local) - $602,940,634 (State)	- $406,640,553	- 9,037 (Direct) - 1,152 (Indirect) -10,189 (Total)
Percent	- 7.35 (Total Regional)	- 7.63	-12.65

The total annual loss in sales volume from direct and secondary sales reductions in the region represents an estimated -7.35 percent change in total regional sales volume according to the

RECONS model, an impact that is approximately 0.38 percentage points less than projected by EIFS; however, it is estimated that gross economic impacts at the state level would be greater. Extrapolating from sales volume numbers presented in the RECONS model, it is anticipated that state tax revenues would decrease by approximately $24.12 million as a result of the loss in revenue from sales reductions, which is $8.76 million more in lost state sales tax revenue than projected by the EIFS model. Regional income is projected by RECONS to decrease by 7.63 percent, slightly more than the 7.10 percent reduction projected by EIFS. While 8,000 direct military and government civilian positions would be lost within the ROI, RECONS estimates another 1,037 direct contract and service jobs would be lost, and an additional 1,152 job losses would occur from of indirect reduction in demand for goods and services in the ROI as a result of force reduction. The total estimated reduction in demand for goods and services within the ROI is projected to lead to a loss of 10,189 jobs, or a -12.65 percent change in regional employment, which is 0.09 percentage points greater than the -12.56 percentage reduction of employment projected under the EIFS model.

When assessing the results together, both models indicate that the economic impacts of the implementation of Alternative 1 would lead to a net reduction of economic activity within the ROI of roughly the same magnitude.

Housing. Alternative 1 would decrease the demand for off-post rentals and purchases of housing. This would tend to depress rental rates and lower home values.

Schools. Fort Drum anticipates a significant impact on ROI schools. As of October 2011, 7,970 military connected children attended schools in the ROI. Approximately 61 percent of school aged children reside on the installation and attend one of the two public school districts associated with the installation. Of these two school districts, military connected children account for 48.67 and 32.39 percent of the student body respectively. The loss of school aged children to districts will directly affect Federal Impact Aid received in lieu of property taxes for children that live in on-post housing. This revenue affects a multitude of components in a school district including school maintenance, teacher hiring, transportation, supplies, and food service.

Public Health and Safety. Fort Drum anticipates less than significant impacts to public health and safety as a result of the implementation of Alternative 1, the population decrease at Fort Drum would likely have a minor effect in reducing the demand for law enforcement services, fire and emergency services, and medical care services on and off post as a result of Alternative 1.

Family Support Services. Fort Drum anticipates less than significant impacts to public health and safety as a result of the implementation of Alternative 1. The population decrease at Fort Drum would likely have a minor effect in reducing the demand for law enforcement services, fire and emergency services, and medical care services on and off post.

Recreation Facilities. Recreational use of facilities on post would decline under this alternative.

Environmental Justice: This alternative would not have any disproportionate impacts on minority or low income populations. Minority populations in the ROI are proportionally much smaller than New York State as a whole.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

Economic Impacts. Alternative 2 would result in the gain of up to 3,000 Soldiers, each with an average annual income of $41,830. In addition, this alternative would affect an estimated 1,674 spouses and 2,880 dependent children for a total estimated potential gain of 4,554 dependents

within the ROI. The total population of military employees and their dependents directly affected by Alternative 2 would be 7,554 military employees and their dependents.

Based on the EIFS analysis, there would be no significant socioeconomic impacts in the ROI for this alternative. The range of values that would represent a significant economic impact in accordance with the EIFS model are presented in Table 4.6-8. Table 4.6-9 presents the estimated economic impacts to the region for Alternative 2 as assessed by the Army's EIFS model.

Table 4.6-8. Economic Impact Forecast System and Rational Threshold Value Summary of Implementation of Alternative 2

Region of Influence Economic Impact Significance Thresholds	Sales Volume (Percent)	Income (Percent)	Employment (Percent)	Population (Percent)
Economic Growth Significance Value	15.54	13.09	5.29	3.18
Economic Contraction Significance Value	- 5.73	- 4	- 3.23	- 0.88
Forecast Value	2.9	2.64	4.71	3.02

Table 4.6-9. Economic Impact Forecast System: Summary of Projected Economic Impacts of Implementation of Alternative 2

Region of Influence Impact	Sales Volume	Income	Employment	Population
Total	$144,206,800	$140,991,400	3,338 (Direct) 456 (Indirect) 3,794 (Total)	7,554
Percentage	2.9 (Annual Sales)	2.64	4.71	3.02

The total annual gain in sales volume from direct and secondary sales increases in the ROI would represent an estimated 2.9 percent change in total sales volume from the current sales volume of $4.97 billion within the ROI. It is estimated that state tax revenues would increase by approximately $5.76 million as a result of the gain in revenue from sales increases. Some counties within the ROI supplement the state sales tax of 4 percent by varying percentages, and these additional local tax revenues would be gained at the county and local level. Regional income would increase by 2.64 percent. While 3,000 Soldiers would be gained within the ROI as a direct result of implementing Alternative 2, EIFS estimates another 338 direct contract service jobs would be gained, and an additional 456 new jobs would be created from an increase in demand for goods and services in the ROI as a result of the indirect impacts of force increases. The total estimated increase in demand for goods and services within the ROI would lead to a gain of 3,794 jobs, or a 4.71 percent change in regional employment. The total number of non-farm employed positions in the ROI is estimated to be approximately 80,520. A population increase of 3.02 percent within the ROI would be anticipated as a result of this alternative. Of the approximately 250,000 people (including those residing on Fort Drum) that live within the ROI, 7,554 military employees and their dependents would begin to reside in the area following the implementation of Alternative 2.

Table 4.6-10 shows the total projected economic impacts, based on the RECONS model, that would occur as a result of the implementation of Alternative 2.

Table 4.6-10. Regional Economic System: Summary of Projected Economic Impacts of Implementation of Alternative 2

Region of Influence Impact	Sales Volume	Income	Employment
Total	$137,178,317 (Local) $226,102,738 (State)	$152,490,207	3,389 (Direct) 432 (Indirect) 3,821 (Total)
Percent	2.76 (Total Regional)	2.86	4.75

The total annual gain in sales volume from direct and secondary sales increases in the region represents a 2.76 percent change in total regional sales volume according to the RECONS model, an impact that is approximately 0.14 percentage points less than estimated by EIFS; however, it is estimated that gross economic impacts at the state level would be greater. Extrapolating from sales volume numbers presented in the RECONS model, it is anticipated that state tax revenues would increase by approximately $9.04 million as a result of the gain in revenue from sales reductions, which would be $3.28 million more than the additional state sales tax revenue projected by the EIFS model. Regional income is projected by RECONS to increase by 2.86 percent, slightly more than the 2.64 increase projected by EIFS. While 3,000 Soldiers would be gained within the ROI as a direct result of the implementation of Alternative 2, RECONS estimates another 389 direct contract and service jobs would be gained, and an additional 432 jobs as a result of indirect increases in demand for goods and services in the ROI as a result of force increase. The total estimated increase in demand for goods and services within the ROI is projected to lead to a gain of 3,821 jobs, or 4.75 percent change in regional employment, which is 0.04 percentage points greater than projected under the EIFS model.

When assessing the results together, both models indicate that the economic impacts of the implementation of Alternative 2 would lead to a net increase of economic activity within the ROI of roughly the same magnitude.

Population and Demographics. Fort Drum anticipates a less than significant economic impact as a result of Alternative 2. It is expected that the stationing action would increase regional employment to some degree, thereby supporting the low income or minority populations. Once Fort Drum units fall back to their MTOE authorized strength as a result of the Army force reductions, this new stationing action would simply restore the authorized Soldier population.

Schools. Adverse impacts to the schools are not expected from an increase of the military population in that the installation has been running significantly over strength for the past couple years, specifically 116 percent or an additional 2,763 Soldiers over and above the formations' authorized strength (as of 22 November 2011). Once Fort Drum units fall back to their MTOE authorized strength as a result of the Army force reductions, this new stationing action would simply restore the authorized Soldier population.

Housing. Housing impacts from the 2004 transformation and recent surge numbers have been mitigated within the community through new rental housing construction. Off post there are 96 housing units under construction and 1,059 housing units planned to start in 2012. Additional new housing developments are in planning stages for the towns of Watertown, Pamelia, Champion, and Wilna and the Village of Carthage. This alternative could lead to a slight increase in demand for housing, and decreased housing availability in the region. This would lead to a slight increase in median home values.

Public Health and Safety. There would be no change in the level of support Fort Drum provides to Soldiers, Families and the ROI communities.

Family Support Services. There would be no change in the level of support Fort Drum provides to Soldiers, Families and the ROI communities.

Recreation Facilities. There would be no change in the level of support Fort Drum provides Soldiers, Families and the ROI communities.

***Environmental Justice*.** This alternative would not have any disproportionate impacts on minority or low income populations. Minority populations in the ROI are proportionally much smaller than New York State as a whole.

4.6.8 Energy Demand and Generation

4.6.8.1 Affected Environment

Fort Drum's energy requirements for electrical and natural gas service are provided by the local utility company, National Grid. The internal distribution systems are government owned and operated.

Electricity. The utility company supplies power to Fort Drum at a number of connection points. There are two main substations in the cantonment area, each with a nominal capacity of 15 megavolt amperes. These substations are configured to receive hardware for additional capacity, if necessary. The average monthly demand in FY 2008 was 19.3 MW. The existing electrical infrastructure could support up to a 45 percent increase in demand (U.S. Army, 2011a).

Natural Gas. Fort Drum purchases natural gas with transport delivery through the National Grid distribution system. There are three active connections to the system: two 8-inch pipelines from the high pressure system and a 6-inch pipeline from a medium pressure system. On-post distribution pressure could be raised from 15 per square inch up to 30 per square inch to increase capacity if required. In FY 2008, Fort Drum used an average monthly total of 835,579 therms. The existing natural gas distribution system could easily support a 50 percent increase in demand, even with the anticipated conversion of existing buildings from other heat sources (propane, fuel oil) (U.S. Army, 2011a).

Other Heating Fuels. When natural gas service is not connected or available local propane and fuel oil systems are used for heating. In FY 2008, the post used an average monthly total of approximately 27,761gallons of propane and approximately 7,800 gallons of fuel oil. These fuels are contained in building-specific tanks. There is no major on-post infrastructure associated with these energy sources, and their use is anticipated to decrease with the implementation of further conversion to natural gas (U.S. Army, 2011a).

In accordance with E.O. 13423, Fort Drum has the goal of annually reducing energy intensity on the installation by three percent per square foot through FY 2015. Fort Drum has consistently met these energy use intensity goals and is currently exceeding the 2015 target, 3 years ahead of schedule.

4.6.8.2 Environmental Consequences

No Action Alternative

The No Action Alternative would not have more than a minor impact to the installation's energy resources.

Alternative 1: Force Reduction (Up to 8,000 Soldiers and Army Civilians)

As a result of the implementation of Alternative 1, the installation would anticipate a reduction in energy consumption comparing the loss of up to 8,000 Soldiers with the installation's full-time military and civilian populations. A reduction of 8,000 Soldiers and Army civilians represents approximately one third of the installations military and civilian population living on post, and such a reduction could lead to up to a 20 percent decrease in energy demand. Fort Drum's pursuit of energy efficiency and conservation measures would also contribute to reduced energy usage and energy demand reductions. Overall, Alternative 1 would result in minor beneficial impacts.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

The growth scenario of Alternative 2 represents a small fraction of the overall mission activity at Fort Drum. This fact, combined with a large excess of energy resources available, means that this unit growth scenario is likely to have a less than significant impact on energy demands and associated systems. There are more than adequate capacities at Fort Drum to accommodate this level of growth.

4.6.9 Land Use Conflicts and Compatibility

4.6.9.1 Affected Environment

Military functions can be divided into a number of land use categories displaying, with a few exceptions, the basic attributes of civilian land use types. Land uses within the cantonment area and the Wheeler-Sack Army Airfield at Fort Drum include: Headquarters and Administration, Troop Housing, Industrial, Community Facilities, Medical Facilities, Operations, Family Housing, Training Areas, and Buffer and Recreation. Locations and descriptions for each of the land uses at Fort Drum are presented in the PEA prepared in 2000 (U.S. Army, 2000).

Military Operations Land Use. The military operations land use areas at Fort Drum includes facilities that support mission operations. There are three areas of operations land use at Fort Drum, the largest of which is the Wheeler-Sack Army Airfield. There is only one Operation Area within the cantonment area; this area is located along Great Bend Road, just south of 45th Infantry Division Drive. The operations land use areas compromise less than 2,500 acres, or less than three percent of Fort Drum's land area (U.S. Army, 2011a).

Training Areas Land Use. Training areas primarily consist of Local Training Areas that extend outward from Iraqi Freedom Drive and Enduring Freedom Drive in the North Post portion of the cantonment area. Local Training Areas are outdoor areas used for company-level, individual, and collective training. Training land use in the cantonment area covers approximately 1,628 acres, as well as 77,565 acres of maneuver area (U.S. Army, 2011a).

Buffer Land. Buffer land is used to separate incompatible land uses and mitigate the impacts on more sensitive land uses (e.g., Family housing). Buffer land at Fort Drum runs north along Mount Belvedere Boulevard, from the Belvedere Gate to Enduring Freedom Drive, then west along Iraqi Freedom Drive to the Iraqi Freedom Gate. Buffer land use occupies 780 acres within the cantonment area (U.S. Army, 2011a).

4.6.9.2 Environmental Consequences

No Action Alternative and Alternative 1

The No Action Alternative and Alternative 1 would have a negligible impact to land use at or around the installation. Land use would not change. Additional units would use the existing

lands and facilities. Stationing would not cause changes to existing or regional land use. Force strength is at 116 percent (December 2011) without stress to land use.

Alternative 2: Installation gain of up to 3,000 Combat/Combat Support Soldiers resulting from Brigade Combat Team Restructuring and Unit Realignments

Supporting the Fort Drum military mission is the installation Natural Resource Program's first priority. The INRMP provides for continuous and effective resource management and ensures that responsible natural resource stewardship is met. As a result of the implementation of Alternative 2, associated training requirements would not cause impacts to natural resources.

There is a very low potential for adverse environmental impacts on installation land use anticipated, due to an additional 3,000 Soldiers and their Family members assigned to the installation. The installation has vacant space available in existing buildings, and has land available to build needed facilities, or a combination thereof to meet the unit's mission requirements. Additionally, lands, and existing facilities, are located such that surrounding facilities are compatible with Alternative 2.

4.6.10 Traffic and Transportation

4.6.10.1 Affected Environment

The ROI for traffic and transportation aspects include Fort Drum, and several neighboring counties, to include Jefferson, Lewis, and St. Lawrence counties, and the communities therein, to include the City of Watertown. Major road routes in the region include I-81 and U.S. Route11; I-81 is a north-south interstate highway located approximately 5 miles west of the installation. U.S. Route 11 is a north-south major arterial that passes through the City of Watertown. New York State routes 3, 283, and 342 lead to the installation cantonment area gates.

4.6.10.2 Environmental Consequences

No Action Alternative and Alternatives 1 and 2

All three alternatives would have a very low potential for adverse environmental impacts on traffic and transportation. Impacts to traffic from all through alternatives would be minor. Fort Drum does not foresee the increase of 3,000 Soldiers to have an adverse effect to the traffic LOS. There is a new highway connector (I-781) under construction that will connect I-81 with U.S. Route 11 and lead directly onto the installation at the Iraqi Freedom Drive gate. I-781 is programmed for summer 2012 completion. In addition, the installation has completed numerous on-post improvements by installing multiple traffic signals at key intersections. Impacts during construction would be short term. The I-781 project was assessed with an EIS that resulted in a ROD dated March 2009 (https://www.dot.ny.gov/regional-offices/region7/projects/fort-drum-connector).

4.6.11 Cumulative Effects

Ongoing and potential cumulative effects actions have been identified on and off post that may present further effects to the installation and surrounding community when the effects of these actions are considered cumulatively. Fort Drum acknowledges that other construction and modification projects (in addition to what is listed below) may be likely in the reasonably foreseeable future; however, they may not contribute considerably to cumulative effects when combined with the level of growth identified in this PEA.

Past and Recently Completed Projects Off Post

- Family housing revitalization and new construction of multiple rental complexes;

- U.S. Route 11 roadwork (includes additional turn lanes at U.S. Route 11 and U.S. Route 342 intersection, widening of U.S. Route 11 to accommodate wider shoulders and center turn lanes to access new businesses that have sprung up along the U.S. Route 11 between the U.S. Route 11 and U.S. Route 342 intersections and the installation main gate; and
- Major road construction and power line upgrades are being conducted where the main business road in City of Watertown (Arsenal Street) meets I-81 is completed. The on and off ramps have been changed.

Current and Ongoing Activities Off Post

- Continuing market housing development and construction;
- I-81 to Fort Drum Connector Project. This project is to provide an improved connection between I-81 and U.S. Route 11 and will be a direct route to the North Gate Entrance to Fort Drum;
- Construction of a hotel on U.S. Route 11; and
- Off post there are 96 housing units under construction and 1,059 housing units planned to start constructing in the spring of 2012.

Reasonably Foreseeable Future Projects Off Post

- Additional new housing developments in the towns of Watertown, Pamelia, Champion, Wilna, and Village of Carthage.

Future Projects at Fort Drum

- Privatized Army Lodging is proposing to update the Fort Drum Inn facility and construction of a new hotel facility at the installation. Site selection is underway with plans for construction to begin in 2012.

On post, the installation anticipates implementing additional controls to avoid soil erosion in places of high construction to avoid the potential for sedimentation from training and construction to enter local surface waters. Water quality would continue to be monitored and controlled to prevent degradation through established BMPs, until construction ceases. Air quality may continue to experience short-term minor impacts cumulatively, as new stationary sources are added to the installation, and mobile sources may increase and decrease as the installation population fluctuates with unit deployments and redeployments. When considering cumulative impacts to air quality from road construction, development locally, in addition to Army realignment, impacts would be less than significant. Noise from training activities would also be cumulatively less than significant when considering noise from Army activities in addition to construction noise from roadway improvements and private development. Finally, the generation of solid waste from construction and demolition activities would be slightly elevated, but would not present a significant impact.

Overall, under Alternative 1, cumulative adverse socioeconomic impacts would likely be long term and significant in nature. A significant adverse impact would be anticipated as Fort Drum is a leading employer and economic engine for the region. Adverse impacts would result due to the anticipated loss of jobs, decrease in real estate values; decrease in educational, social, and medical services; decrease in tax revenue. Other than Fort Drum, there are limited employment base options upon which the community can rely meaning that the job loss cannot be absorbed by other employment sectors such as the case in more urban areas. In addition, adverse impacts to multiple regional community services and schools would be anticipated because they receive funding, support, time, donations, and tax revenue directly related to the number of military authorizations and their dependents.

Continued socioeconomic impacts are anticipated in the areas surrounding ROI as the result of projected population growth and development. Long-term direct and indirect beneficial cumulative effects are anticipated because of increased sales volume and employment in the local area as a result of the implementation of Alternative 2. The beneficial economic effects (i.e., increased spending, employment, and income) of these actions are anticipated to last for the duration any construction projects. A lasting economic benefit would result from increased expenditure of discretionary income of Soldiers and their Families.

The population growth and construction projects planned through FY 2013 would not disproportionately impact on minorities or low-income populations in the surrounding community.

No construction projects or training exercises would take place near schools, daycares, or other areas with large populations of children. No cumulative adverse effects to the health and safety of children are anticipated as a result of any of the alternatives.

The construction of I-781 Fort Drum Connector project will facilitate enhanced accessibility to the Fort Drum area from the I-81. Fort Drum also anticipates a less than significant cumulative impact to traffic and transportation, on and off post in conjunction with the implementation of Alternative 2; however, with the recent and ongoing road improvements outside the installation boundary Fort Drum anticipates only short-term adverse effects, with long-term impacts being beneficial, once traffic projects off post are completed.

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4.7 FORT GORDON, GEORGIA

4.7.1 Introduction

Fort Gordon encompasses approximately 55,600 acres in east central Georgia (Figure 4.7-1). Approximately 50,000 acres (90 percent) of Fort Gordon is used for training missions (Figure 4.7-1). The installation is subdivided into 49 training areas, two restricted impact areas (small arms and artillery), and two cantonment areas (main and industrial). Impact areas occupy approximately 13,000 acres and on-post maneuver and training areas occupy approximately 37,000 acres. The remaining 5,590 acres are occupied by cantonment areas which include military housing, administrative offices, community facilities, medical facilities, industrial facilities maintenance facilities, supply and storage facilities, lakes and ponds, recreational areas and forested areas. The installation operates 14 live-fire ranges, 1 dud impact area, 1 demolition pit, 1 indoor shoot house, 1 convoy live-fire familiarization course, 2 military operations on urban terrain site and buildings, and 1 nuclear, biological, and chemical chamber. Training primarily consists of advanced individual signal training, unit employment of tactical communications and electronics operations and medical-related training through Gordon's regional medical center. Additionally, artillery, demolition, aerial gunnery, load master drop zone, and airborne troop training are conducted on Fort Gordon.

Fort Gordon is the largest communications training facility (130 courses and 16,000 troops per year) in the Armed Forces, and is the focal point for the development of tactical communications and information systems (CSRA Regional Development Center, 2005). The installation trains Soldiers with the most sophisticated communications equipment and technology in existence. The Leader College of Information Technology is the U.S. Army's premiere site for all automation training and home to the Regimental Non-Commissioned Officer Academy. Fort Gordon is also home to: U.S. Army Garrison, U.S. Army Signal Center of Excellence, 7th Signal Command (Theater), National Security Agency/Central Security Service-Georgia, two deployable brigades (the 35th Signal Brigade and the 513th Military Intelligence Brigade), the Dwight D. Eisenhower Medical Center, Southeast Region Veterinary Command, Southeast Regional Dental Command, the U.S. Army's only Dental Lab, U.S. Navy Information Operations Command, 480th ISR Group (U.S. Air Force), 706th Military Intel Group, U.S. Marine Corps Detachment-Fort Gordon, 139th Intelligence Squadron (Air Guard), 359th Signal Brigade (Army Reserve), 324th Signal Battalion (Army Reserve), U.S. Army Regional Training Site-Medical (Army Reserve), 201st Regional Support Group (Army Reserve National Guard), and the Georgia National Guard Youth Challenge Academy. Additionally, numerous Army reserve and Georgia and South Carolina National Guard units utilize Fort Gordon's weapons ranges and training areas.

4.7.1.1 Valued Environmental Components

For alternatives the Army is considering as part of Army 2020 force structure realignments, Fort Gordon does not anticipate any significant adverse impacts as a result of the implementation of Alternative 1 (Force reduction of up to 4,317 Soldiers and Army Civilians); however, significant economic impacts could occur if the full measure of force reduction of up to 4,300 Soldiers were implemented. Table 4.7-1 summarizes the anticipated impacts to VECs for each alternative.

Figure 4.7-1. Fort Gordon

Table 4.7-1. Fort Gordon Valued Environmental Component Impact Ratings

Valued Environmental Component	No Action Alternative	Alternative 1: Force Reduction of up to 4,300
Air Quality	Negligible	Negligible
Airspace	Negligible	Negligible
Cultural Resources	Negligible	Negligible
Noise	Negligible	Negligible
Soil Erosion	Negligible	Negligible
Biological Resources	Negligible	Negligible
Wetlands	Negligible	Negligible
Water Resources	Negligible	Negligible
Facilities	Less than Significant	Less than Significant
Socioeconomics	Negligible	Significant
Energy Demand and Generation	Negligible	Negligible
Land Use Conflict and Compatibility	Significant but Mitigable	Significant but Mitigable
Hazardous Materials and Hazardous Waste	Negligible	Negligible
Traffic and Transportation	Negligible	Beneficial

4.7.1.2 Valued Environmental Components Dismissed from Detailed Analysis

For the VECs discussed in this section below, no more than a beneficial or negligible impact would be anticipated. Therefore, these VECs are not being carried forward for detailed analysis, as no potential for significant impacts exists.

- ***Air Quality.*** The Fort Gordon cantonment area is in the Augusta Georgia - Aiken South Carolina Interstate Air Quality Control Region (AQCR) 053. The EPA Region 4 has designated the entire AQCR 053 as an attainment area for all criteria pollutants (EPA 2009, 2010a, 2010b). An applicability analysis and formal conformity demonstration under the General Conformity Rule (40 CFR 93.153) for the Proposed Action, therefore, is not required. Fort Gordon holds a Title V operating permit (AIRS Number: 24500021), which was reissued on March 9, 2010 The permit requirements include annual periodic inventory for all stationary sources of air emissions and covers monitoring, record-keeping, and reporting requirements. Fort Gordon's 2009 installation-wide air emissions are tabulated as follows: 41 tpy of VOCs; 15.7 tpy of NO_x; 13.6 tpy of CO; 1.1 tpy; SO_2; and 1.2 tpy of PM_{10} (Fort Gordon, 2010).

  No effects (negligible) on air quality would be anticipated under the No Action Alternative. No construction or changes in military operations at Fort Gordon would occur. There would be negligible change to existing air emissions or air permitting requirements as a result of the implementation of Alternative 1. The installation would

still maintain a Title V operating permit and associated reporting requirements. There would be a minor decrease in the amount of emissions generated from a reduction in mobile and stationary sources.

- ***Airspace.*** Fort Gordon has restricted airspace over its artillery firing points and artillery impact area. The FAA designator for the airspace is R3004A and R3004B and go up to 8,000 feet AGL and 20,000 feet AGL, respectively. With no direct airfield support to Fort Gordon, the Range Manager acts as the Air Traffic and Airspace Officer for Fort Gordon. The restricted airspace is reserved in advance through the Federal Air Administration's Processing Office out of Saint Petersburg, Florida. There is currently no controlled airspace of any kind over any of the small arms ranges in the small arms impact area. A live radar to provide visibility of the area along with unit observation, allows management of a Small Arms Range Safety Areas over each small arm range to protect nonparticipating aircraft in the locale.

  There would be negligible impacts or required change to existing SUA under the No Action Alternative. No new airspace would need to be designated and current airspace is not over utilized. There would be negligible change to existing SUA as a result of the implementation of Alternative 1. There would be no projected change in frequency or intensity of activities at Fort Gordon that require the use of airspace.

- ***Cultural Resources.*** The Fort Gordon ICRMP (Fort Gordon, 2011) includes detailed information on applicable cultural resources regulatory frameworks, regional prehistoric and historic background, the history of Fort Gordon, cultural resources investigations and recorded properties, and installation-specific standard operating procedures (SOPs) for managing and protecting important sites. That and other ICRMP information are incorporated here by reference and, therefore, are not repeated. In addition to the ICRMP, Fort Gordon has a Programmatic Agreement among the U.S. Army and the Georgia SHPO (Fort Gordon, 2006) to facilitate daily management of its cultural resources.

  Archaeological Sites. Fort Gordon has completed archaeological surveys on 47,619 acres, or 95 percent of the total land area of the installation. Areas that have not been surveyed include portions of the heavily disturbed cantonment area, impact areas that contain or are likely to contain UXO, and lake bottoms. As of 2009, 1,150 archaeological sites had been identified on Fort Gordon. Of those, 995 are not eligible for listing on the NRHP, 114 are potentially eligible, and 41 are eligible for listing on the NRHP. Phase II testing to evaluate the NRHP eligibility of archaeological sites has been completed at 29 sites. A majority of the prehistoric sites are adjacent to water features such as drainages. Many of the historic sites are relict mill sites and homesteads that were razed after the Army purchased the land. There are 43 known historic cemeteries that date before Fort Gordon's establishment. Fort Gordon still uses and maintains many of the cemeteries. Two prisoner-of-war cemeteries are on Fort Gordon near Gate 2. German and Italian prisoners of war who died while in captivity from 1944 through the end of WWII were buried at those cemeteries.

  Historic Architecture. Fort Gordon has recently completed an installation-wide architectural survey. Through the survey, no buildings or structures were determined to be eligible or potentially eligible for listing on the NRHP. However, on the basis of the recommendation of the Georgia SHPO, Building 33500, Woodworth Library, is considered eligible for the NRHP under Criteria C for the architectural significance of its New Formalism style and Criterion Consideration G for a building less than 50 years old because few buildings of this style remain intact in Georgia. Forty three structures (the

Signal School Campus) have been recommended for re-evaluation upon reaching 50 years of age and will likely be determined eligible as an historic district.

Under the No Action Alternative, there would be negligible impacts to any building, structures or sites eligible or potentially eligible for the NRHP. Current construction and ground disturbance activities have been previously evaluated and authorized. There would be negligible impact on cultural resources as a result of the implementation of Alternative 1. Some facilities may be demolished if they were determined to be excess facilities. Impacts to historic structures or structures potentially eligible for the NRHP are not anticipated. Any associated actions that may impact the Signal School Center of Excellence campus would need additional evaluation to avoid negative impacts on historic district eligibility. Such actions would undergo Section 106 consultation if determined to be appropriate for any such proposal if it were required in the future.

- ***Noise.*** 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. The U.S. Army recognizes three NZs (see Table 4.0-1) to aid in land use planning on and near installations (U.S. Army, 2007).

  There would be negligible change on the ambient noise environment and to existing noise generating activities as a result of both alternatives. As a result of the implementation of Alternative 1, the installation would still generate noise from construction and military training activates at project and range training sites. Noise from these areas would remain contained within the installation boundary. Noise generating activities carried out on post would continue to be similar to those that would occur as a result of both alternatives, though some activities, such as Soldier weapons qualification, would occur less frequently.

  There would be a minor decrease in the amount of training related noise generated as a result of the implementation of Alternative 1.

- ***Soil Erosion.*** Fort Gordon is located along the fall line between the Lower Piedmont and Upper Coastal Plains physiographic provinces. In this zone of transition, the topography ranges from the gentle undulating sand hills of the south and middle sections, to areas of steep slopes and near bluffs adjacent to some of the streams, which are characteristically small and bordered by heavy hardwood swamp areas. The elevation of Fort Gordon ranges between 221 feet and 561 feet above MSL, and the majority of the land area (35,852 acres) is between 378 feet and 489 feet above MSL.

  The majority of the installation is overlain by well-drained medium to fine sands in upland areas. There are scattered areas near the central and southwest portion of the installation that consist of moderately well drained to well drained fine sands over sandy silts or sandy clays. In areas bordering drainage ways, the Quaternary age materials consist mainly of poor to moderately well drained fine silty sands over sandy silts or sandy clays. Twenty-six soil classes have been identified on the installation. The predominant soils types on the installation are the Troup and Lakeland series. The next overall predominant soil types on the installation are the Orangeburg, Lucy, and Dothan series. Other major soil types include the Vaucluse and Ailey soil series. Additional information pertaining to soils may be found in the INRMP (Fort Gordon, 2008).

  There would be a negligible change to existing geology, topography, or soils as a result of either alternative. There would be a minor beneficial impact and reduction to the amount of soil displacement and erosion if levels as military field training decreases in frequency of training events. There would be fewer areas that experience denuded

vegetation for bivouac areas and other training and, therefore, less soil exposed to wind and water based erosion.

- ***Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species).*** Target species refers to federally endangered or threatened species, Species of Concern, state-listed species, and state tracked species. A total of 17 animals (5 birds, 2 mammals, 6 reptiles and amphibians, and 4 fishes) and 11 plant species listed as either threatened, endangered, or Species of Concern by the USFWS or the State of Georgia are known to occur on Fort Gordon. Table 4.7-2 list these species, their status and describes each species' optimum habitat requirement for survival.

  Federally-listed species that occur on Fort Gordon include the RCW and the wood stork (endangered). The RCW is currently the only federally-listed species known to reside on Fort Gordon. The wood stork is a transient species that has been observed foraging and roosting on the installation, but is not known to nest on the installation. The gopher tortoise is a federal candidate species and is managed by the Army as a Species at Risk under a candidate conservation agreement with numerous federal and state agencies. Additional detailed information concerning threatened and endangered species is provided in the revised INRMP (Fort Gordon, 2008).

Table 4.7-2. Threatened or Endangered Species

Common Name	Scientific Name	Status		Description of Habitat
		Federal	State	
Birds				
Bachman's sparrow	*Aimophila aestivali*	SOC	R	Abandoned fields with scattered shrubs, pines, or oaks.
Southeastern American kestrel	*Falco sparverius paulus*	SOC	R	Breed in open or partly open habitats with scattered trees and in cultivated or urban areas.
Migrant loggerhead shrike	*Lanius ludovicianus migrans*	SOC	Tr	Open wood, field edges.
Wood stork	*Mycteria americana*	E	E	Primarily feed in fresh and brackish wetlands and nest in cypress or other wooded swamps.
Red-cockaded woodpecker	*Picoides borealis*	E	E	Nest in mature pine with low understory vegetation; forage in pine and pine hardwood stands.
Mammals				
Southeastern bat	*Myotis austrororiparius*	SOC	Tr	Caves used for hibernating, maternity colonies, and summer roost.
Rafinesque's big eared bat	*Corynorhinus rafinesquii*	SOC	R	Buildings in forested regions.
Reptiles and Amphibians				
Gopher tortoise	*Gopherus polyphemus*	SOC	T	Well-drained, sandy soils in forest and grassy area, associated with pine overstory.
American alligator	*Alligator mississippiensis*	T	NL	Marshes, swamps, rivers, farm ponds, and lakes. Nest in shallow, heavily vegetated secluded areas.

Common Name	Scientific Name	Status		Description of Habitat
		Federal	State	
Birds				
Southern hognose snake	*Heterodon simus*	SOC	T	Open, sandy woods, fields, and floodplains.
Florida pine snake	*Pituophis melanoleucus mugitus*	SOC	Tr	Arid pinelands, sandy areas, and dry mountain ridges.
Dwarf waterdog	*Necturus punctatus*	NL	Tr	Sluggish streams with substrate of leaf litter or woody debris.
Eastern tiger salamander	*Ambystoma t. tigrinum*	NL	Tr	Isolated wetlands, pine dominated uplands, and open fields.
Fish				
Bluebarred pygmy sunfish	*Elassoma okatie*	NL	E	Heavily vegetated creeks, sloughs, and roadside ditches.
Savannah darter	*Etheostoma fricksium*	NL	Tr	Shallow creeks with moderate current with sandy or gravel bottoms.
Sawcheek darter	*Etheostoma serriferum*	NL	Tr	Sluggish streams and swamps with sand or mud.
Sandbar shiner	*Notropis scepticus*	R	NL	Large streams to medium-sized rivers.
Plants				
Sandy-woods chaffhead	*Carphphorus bellidifolius*	NL	Tr	Sandy scrub.
Rosemary	*Ceratiola ericoides*	NL	T	Driest, openly vegetated, scrub oak sandhills and river dunes with deep white sands of the Kershaw soil series.
Atlantic white cedar	*Chamaecyparis thyoides*	NL	R	Wet sandy terraces along clear streams and in acidic bogs.
Pink ladyslipper	*Cypripedium acaule*	NL	U	Upland oak-hickory pine forest.
Sandhill gay-feather	*Liatris secunda*	NL	Tr	Fall line sandhills.
Carolina bogmint	*Macbridea carolina*	SOC	R	Bogs, marshes, and alluvial woods.
Indian olive	*Nestronia umbellula*	SOC	R	Dry open upland forest of mixed hardwood and pine.
Sweet pitcher plant	*Sarracenia rubra rubra*	NL	T	Acid soils of open bogs, sandhill seeps, Atlantic white cedar swamps, and wet savannahs.
Carolina pink	*Silene caroliniana*	NL	Tr	Granite outcrops and sandhills near the Ogeechee and Savannah rivers.
Pickering morning glory	*Stylisma pickeringii var. pickeringil*	SOC	T	Coarse white sands on sandhills near the fall line and on a few ancient dunes along the Flint and Ohoopee rivers.
Silky camelia	*Stewartia malacodendron*	NL	R	Steepheads, bayheads, and edge of swamps.

1 Source: Fort Gordon, 2008
2 Key : E = Endangered, NL = Not Listed, R = Rare, SOC = Species of Concern, T = Threatened, Tr = Tracked, U = Unusual.

Negligible impacts on biological resources, threatened or endangered species at Fort Gordon would be anticipated under the No Action Alternative. No additional military training, demolition or construction would occur. 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 the USFWS and any conservation measures identified in the ESA Section 7 consultation documents. There would be negligible change to existing biological resources, threatened or endangered species as a result of the implementation of Alternative 1. 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 the 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

- ***Wetlands.*** Approximately 4,395 acres of wetlands occur on Fort Gordon. These wetlands consist of both alluvial and nonalluvial wetlands. Alluvial wetlands are associated with stream channels and depend on the flooding regime of the stream system. With the exception of Brier Creek, the floodplain of most alluvial wetlands on Fort Gordon is inconspicuous due to rolling topography. These streams fit the description of "small stream swamps" where separate fluvial features and associated vegetation are too small or poorly developed to distinguish (Fort Gordon, 2008).

  Nonalluvial wetlands are associated in areas where groundwater emerges or precipitation is held close to the soil surface. Nonalluvial wetlands on Fort Gordon included seepage areas and isolated wetlands. Seepage areas occur on saturated soils where the water table remains immediately below the soil surface. Plant species associated with these types of wetlands include, but are not limited to sweetbay magnolia (*Magnolia virginiana*) in the midstory and sweetgum (*Liquidambar styraciflua*) and yellow-poplar (*Liriodendron tulipifera*) in the overstory. Isolated wetlands include small isolated ponds with grasses and herbs as dominate vegetation. If present the overstory consists primarily of sweetgum and blackgum (*Nyssa biflora*) (Fort Gordon, 2008).

  Section 404 permits may be required, for construction of new facilities or ranges. Also, under the Georgia MS4 permit issued to Fort Gordon, all new construction must have a silt and erosion plan. In addition Section 303(d) (Impaired Streams) should also be taken into consideration, as there are several impaired stream segments on Fort Gordon and they could easily be impacted by the additional construction and training. Furthermore, there are BMPs and NPDES permits and stream buffer variances for construction.

  Negligible impacts on wetlands would be anticipated under the No Action Alternative. There would be negligible change to wetlands as a result of the implementation of Alternative 1. There may be a minor decrease in the amount of soil displacement and erosion potentially impacting wetlands if levels of construction and military field training are reduced. There would not be any long-term impacts to wetlands projected from the demolition of select facilities.

- ***Water Resources.*** The borders of Fort Gordon encompass five separate watersheds and none of the watersheds are entirely within the installation (GADNR, 2008). Three of the five streams are in non-attainment for criteria pollutants. Section 303(d) of the CWA requires that states develop a list of waters not meeting water quality standards or not

supporting their designated uses (Water Quality Inventory Integrated Report Section 305(b) and 303(d) Reports). The suspected causes of impairment include urban runoff and nonpoint source pollution from an unknown source

Fort Gordon is located in the Coastal Plain hydrogeologic province of Georgia, whose principle groundwater source is the Southeastern Coastal Plain aquifer system. This aquifer is composed of interbedded sand and clay of Cretaceous age and locally includes sand and clay of early Tertiary age. Typical yields in this area range from 29,000 to 72,000 gpd. Studies of groundwater quality indicate the groundwater is quite acidic (Fort Gordon, 2008).

Fort Gordon's potable water distribution system is connected to the Augusta-Richmond County system, and potable water for the cantonment area is supplied through that system. Potable water delivered to the installation is fully treated (USACE, 2010). Water in the outlying areas of the installation is supplied from nine drilled wells.

The stormwater drainage system at Fort Gordon is a series of pipes and paved and channeled natural drainage ditches. New low-impact development regulations require Fort Gordon to design projects to minimize the effects on stormwater drainage systems. Per regulatory Stormwater Phase II requirements for MS4, the post construction site runoff is required to be the same as pre-construction runoff coefficients, to not impact the existing watershed conditions.

There would be negligible change to water resources as a result of the implementation of either alternative. There would be beneficial impacts with regards to a decrease in the amount of water consumed and the reduction in wastewater generated by a reduced number of military personnel and their dependents.

- ***Energy Demand and Generation.*** Fort Gordon's energy consumption profile is very diverse, consisting of many different sources of energy, electric power and natural gas, both delivered by commercial utilities, as well as No. 2 fuel oil, and propane.

  Electricity. In February 2007, Fort Gordon's electric system was privatized. The Georgia Power Company owns and operates it. The system receives 115 kV primary input at two jointly owned and operated substations (main and hospital), which provide electrical power to the entire installation.

  Natural Gas. The Atlanta Gas Light Company owns, operates, and maintains the natural gas system on Fort Gordon, and it replaced most piping and components in 2003 (USACE, 2010). Natural gas is supplied to heating and cooling plants, housing, barracks, medical facilities, academic facilities, and other facilities.

  The abundance of energy sources, and adequate supplies from each source, provide Fort Gordon with ample excess energy capacity, allowing them to accommodate a variety of future mission expansion scenarios.

  Negligible impacts on energy demand would be anticipated under the No Action Alternative. No changes to utility systems would be necessary under the No Action Alternative. There would be a minor beneficial change to energy demand as a result of the implementation of Alternative 1. There would be a decrease in the amount of energy consumed with reduced levels of military personnel and dependents. 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

- ***Hazardous Materials and Hazardous Waste.*** The affected environment for the Proposed Action includes the use, storage, transport, and disposal of hazardous materials and wastes at Fort Gordon. This includes hazardous materials and wastes from USTs and ASTs; pesticides; LBP; asbestos; PCBs; radon; and UXO. Each

installation operates under a Hazardous Waste Management Program that manages hazardous waste to promote the protection of public health and the environment. Army policy is to substitute nontoxic and non-hazardous materials for toxic and hazardous ones; ensure compliance with local, state, and federal hazardous waste requirements; and ensure the use of waste management practices that comply with all applicable requirements pertaining to generation, treatment, storage, disposal, and transportation of hazardous wastes. The program reduces the need for corrective action through controlled management of solid and hazardous waste.

Negligible impacts on hazardous materials and waste generation or management would be anticipated from either alternative. Waste collection, storage, and disposal processes would remain unchanged, and current waste management programs would continue. 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.

- ***Traffic and Transportation.*** Fort Gordon is approximately 142 miles east of Atlanta, 80 miles west of Columbia, South Carolina, and 122 miles northwest of Savannah, Georgia. Two U.S. highways, 1 and 78, parallel the north and south installation boundaries. I-520 serves as a connection road between U.S. Highway 1 and I-20 at the north portion of the installation traveling east west from Augusta to Atlanta. Four public entrances serve the installation. The McKenna Gate (Gate 1) at the intersection of Jimmy Dyess Parkway and U.S. Highway 78 (Gordon Highway) is the main public entrance to the post where the average vehicle trips are 9,920 per day. At the southern portion of the installation is Gate 5, where the average vehicle trips per day are 18,790 (GDOT, 2008).

  The basic road network on Fort Gordon is adequate for installation traffic, except at major intersections during peak traffic flow. Peak traffic flow generally occurs during morning and evening rush hours, and traffic congestion would extend beyond the installation boundaries onto the off-post connecting highways. U.S. 78 (Gordon Highway) and Old U.S. Highway 1 (Dean's Bridge Road) run along the north and south boundaries of Fort Gordon, respectively.

  Negligible impacts on traffic or transportation would be anticipated as a result of either alternative. Traffic would remain the same with numerous intersections on the installation currently at LOS during peak morning and evening hours. There would be beneficial overall impacts to traffic and transportation networks as a result of the implementation of Alternative 1. There would be less traffic congestion on post and off the installation attributable to the reduction in Soldier and dependent personnel. Less traffic would accumulate at access and entry points around peak working hours.

Fort Gordon anticipates that the implementation of Alternative 1 would result in negligible impacts for those VECs discussed above. The following provides a discussion of the VECs requiring a more detailed analysis, as they are anticipated to have the potential of a higher level of impact as a result of the implementation of the Alternative 1.

4.7.2 Facilities

4.7.2.1 Affected Environment

Military functions can be divided into a number of land use categories displaying, with a few exceptions, the basic attributes of civilian land use types. Land uses at Fort Gordon include; Headquarters and Administration, Soldier Housing, Soldier Maintenance, Industrial, Community Facilities, Medical Facilities, Operations, Family Housing, Ranges and Training Areas, and Buffer and Recreation. Training Ranges and Training Areas assessments, based upon training

needs and quality requirements, are maintained on record through the Training Support System Sustainable Range program under the guidance of DA G-3/5/7.

4.7.2.2 Environmental Consequences

No Action Alternative

Less than significant impacts would be anticipated under the No Action Alternative. The installation currently has a shortage of facilities; dining facility, housing, warehouse, ranges, etc. The No Action Alternative and known future stationing actions would increase the facility shortage issues. Planned MILCON, temporary facilities and building renovations are planned to correct the deficiencies.

Alternative 1: Force Reduction (up to 4,300 Soldiers and Army Civilians)

There would be less than significant impacts to existing facility requirements as a result of the implementation of Alternative 1. Reduction in military authorizations, coupled with known and proposed future stationing actions of the National Security Agency, 7th Signal, Army Cyber Command, etc., could result in an upgrade and correction of facilities deficiencies without the need for new construction. New units moving to Fort Gordon, in addition to other potentially realigned units could occupy buildings and facilities currently on hand with some renovations. This alternative would result in the need for some facilities reduction of outdated facilities to reduce Army operating costs and increase efficiencies.

4.7.3 Socioeconomics

4.7.3.1 Affected Environment

Fort Gordon is located near Augusta, Georgia. The ROI consists of Richmond, Jefferson, McDuffie, and Columbia counties.

Population and Demographics. The Fort Gordon population is measured in three different ways. The daily working population is 8,451, and consists of full-time Soldiers and Army civilians employees working on post. The population that lives on Fort Gordon consists of 5,431 Soldiers and 2,800 dependents, for a total on-post resident population of 8,231. Finally, the portion of the ROI population related to Fort Gordon is 6,832 and consists of Soldiers, civilian employees, and their dependents living off post.

The ROI county population is over 350,000. Compared to 2000, the 2010 population increased in Richmond, McDuffie, and Columbia counties, and decreased in Jefferson County (Table 4.7-3). The racial and ethnic composition of the ROI is presented in Table 4.7-4.

Table 4.7-3. Population and Demographics

Region of Influence Counties	Population 2010	Population Change 2000-2010 (Percent)
Richmond	200,000	+0.4
Jefferson	17,000	-1.9
McDuffie	20,000	+3.0
Columbia	125,000	+38.9

Table 4.7-4. Racial and Ethnic Composition

State and Region of Influence Counties	Caucasian (Percent)	African American (Percent)	Native American (Percent)	Hispanic (Percent)	Asian (Percent)	Multiracial (Percent)	Other (Percent)
Georgia	56	30	3	9	<1	2	<1
Richmond	38	54	0	4	2	2	0
Jefferson	41	54	0	3	0	1	0
McDuffie	56	40	0	2	0	1	0
Columbia	74	15	0	5	4	2	0

Employment, Income, and Housing. Compared to 2000, the 2009 employment (private nonfarm) increased in Columbia County. Employment decreased in the State of Georgia, Richmond, Jefferson, and McDuffie counties (Table 4.7-5). Employment, median home value and household income, and poverty levels are presented in Table 4.7-5.

Table 4.7-5. Employment, Income, and Housing

State and Region of Influence Counties	2009 Total Nonfarm Employment (Employees)	Employment Change 2000-2009 (Percent)	Median Home Value 2005-2009 (Dollars)	Median Household Income 2009 (Dollars)	Population Below Poverty Level 2009 (Percent)
Georgia	3,410,505	- 2.1	160,000	47,469	16.60
Richmond	81,854	- 2.3	97,800	34,552	22.60
Jefferson	4,031	- 9.4	69,400	29,835	26.50
McDuffie	6,388	- 14.0	87,400	33,718	20.20
Columbia	26,745	+15.0	163,200	68,986	6.80

Available and occupied housing statistics are illustrated on Table 4.7-6. Information is from the U.S. Census Bureau 2010 census results.

Table 4.7-6. Housing Status by County

Housing Status	Columbia	Jefferson	McDuffie	Richmond
Total Housing	48,626	7,298	9,319	86,331
Occupied Housing	44,898	6,241	8,289	76,924
Owner - Occupied	35,475	4,274	5,651	41,682
Owner – Occupied Housing - population	97,975	11,130	14,637	103,848
Renter - Occupied	9,423	1,967	2,638	35,242
Renter – Occupied Housing - population	25,438	5,273	6,920	86,193
Housing with Minors	16,999	1,782	2,530	21,561
Vacant Housing	3,728	1,057	1,030	9,407
For Rent	949	211	314	3,537

For Sale	1126	86	107	1432
Occasional Use Housing	533	188	146	389

Schools. Children of military personnel attend school in many different counties in the ROI, but predominantly attend schools in Richmond and Columbia counties. Schools in Richmond County received $1.2 million and Columbia County received $480,000 in Federal Impact Aid from the 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 (FTE) counts. The figures in Tables 4.7-7 and 4.7-8 are extrapolated from FTE figures taken in the fall and the spring.

Table 4.7-7 illustrates there is a steady trend in growth for both counties. Table 4.7-8 illustrates that Richmond County has a significantly higher minority student population compared to Columbia County.

Table 4.7-7. Fall and Spring Enrollment for Three Academic Years (K-12 totals)

County School System	2008-2009		2009-2010		2010-2011	
	Fall (FTEs)	Spring (FTEs)	Fall (FTEs)	Spring (FTEs)	Fall (FTEs)	Spring (FTEs)
Richmond	31,541	31,072	31,241	31,093	31,089	30,779
Columbia	22,330	22,317	22,839	22,684	23,231	23,094

FTE = Full Time Equivalent

Table 4.7-8. Percentage Enrollment by Race/Ethnicity

Students by Race/Ethnicity	Percentage of Enrollment Broken down by County and Enrollment Year					
	2008-2009		2009-2010		2010-2011	
	Richmond	Columbia	Richmond	Columbia	Richmond	Columbia
Asian	1	3	1	3	1	4
Black	73	17	74	17	73	17
Hispanic	2	4	2	7	3	7
White	21	72	20	68	20	67
Multiracial	2	4	2	5	2	4

Public Health and Safety.

Fort Gordon has its own 911 call center, fire, and emergency services. There are mutual aid agreements with Richmond and Columbia counties.

Police. The Fort Gordon Police Department, a part of the Directorate of Emergency Services, 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. The Fort Gordon Fire Department, a part of the Directorate of Emergency Services, 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 advice and ensuring that structures are equipped with adequate fire precautions to ensure that in the event of fire, people can safely evacuate the premises unharmed.

Medical. Fort Gordon supports a range of medical services. The Dwight D. Eisenhower Army Medical Center (DDEAMC) provides healthcare services for military personnel, military dependents, and to military retirees and their dependents. DDEAMC services include audiology/speech pathology, dermatology, dietetics, emergency services, Family medicine, internal medicine, OB/GYN, occupational therapy, ophthalmology, optometry, orthopedics, otolaryngology, pediatrics, physical therapy, psychiatry, surgery, podiatry, psychology, social work, and substance abuse. DDEAMC 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 DDEAMC, there are plans for a Blood Donor Center and a Consolidated Troop Medical Clinic. Army and Air Force Exchange Service (AAFES) is also breaking ground in FY 2012 on an addition to the Post Exchange which will include a pharmacy. Table 4.7-9 provided the DoD purchased care in the Augusta area.

Table 4.7-9. DoD Purchased Care, Augusta Area

Care Type	FY 2009		FY 2010		FY 2011	
	Outpatient	Inpatient	Outpatient	Inpatient	Outpatient	Inpatient
TRICARE Eligible (0-64 yrs)	$40,406,904	$17,345,190	$41,538,339	$16,927,249	$45,273,187	$17,602,132
Supplemental Health Care Program	$2,283,871	$9,726,049	$2,188,688	$9,031,527	$2,240,978	$11,588,256
TRICARE for Life (65+yrs)	$53,510,483	$23,546,021	$52,542,297	$26,244,098	$48,798,394	$27,436,929
Trinity OB Contract	$3,481,556		$3,747,547		$3,944,320	
Grand Total	**$150,300,074**		**$152,219,745**		**$156,884,196**	

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. Fort Gordon facilities or programs for recreation include fitness centers, swimming pools, athletic fields, golf course, bowling center, outdoor recreation opportunities, and sports teams.

4.7.3.2 Environmental Consequences

No Action Alternative

Negligible impacts on socioeconomics would be anticipated under the No Action Alternative. No changes in unemployment, support contracts, goods and services purchased, or changes in military operations at Fort Gordon are anticipated under the No Action Alternative. Socioeconomic conditions would remain as described in Section 4.7.3.1. Fort Gordon's operations would continue to provide a beneficial source of regional economic activity.

Alternative 1: Force Reduction (up to 4,300[4] Soldiers and Army Civilians)

The implementation of Alternative 1 would result in significant adverse impacts on the ROI. The ROI currently has unemployment at or exceeding state and national averages, low median income, slow population growth, and a large percentage of the population at the poverty level.

The total annual economic impact of Fort Gordon in the Central Savannah River Area is approximately $2.0 billion. Reductions of military authorizations as a result of the implementation of Alternative 1 would result in similar reductions in construction and support contracts and staff, on the installation and corresponding reductions in housing, retail, hospitality, and entertainment businesses in the CSRA.

Economic Impacts. Alternative 1 would result in the loss of up to 4,300 military employees (Soldiers and Army civilian employees), each with an average annual income of $41,830. In addition, this alternative would affect an estimated 2,409 spouses and 4,144 dependent children for a total estimated potential impact to 6,553 dependents. The total population of military employees and their dependents directly affected by Alternative 1 would be projected to be 10,870 military employees and their dependents.

Based on the EIFS analysis, there would be significant socioeconomic impacts for population in the ROI for this alternative. There would be no significant impacts for sales volume, income, or employment. The range of values that would represent a significant economic impact in accordance with the EIFS model is presented in Table 4.7-10. Table 4.7-11 presents the projected economic impacts to the region for Alternative 1 as assessed by the Army's EIFS model.

Table 4.7-10. Economic Impact Forecast System and Rational Threshold Value Summary of Implementation of Alternative 1

Rational Threshold Value	Sales Volume (Percent)	Income (Percent)	Employment (Percent)	Population (Percent)
Positive	9.85	6.53	3.95	2.23
Negative	- 10.61	- 5.85	- 9.52	- 1.42
Forecast Value	- 3.04	- 2.62	- 4.66	- 3.11

Table 4.7-11. Economic Impact Forecast System: Summary of Projected Economic Impacts of Implementation of Alternative 1

Region of Influence Impact	Sales Volume	Income	Employment	Population
Total	- $273,741,400	- $220,066,900	- 4,840 (Direct) - 1,097 (Indirect) - 5,937 (Total)	- 10,870
Percent	- 3.04 (Annual Sales)	- 2.62	- 4.66	- 3.11

The total annual loss in sales volume from direct and indirect sales reductions in the ROI would represent an estimated 3.04 percent change in total sales volume from the current sales volume of $9.0 billion within the ROI. It is estimated that state tax revenues would decrease by

[4] For socioeconomics calculations at Fort Gordon the Army utilized 4,317 Soldiers and civilian employees which represents 35 percent of the installation's Soldiers, as well as a loss of up to 15 percent of up to civilian employees. As discussed in Chapter 3, this number was rounded to the nearest hundreds place in other areas of the alternative discussion.

approximately $10.9 million as a result of the loss in revenue from sales reductions. Some counties within the ROI supplement the state sales tax of 4 percent by varying percentages, and these additional local tax revenues would be lost at the county and local level. Regional income would decrease by 2.62 percent. While 4,317 Soldier and Army civilian positions would be lost within the ROI as a direct result of implementing Alternative 1, EIFS estimates another 523 contract service jobs would be lost, and an additional 1,097 job losses would occur indirectly as a result of a reduction in demand for goods and services in the ROI. The total estimated reduction in demand for goods and services within the ROI is projected to lead to a loss of 5,937 jobs, or a -4.66 percent change in regional non-farm employment. The total number of employed non-farm positions in the ROI is estimated to be 127,469. A significant population reduction of -3.11 percent within the ROI would be anticipated as a result of this alternative. Of the approximately 350,000 people that live within the ROI, 10,870 military employees and their dependents would be projected to no longer reside in the area following the implementation of Alternative 1. This would lead to a decrease demand for housing, and increase housing availability in the region. This would lead to a slight reduction in median home values. It should be noted that this estimate of population reduction includes Army civilian employees and their dependents. This number likely overstates potential population impacts, as some of the people no longer employed by the military would continue to work and reside in the ROI, working in other economic sectors; however, this would in part be counterbalanced by the fact that some of the indirect impacts would include the relocation of local service providers and businesses to areas outside the ROI.

Table 4.7-12 shows the total projected economic impacts, based on the RECONS model, that would be projected to occur as a result of the implementation of Alternative 1.

Table 4.7-12. Regional Economic System: Summary of Projected Economic Impacts of Implementation of Alternative 1

Rational Threshold Value	Sales Volume	Income	Employment
Total	- $197,376,741 (Local) - $330,703,937 (State)	- $219,408,000	- 4,876 (Direct) - 622 (Indirect) - 5,498 (Total)
Percent	- 2.19 (Total Regional)	- 2.61	- 4.31

The total annual loss in sales volume from direct and indirect sales reductions in the region would represent an estimated -2.19 percent change in total regional sales volume according to the RECONS model, an impact that is 0.85 percentage points less than projected by EIFS; however, it is estimated that gross economic impacts at the state level would be greater. Extrapolating from sales volume numbers presented in the RECONS model, it is anticipated that state tax revenues would decrease by approximately $13.23 million as a result of the loss in revenue from sales reductions, which would be $2.33 million more in lost state sales tax revenue that projected by the EIFS model. Regional income is projected by RECONS to decrease by 2.61 percent, slightly less than the 2.62 percent reduction projected by EIFS. While 4,317 Soldier and Army civilian positions would be lost within the ROI, RECONS estimates another 559 contract and service jobs would be lost directly as a result of the implementation of Alternative 1, and an additional 622 job losses would occur indirectly as a result of the reduction in demand for goods and services in the ROI. The total estimated reduction in demand for goods and services within the ROI is projected to lead to a loss of 5,498 jobs, or a -4.31 percent change in regional employment, which would be 0.35 percentage points less than projected under the EIFS model.

When assessing the results together, both models indicate that the economic impacts of the implementation of Alternative 1 would lead to a net reduction of economic activity within the ROI.

Population and Demographics. Fort Gordon anticipates a substantial reduction in military population and training throughput as a result of the implementation of Alternative 1.

Housing. Alternative 1 would increase the availability of barracks space for unaccompanied personnel and the increase the availability of Family quarters. Those outcomes would likely decrease the off-post demand for rentals and purchases of housing. Fort Gordon anticipates long-term, significant adverse economic effects to the housing and rental markets in the ROI.

Schools. Fort Gordon anticipates the potential for significant adverse effects on the local school systems. Schools in Richmond County received $1.2 million and Columbia County received $480,000 in Federal Impact Aid from the Department of Education in FY 2011. This aid totals $1.68 million. These funds could be reduced by up to half ($840,000) if the military authorizations are cut. Furthermore, there has been steady growth to the school enrollments in the area. If the numbers of enrolled students should decline there would be a number of personnel potentially cut from the school systems, including teachers, administrative, and support staff.

Public Health and Safety. Under Alternative 1, the anticipated population decrease at Fort Gordon would likely reduce the demand for law enforcement services, fire and emergency services, and medical care services on and off post. Fort Gordon anticipates potential significant impacts to public health. In FY 2010 Fort Gordon paid local hospitals and health care providers $11.2 million for care of Active Duty Soldiers and maintained a $3.7 million contract with Trinity Hospital for all Obstetrics (OB) care. These contracts provided a total of $14.9 million to local health care facilities. Reduction in military personnel assigned would reduce the amount of local medical contracts. Secondary impacts of loss of revenue to hospitals may be passed on to the local community, increasing their costs or reducing the number of health care providers available. Fort Gordon does not anticipate significant impacts to safety and emergency services under the Proposed Action.

Family Support Services. As a result of Alternative 1, Fort Gordon anticipates a reduced demand for FMWR and ACS programs on post. The demand for Family support services off post would likely decrease also. Fort Gordon anticipates less than significant impacts to Family support services under the Proposed Action.

Recreation Facilities. Use of recreation facilities on post would likely decline as a result of Alternative 1. Fort Gordon anticipates that utilization decreases would be negligible.

Environmental Justice. Within the Fort Gordon ROI, 52 percent of the population is considered minority and 18 percent are living at or below the poverty level. Both categories exceed the national averages of 20 percent and 13 percent, respectively. Of the 55 public schools in Richmond County, 54 (98 percent) of them are considered Title I schools which receive extra federal money because they have high concentrations of low income families and students who qualify for free or reduced price lunch. Included is Freedom Park Elementary School which is located on the Fort Gordon installation. At Freedom Park, 55 percent of the students qualify for free or reduced lunch due to low income. Implementation of Alternative 1 would impact the minority populations in the ROI. Many service industry and construction trade jobs supported by military contracts are filled by minority employees. With the reduction in the military economic influence in Augusta and Richmond counties and on the installation, a large percentage of the population affected would be minority and low income families. In addition, other federal government aid programs, like reduced cost lunches, would likely increase as ROI

unemployment increases due to loss of military jobs and associated service, construction, and support contracts. Richmond, Jefferson, and McDuffie counties have higher percentages of African-American people than the State of Georgia as a whole. In this respect, the adverse impact to the people of these counties represents a disproportionate adverse impact.

4.7.4 Land Use Conflicts and Compatibility

4.7.4.1 Affected Environment

Approximately 50,000 acres (90 percent) of Fort Gordon is used for training missions. Impact areas occupy approximately 13,000 acres and on-post maneuver and training areas occupy approximately 37,000 acres. The remaining 5,590 acres is occupied by cantonment areas which include military housing, administrative offices, community facilities, medical facilities, industrial facilities maintenance facilities, supply and storage facilities, lakes and ponds, recreational areas and forested areas.

Land use within 1 mile of Fort Gordon varies from semi-urban to rural. The major land use east of the installation is developed, making up the greater Augusta area with commercial development along U.S. 1 and Gordon Highway. Further west of Augusta on the north and south sides of the installation, land use becomes a mixture of rural residential, commercial, and undeveloped land. In Columbia County, land use closest to Fort Gordon is mixed, with single-family residential and some mobile home development. Some multi-family development is also scattered throughout the area. Suburban areas are concentrated in the Evans-Martinez area and in the City of Grovetown (Fort Gordon, 2008). Land use adjacent to Fort Gordon in Jefferson and McDuffie counties is agricultural.

In 2003, Georgia amended the Official State Code (O.C.G.A. §36-66-6) to require local governments to inform military commanders of any proposed zoning change within 3,000 feet of an installation boundary. This state requirement to request input and analysis on adjacent land use by the military is the beginning basis for the protection of military mission and capability in Georgia. Additionally, Fort Gordon completed a JLUS in August of 2005. As a result of this study the four counties that Fort Gordon occupies have agreed to direct development in ways that should allow Fort Gordon's mission to continue without conflicts with land use outside the installation. But these agreements have had little success in limiting development on the installation boundaries. In addition, in 2010 Fort Gordon obtained approval of an ACUB proposal. Fort Gordon has entered into a cooperative agreement with Central Savannah River Land Trust and other partners in order to direct the goals, implementation, and administration of the ACUB partnership. Fort Gordon and its primary partner, Central Savannah River Land Trust, have identified priority areas surrounding the installation in which to acquire conservation easements under the ACUB program. However, Fort Gordon has not yet received funding to implement the ACUB at this time.

4.7.4.2 Environmental Consequences

No Action Alternative

Significant but mitigable impacts on land use would be anticipated under the No Action Alternative. Urban growth and incompatible development around the installations borders would continue to encroach on the training mission. Implementation of the approved Fort Gordon ACUB proposal would mitigate incompatible growth and reduce potential future training restrictions.

Alternative 1: Force Reduction (up to 4,300 Soldiers and Army Civilians)

Regional growth around the installation would likely be slowed or halted due to the loss of military authorizations. The demand for housing and other service industry businesses, like

restaurants and shopping would be reduced with this significant but mitigable reduction in Fort Gordon personnel and associated Family members.

Freedom Park Elementary which belongs to Richmond County but is located on the installation is zoned for Fort Gordon use. Reduction in military authorizations and associated dependants could result in zoning for the school being changed to include areas off the installation and allow students to be bused in from off post onto Fort Gordon to maintain class size. This would increase traffic at the gates and cause additional security concerns as parents not affiliated with Fort Gordon would be accessing the installations school.

4.7.5 Cumulative Effects

Region of Influence

The ROI for this cumulative impact analysis of Army 2020 realignment at Fort Gordon encompasses five counties in the states of Georgia and South Carolina. Augusta, Georgia and Aiken, South Carolina are the largest cities within the ROI. Augusta is the center for commercial manufacturing, transportation, and medical activities in the metropolitan area. Fort Gordon is critical to the economy of the metropolitan area, generating thousands of jobs and billions of dollars in economic activity and tax revenue (CSRA Regional Development Center, 2005). The area around Fort Gordon is primarily rural with the exception of two large urban population centers within Columbia and Richmond counties.

There are numerous planned or proposed actions within the ROI that have the potential to cumulatively add impacts to the Army Force 2020 alternative. Because Fort Gordon has sufficient geographical space to accommodate multiple unit stationing scenarios it has become an installation of choice for Army intelligence and cyber operations, as well as for similar missions of sister services and DoD activities. There are numerous actions are either in progress or reasonably could be initiated within the next 5 years. A number of the Army's proposed projects have been previously identified in the installation's Real Property Master Planning Board and are programmed for future execution. The following list of projects presents some of the projects which may add to the cumulative impacts of the implementation of Army 2020 realignment alternatives.

Fort Gordon Projects (Past, Present, and Reasonably Foreseeable)

Potential Increased Stationing of Soldiers and Army Civilians:

- 124 military (plus an additional 56 Reservists);
- 140 civilians;
- 55 contractors;
- 500 National Security Agency (Proposed);
- 1,500 ARCYBER (EA in progress); and
- Total potential: Increase of 2,319 Soldiers and civilian personnel.

Military Construction and Operation and Maintenance Projects

The continuation of the past and present actions discussed above would continue and DoD would continue to use the installation as an operational and training post for active and reserve personnel and units.

Facilities construction projects, similar to those on the installation, would be performed in order to provide adequate training and support facilities to meet identified DoD missions. Some of these include:

- Hand Grenade Familiarization Range (refurbishment);
- Multi-Purpose Machine Gun Range in Training Area 46;
- Drop Zone Expansion;
- Training Barracks Upgrade Program; and
- Training Classroom Upgrade Program.

Other Agency (DoD and non-DoD) and Other Public/Private Actions (Past, Present, and Reasonably Foreseeable)

- Additional agricultural and open land use areas near the installation would be converted to urban areas (primarily residential);
- Road, bridge, and ROW maintenance and construction by county and local government units would continue;
- The continued construction of new off-post residential, commercial, and industrial development, primarily near the boundary of the installation;
- The continuation of forest management of properties in the proximate community, and continued grazing by domestic livestock and tillage for planting of row crops; and
- The continued construction of ponds and other erosion control features by farmers, developers, and other private and public organizations.

In addition to the actions listed above, beginning in July of 2011, the area's second largest employer, the Department of Energy, Savannah River Site announced that budget cuts and organizational changes would drop the current employment by 20 percent from 11,000 to 9,000 by early 2012. A May 2011 economic study, *The Economic Impact of the Savannah River Site on Five Adjacent Counties in South Carolina and Georgia*, found that every job at Savannah River Site created an additional 1.5 jobs in the surrounding five county area including Columbia and Richmond counties in Georgia. It is anticipated that Fort Gordon employment would similarly create additional jobs in the surrounding areas (USCA, 2011).

Fort Gordon anticipates a range of minor to significant cumulative effects from the Proposed Action on facilities, land use, and socioeconomics. Cumulative impacts for each alternative are as follows:

No Action Alternative

Significant but mitigable cumulative effects would be anticipated under the No Action Alternative. No changes in military authorizations, or local environmental conditions would be anticipated under the No Action Alternative. Installation facility shortages would remain or worsen with additional stationing actions. Incompatible land use and development would continue to encroach on the training mission, unless mitigated by the ACUB program.

Alternative 1: Force Reduction (up to 4,300 Soldiers and Army Civilians)

Cumulative impacts as a result of the implementation of Alternative 1 could range from minor beneficial to significantly adverse. In addition to land use listed, facilities, and socioeconomics would be adversely cumulatively impacted.

Facilities. Minor beneficial impacts to facilities on Fort Gordon are anticipated as a result of implementing Alternative 1. The 2011 Army ISR Infrastructure report identified shortages in ranges, instruction, administrative, maintenance, storage, medical, Family housing, dining, exchange, commissary, child development, and community support facilities on Fort Gordon. Planned and proposed restationing actions to consolidate cyber, communications, and military intelligence units could result in an additional 2,319 personnel on Fort Gordon. These planned

and potential future stationing actions would require additional temporary or permanent constructed facilities. If implemented, Alternative 1 could result in a reduction of approximately 4,300 personnel on Fort Gordon. The reduction of other units coupled with the addition of 2,319 to consolidate cyber, communications, and military intelligence units would result in a net decrease of 1,998 personnel. These actions cumulatively could reduce or correct the facility shortages without the need for new temporary or MILCON, allow BCT military units to be realigned and further consolidate signal, cyber and military intelligence units onto Fort Gordon.

Socioeconomics. As a result of implementing Alternative 1, the Army anticipates a significant adverse impact on the socioeconomic condition in the ROI. In addition to the impacts described in Section 4.7.3.2, the cumulative reduction in the Department of Energy, Savannah River Site workforce would have a significant adverse impact on the Fort Gordon ROI. A 20 percent reduction in the Savannah River Site workforce (2,000 jobs) followed by a reduction in military authorizations at Fort Gordon (approximately 4,300 jobs), and an estimated 1.5 jobs per each position lost in the ROI would significantly impact the local economy as illustrated in Table 4.7-13 (USCA, 2011).

Table 4.7-13. Economic Impact Forecast System and Rational Threshold Value Summary

Workforce Reduction Description	Number of Jobs Lost
Savannah River Site 20 percent Reduction	2,000
Fort Gordon Implementation of Alternative 1	4,317
1.5 Service Industry Jobs Lost / Savannah River Site and Fort Gordon Jobs Lost	9,475.5
Total Potential Workforce Reduction	**15,792**

As the Central Savannah River Areas two largest employers, reductions in government positions could result in an estimated loss of 15,792 jobs from the local economy.

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